CICS Transaction Server for z/OS



CICSPlex SM Managing Business Applications

Version 5 Release 4

CICS Transaction Server for z/OS



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Note
Before using this information and the product it supports, read the information in "Notices" on page 343.

This edition applies to the IBM CICS Transaction Server for z/OS Version 5 Release 4 (product number 5655-Y04) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this PDF

This PDF provides administration and usage information for Business Application Services (BAS). BAS is a component of the CICSPlex SM element of CICS Transaction Server for z/OS. It is intended for system programmers who are responsible for managing CICS and CICSPlex SM.

For details of the terms and notation used, see Conventions and terminology used in the CICS documentation in IBM Knowledge Center.

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Chapter 1. Administering CICSPlex SM

After you have configured your CICSPlex® SM environment, you can use the CICS Explorer® or Web User Interface to manage the environment.

About this task

Both CICS Explorer and the Web User Interface provide views to work with the CICSplexes that you have defined. CICS® also provides batch tools to manage the definitions in the data repository.

Administering CICSPlex SM

After you have configured your CICSPlex SM environment, you can use the CICS Explorer or Web User Interface to manage the environment.

About this task

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Setting the CMAS context, context and scope

You can set the context, CMAS context and scope to be used when you navigate from the current menu in the selection criteria area of a menu and the selection criteria and refresh area of a view.

To change one of these values, overtype the required field and select the **Set** button.

Either the context or the CMAS context is used for all operations. These terms are used as follows:

- **Context**

  This is the CICSplex name and is used for almost all views.
- **CMAS context**

  This is the CMAS name. This is used only when you are viewing CMAS level configuration data such as CMAS status and the CICSplexes connected to a CMAS.
- **Scope**

  This is a CICSplex, CICS group MAS or logical scope name. The scope is a subset of the context, and limits the effects of CICSPlex SM commands to particular CICS systems or resources. If the CMAS context is being used, the scope is ignored. The scope is only used for certain resource types.

Accessing Web User Interface administration views

To access CICSPlex SM administration views from the Web User Interface main menu, click **Administration views**.

Administration views are divided into:

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- General views, which include views to manage CICSPlex configuration and topology
- Real time analysis views, which include views to monitor system availability and MAS resources
- CICS resource definitions using Business Application Services (BAS), which includes views to manage all types of CICS and CICSPlex SM resources.

Using the action buttons

Action buttons on the WUI views allow you to perform actions such as create, update or remove. Available actions for a particular view are displayed as buttons at the bottom of the view's work area.

To use an action button from an open view:

1. Optionally, select the record or records on which you intend to apply the action by selecting one or more record check boxes on the left of the work area, or by using the **Select all** button.
2. Click the required action button. This displays one or a succession of confirmation panels. The confirmation panel allows you to confirm or cancel the action for each selected resource, and in some cases contain additional options.
3. Complete each confirmation panel by selecting the required button or in some cases by entering parameters, selecting check boxes or selecting radio buttons.

The action is processed and the view is redisplayed showing the results of the action. If the action competed successfully, message EYUVC1230I is displayed in the message area at the top of the work area. If the action is not successful, one or more error messages are displayed.

Actions in administration views

There are several common types of actions that you can use with the administration views.

Create creates a new definition and adds it to the data repository. An administration definition name can be 1 to 8 characters in length. The name can contain alphabetic, numeric, or national characters. However, the first character must be alphabetic.

Add to ...
adds an association between two definitions. The resulting confirmation panel prompts you to identify the other definition with which you want to create an association. Adding an association creates a relationship between the definitions in the data repository. Associations can be added between definitions and groups, between groups and specifications, and between specifications and CICS systems.

Map To display a visual map of related definitions in the data repository , click **Map**.

Remove
removes a definition or an association between two definitions from the data repository.

Update
updates a definition in the data repository. The resulting panel is an editable detail view of a selected resource.

All of these actions affect the contents of the data repository and the changes are applied immediately. However most of these changes to the data repository have no effect, on CICS systems that are currently active. These changes affect a CICS system the next time the CICS system is restarted.

Note:

1. When you use the **Time period definitions** (EYUSTARTPERIODEF) view to update definitions, the changes affect both the data repository and currently active CICS systems.
2. Changes to a currently running MAS are not included in the data repository.
3. All of these actions can also be performed using the batched repository-update facility described in "The batched repository-update facility (BATCHREP)" on page 14.

Batch tools for managing data repository definitions

CICSPlex SM provides batch tools for managing the data repository.

The data repository associated with each CMAS contains the definitions that establish your CICSPlex SM environment. These definitions are stored as individual records. You can create and maintain these definitions by using the WUI views described in Configuring CICSPlex SM. However, if you have a large volume of definitions to update, for example if you are moving an application from one CMAS to another, or if there is a large element of repetition in your management tasks, it is easier to use one of the batch tools to do the job. These allow you to create and update definitions in the data repository and import and export data repository definitions including CMAS to CMAS link definitions from one CMAS to another. Two batch tools are provided:

The EYU9XDBT CICSPlex SM definition utility
: This is an easy-to-use REXX tool using simplified terminology, predefined default information, and filtering to simplify complex management tasks. It also has enhanced debugging facilities. It is limited to data repositories at the same release level as CICSPlex SM. EYU9XDBT is used during installation to set up your initial CICSPlex SM environment. It is supplied with comprehensive sample JCL.

The batched repository-update facility (BATCHREP)
: With this tool you can perform batched update tasks by creating and editing an input file but it does not include the predefined information or samples of EYU9XDBT. It does enable you to import definitions from CMASs at earlier release levels and does not require that you have a REXX environment. You can submit BATCHREP jobs either using the CICSPlex SM batched repository-update utility, the WUI, or the CICSPlex SM API.

You cannot use either of these tools to create a CMAS.

The EYU9XDBT CICSPlex SM definition utility

The EYU9XDBT CICSPlex SM definition utility uses the CICSPlex SM API to specify the required CICSplex names in some simple parameters. The utility sets up the definitions for you. Unlike the BATCHREP utility, you do not manually edit an input file.

You can use this utility to perform all CMAS and CICSplex definition activities after the basic CMAS environment has been established. These activities include:

- Defining CICS regions, CICS groups, and CICSplexes to a CMAS

- Removing CICS regions, CICS groups, and CICSplexes from a CMAS
- Adding CICS regions to CICS groups
- Removing CICS regions from CICS groups
- Creating CMAS to CMAS link definitions
- Importing, printing, or exporting CICSPlex SM objects defined to CMAS or CICSplex contexts.

The following samples are provided:

EYUJXBT0
Contains annotated EYU9XDBT JCL syntax for use as a quick reference.

EYUJXBT1
Contains sample JCL for invoking EYU9XDBT and defining a CICSplex, a CICS system group, and a CICS system definition.

EYUJXBT2
Contains sample JCL for invoking EYU9XBTP and creating a CMAS-to-CMAS link definition for CMASs that are on the same MVS image and running at the same CICS TS release level.

EYUJXBT3
Contains sample JCL for invoking EYU9XBTP and creating a CMAS-to-CMAS link definition for CMASs on different MVS images setting the context to the first CMAS name and importing the link to the second CMAS.

EYUJXBT4
Contains sample JCL for invoking EYU9XBTP and creating a CMAS-to-CMAS link definition for CMASs on different MVS images setting the context to the second CMAS name and importing the link to the first CMAS.

EYU9XDBT utility commands:

You can use a number of commands in the EYU9XDBT CICSPlex SM definition utility command stream.

EYU9XDBT reads and processes all commands in the input stream sequentially. Specify the commands in the correct sequence, with commands such as OPTION DUPREC and OPTION FEEDBACK preceding the commands to which they relate and operate on. For example, OPTION DUPREC precedes the IMPORT command on which you want it to operate.

Comments
You can include comments in the EYU9XDBT command stream. An asterisk in column 1 and a blank in column 2 indicates a comment.

Continuation
A hyphen (-) indicates continuation. A continuation character is supported on the DEFINE and REMOVE commands. For example, the DEFINE REGION command has a number of subparameters, which can be on separate lines, shown as follows:

```
DEFINE REGION    region_name    -
       APPLID    region_applid  -
       SYSID     region_sysidnt
```

Commands

ADD TOGROUP *groupname*
Add regions or groups to a CICS group. You specify the object to be added on either a REGION or CICSGRP sub-parameter following the ADD command. For examples of the ADD command, see "Parameters used in EYUJXBT1" on page 9.

CONTEXT {*cmas_name* | *CICSPlex_name*}
Set the context for the commands that follow. For examples of the CONTEXT command, see "Parameters used in EYUJXBT1" on page 9.

DEFINE *object_type object_name mandatory_identifiers*+
Define the specified object, the type of which can be CICSPLEX, REGION, or CICSGRP. The object types, CICSPLEX, REGION, and CICSGRP, are synonyms for the CPLEXDEF, CSYSDEF, and CICSGRP definitions.

- To define a CICSPLEX, you must specify the *object_type* as CICSPLEX and specify the *object_name*; the object name is the 1- to 8-character alphanumeric name of the CICSplex that you are defining. Note that the first character of the *object_name* must be alphabetic. There are no other mandatory identifiers associated with the CICSPLEX object type. The command takes the following form:

  ```
  DEFINE CICSPLEX plexname
  ```

  This command creates a CPLEXDEF in the CICSPlex SM CMAS repository.
- To define a REGION, you must specify the *object_type* as REGION, the 1- to 8-character alphanumeric name of the CICS region that you are defining as the *object_name*, and the following mandatory identifiers: APPLID and SYSID. The command takes the following form:

  ```
  DEFINE REGION region_name     -
         APPLID region_applid   -
         SYSID  region_sysidnt
  ```

  This command creates a CSYSDEF in the CICSPlex SM CMAS repository.
- To define a CICSGRP, you must specify the *object_type* as CICSGRP and specify the *object_name*; the object name is the 1- to 8-character alphanumeric name of the CICS system group that you are defining. Note that the first character of the *object_name* must be alphabetic. There are no other mandatory identifiers associated with the CICSGRP object type. The command takes the following form:

  ```
  DEFINE CICSGRP group_name
  ```

  This command creates a CICSGRP in the CICSPlex SM CMAS repository.

For examples of the DEFINE command, see "Parameters used in EYUJXBT1" on page 9.

DELETE *object_type object_name*
Delete the specified object, the type of which can be one of CICSPLEX, REGION, or CICSGRP. You can specify an asterisk in *object_name* as a wildcard character.

EXPORT *DDname resource_type resource_id*
Write all the definitions of the specified type and identifier in the current context to the specified output file. For *resource_type*, specify in full one of the CICSPlex SM resource types or an asterisk, *, for all resource types. The valid resource types are any resources that are written to the CICSPlex SM data repository, including all BAS objects, WLM definitions, RTA definitions, topology definitions, or monitor definitions. BAS RESINGRP

resource records can't be exported, however each BAS resource definition has an equivalent XXXINGRP resource record that can be exported. You can specify an asterisk in *resource_id* as a generic (wildcard) character. If you set both the resource type and the resource identifier to asterisks, EYU9XDBT exports all the definitions within the current context.

Note: Trailing blanks are treated as trailing wildcard characters, so `EXPORT DDname` exports all the definitions in the *DDname* context.

IMPORT ***DDname resource_type resource_id***

Import into the repository, in the current context, all the definitions of the specified type and identifier from the input file defined on the named DD statement. For *resource_type*, specify in full one of the CICSPlex SM resource types or an asterisk for all resource types. The valid resource types are any resources that are written to the CICSPlex SM data repository, including all BAS objects, WLM definitions, RTA definitions, topology definitions, or monitor definitions. BAS RESINGRP resource records can't be imported, however each BAS resource definition has an equivalent XXXINGRP resource record that can be imported. You can specify an asterisk in *resource_id* as a wildcard character. If you set both the resource type and the resource identifier to asterisks, EYU9XDBT imports all the definitions it finds in the input data set.

Note the following rules for imported files:

- The input records should be 80 bytes records and the data will be truncated to 72 bytes.
- Double quotation marks (") in the import file are used as string delimiters. Therefore, if you want to include a double quotation mark character in the input file, you must use a consecutive pair of double quotation marks in the text string. For example the following string in the import file, `"double""quote""example"` becomes `double"quote"example` when the file is imported into the CICSPlex SM object.
- Continuation lines are used in import files to represent lines that would otherwise exceed the maximum length. The following example uses the program definition of a JVM class, which is represented as a 255 byte string, to show how continuation lines are represented in an import file:

```
PROGDEF_JVMCLASS = "AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA";
PROGDEF_JVMCLASS = PROGDEF._JVMCLASS || "AAAAAAAAAAAAAAAAAABBBBBBBB";
PROGDEF_JVMCLASS = PROGDEF._JVMCLASS || "BBBBBBBBBBBBBBBBBBBBBBBBBB";
PROGDEF_JVMCLASS = PROGDEF._JVMCLASS || "BBBBBBBBBCCCCCCCCCCCCCCCCC";
...
PROGDEF_JVMCLASS = PROGDEF._JVMCLASS || "ZZZZZZ";
```

The program definition statement, `PROGDEF_JVMCLASS = "AAA..."` overflows the first line and continues on each successive line by appending the next section of the definition to the previous one. The REXX syntax for a stem variable, `.`, is used to indicate that a line is a continuation line. In this example, `PROGDEF_JVMCLASS` is replaced with `PROGDEF._JVMCLASS` for each continuation line. The REXX concatenation bars, `||`, on the continuation line append the next section of the string to the existing string.

OPTION [DUPREC | FEEDBACK | REPORT]

Request the action that EYU9XDBT is to take during command processing. This request can be DUPREC, FEEDBACK, or REPORT. To request more

than one action, specify each one on separate OPTION command statements. The DUPREC, FEEDBACK, and REPORT actions each have options that you can select:

DUPREC {ABORT | REJECT | SKIP | UPDATE}

DUPREC specifies the action you want EYU9XDBT to take in the event of a duplicate record being found during import processing. This command must precede the IMPORT or DEFINE statement to which it refers. Permitted options are:

- **ABORT**: If there is duplication of the name of an object being defined and the name of an existing repository definition when processing a DEFINE or IMPORT command, the duplicate name being defined or imported is skipped and the data repository is not changed. The ABORT option is treated as an unrecoverable error: EYU9XDBT writes a message to the job log and raises return code 12. The job is stopped immediately.
- **REJECT**: If there is duplication of the name of an object being defined and the name of an existing repository definition when processing a DEFINE or IMPORT command, the duplicate name being defined or imported is skipped and the data repository is not changed. The REJECT option is handled as an error and EYU9XDBT writes a message to the job log. EYU9XDBT raises return code 8 for a REJECT error. REJECT is the default option.
- **SKIP**: If the name of an object being defined is the same as the name of an existing repository definition when processing a DEFINE or IMPORT command, the new definition is skipped, and the data repository is not changed. This is handled as normal (return code 0).
- **UPDATE**: If there is duplication of the name of an object being defined and the name of an existing repository definition when processing a DEFINE or IMPORT command, the existing definition is updated with the attributes of the record being defined or imported. If the existing definition cannot be updated by modifying specific attributes, it is deleted and recreated from the DEFINE or IMPORT command. This action is handled as normal (return code 0).

Note: When importing CPLXCMAS records that associate a CICSplex name to the Maintenance Point CMAS in an **OPTION DUPREC UPDATE** scenario, the command response will always be `Record skipped`. One CPLXCMAS record is created implicitly whenever a CPLEXDEF record is imported to a CMAS. These records may only be removed implicitly when their corresponding CPLEXDEF records are deleted.

FEEDBACK {QUIET | VERBOSE}

FEEDBACK specifies how EYU9XDBT handles exception condition reporting if an error is returned from the CICSPlex SM API. Permitted options are as follows:

- **QUIET**: EYU9XDBT writes only a basic EYU9XDBT message to the job log. QUIET is the default FEEDBACK option.
- **VERBOSE**: In addition to the standard message reporting response and reason codes, EYU9XDBT writes any associated CICSPlex SM feedback data to the destination specified on the SYSTSPRT DD statement.

REPORT {FULL | SUMMARY}

- **FULL**: This is the default option, and the current reporting state before this change. When the program processes a PRINT, IMPORT, EXPORT, or DELETE command for an EYUDREP object, all attributes of that object are printed in the report. For large data repositories, this report option can generate many thousands of line of data.
- **SUMMARY**: This restricts the printed resource table content to just the key field identifiers for the PRINT, IMPORT, EXPORT, and DELETE commands.

You can use the OPTION REPORT command consecutively in a command stream, so that some processes list all attribute data, and others just summarize attribute data. For example:

```
* Set the context to my CICSplex
CONTEXT myplex01
* Specify that duplicates are to be updated
OPTION DUPREC UPDATE
* Specify that I only want record identifiers printed
OPTION REPORT SUMMARY
* Now import my CSYSDEF records
IMPORT CPSMIO1 CSYSDEF * *
* Now do a detailed print of what was just imported ...
OPTION REPORT FULL
* ... and print all CSYSDEF details.
PRINT CSYSDEF * *
```

PRINT *resource_type resource_id*
Print definitions in the current context from CMAS repository. For *resource_type*, specify in full one of the CICSPlex SM resource types or an asterisk for all resource types. You can specify an asterisk in *resource_id* as a wildcard character. If you specify two asterisks for the resource type and resource identifier, EYU9XDBT prints all definitions within the current context.

REMOVE FROMGROUP *groupname*
Remove the specified object from the named group. You specify the object on either a REGION or CICSGRP sub-parameter following the REMOVE command.

Data sets used by the EYU9XDBT utility:

To define CICSplexes, CICS regions, and CICS groups, the EYU9XDBT CICSPlex SM definition utility uses some predefined information supplied in the SEYUPARM library.

The following DD statements reference this information:

EYUCPDEF
This DD statement references the member called EYUCPDEF, which provides default values in support of the DEFINE CICSPLEX command. You can modify the CPLEXDEF in it to suit your own installation requirements.

EYUCSDEF
This DD statement references the member called EYUCSDEF, which provides default values in support of the DEFINE REGION command. You can modify the CSYSDEF in it to suit your own installation requirements.

EYUCSGRP
This DD statement references the member called EYUCSGRP, which provides

default values in support of the DEFINE CICSGRP command. You can modify the CSYSGRP in it to suit your own installation requirements.

Parameters used in EYUJXBTP:

EYUJXBTP is a JCL procedure used by the samples EYUJXBT1, EYUJXBT2, EYUJXBT3 and EYUJXBT4 to invoke the EYU9XDBT program.

For descriptions of data sets used, see "Data sets used by the EYU9XDBT utility" on page 8.

Parameters used in EYUJXBT1:

The EYUJXBT1 JCL sample provides the initial definition of a CICSplex, the association of the CICSplex with a CMAS as the maintenance point, and the association, and grouping, of CICS systems with that CICSplex.

The CMAS that owns the repository in which you are creating definitions must be active when you run the EYUJXBT1 job. Also, the EYUJXBT1 job must run in the same z/OS image as the CMAS. The EYUJXBT1 JCL does not have a data set definition (DD) statement for the repository because all access to the repository is through the CMAS, using the API.

EYUJXBT1 has the following parameters, which you edit to specify your own names:

CONTEXT
Sets the CICSPlex SM context in which the utility is to operate. Define the context as the CMAS only when you are defining a CICSplex. For actions that operate on an existing CICSplex, such as defining extra regions, or importing or exporting objects, set the context to the CICSplex.

The EYUJXBT1 job uses this parameter twice. The first use is to enable the utility to locate and communicate with your CMAS, (see below for the second use). The format of the parameter to set the CMAS context is:

```
CONTEXT cmasname
```

where *cmasname* is the name of the CMAS that will be the maintenance point for the CICSplex.

DEFINE CICSPLEX
Specifies the name of your CICSplex. When you define the CICSplex, the CMAS named on the CONTEXT parameter becomes the maintenance point for the CICSplex.

The format of this parameter is:

```
DEFINE CICSPLEX plexname
```

Choose a 1- to 8-character name for your CICSplex, perhaps using a naming convention that allows you to define more than one CICSplex. For example:

- The first three letters might identify the location, such as HUR for Hursley
- The middle letters the type, such as TEST or PROD for test and production CICSplexes.
- The last a unique alphanumeric identifier for the CICSplex.

All other parameters required to complete the CICSplex definition are supplied by the EYUCPDEF file defined on the EYUCPDEF DD statement in the supplied EYUJXBTP sample.

The supplied EYUJXBT1 job is set up to define only one CICSplex. You are recommended to create a separate CICSplex for the Web User Interface server by adding the required definitions to EYUJXBT1.

CONTEXT

The second use of CONTEXT appears *after* the DEFINE CICSPLEX parameter, to reset the context to the CICSplex.

The format of the parameter to set the context to the CICSplex is:

```
CONTEXT plexname
```

where *plexname* is the name you specified on the DEFINE CICSPLEX parameter.

DEFINE CICSGRP

Defines a CICS system group, which is a subset of a CICSplex.

The format of this parameter is:

```
DEFINE CICSGRP group_name
```

where *group_name* is a 1- to 8-character alphanumeric name for the CICS system group. The first character must be alphabetic.

DEFINE REGION

Specifies the name and other key attributes of each CICS region you want to include in the CICSplex. The parameter and its subparameters have the following format:

```
DEFINE REGION   region_name    -
       APPLID   region_applid  -
       SYSID    region_sysidnt
```

You are recommended to use the APPLID as the region name in these definitions. Making the region name the same as the APPLID has the following advantages:

- You do not have to invent another name for the region
- It avoids confusion if the names are the same instead of regions having two identifiers
- By excluding the NAME EYUPARM, the EYUPARM parameters can be shared across CICS regions. The NAME EYUPARM for each CICS region defaults to the z/OS Communications Server APPLID as specified on the APPLID system initialization table parameter for each CICS region.

SYSID is the name specified on the region's SYSIDNT system initialization parameter.

The EYUJXBT1 job includes the DEFINE REGION parameters once, but you can define as many as you need, in any groupings that suit your requirements.

ADD TOGROUP

Specifies the name of the CICS region that you want to add to the CICS system group defined by a DEFINE CICSGRP command.

The format of this parameter for adding a CICS region to a group is:

```
ADD  TOGROUP   grpname -
     REGION    regname
```

You can also nest CICS system groups by including a group in another group. The format of the parameter for adding a group to a group is:

```
ADD  TOGROUP   grpname1 -
     CICSGRP   grpname2
```

After you have run the EYUJXBT1 job and created the initial definitions of your CICSplex, you might want to create another CICSplex, or add more regions or CICS system groups. If so, run the EYUJXBT1 job again, suitably modified to add the additional objects to your CMAS data repository. You can also save the previous definitions before making changes in case you have to back out the update.

Parameters used in EYUJXBT2:

The EYUJXBT2 sample imports definitions to create a CMAS-to-CMAS connection. The sample sets the context to the first CMAS name and imports the link to the second CMAS. Then the sample changes the context to the second CMAS name and imports the link to the first CMAS.

The CMAS that owns the repository in which you are creating definitions must be active when you run the EYUJXBT2 job. Also, the EYUJXBT2 job must run in the same z/OS image as the CMAS. The EYUJXBT2 JCL does not have a data set definition (DD) statement for the repository because all access to the repository is through the CMAS, using the API.

EYUJXBT2 gives an example of using the IMPORT commands and has the following parameters, which you edit to specify your own names:

CONTEXT
Sets the CICSPlex SM context in which the utility is to operate.

The format of the parameter to set the context is:

```
CONTEXT cmasname
```

where *cmasname* is the name of the CMAS to which you want to make changes.

OPTION DUPREC
Specifies the action that the program takes if it detects any definitions in the IMPORT stream that already exist in the local data repository. Permitted options are as follows:

- OPTION DUPREC REJECT. Commands that follow the duplicate definition are rejected.
- OPTION DUPREC ABORT. The job is terminated.
- OPTION DUPREC SKIP. Leave the existing record in place.
- OPTION DUPREC UPDATE. Replace the existing definition.

IMPORT
Imports definitions into the repository.

The format of the parameter is:

```
IMPORT CMAS1LNK * *
```

EYUJXBT2 has an input data stream for CMAS1LNK which includes a CMAS-to-CMAS definition (CMTCMDEF resource table).

If you are adding a secondary CMAS, you must assign it to your CICSplex before it can participate in CICSplex management. Do this in one of the following ways:

- Issue an Assign action from the EYUSTARTCPLEXDEF WUI view.
- Use the CICSplex SM API action of ASSIGN against the CPLEXDEF resource table.

Parameters used in EYUJXBT3:

Use the EYUJXBT3 and EYUJXBT4 samples to import definitions to create a CMAS-to-CMAS connection for CMASs on different z/OS images. EYUJXBT3 sets the context to the first CMAS name and imports the link to the second CMAS.

The CMAS that owns the repository in which you are creating definitions must be active when you run EYUJXBT3. The EYUJXBT3 job must run in the same z/OS image as the CMAS in which you are creating definitions. The EYUJXBT3 JCL does not have a data set definition (DD) statement for the repository because all access to the repository is through the CMAS, using the API.

EYUJXBT3 gives an example of using the IMPORT commands and has the following parameters, which you edit to specify your own names:

CONTEXT
Sets the CICSPlex SM context in which the utility is to operate.

The format of the parameter to set the context is:

```
CONTEXT cmasname
```

where *cmasname* is the name of the CMAS to which you want to make changes.

OPTION DUPREC
Specifies the action that the program takes if it detects any definitions in the IMPORT stream that already exist in the local data repository. You can specify one of the following options:

REJECT
Rejects any commands that follow the duplicate definition.

ABORT
Terminates the job.

SKIP
Leaves the existing record in place.

UPDATE
Replaces the existing definition.

IMPORT
Imports definitions into the repository.

The format of the parameter is:

```
IMPORT CMAS1LNK * *
```

EYUJXBT3 has an input data stream for CMAS1LNK which includes a CMAS-to-CMAS definition (created using the CMTCMDEF resource table).

If you are adding a secondary CMAS, you must assign it to your CICSplex before it can participate in CICSplex management. Do this in one of the following ways:

- Issue an ASSIGN action command from the EYUSTARTCPLEXDEF WUI view.
- Use the CICSplex SM API action of ASSIGN against the CPLEXDEF resource table.

Parameters used in EYUJXBT4:

Use the EYUJXBT4 and EYUJXBT3 samples to import definitions to create a CMAS-to-CMAS connection for CMASs on different z/OS images. EYUJXBT4 sets the context to the second CMAS name and imports the link to the first CMAS.

The CMAS that owns the repository in which you are creating definitions must be active when you run EYUJXBT4. The EYUJXBT4 job must run in the same z/OS image as the CMAS in which you are creating definitions. The EYUJXBT4 JCL does not have a data set definition (DD) statement for the repository because all access to the repository is through the CMAS, using the API.

EYUJXBT4 gives an example of using the IMPORT commands and has the following parameters, which you edit to specify your own names:

CONTEXT
Sets the CICSPlex SM context in which the utility is to operate.

The format of the parameter to set the context is:

```
CONTEXT cmasname
```

where *cmasname* is the name of the CMAS which is to be changed..

OPTION DUPREC
Specifies the action that the program takes if it detects any definitions in the import stream that already exist in the local data repository. You can specify one of the following options:

REJECT
Rejects any commands that follow the duplicate definition.

ABORT
Terminates the job.

SKIP
Leaves the existing record in place.

UPDATE
Replaces the existing definition.

IMPORT
Imports definitions into the repository.

The format of the parameter is:

```
IMPORT CMAS2LNK * *
```

EYUJXBT4 has an input data stream for CMAS2LNK, which includes a CMAS-to-CMAS definition (created using the CMTCMDEF resource table).

If you are adding a secondary CMAS, you must assign it to your CICSplex before it can participate in CICSplex management. You can do this in one of the following ways:

- Issue an ASSIGN action command from the EYUSTARTCPLEXDEF WUI view.
- Use the CICSplex SM API action of ASSIGN against the CPLEXDEF resource table.

EYU9XDBT utility error handling:

Three levels of error can occur in EYU9XDBT utility program processing.

These errors are as follows:

- Errors in the command parameter stream that are detected by EYU9XDBT.

  EYU9XDBT processes each command as it occurs in the command input stream. If the utility program detects an error in a command (for example, an unrecognized parameter), it stops processing without reading any more commands and issues message EYUXU1448E Data stream rejected which gives an EYU9XDBT return code of 12.
- Errors in the CICSPlex SM API detected by CICSPlex SM when it is processing calls from EYU9XDBT.

  If a command and its parameters are recognized by EYU9XDBT, it calls the CICSPlex SM API to perform the specified action. However, if CICSPlex SM detects an error, only that command fails (with an EYU9XDBT return code of 8 or 12), and EYU9XDBT continues with the next command. For example, a DEFINE REGION command that specifies SYSID ABCDE is accepted by EYU9XDBT but rejected by CICSPlex SM because the SYSID value is more than 4 characters long, producing the following error messages:

  EYUAR0021E
  Length of data for attribute (CSYSDEF._SYSID) is invalid.

  EYUXU1441S
  TBUILD failed for CSYSDEF data: FAILURE.

  EYUXU1448E
  Datastream rejected.
- Abend code 878 when a program attempts to use more storage than it has allocated.

  In EYU9XDBT this abend is caused by an insufficient region size. The solution is to increase the region size. This abend code can occur in the following situation:

  – Not accounting for the retention by EYU9XDBT of large numbers of definitions in memory when setting your region size.

    You can calculate the storage required by multiplying the definition size by the definition count. However, if you cannot modify the region size, you might be able to modify the existing commands to use less storage. Because each command is run separately, reducing the number of definitions per command is a straightforward and effective way of lowering storage requirements.

    One way of reducing storage requirements is to avoid using the generic * (asterisk) character to define the definition type and the definition name in IMPORT, EXPORT, and PRINT commands because it can result in large numbers of definitions held in storage. Instead, use separate commands that select the least number of definitions feasible.

The batched repository-update facility (BATCHREP)

The BATCHREP batched repository-update facility can streamline the process of managing your data repositories.

Instead of using multiple view screens repeatedly to create large numbers of definitions, you can create a standard input file to add the definitions to the data repository all at one time. This can reduce the effort of creating such definitions as the Transaction in Transaction Group (DTRINGRP) associations, which can involve

identifying hundreds of transactions. Similarly, when you use Business Application Services (BAS) to create and maintain your CICS resource definitions, the batched repository-update facility can speed up the definition process.

Submitting a batched repository-update (BATCHREP) job:

There are three steps in submitting a BATCHREP job.

To submit a batched repository-update job, you must:

1. Create a sequential data set or partitioned data set member to contain your input to the batched repository-update facility. The data set must have a fixed blocked format, RECFM(FB), and a logical record length of 80, LRECL(80).

   If you are directing the output to a partitioned data set member, you should ensure that the data set has enough directory entries and space to successfully execute the command. Failure to do this could cause the CMAS to terminate.
2. Create your input, as described in "Creating a batched repository-update (BATCHREP) input file."
3. Use one of the following methods to submit the batched repository-update job:
   - **Batched repository update job** WUI view, as described in "Using the WUI to submit a batched repository-update (BATCHREP) job" on page 23.
   - Batched repository-update utility, as described in "Using the batched repository-update utility" on page 23.
   - CICSPlex SM API to make use of the BATCHREP resource table.

Submitting a batched repository-update job that processes the same definition in quick succession may result in one or more control statements failing. In such circumstances the best procedure would be to divide the repository-update job and submit the resultant jobs sequentially.

Creating a batched repository-update (BATCHREP) input file:

A batched repository-update facility input file consists of control statements that describe the updates you want to make to the data repository.

The input file must adhere to the following requirements:

- Control statements must be in uppercase.
- Each control statement must be terminated with a semicolon (;).
- Comments must be delimited with /* at the beginning and */ at the end. (Any line with * in column 1 is also treated as a comment.)

Control statements and comments can span multiple lines.

When creating your input file, you must first identify the context (CMAS or CICSplex) to which the updates apply. To do this, use the control statement:

```
CONTEXT [plexid]
```

where *plexid* is the name of the local CMAS or of a CICSplex associated with the local CMAS (the local CMAS is the CMAS on which the batched repository-update job runs). If you specify a CICSplex as the context for the update, the local CMAS must be the maintenance point for that CICSplex. If you omit this parameter, the local CMAS is assumed to be the context.

Once you have established a context, it remains in effect for the batched repository-update job until you explicitly change it with another CONTEXT statement.

The rest of the control statements in an input file vary according to the type of updates you are making. The following sections describe the control statements for each type of update in detail.

Creating and maintaining CICSPlex SM definitions:

To create, update, remove, or review CICSPlex SM definitions in the data repository, use one or more control statements.

Control statements take the form:

```
command object keyword1(value) keyword2
```

where:

command
Is the name of a batched repository-update facility command, in uppercase letters. Specify one of the following:

CREATE
To create a record and add it to the data repository associated with the local CMAS.

UPDATE
To update an existing record in the data repository.

Note: You cannot update LNKSxSCG records using the batched repository-update facility, although you can do so through the WUI.

REMOVE
To remove an existing record from the data repository.

When you remove a record, all associations between that record and other records in the data repository are lost. For example, if you remove a CICS system definition, associations between that CICS system and any CICS system groups or component specifications are also removed.

When removing BAS definitions the DEFVER( ) keyword must be specified.

LIST To list a record from the data repository.

DUMP
To list a record from the data repository and insert a CREATE control statement in front of it.

You can use the output resulting from a DUMP command as input to another batched repository-update job that creates definitions. The output of a DUMP command is formatted as follows:

- Data lines are broken at column 72
- Continuation characters are placed in column 1.

By default, the output is written to a spool file and must be extracted from the spool, and edited, before it can be used as input to the batched repository-update facility. The extracted records

contain ANS control characters in column 1, therefore you must shift the records one character to the left to align the data for processing by CICSPlex SM. You must also remove all the page header information from the data set. For an example of a listing, see Figure 2 on page 32. However, you can use the OUTPUT command to write the output in the correct format, direct to a data set. For details, see "Creating a data set for re-input to the batched repository-update facility" on page 21.

CICSPlex SM requires certain definitions to exist before others can be created. Therefore, you should adhere to the following guidelines when dumping data repository records:

- Always dump CICS system (CSYSDEF) and CICS system group (CSYSGRP) records first.
- Dump basic CICSPlex SM definition records (such as, xxxDEF, xxxGROUP, and xxxSPEC) before association records (such as, LNKxxxxx, xxxINGRP, or xxxINSPC).
- For Business Application Services:
  - Dump RESGROUP records before RESDESC and RASGNDEF records.
  - Dump RESDESC and RASGNDEF records before RESINDSC and RASINDSC records.
  - Dump resource definition records (such as FILEDEF) before xxxINGRP records (such as FILINGRP).
  - Dump CONNDEF, SESSDEF, IPCONDEF, and TCPDEF records before SYSLINK records.

If you follow these guidelines, the output from a DUMP command is in the correct order for the batched repository-update facility to create new definitions. For an example of using the DUMP command output to create new definitions, see "Examples of managing records in the data repository" on page 31.

Note: Output from the DUMP and LIST commands contains a visible record of any passwords associated with CICS resources (such as connections or files). To prevent possible security exposures, you should restrict access to such output.

object Is one of the resource table names shown in Table 1 on page 26.

keyword1(value)

Is the name of a field in the specified resource table and the data that is appropriate for that field, in uppercase letters. The required input for the various commands is as follows:

CREATE

Provide all of the information required to define the resource, for example the same type of information as required by the equivalent WUI **Create** view.

You can derive the input to the CREATE statement from the output of a DFHCSDUP EXTRACT or BATCHREP DUMP request. See "Creating a data set for re-input to the batched repository-update facility" on page 21, "Example 6 - Dumping records as input to create new records" on page 33 for further information. If you do not create your input in this way, you must specify all the required attributes.

Note: For some definition records you should not specify certain operands; for example, for CPLEXDEF, do not specify the STATUS operand.

UPDATE
Identify the specific record to be updated. For CICS resource definitions created as part of business application services (BAS), this must include the version (DEFVER) of the resource. Specify the attributes that will be updated.

REMOVE
Identify the specific record to be removed. For CICS resource definitions created as part of business application services (BAS), this must include the version (DEFVER) of the resource.

LIST and DUMP
Provide a specific or generic record name, where generic names can contain the plus sign (+), asterisk (*), or both.

keyword2
Indicate how the creation or removal of a specification-to-CICS system group link record (LNKSxSCG) should affect the current members of the CICS system group. The keywords for the CREATE and REMOVE commands must be entered in uppercase letters and are as follows:

CREATE
Specify one of the following:

FORCE All current members of the CICS system group should have implicit links established to the named specification. When a link already exists, it is replaced with the newly CREATEd link.

NULL Current members of the CICS system group should have implicit links established to the named specification only if no link already exists.

NONE No implicit links should be established.

When you use the CREATE command, the default value for `keyword2` is NONE

REMOVE
Specify one of the following:

KEEP All implicit links are to be converted to explicit links.

NONE No implicit links are to be converted to explicit links.

There is no default value for `keyword2` when you use the REMOVE command; you must specify a value.

When you submit the batched repository-update job, the syntax of each command is checked for validity. If multiple commands are being issued, syntax checking can have the following results:

- When a LIST, DUMP, MAPLEFT or MAPRIGHT command is invalid, that command is not executed; processing of all subsequent commands continues .
- When a modification command (CREATE, UPDATE, or REMOVE) is invalid, that command is not executed. All subsequent modification commands are checked for validity; however, no subsequent modification commands are executed.

Creating CICS resource definitions:

To create CICS resource, and optionally add them to a resource group in the data repository, use one or more control statements.

Control statements take the form:

```
CREATE object NAME(defname) [RESGROUP(resgroup)]
```

where:

object Is one of the resource table names shown in Table 1 on page 26 that represent a CICS resource type (such as CONNDEF).

defname
Is the name of the resource definition you are creating.

resgroup
Is the name of an existing resource group in the data repository to which the resource definition should be added.

Producing a map of CICSPlex SM definitions:

In addition to creating and maintaining CICSPlex SM definitions, you can produce a visual map of the definitions in the data repository.

To produce a map, use one or more control statements in the form:

```
command object NAME(defname)
```

where:

command
Is the name of a batched repository-update facility command, in uppercase letters. Specify one of the following:

MAPLEFT
To produce a map of the definitions to the left of the starting point; that is, those definitions that refer to the starting point.

MAPRIGHT
To produce a map of the definitions to the right of the starting point; that is, those definitions that are referred to by the starting point.

object Is a resource table name that identifies the type of definition to be displayed in the map.

You can produce a map of the following definitions:

Topology

- CSYSDEF
- CSYSGRP
- PERIODEF

Workload management

- TRANGRP
- WLMDEF
- WLMGROUP
- WLMSPEC

Real-time analysis

- ACTION
- APSPEC
- EVALDEF
- RTADEF
- RTAGROUP
- RTASPEC
- STATDEF

Resource monitoring

- MONDEF
- MONGROUP
- MONSPEC

Business application services

- xxxxDEF (resource definitions such as FILEDEF)
- RESGROUP
- RESDESC
- RASGNDEF

NAME

Is the field name of the key field for the resource being mapped. For all resources the key field name is `NAME`, with the following exceptions:

- The key field for CSYSGRP is `GROUP`.
- The key field for RESGROUP is `RESGROUP`.
- The key field for RESDESC is `RESDESC`.
- The key field for RASGNDEF is `RESASSGN`.

defname

Is the specific or generic name of a definition that is to be the starting point for a map. If you enter a generic name, a map is produced for each definition whose name matches the pattern.

Setting processing options for repository-update commands:

The default behavior of batched repository-update commands can be modified by the OPTION command.

The format of the OPTION command is:

```
OPTION type keyword [keyword ...]
```

where

- *type* identifies the option which is being set.
- *keyword* specifies the value(s) to be set for an option type.

The following option types are currently supported:

DUPREC

Specify how the CREATE command will handle the RECORD_EXISTS condition. One of the following keywords must be specified:

REJECT (default)

The existing record is not modified; the BATCHREP input stream is flushed and no more commands are processed.

ABORT
The existing record is not modified; the job is terminated immediately.

SKIP The existing record is not modified; processing continues with the next BATCHREP command.

UPDATE
The existing record is updated by redriving the CREATE command as if it were an UPDATE.

Note:

1. Several link type CICSPlex SM resource tables do not support the UPDATE action. If a BATCHREP input stream that creates any of the following resource types must be restarted, OPTION DUPREC SKIP must be specified or the command retry will fail. Affected resource tables are:

   CMDMPAPS - APSPEC to Primary CMAS

   CMDMSAPS - APSPEC to Secondary CMAS

   CSGLCGCG - CICSGRP in CICSGRP

   CSGLCGCS - CICSSYS in CICSGRP

   LNKS*x*SCG - *xxx*SPEC to CICSGRP, where *xxx* is MON, RTA or WLM

   LNKS*x*SCS - *xxx*SPEC to CICSSYS, where *xxx* is MON, RTA or WLM

If a STATUS other than RECORD_EXISTS is returned by the CREATE command, the command is not retried and all remaining commands in the input file are flushed.

Multiple OPTION commands can be placed in the BATCHREP input stream. An OPTION command affects all commands until another OPTION command is encountered for the same option type or the input command stream reaches end-of-file.

Creating a data set for re-input to the batched repository-update facility:

You can create an output data set from the batched repository-update facility to hold the CREATE statements produced from DUMP commands.

This data set is in the correct format for re-input to the batched repository-update facility without further editing; that is, it does not contain heading lines and the data is aligned in the correct columns. Note, however, that you may still need to edit this output data to modify the context, group names, version numbers, and so on.

When you use the DUMP command (see "Creating and maintaining CICSPlex SM definitions" on page 16), you may use the OUTPUT command to request that any resulting CREATE commands are written to an output data set, in addition to the normal report. The OUTPUT command must be the first command in the BATCHREP input data stream, to ensure that the command precedes any DUMP commands. You cannot specify more than one OUTPUT command.

Note: If a partitioned data set is used as the output data set, you must ensure that the data set has enough space to handle the output. A full partitioned data set without sufficient directory space may cause multiple abends resulting in the termination of the CMAS. To avoid multiple abends during CICS recovery, direct output to a sequential data set. If required, you can then copy the sequential data set output to a partitioned data set.

The format of the OUTPUT command is:

```
OUTPUT DATASET DSNAME(data.set.name(member)) INQUOTES(NO|YES);
```

where:

DATASET
This keyword must be specified.

DSNAME
Specifies a data set name. You must specify a data set name and the data set must exist. The output data set cannot be the same as the input data set. The data set must consist of fixed-length, 80-byte records; the records may be blocked and any block size is acceptable.

data.set.name
The data set name must not exceed 44 characters in length. Each component of the name cannot be more than 8 characters long, and the components must be separated by full stops. The data set name must be a fully-qualified data set name. The first component of the data set name does not default to the logged-on user id.

member
The member name, if the output data set is partitioned. The member name cannot be more than 8 characters long. The member name must be omitted if the output data set is not partitioned.

INQUOTES(NO|YES)
Identifies whether or not you want field values enclosed in quotes on the output data set. You may need to use this control statement if you have any data on your data repository that contains unbalanced parentheses. If you omit this keyword, the default value of NO is assumed.

NO The values of parameters are not enclosed in quotes on the output data set. This setting is perfectly adequate for input to the batched repository-update facility, but you might encounter problems if the parameter values contain unbalanced parentheses.

Note that, if you specify INQUOTES(NO), the BATCHREP output can be used as input to any release of the CICSPlex SM batched repository-update facility.

YES All values of parameters are enclosed in quotes on the output data set. The CICSPlex SM batched repository-update facility terminates the parameter value at the final quote, not at an embedded parenthesis.

For example, suppose a DESCRIPTION field contains the value:

```
1) Describe Resource
```

If you specify INQUOTES(NO), which is the default, the DUMP routine will produce the following statement in the output data set:

```
DESCRIPTION(1) Describe Resource)
```

The CICSPlex SM batched repository-update facility interprets this as a DESCRIPTION field containing the value 1, followed by two unrecognizable keywords.

If you specify INQUOTES(YES), the DUMP routine places quotes around the field value. The output data set would contain the statement:

```
DESCRIPTION('1) Describe Resource')
```

This statement is interpreted correctly by the CICSPlex SM batched repository-update facility.

Using the WUI to submit a batched repository-update (BATCHREP) job:

To submit a batched repository-update job using the WUI from the main menu (EYUSTARTMENU) click **Administration views > Batched repository update requests** This will display the **Batched repository update reuqests** view that allows you to view information about currently running batched repository-update jobs.

The following procedure allows you to submit a selected batched repository-update job:

1. Open the **Batched repository update requests** view.
2. Select the record you intend to submit and click Execute. This opens the **Execute** view. If no batched repository-update jobs are running then only the dummy stopped record is available for selection.

   Note: Clicking the Check button opens the Check view which allows you to check the command format of all the input statements of the batched repository-update job.
3. Complete the Execute view by completing the following fields:

   Input data set name
   Specify the name of the sequential or partitioned data set (PDS) containing the input to the batched repository-update job.

   Input member name
   When using a PDS, specify the name of the member that contains the input to the batched repository-update job.

   Print class
   (Optional.) Specify a 1-character class designation. If you omit a value, class A is assumed.

   Print node
   Specify the 8-character identifier of a designation node that the system spooler is to use to route the file.

   Destination userid
   Specify the 8-character identifier of the eventual writer program or of the user who will process the report for spooled records intended for the printer. The report will carry this identifier, which will be used to select the report at its destination.
4. Select Yes to submit the job.

To apply updates to a particular data repository, you must ensure that the WUI server is connected to the CMAS which is associated with the data repository you want to update.

Using the batched repository-update utility:

The batched repository-update utility connects to a CMAS and submits batched repository (BATCHREP) updates to run in that CMAS.

To make batched repository updates to a particular data repository, run the utility so that it connects to, and submits batched updates to run in, the CMAS that is associated with the data repository you want to update.

To run the utility, prepare the necessary JCL and define the input parameters for the utility itself, such as the name of the CMAS associated with the data repository you want to update.

Here is an example of JCL to run the batched repository update utility:

```
//jobname  JOB (acct),'name',CLASS=x,MSGCLASS=x
//BTCHUPD EXEC PGM=EYU9XDBC,REGION=2048K
//STEPLIB  DD  DSN=CICSTS54.CPSM.SEYUAUTH,DISP=SHR
//         DD  DSN=CICSTS54.CPSM.SEYULOAD,DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSABEND DD  SYSOUT=*
//SYSIN    DD  *
CMASNAME(EYUCMS1A)
CHECK
INPUTDSN(EXAMPLE.INPUT.DATASET)
INPUTMEMBER(MEMBER1)
OUTPUTUSER(EXUSER)
PRINTNODE(LOCAL)
/*
```

Here is an example of the output from the batched repository-update utility:

```
 CICSPlex/SM Batched Repository Update Utility

        Parameters specified:

        CMASNAME(EYUCMS1A)
        CHECK
        INPUTDSN(EXAMPLE.INPUT.DATASET)
        INPUTMEMBER(MEMBER1)
        OUTPUTUSER(EXUSER)
        PRINTNODE(LOCAL)


EYUXD0908I  A batched repository update has been submitted to run in CMAS EYUCMS1A.
```

The output of the batched repository-update utility is a short report that lists the input parameters and a message to show the CMAS in which the batched updates have been submitted. Review this output to verify the utility successfully submitted the batched updates in the CMAS.

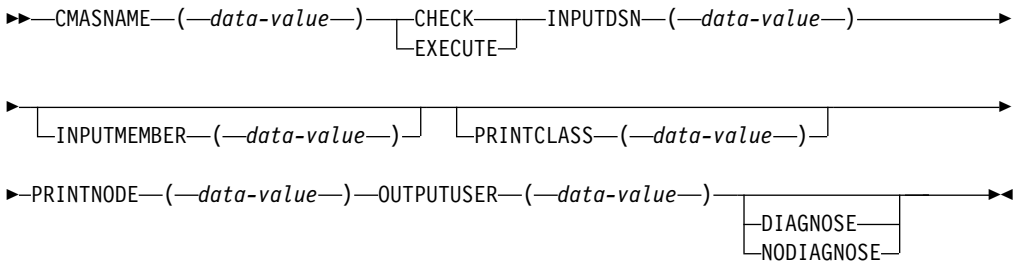
The batched updates that run in the CMAS produce output using the standard CICS spooling facilities. You must also review this second output to verify batched updates have run successfully.

Batched repository-update utility parameters:

This section describes the input parameters that you must specify to use the batched repository update utility. These parameters must be supplied in the SYSIN data set.

The following syntax rules apply:

- Parameters must be specified in uppercase
- Parameters can be specified in any order
- A given parameter must be specified once only in a given SYSIN stream
- A given parameter must appear all on one line
- Spaces will be ignored
- An asterisk (*) as the first character will mean that the line is ignored.



The parameters can be specified as follows :

CMASNAME
Specifies the 1-to-8 character name of a CMAS to which the utility is to connect and whose data repository is to be modified by the batched repository update processing. This parameter is mandatory. It is this CMAS in which batched repository update processing takes place and from which output is produced by the CICS spooling facilities.

CHECK or EXECUTE
Must be specified for the type of run. CHECK specifies a syntax check of the input file and EXECUTE specifies the commands in the input file that must be executed. These keywords are mutually exclusive.

INPUTDSN
Specifies a 1-to-44 character string for the data set name of a sequential data set or a PDS that contains the input to the batched repository update processing. The CMAS must have access to the data set specified via the INPUTDSN parameter. This parameter is mandatory.

INPUTMEMBER
Specifies a 1-to-8 character name of a member when using a PDS that contains the input file. This parameter is optional.

PRINTCLASS
Specifies a 1-character print class identifier. This parameter is optional. The default is A.

PRINTNODE
Specifies a 1-to-8 character print node identifier to be used by the system spooler for routing the job output. This parameter is mandatory.

OUTPUTUSER
Specifies a 1-to-8 character user identifier to be associated with the spooled output. This parameter is mandatory.

DIAGNOSE
Intended for use only under guidance by IBM service personnel.

NODIAGNOSE
Intended for use only under guidance by IBM service personnel.

BATCHREP supported resource tables:

Most CICSPlex SM resource tables are supported by the batched repository update facility.

Table 1 on page 26 lists the CICSPlex SM resource tables that you can process using the batched repository update facility.

Table 1. Resource table names

Resource type	Table name	Definitions affected
Configuration	CMTCMDEF	CMAS-to-CMAS definitions
Configuration	CMTPMDEF	CMAS-to-remote MAS definitions
Configuration	CPLEXDEF	CICSPlex definitions
Topology	CSGLCGCG	Association between a CICS system group and a CICS system group
Topology	CSGLCGCS	Association between a CICS system and a CICS system group
Topology	CSYSDEF	CICS systems
Topology	CSYSGRP	CICS system groups
Topology	PERIODEF	Time periods
Topology	SYSLINK	System links
Workload management	DTRINGRP	Association between a transaction and a transaction group
Workload management	LNKSWSCG	Association between a workload specification and a CICS system group
Workload management	LNKSWSCS	Association between a workload specification and a CICS system
Workload management	TRANGRP	Transaction groups
Workload management	WLMDEF	Workload definitions
Workload management	WLMGROUP	Workload groups
Workload management	WLMINGRP	Association between a workload definition and a workload group
Workload management	WLMINSPC	Association between a workload group and a workload specification
Workload management	WLMSPEC	Workload specifications
Real-time analysis	ACTION	Action definitions
Real-time analysis	APSPEC	Analysis point specifications
Real-time analysis	CMDMPAPS	Association between a primary CMAS and an analysis point specification
Real-time analysis	CMDMSAPS	Association between a secondary CMAS and an analysis point specification
Real-time analysis	EVALDEF	Evaluation definitions
Real-time analysis	LNKSRSCG	Association between an analysis specification and a CICS system group
Real-time analysis	LNKSRSCS	Association between an analysis specification and a CICS system
Real-time analysis	RTADEF	Analysis definitions
Real-time analysis	RTAGROUP	Analysis groups
Real-time analysis	RTAINAPS	Association between an analysis group and an analysis point specification

Table 1. Resource table names (continued)

Resource type	Table name	Definitions affected
Real-time analysis	RTAINGRP	Association between an analysis definition and an analysis group
Real-time analysis	RTAINSPC	Association between an analysis group and an analysis specification
Real-time analysis	RTASPEC	Analysis specifications
Real-time analysis	STAINGRP	Association between a status definition and an analysis group
Real-time analysis	STATDEF	Status definitions
Monitor	LNKSMSCG	Association between a monitor specification and a CICS system group
Monitor	LNKSMSCS	Association between a monitor specification and a CICS system
Monitor	MONDEF	Monitor definitions
Monitor	MONGROUP	Monitor groups
Monitor	MONINGRP	Association between a monitor definition and a monitor group
Monitor	MONINSPC	Association between a monitor group and a monitor specification
Monitor	MONSPEC	Monitor specifications
Business application services	APPLDEF	Application definitions
Business application services	ATMINGRP	Association between an Atom document definition and a resource group
Business application services	BUNINGRP	Association between a bundle definition and a resource group
Business application services	CONINGRP	Association between an MRO or ISC over SNA connection definition and a resource group
Business application services	DOCINGRP	Association between a document template definition and a resource group
Business application services	D2CINGRP	Association between a DB2® connection definition and a resource group
Business application services	D2EINGRP	Association between a DB2 entry definition and a resource group
Business application services	D2TINGRP	Association between a DB2 transaction definition and a resource group
Business application services	EJCINGRP	Association between a CorbaServer definition and a resource group
Business application services	EJDINGRP	Association between a DJAR definition and a resource group
Business application services	ENQINGRP	Association between an ENQ/DEQ model definition and a resource group
Business application services	FILINGRP	Association between a file definition and a resource group
Business application services	FNOINGRP	Association between a FEPI node definition and a resource group

Table 1. Resource table names (continued)

Resource type	Table name	Definitions affected
Business application services	FPOINGRP	Association between a FEPI pool definition and a resource group
Business application services	FPRINGRP	Association between a FEPI property set definition and a resource group
Business application services	FSGINGRP	Association between an OS/2 file segment definition and a resource group
Business application services	FTRINGRP	Association between a FEPI target definition and a resource group
Business application services	IPCINGRP	Association between an IPIC connection definition and a resource group
Business application services	JRMINGRP	Association between a journal model definition and a resource group
Business application services	LIBINGRP	Association between a LIBRARY definition and a resource group
Business application services	MAPINGRP	Association between a map set definition and a resource group
Business application services	MQCINGRP	Association between a WebSphere® MQ connection definition and a resource group
Business application services	PARINGRP	Association between a partner definition and a resource group
Business application services	PGMINGRP	Association between a program definition and a resource group
Business application services	PIPINGRP	Association between a pipeline definition and a resource group
Topology	PLATDEF	Platform definitions
Topology	PLATFORM	Platforms
Business application services	PRCINGRP	Association between a process type definition and a resource group
Business application services (continued)	PRNINGRP	Association between a partition set definition and a resource group
Business application services (continued)	PROINGRP	Association between a profile definition and a resource group
Business application services (continued)	RASGNDEF	Resource assignments
Business application services (continued)	RASINDSC	Association between a resource assignment and a resource description
Business application services (continued)	RESDESC	Resource descriptions
Business application services (continued)	RESGROUP	Resource groups
Business application services (continued)	RESINDSC	Association between a resource group and a resource description
Business application services (continued)	RQMINGRP	Association between a request model definition and a resource group
Business application services (continued)	SESINGRP	Association between a session definition and a resource group

Table 1. Resource table names (continued)

Resource type	Table name	Definitions affected
Business application services (continued)	TCLINGRP	Association between a transaction class definition and a resource group
Business application services (continued)	TCPINGRP	Association between a TCP/IP service definition and a resource group
Business application services (continued)	TDQINGRP	Association between a transient data queue definition and a resource group
Business application services (continued)	TRMINGRP	Association between a terminal definition and a resource group
Business application services (continued)	TRNINGRP	Association between a transaction definition and a resource group
Business application services (continued)	TSMINGRP	Association between a temporary storage model definition and a resource group
Business application services (continued)	TYPINGRP	Association between a typeterm definition and a resource group
Business application services (continued)	URIINGRP	Association between the universal resource identifier definition and a resource group
Business application services (continued)	WEBINGRP	Association between a web services definition and a resource group

Table 1. Resource table names (continued)

Resource type	Table name	Definitions affected
Business application services (continued)	• ATOMDEF	• Atom document definitions
	• BUNDDEF	• Bundle definitions
	• CONNDEF	• Connection definitions
	• DB2CDEF	• DB2 connection definitions
	• DB2EDEF	• DB2 entry definitions
	• DB2TDEF	• DB2 transaction definitions
	• DOCDEF	• Document template definitions
	• EJCODEF	• CorbaServer definitions
	• EJDJDEF	• DJAR definitions
	• ENQMDEF	• ENQ/DEQ model definitions
	• FENODDEF	• FEPI node definitions
	• FEPOODEF	• FEPI pool definitions
	• FEPRODEF	• FEPI property set definitions
	• FETRGDEF	• FEPI target definitions
	• FILEDEF	• File definitions
	• FSEGDEF	• OS/2 file segment definitions
	• IPCONDEF	• IPIC connection definitions
	• JRNMDEF	• Journal model definitions
	• LSRDEF	• LSR pool definitions
	• LIBDEF	• LIBRARY definitions
	• MAPDEF	• Mapset definitions
	• MQCONDEF	• IBM MQ connection definitions
	• PARTDEF	• Partner definitions
	• PIPEDEF	• Pipeline definitions
	• PROCDEF	• Process type definitions
	• PROFDEF	• Profile definitions
	• PROGDEF	• Program definitions
	• PRTNDEF	• Partition set definitions
	• RASGNDEF	• Resource assignments definitions
	• RQMDEF	• Request model definitions
	• SESSDEF	• Session definitions
	• TCPDEF	• TCP/IP service definitions
	• TDQDEF	• Transient data queue definitions
	• TERMDEF	• Terminal definitions
	• TRANDEF	• Transaction definitions
	• TRNCLDEF	• Transaction class definitions
	• TSMDEF	• Temporary storage model definitions
	• TYPTMDEF	• Typeterm definitions
	• URIMPDEF	• Universal resource identifier definitions
	• WEBSVDEF	• Web services definitions

Note: The information displayed in the **CICS resource definitions in group** (RESINGRP) view can be found separately in the xxxINGRP resource table for each resource type.

Examples of managing records in the data repository:

The following examples illustrate how you might create, remove, list, and dump definition records in the data repository, and add a CICS system to a CICS system group.

Example 1 - Creating a record:

To create a workload specification, you can use the **Workload management (WLM) specification** (EYUSTARTWLMSPEC.CREATE) WUI view or the batched repository-update facility.

Figure 1 illustrates how to specify information when preparing a batched repository-update job:

```
/* after setting context, create workload specification */
CONTEXT EYUPLX01;
CREATE WLMSPEC NAME(EYUWMS01) DESC(Sample description)
               AFFINITY(USERID)
               AFFLIFE(SIGNON)
               MATCH(USERID)
               AORSCOPE(EYUCSG01)
               EVENTNAME(PAGERATE)
               ABENDCRIT(0)
               ABENDTHRESH(0)
               ALGTYPE(QUEUE);
```

Figure 1. Using the batched repository-update facility to create a WLM specification

Example 2 - Removing a record:

These examples illustrate how to remove a record from the data repository.

To remove the workload specification named EYUWMS01, you might specify:

```
CONTEXT EYUPLX01;
REMOVE WLMSPEC NAME(EYUWMS01);
```

To remove the BAS PROGDEF named EYUPROG1, you might specify:

```
CONTEXT EYUPLX01;
REMOVE PROGDEF NAME(EYUPROG1)
               DEFVER(1);
```

Example 3 - Creating a link record:

This example illustrates how to create a link record in the data repository.

To create a link called WLMSPC01 between a workload specification and a CICS system group, you might specify:

```
CREATE LNKSWSCG SPEC(WLMSPC01)
                GROUP(EYUCSG01)
                FORCE;
```

Example 4 - Listing records:

This example illustrates how to list selected records in the data repository.

To list all workload specification records that have names beginning with EYU, you would specify:

```
CONTEXT EYUPLX01;
LIST WLMSPEC NAME(EYU*);
```

Figure 2 illustrates the output format of records that you list from the data repository. Note that the output produced by the DUMP control statement is very similar; the major difference being that the word CREATE precedes the resource table name. If you use the OUTPUT command, the DUMP command will produce both a report, as illustrated in Figure 2, and a data set, which contains the CREATE commands in a form suitable for re-input to the CICSPlex SM batched repository-update facility; see "Example 6 - Dumping records as input to create new records" on page 33.

```
    CICSPlex SM - Repository Process Report

Input DSN:    CPSM.BATCH.SAMPLE                       Input Member: TEST

CONTEXT EYUPLX01;
LIST WLMSPEC NAME(EYU*);
EYUXU0218I  CVMBBC Batch LIST request complete - Status(OK)
Last Change:   9/06/93 21:18:25.85895
       WLMSPEC NAME(EYUWMS02)
               DESC(Sample definition 1)
               AFFINITY(USERID)
               AFFLIFE(SIGNON)
               MATCH(USERID)
               AORSCOPE(EYUCSG01)
               EVENTNAME(PAGERATE)
               ABENDCRIT(0)
               ABENDTHRESH(0)
               ALGTYPE(GOAL)
               ;

Last Change:   8/14/93 15:27:05.34023
       WLMSPEC NAME(EYUWMS03)
               DESC(Sample definition 2)
               AFFINITY(GLOBAL)
               AFFLIFE(PERMANENT)
               MATCH(N/A)
               AORSCOPE(EYUCSG01)
               EVENTNAME( )
               ABENDCRIT(0)
               ABENDTHRESH(0)
               ALGTYPE(N/A)
               ;
```

Figure 2. Sample output produced when listing data repository definitions

Note: In the EYUWMS03 record in Figure 2, EVENTNAME is an example of a keyword that has no value; MATCH and ALGTYPE are examples of keywords with a value of N/A.

Example 5 - Dumping records as a backup:

This example illustrates how to back up selected records in the data repository.

To back up all of the workload management records in the data repository, you would specify:

```
CONTEXT EYUPLX01;
DUMP WLMSPEC  NAME(*);
DUMP WLMGROUP NAME(*);
DUMP WLMDEF   NAME(*);
```

```
DUMP TRANGRP  NAME(*);
DUMP DTRINGRP TRANGRP(*);
DUMP WLMINGRP GROUP(*);
DUMP WLMINSPC NAME(*);
```

Example 6 - Dumping records as input to create new records:

The OUTPUT command causes all CREATE records to be written to data set EYUIR01.MYOUT1.

To dump all versions of the CICS resource definitions in the correct order, directly to a data set that is to be resubmitted as input for creating new records, you would specify the following:

```
OUTPUT DATASET DSNAME(EYUIR01.MYOUT1) INQUOTES(NO);
CONTEXT EYUPLX01;
DUMP CSYSDEF  NAME(*);
DUMP CSYSGRP  GROUP(*);
DUMP RESGROUP RESGROUP(*);
DUMP RESDESC  RESDESC(*);
DUMP RASGNDEF RESASSGN(*);
DUMP RASINDSC RESDESC(*)
              RESASSGN(*);
DUMP RESINDSC RESDESC(*)
              RESGROUP(*);
DUMP CONNDEF  NAME(*);
DUMP SESSDEF  NAME(*);
DUMP xxxxDEF  NAME(*);
       .
       .
       .
DUMP CONINGRP CONNGROUP(*)
              CONNNAME(*);
DUMP SESINGRP SESSGROUP(*)
              SESSNAME(*);
DUMP xxxINGRP xxxxGROUP(*)
              xxxxNAME(*);
       .
       .
       .
DUMP SYSLINK  FROMCSYS(*)
              TOCSYS(*);
```

where:

- xxxxDEF is the CICS resource definition type. Examples are CONNDEF, FILEDEF, and MAPDEF, the xxxx string representing either a 3- or 4- character string and is the same for xxxxDEF, xxxxNAME, and xxxxGROUP.
- xxxxNAME is the name of the CICS resource definition, given as an attribute in the xxxINGRP resource table.
- xxxxGROUP is the name of the resource group to which the resource definition belongs, given as an attribute in the xxxINGRP resource table.
- xxxINGRP is the CICSPlex SM Business Application Services definition describing the membership of the CICS resource definition in a resource group. Examples are CONINGRP, FILINGRP, and MAPINGRP.

Note: The xxxxDEF and xxxINGRP resource tables also include version attributes, which enable you to process a specific version of the record. You can specify:

- DEFVER(n) for an xxxxDEF record
- xxxxVER(n) for an xxxINGRP record

Example 7 - Adding a CICS system to a CICS system group:

This example illustrates how to add a CICS system to a system group.

To add a CICS system to a CICS system group associated with a monitor specification, and to create the link between the CICS system and the monitor specification, you might specify:

```
CONTEXT EYUPLX01;
CREATE CSGLCGCS GROUP(EYUCSG01) CICSNAME(EYUMAS1A);
CREATE LNKSMSCS SPEC(MONSPC01) SYSTEM(EYUMAS1A);
```

When used to create a CICS system to CICS system group link record (CSGLCGCS) with the system group already associated with a specification, the batched repository-update facility does not create a specification-to-CICS system link record (LNKSxSCS). To associate the CICS system with the specification, the LNKSxSCS record must be created explicitly.

Managing a CMAS configuration

You can get information about managing a CMAS configuration by clicking **CICSPlex SM operations views**.

From this menu you can open the following CMAS configuration views:

- CMASs known to local CMAS
- CICSplexes managed by CMAS
- CMASs managing CICSplex
- CMAS to CMAS links
- CMAS to MAS links

CMAS configuration definitions and their related views

CMAS configuration definitions are stored in the data repository associated with the CMAS identified as the maintenance point for the CICSplex. This CMAS ensures that any other CMASs involved in managing the CICSplex also know about the configuration definitions.

Figure 3 on page 35 illustrates the relationship between a CMAS configuration and the WUI views used to create and maintain that configuration.

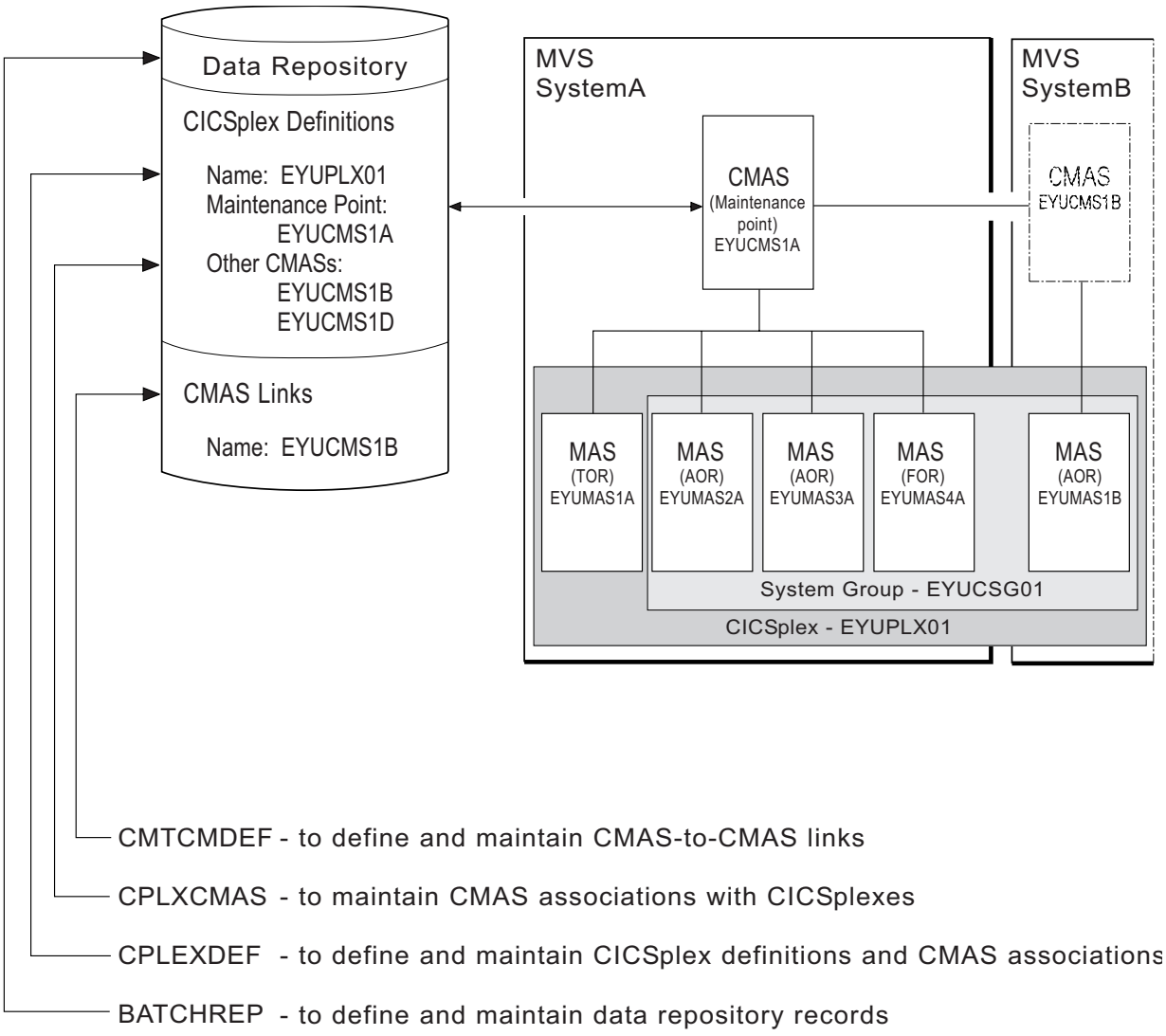


Figure 3. Defining a CMAS configuration

Additional views that you can use to manage configuration definitions once their associated CMASs or CICS systems are active are described in "Managing a CMAS configuration" on page 34.

Online help is available for each view and for the fields in each view. You can access CMAS configuration views from the main menu by clicking **Administration views > CMAS configuration administration views**. For additional information about accessing these views, see "Accessing Web User Interface administration views" on page 1 and the detailed description of each view.

Remember: Unless noted otherwise, only the context setting is recognized when you are creating and maintaining configuration definitions. For additional information about setting the context to a CMAS, see "Setting the CMAS context, context and scope" on page 1.

Working with maintenance point CMASs

A CMAS provides the single-system image of the CICS systems comprising each CICSplex it manages.

To do this, the CMAS uses the CICSPlex SM definitions stored in the data repository.There is one data repository for each CMAS that you establish.

When a CICSplex consists of a large number of CICS systems or when the systems are spread across multiple MVS™ images, you may want multiple CMASs to be involved in managing the CICSplex. In cases like this, one of the CMASs is identified as the *maintenance point* for the CICSplex. The maintenance point CMAS is responsible for informing the other CMASs when any administration definitions relating to the CICSplex are added, updated, or changed. This ensures that the data repository for each CMAS involved in managing a CICSplex contains the same information.

If the maintenance point CMAS is unavailable when you attempt to perform an administration task, you will see an error message to this effect at the top of the related tabular view. Click the error message number to display the full text of message, which contains explanatory information and help on how to proceed.

Note: When the maintenance point becomes available, you must remember that any changes made while the maintenance point CMAS was unavailable will be ignored.

You can remove the association between a CMAS and a CICSplex, as long as the CMAS is not the maintenance point for the CICSplex.

CAUTION:
Do not change the maintenance point CMAS for a CICSplex. If you need to move the maintenance point CMAS from one z/OS® image to another, submit the existing CMAS to run on the new z/OS image without changing any of its attributes.

Each CMAS is identified by four attributes:
- jobname
- VTAM® applid
- CPSM name
- CICS SYSIDNT

Although it is possible to change the *jobname* and z/OS Communications Server *applid* of a CMAS, it is not possible to change the CPSM name and the CICS SYSIDNT. If it is necessary to have a different CPSM name or CICS SYSIDNT for a CMAS, you must create a new CMAS with the attributes you want.

If you must change the CPSM name and/or CICS SYSIDNT of the maintenance point CMAS, which creates a different CMAS to be the maintenance point CMAS, you need to remove the CICSplex and all of its associated definitions from the data repository and redefine them to the new CMAS, as follows:

1. Display the **Administration views > CMAS configuration administration views > CMAS in CICSplex definitions** view (CPLXCMAS object). Set the **CMAS context** field to the old maintenance point CMAS and the **CICSplex** field to the name of the CICSplex, then click **Refresh**. A list of all CMASs that participate in the management of the CICSplex is displayed.
2. Terminate normally all CMASs that participate in the management of the CICSplex. To do this:
   - From the main menu, click **CICSPlex SM operations views > CMASs known to local CMAS**.
   - Click a CMAS name to display the **CMAS detail** view (CMAS object).

- Click the **Shutdown...** button. The **Shutdown** view is displayed. Click **Yes** to confirm that the CMAS is to be shut down.
- Repeat this process for each CMAS participating in the management of the CICSplex.

Alternatively, you can use either the CICSPlex SM API equivalent or the COSD transaction. It is imperative that you terminate the CMASs normally to ensure the integrity of the data repositories for the next step.

3. Back up the data repositories for each CMAS that participates in the management of the CICSplex.
4. Start all CMASs that currently participate in the management of the CICSplex.
5. With the context set to the old maintenance point CMAS, use the batched repository-update facility DUMP command to extract all the CICSPlex SM definitions associated with the CICSplex from the data repository.

   See the description of the DUMP command in "Creating and maintaining CICSPlex SM definitions" on page 16 for guidance on ordering the command. This also describes possible editing requirements for the command output before it can be used as input in creating the new maintenance point CMAS. Also, see "Creating a data set for re-input to the batched repository-update facility" on page 21 for further guidance.
6. If the WUI server is defined as a MAS within the CICSplex, leave it running. Ensure that all other MASs for the CICSplex are terminated. You can verify this through the **MASs known to CICSplex** view (MAS object), specifying the CICSplex as the context and scope for the view.
7. Ensure that all CMASs that participate in the management of the CICSplex are active and connected, either directly or indirectly, to the maintenance point CMAS. You can verify this through the **CICSplex SM operations views > CMASs known to local CMAS** view (CMASLIST object), with the context set to the old maintenance point CMAS.
8. With the context still set to the old maintenance point CMAS, use the **Administration views > CMAS configuration administration views > CMAS in CICSplex definitions** view (CPLXCMAS object) to completely remove all non-maintenance point CMASs from the CICSplex.
9. If the WUI server is not defined as a MAS within the CICSplex, use the **Administration views > CMAS configuration administration views > CICSplex definitions** view (CPLEXDEF object) view to remove the CICSplex definition from the data repository.

   If the WUI server is a MAS within the CICSplex, terminate the WUI server. Then use a CICSPlex SM API program to issue a REMOVE action against the CPLEXDEF definition for the CICSplex.

   All of the topology, workload management, real-time analysis, resource monitoring, and business application services definitions associated with that CICSplex are also removed from the data repository.
10. Terminate all CMASs in the network, whether or not they participate in the management of the CICSplex, by using the CICSPlex SM API or the COSD transaction.
11. Start the CMAS that is to be defined as the new maintenance point for the CICSplex.
12. With the context set to the CMAS that is to be the new maintenance point for the CICSplex, use the EYU9XDBT utility to create the CICSplex definition on the new maintenance point CMAS. An example of using the EYU9XDBT

DEFINE CICSPLEX command is included in the EYUJXBT1 sample. That sample goes on to define CICS regions and groups. You just need to define the CICSplex.

13. Using the output from the DUMP command, submit a batched repository-update facility job to re-create all the CICSPlex SM definitions for the CICSplex on the new CMAS data repository. For an example of using DUMP output from the batched repository-update facility to create new definitions, see "Examples of managing records in the data repository" on page 31.
14. With the maintenance point CMAS still active, start all the other CMASs in the network.
15. For each CMAS that should have a connection to the maintenance point CMAS, use the EYU9XDBT utility to create the CMTCMDEF definitions.
16. Start a WUI server that is accessible from the new maintenance point CMAS either within the CICSplex you are moving or in a separate CICSplex.
17. With the CMAS context set to the new maintenance point CMAS, use the WUI **Administration views > CMAS configuration administration views > CICSplex definitions** view (CPLEXDEF object) to assign the non-maintenance point CMASs to the CICSplex.
18. Update the EYUPARMs for all MASs that are to connect to the maintenance point CMAS, ensuring that if CMASSYSID is specified, it points to the maintenance point.
19. Start the MASs that are included in the CICSplex.

Managing CMAS to CMAS links

To manage the direct LU 6.2 and MRO communication links between the local CMAS and any other CMAS click **Administration views > CMAS configuration administration views > CMAS to CMAS link definitions**.

This view allows you to create, update and remove links.

Updating a CMAS to CMAS link definition description

Follow this procedure to update a CMAS to CMAS link definition description in the data repository.

1. Select a link definition from the **CMAS to CMAS link definitions** view and click the **Update** action button.

   The **CMAS to CMAS link definitions** create panel is displayed containing details of the selected link. You can modify only the Description field.
2. Update the description and click **Yes** to update the link definition in the data repository.

Removing a CMAS to CMAS link definition description

Follow this procedure to remove a CMAS link definition from the data repository of the local CMAS.

1. Select a link definition from the **CMAS to CMAS link definitions** view and click **Remove**.

   A confirmation panel is displayed.
2. Click **Yes** to remove the link definition from the data repository or click **No** to return.

Managing CMAS restarts

When you restart a CMAS in a CICSplex environment, the restart might be a cold or warm start, depending on whether the data spaces that the CMAS used previously still exist. You should be aware of the circumstances under which a cold or warm start occurs and the difference between cold and warm starts.

When the CMAS starts, if no data spaces that the CMAS used the last time it was active still exist, the start is a *CMAS cold start*; if such data spaces exist, the start is a *CMAS warm start*.

The CPSM data spaces are associated with CPSM components. There are two types of CPSM data spaces:

Private data spaces
Data spaces that are used by the CMAS only

Shared data spaces
Data spaces that are shared with the MASs and batch API address spaces that connect to the CMAS

Table 2. Types of CPSM data spaces and associated components. The table lists, by the data space type, CPSM components and the associated data spaces. In the table, *x* in the data space prefix is either 1 or 2, depending on the number of data spaces that are allocated for the component. The Data Cache Manager component has only one data space. The data space names are all suffixed by the CICS **SYSIDNT** parameter for the CMAS.

Type of data spaces	Component name	Data space prefix
Private	• Business Application Services • Communications • Monitor Services • Real-time analysis	• BAS*x* • COM*x* • MON*x* • RTA*x*
Shared	• Data Cache Manager • Data Repository • Managed Application System • Queue Manager • Topology Services • Workload Manager	• DMDS • DAT*x* • MAS*x* • QUE*x* • TOP*x* • WLM*x*

When does a CMAS warm start occur

When a CMAS terminates, private data spaces are deleted, but shared data spaces are deleted only when no encumbrances are held on the shared data spaces. If the shared data spaces still exist by the time the CMAS is restarted, a CMAS warm start occurs.

When each MAS or batch API address space connects to the CMAS, the MAS or batch API address space has access to and holds an encumbrance on the shared data spaces.

For a MAS, the encumbrance lasts until the MAS is terminated or until the MAS agent within the MAS is terminated.

For a batch API address space, the encumbrance lasts until the batch API address space terminates, or until every thread that is created by the address space is either disconnected by the **EXEC CPSM DISCONNECT** command or terminated by the **EXEC CPSM TERMINATE** command.

If any MAS or batch API address space encumbrances exist when the CMAS terminates, the shared data spaces are not deleted. If the encumbrances still hold when the CMAS is restarted, the restart is a warm start.

When does a CMAS cold start occur

If no MAS or batch API address space encumbrances exist when the CMAS terminates, both the private and shared data spaces are deleted upon the termination of the CMAS. Any subsequent CMAS start is a cold start because no data spaces are active.

If there are encumbrances on the CMAS but the encumbrances end before the CMAS is restarted, the restart is a cold start.

What is the difference between a cold start and a warm start

For a cold start, the CMAS creates both the private and shared data spaces. For a warm start, the CMAS creates the private data spaces, retains the DMDS, DAT*x*, WLM*x*, and MAS*x* shared data spaces, but deletes and re-creates the QUE*x* and TOP*x* shared data spaces.

Generally, it does not matter whether a CMAS restart is a cold or warm start.

Note: There is no way to deliberately specify a cold or warm start. The CICS system initialization parameter **START** has no effect on determining whether the restart of a CMAS is a CPSM CMAS cold or warm start.

How do you ensure that a CMAS cold start occurs

If you need to perform a CMAS cold start, you must ensure that the data spaces for the CMAS no longer exist before starting the CMAS. So, after the CMAS, the connected MASs, and all batch API programs are terminated, issue the MVS display job command for the Environment Services System Services (ESSS) address space on the LPAR. With this command, you can verify that the WLM data spaces are deleted. The format of this command is as follows:

```
D J,EYUX vrm
```

where *vrm* is the CPSM release number of the CMAS. For example, for CPSM V5R3M0, the command is `D J,EYUX530`. This command shows the data spaces for the specified CPSM release on that LPAR.

To know what encumbrances exist for a CMAS, run the CPSM EYU9XENF utility. This utility displays all CMASs that are connected to the ESSS, even though some might have already terminated. For each listed CMAS, this utility also displays the MASs and APIs that are still connected to the shared data spaces of the CMAS.

Managing CICSplex definitions

To display information about the CICSplexes associated with the local CMAS click **Administration views—>CMAS configuration administration views—>CICSplex definitions**. This tabular view lists the CICSplexes defined to the local CMAS.

Unassigning a CMAS from a CICSplex definition

When you remove a CMAS involved in managing a CICSplex, the action you take depends on the state of communications between the CMAS to be removed and the maintenance point CMAS.

Before you use the unassign action ensure that there are no active MASs in the updated CICSplex connected to the CMAS to be removed.

- When the CMAS to be removed **is** currently accessible, or will be accessible later, to the maintenance point CMAS you must do the following:
  - Select the check box associated with the CMAS to be removed and click **Unassign**
  - Click **Yes** to remove the selected CMAS from the CICSplex

    This action causes the selected CMAS to be immediately removed from the management of the CICSplex in the data repository for the maintenance point CMAS. Then, if the selected CMAS is currently accessible, its data repository is updated to reflect this change; otherwise, the action is placed in a pending status until the selected CMAS becomes accessible.
- When the CMAS **is not** currently accessible and will never be accessible to the local CMAS, do the following:
  - Select the check box associated with the CMAS to be removed and click **Unassign**
  - Select the **FORCE** check box from the **Unassign** view
  - Click **Yes** to remove the selected CMAS from the CICSplex

    This action causes the selected CMAS to be removed from the management of the CICSplex in the data repository for the maintenance point CMAS. Because the selected CMAS is not accessible, the data repository for the selected CMAS is not altered to reflect this change.

Note: You cannot remove the association between a CICSplex and the maintenance point CMAS. If you determine that a different CMAS should be the maintenance point CMAS for the CICSplex, the entire CICSplex and all of its definitions must be deleted and recreated on the new maintenance point CMAS.

Managing topology definitions

You can manage topology definitions in the WUI using a series of views accessed by clicking **Administration views > Topology administration views**.

Reminder: Unless noted otherwise, only the context setting is recognized when you are creating and maintaining topology definitions.

The remainder of this section describes how to use the WUI to perform topology tasks.

Topology definitions

Topology definitions are stored in the data repositories for all CMASs participating in the management of the CICSplex.

Figure 4 on page 42 illustrates the relationship between the topology definitions establishing a CICSplex and the views used to create and maintain those definitions. For additional information about the data repository, see “Working with maintenance point CMASs” on page 35.

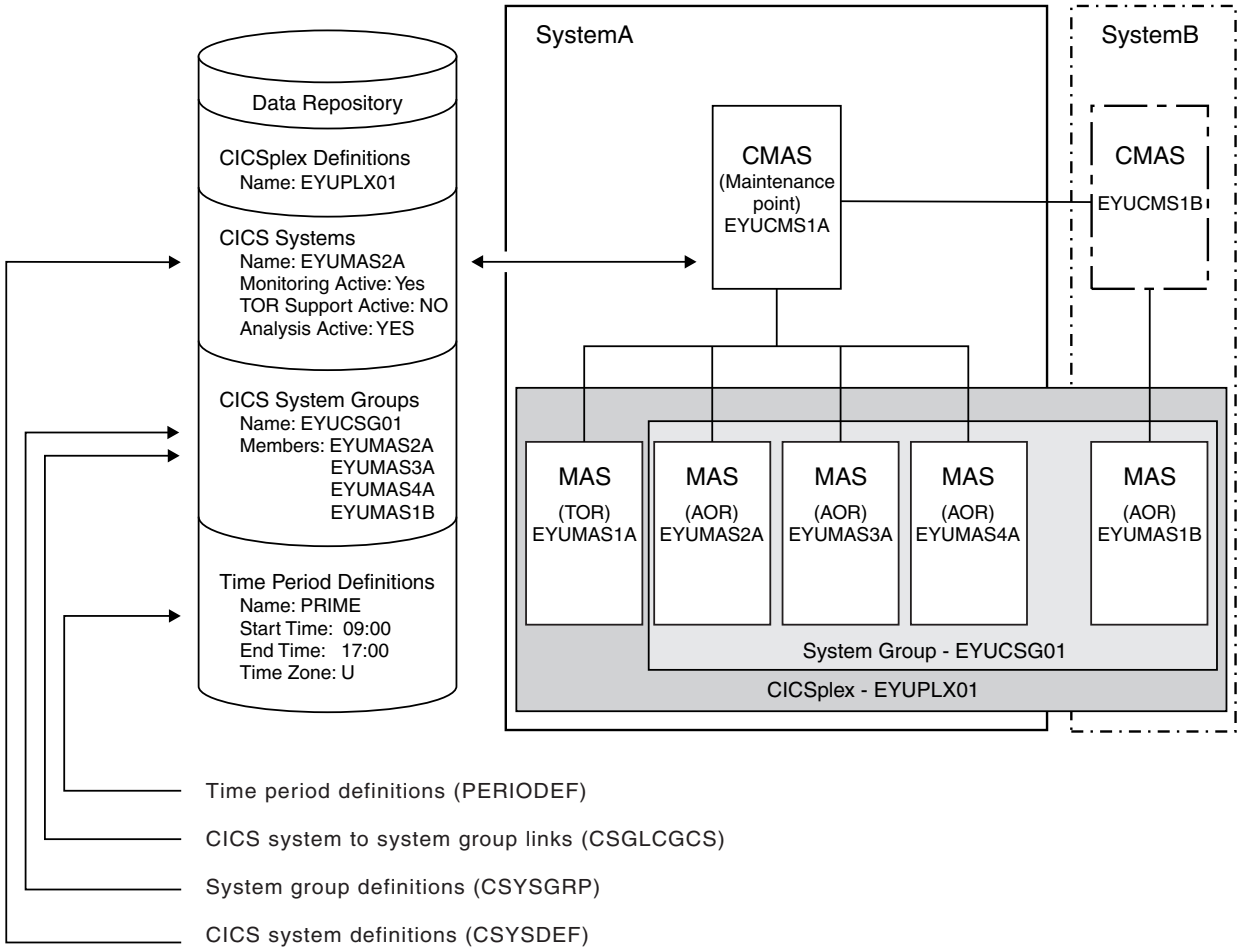


Figure 4. The relationship between CICSplex components and the topology views

In addition, you can use the **CICSPlex SM operations views > MASs known to CICSplex** (EYUSTARTMAS) view to manage an active CICS system as described in "Working with MAS topology definitions" on page 48.

Note: Using the **Administration views > RTA system availability monitoring > CICS system definitions** and **Administration views > RTA system availability monitoring > Time period definitions** views to update definitions affects both a currently running system and the definitions in the data repository.

Managing CICS system group definitions

A CICS system group identifies a subset of the CICS systems comprising a CICSplex. Each subset can consist of one or more CICS systems, CICS system groups, or both. They are referred to as the *members* of a CICS system group.

Working with CICS system definitions

In order to be managed by CICSPlex SM, a CICS system must be associated with a CICSplex that is defined to CICSPlex SM.

Managing time period definitions

A time period definition identifies a specific range of hours and minutes. These definitions are used with resource monitoring and real-time analysis to designate when specific actions are to start and stop.

Creating time period definitions:

Some CICSPlex SM functions can be activated and deactivated automatically at specific times.

For example, you can tell CICSPlex SM to install a particular monitor definition at 10:45 and remove it at 15.00. You define these from-and-to times to CICSPlex SM via time period definitions. It is a good idea to create some standard time period definitions when you first define your CICSplex configuration to CICSPlex SM.

In this example, you will see how to create typical time period definitions for the prime shift, for the lunch period, and for the evening hours.

1. Display any time period definitions already defined for PLXPROD1.
   a. From the main menu click **Administration views** > **Monitor administration views** > **Time periods** to open the **Time period definitions** tabular view.
   b. If the context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**. The context is then fixed for all subsequent views and menus until changed.
2. Create a new time period definition.
   a. Click **Create** to open the **Time period definitions** create view.
   b. Provide the following information:
      Name PDFPRIME
      Description
      Prime shift
      Start time
      08:30
      End time
      18:00
      Time zone
      R
      Time zone adjustment factor
      0

      Note: As you are creating this definition for a standard time zone, you do not need to specify a zone adjustment.
   c. Click **Yes** to confirm. The **Time period definitions** tabular view is redisplayed showing an entry for PDFPRIME.
3. Create a second time period definition.
   a. Select the entry for PDFPRIME in the **Time period definitions** view, and click **Create**. The create time period definition panel is displayed, showing values from the PDFPRIME time period definition.
   b. Type PDFLUNCH in the **Name** field, 12:00 in the **Start time** field, 14:30 in the **End time** field, and "Lunch time" in the **Description** field. The two time zone fields are as they were for PDFPRIME.
   c. Click **Yes** to confirm. The **Time period definitions** view is redisplayed.
4. Repeat step 3 to create a time period definition called PDFEVENG, with a Start Time of 17:30 and an End Time of 23:59.
5. Update a time period definition.

   Suppose that now you want to alter the PDFPRIME definition to change the end time to 17:30. On the **Time period definitions** view, select the entry for PDFPRIME and click **Update**. Overtype the **End time** value with 17:30 and

click **Yes**. The change takes effect immediately, and the **Time period definitions** view is redisplayed showing the updated definition.

Creating a time period definition:

Follow this procedure to create a time period definition in the data repository.

Procedure

1. Click **Administration views** > **Topology administration views** > **Time periods**. The **Time period definitions** tabular view is shown, which displays a summary any time period definitions already defined.
2. If you want to use some of the information from an existing definition in the creation of your new definition, select an existing definition by selecting a check box in the **Record** column.
3. Click the **Create** button. The **Time period definitions** create panel is shown.
4. Provide the required information, as appropriate. See Time periods - PERIODEF for a description of the fields.
5. Click **Yes**.

Results

The new time period definition is added to the data repository and the **Time period definitions** panel is redisplayed.

Time zone codes:

Time zone codes represent the single-character Greenwich codes, which are based on the 24 standard international time zones. Each code indicates the time zone's relationship to Greenwich Mean Time (GMT).

Table 3 on page 45 identifies the time zone codes that you can use in a time period definition.

Time zone setting in a period definition:

When a period definition is for time zone A, all events controlled by that period definition become active at the same *clock* time, based upon the start time specified in the period definition, and the time zone, time zone adjustment, and daylight saving indicator within the entity (CMAS or CICS system).

Similarly, events become inactive at the same *clock* time, based upon the end time specified in the period definition, and the time zone, time zone adjustment, and daylight saving indicator within the entity (CMAS, or CICS system).

When a period definition is for a time zone other than time zone A, all events controlled by that period definition become active at exactly the same *real time*, regardless of the time zone in which the events are occurring. The activation time is based upon the period definition's start time, time zone, and time zone adjustment. Similarly, events controlled by that period definition become inactive at the same *real time*, based upon the period definition's ending time, time zone, and time zone adjustment. For both activation and deactivation, the time zone specified refers to the standard time for that time zone, regardless of whether daylight saving time is in effect.

For more information about the time zone attributes and their use, see "CICSPlex SM time zone attributes" on page 46.

Table 3. Time zone codes

Code	GMT offset	Description	Code	GMT offset	Description
A	n/a	Current local time*	N	-12	(West of date line)
B	+1	Central European time	O	-11	Bering standard time
C	+2	Eastern Europe	P	-10	Hawaii standard time
D	+3	Arabia	Q	-9	Alaska standard time
E	+4	Mauritius, United Arab Emirates	R	-8	Pacific standard time
F	+5	Pakistan	S	-7	Mountain standard time
G	+6	Bay of Bengal	T	-6	Central standard time
H	+7	Thailand	U	-5	Eastern standard time
I	+8	Philippines	V	-4	Atlantic standard time
J	+9	Japan	W	-3	Greenland
K	+10	Eastern Australia	X	-2	Azores
L	+11	New Caledonia	Y	-1	West Africa
M	+12	New Zealand (East of date line)	Z	0	Greenwich mean time (GMT)

***Note:** Time zone A can be specified only in a period definition

Handling daylight saving time changes for CMAS:

For operation of CICSPlex SM, you must modify the daylight saving indicator for all affected CMASs and MASs twice a year for sites in locations that observe daylight saving time. This ensures that the CMAS time zone values, which are used in time zone calculations for time-based operations that the CMAS performs for its Monitor Services and Real-time analysis (RTA) components, are correct.

About this task

When daylight saving time starts or ends, you must specify the corresponding value in the DAYLIGHT attribute of the affected CMAS to reflect the time changes. If the time zone attributes of a MAS are set to `INHERIT`, you do not need to modify the MAS because any changes to the time zone values of the controlling CMAS automatically apply to the MAS.

However, if the MAS does not inherit the time zone values from the controlling CMAS, you must update the **Daylight saving in effect** (DAYLGHTSV) attribute of the MAS.

Note: The TMEZONE, TMEZONEO, and DAYLGHTSV attributes in the CPLEXDEF, CPLXCMAS, and EPLEXCHG resource tables are for documentation purposes only; these attributes are not used in time zone calculations.

Procedure

1. Specify the **Daylight saving time** (DAYLIGHT) attribute in the CMAS operations resource table of the CMAS. Ensure that the CMAS is active when you make the update.

   To set this attribute, you can use the **CMAS detail** (CMAS) view in the WUI, or perform a SET operation on the CMAS operations resource table.

Table 4. Specification of **Daylight saving time** *(DAYLIGHT)*

Daylight saving indicator for CMAS	When daylight saving time starts	When daylight saving time ends
Daylight saving time (DAYLIGHT)	YES	NO

This operation updates the current execution of the CMAS. The update is also propagated to the CMASDEF definition resource table for the CMAS, so the updated DAYLIGHT value is effective on subsequent restarts of the CMAS.

2. For every MAS that does not inherit the time zone values from the CMAS, specify the **Daylight saving in effect** (DAYLGHTSV) attribute in the CSYSDEF definition resource table of the MAS.

   To set this attribute, you can use the **CICS system definitions** (CSYSDEF) view in the WUI, or perform an UPDATE operation on the CSYSDEF definition resource table.

Table 5. Specification of **Daylight saving in effect** *(DAYLGHTSV)*

Daylight saving indicator for MAS	When daylight saving time starts	When daylight saving time ends
Daylight saving in effect (DAYLGHTSV)	YES	NO

The update takes effect the next time the CICS region or the MAS agent in the CICS region is restarted, and is effective for all subsequent restarts.

Note: If a MAS is active when you update the CSYSDEF definition resource table, the update is not propagated to the current execution of the MAS.

3. If a MAS is active, you can apply the daylight saving update to the active MAS without restarting the CICS region or MAS agent by specifying the **Daylight saving in effect** (DAYLGHTSV) attribute in the MAS operations resource table of the MAS.

   To update an active MAS, you can use the **MASs known to CICSplex** (MAS) view in the WUI, or perform a SET operation on the MAS operations resource table. This operation updates the current execution of the MAS.

CICSPlex SM time zone attributes:

CICSPlex SM uses three attributes to facilitate timing services.

These attributes and their available values are:

Time Zone
B through Z

Time Zone Offset
0 through 59 minutes

Daylight saving in effect
YES or NO

These attributes are used to help CICSPlex SM:

- Standardize relative time values within a CICSplex
- Control CICSPlex SM monitor intervals
- Schedule time-started monitor definitions, analysis definitions, and status definitions
- Schedule the time during which System Availability Monitoring (SAM) is active.

These attributes are specified for the following CICSPlex SM definitions:

CMAS
Using the CICSPlex SM EYU9XDUT utility.

CICSplex
Using the **CICSplex definitions** (CPLEXDEF) view.

CICS system
Using the **CICS system definitions** (CSYSDEF) view.

Time period
Using the **Time period** (PERIODEF) view.

Attribute definitions:

Three attributes facilitate timing services.

These attributes are defined as follows:

Time Zone
CICSPlex SM uses the international standard for time zones. This consists of 24 zones around the world, separated in time by 60 minutes each. The standard for these zones is the prime meridian, and time at the prime meridian is referred to as Greenwich Mean Time (GMT).

The area having Greenwich Mean Time is referred to as time zone Z. The next time zone to the east, where time is 60 minutes (one hour) *ahead of* GMT, is time zone B. When GMT is 12:00 noon, the time in time-zone B is 13:00. The next time zone to the east, 120 minutes (two hours) ahead of GMT, is time zone C. For each time zone to the east, time advances one hour, until time zone M, where local time is 12 hours ahead of GMT. Time zone M is at the international date line.

The next time zone east, time zone N, is (like time zone M) separated from GMT by 12 hours. However, because it is considered to be on the opposite side of the international date line from time zone M, it is 12 hours *behind* GMT. Similarly, the next time zone east, time zone O, is 11 hours behind GMT. When GMT is 12:00 noon, the time in time zone O is 01:00. For each time zone to the east, one hour is subtracted, until time zone Y, which is one hour behind GMT.

Note that there is no time zone A.

Time Zone Adjustment
Some locations around the world have implemented times that are different from GMT by times that are not 60 minute multiples. For situations such as these, CICSPlex SM uses a time zone adjustment. To define the time zone of such a location to CICSPlex SM, the time zone of the next lowest 60 minute multiple is used, and the difference, in minutes, between the 60 minute multiple and the location's time is entered as the Time Zone Adjustment. For example, when the time is 13:00 in London, England (this is GMT, or time zone Z), it is 22:00 in Tokyo, Japan (time zone J), and 22:30 in Adelaide, Australia. To define Adelaide's location to CICSPlex SM, the time zone is specified as time zone J, and the time zone adjustment is specified as 30 (to indicate that the time in Adelaide has 30 minutes *added to* the time in the adjacent time zone to the west).

Daylight saving
Some locations around the world modify their time offset from GMT twice a year. Usually, the first change occurs in March or April, when local standard time (LST) is moved *ahead* by one hour, creating local daylight saving time (LDST). For locations in time zones Z through M, LDST is one

hour farther ahead of GMT. For locations in time zones N through Y, LDST is one hour closer to GMT. In October or November, locations that use LDST usually change back to LST. Time in these locations then reverts to the standard difference from GMT.

For operation of CICSPlex SM, sites in locations that make use of LDST *must* modify all CMASs and MASs twice a year. This means indicating YES to daylight saving when LDST is in effect, and NO when LST is in effect. When the daylight saving indicator is NO, CICSPlex SM considers an entity in that time zone to be the normal number of hours from GMT. When the daylight saving indicator is YES, CICSPlex SM considers that entity to be one hour further ahead of GMT (than during standard time) for time zones Z through M, and one hour closer to GMT for time zones N through Y.

To change the LDST for a CMAS, set the **DAYLIGHT** attribute in the CMAS operation resource table. This change updates the current execution of the CMAS and is propagated to the CMASDEF definition resource table for the CMAS so that the LDST change is effective on subsequent restarts of the CMAS.

If a MAS inherits the time zone attributes from its controlling CMAS, that is, the **TMEZONE**, **TMEZONEO**, and **DAYLGHTSV** attributes in the CSYSDEF definition resource table for the MAS specify `INHERIT`, the LDST for a MAS is automatically updated when the LDST is updated for the CMAS to which the MAS is connected. Otherwise, you must update the LDST for the MAS.

To change the LDST for a MAS, set the **DAYLGHTSV** attribute in the CSYSDEF definition resource table. This change takes effect the next time the CICS region or the MAS agent in the CICS region is restarted, and is effective for all subsequent restarts. If a MAS is active when its CSYSDEF definition resource table is updated, the CSYSDEF change is not effective on the active MAS. If you want to change the LDST for an active MAS without restart, you must set the **DAYLGHTSV** attribute in the MAS operation resource table.

For details, see “Handling daylight saving time changes for CMAS” on page 45.

Note: After changing the system time to adjust for LDST, all CMAS must synchronize with the change. If the CICS system initialization parameter **AUTORESETTIME** takes the default value `IMMEDIATE` or is set to `IMMEDIATE`, the synchronization automatically takes place when the next task is attached in the CMAS. Otherwise, you need to issue the **PERFORM RESETTIME** command in the CMAS. For more information about the **AUTORESETTIME** parameter, see Effect of daylight saving time changes.

Working with MAS topology definitions

This section describes how you can obtain information about active CICS systems using the **MASs known to CICSplex** (EYUSTARTMAS) view.

Stopping an active MAS

Follow these steps to stop MAS agent code within an active CICS system.

1. Click **CICSPlex SM operations view > MASs known to CICSplex**.

   This opens the **MASs known to CICSplex** tabular view, which displays information about CICS systems that are known to the CICSplex identified as the context.

2. Select one or more of the listed CICS systems.
3. Click **Stop** and confirm the action by clicking **Yes** on the confirmation screen.

Note: When the **Workload manager status field** for a CICS system contains **YES**, you may not be able to stop the MAS agent code. If the CICS system is acting as a requesting region, you cannot stop the MAS agent code. (To determine which CICS systems are acting as requesting regions, click **Active workload views > Target regions in an active workload**.)

If you want to stop the MAS agent code in a CICS system of this type, you must first change the dynamic routing program to something other than EYU9XLOP. (You can use the **CICS regions** view to change the dynamic routing program.)

Updating an active MAS

Follow this procedure to update an active MAS.

Any changes that you make to a CICS system definition take effect immediately. They remain in effect as long as the CICS system is active or until you change them again.

Note: If you turn on workload management, real-time analysis, or resource monitoring from these panels, their status will not be shown as active until the component is fully initialized.

1. Click **CICSPlex SM operations view > MASs known to CICSplex**.

   This opens the **MASs known to CICSplex** (MAS) view, which displays information about CICS systems that are known to the CICSplex identified as the context.
2. Click the **CICS system name** column of one of the listed active CICS systems to open the **MASs known to CICSplex** detail view. On this view you can update monitoring, RTA and WLM status of the selected active CICS system. You can also alter time zone and security attributes.

   For more information about the Time Zone, Time Zone Offset, and Daylight Time attributes, see the description of CICSPlex SM time zone attributes in "CICSPlex SM time zone attributes" on page 46.
3. To apply the changes you have made to the active CICS system, click **Apply changes**. The changes take effect immediately and remain in effect until you change them or the CICS system stops.

Enabling a CMAS to send generic alerts to NetView

This example task is part of a larger, real-time analysis task that requires you to update a CMAS definition. This example illustrates only the CMAS-related part of the task.

If you want CICSPlex SM to send SNA generic alerts to NetView®, the NetView program to program interface (PPI) must be activated in the relevant CMAS. (This is the CMAS on the same MVS image as the NetView instance.) This example shows how to activate the NetView PPI in a given CMAS, CMSSYS1.

1. First, check that the context is correct (CMSSYS1 in this example). If it is not, change the context field to CMSSYS1 in the current view and click **Set**. The context is then fixed for all subsequent views and menus until changed.
2. Display the CMAS definition.

a. From the main menu click **CICSPlex SM operations views —> CMASs known to local CMAS** to open the **CMASs known to local CMAS** tabular view.
b. If the context is not CMSSYS1, specify CMSSYS1 in the **Context** field and click **Refresh**. The context is then fixed for all subsequent views and menus until changed.
c. Locate the entry for CMSSYS1 and click **Local** in the **Type of access** field to open the **CMAS detail** view.

3. Update the CMAS definition.

   On the **CMAS detail** view locate the **Netview PPI to be used** field and change the entry from **No** to **Yes**. Scroll to the bottom of the view and click **Apply changes**. The view is redisplayed, showing the updated value. The NetView PPI interface is now activated.

Administering CICSPlex SM operations

CICSPlex SM operations views describe those Web User Interface (WUI) views that support day-to-day operation and management of the CICS resources in an enterprise.

It is intended for CICS operators who are responsible for running CICS-supplied transactions, such as the CICS Master Terminal Transaction (CEMT), to manage CICS resources.

The CICSPlex SM views mirror the functionality currently provided for CICS systems. In other words, operators can work in essentially the same way as they do now without any change in their basic approach to daily system activities. The greatest benefit of the CICSPlex SM views, however, is that they can be used to control the operation of multiple CICS systems and their resources from a single session, as if they were a single CICS system.

Controlling CICS resources

The CICSPlex SM operations views provide a single-system image of all the CICS resources in a CICSplex.

You can use the operations views to perform the following tasks:

- Enable and disable resources
- Open and close resources
- Acquire and release resources
- Place resources in or out of service
- Purge tasks associated with a resource
- Discard resource definitions from the CICS system where they are installed
- Change various resource attributes
- Shut down a CICS system

Availability for CICS releases

Some views, action commands, or fields are not available for all of the supported CICS releases. If a view is not available for all supported CICS releases, the **Availability** section of the view set description identifies the CICS releases for which the view set is generally available. The online help for views, actions, and fields also provides availability information. When you display a view and your

CICSplex includes systems running a release of CICS for which that view is not available, those systems are not included in the view.

Example operations tasks

Step-by-step examples of some typical operations tasks help you to use the WUI operations views more effectively.

For any operations task, you must be aware of the scope, that is, of the CICS systems, with which you are working: if the scope is a single CICS system, any data you retrieve from CICSPlex SM relates to that single system; if the scope is a group of CICS systems, the data relates to all of the systems in the group; if the scope is a CICSplex, the data relates to every system in that CICSplex. For all of these examples, the initial scope is CICSplex PLXPROD1.

Finding out how many tasks are associated with a transaction

This example shows how to find out how many tasks are associated with a transaction from the Sale example application in CICSplex PLXPROD1.

Prerequisite: To follow the example, the Sale example application needs to be installed in the CICS systems. See The Sale example application for more details. Enter transaction PAY1 at one or more terminals of the CICS systems being used.

This example assumes that you are interested to find out how many tasks are associated with transaction PAY1 throughout the CICSplex PLXPROD1

1. If the current context isn't PLXPROD1, on the main menu, set the **Context field** to PLXPROD1.
2. From the main menu, click **Active tasks** to display the **Active tasks** tabular view (TASK object), which shows all the active tasks for CICSplex PLXPROD1.
3. Type `PAY1` into the **Transaction** field and click **Refresh**. The **Active tasks** tabular view is redisplayed, showing only those tasks associated with transaction ID PAY1. A message at the top and bottom of the display tells you how many tasks are active and the number of pages.
4. Click the Summarize icon at the top of the **Task ID** column. The **Active tasks** tabular view is redisplayed showing the summarized task data. The record count field gives the number of tasks associated with PAY1 throughout the CICSplex.

Identifying the tasks associated with a transaction

In this example, you'll see how to identify the tasks associated with an instance of a transaction from the Sale example application in CICSplex PLXPROD1.

Prerequisite: To follow the example, the Sale example application needs to be installed in the CICS systems. See The Sale example application for more details. Enter transaction PAY1 at one or more terminals of the CICS systems being used.

1. If the current context isn't PLXPROD1, on the main menu, type PLXPROD1 into the **Context** field and click **Refresh**.
2. From the main menu, click **Active tasks**. The **Active tasks** tabular view, showing the status of all tasks in the current scope, is displayed.
3. Assume that you are interested in transaction PAY1 in CICS system CICSPA01. Type these values into the **Transaction** and **Scope** fields and click **Refresh**.
4. Click the **Task ID** to display the **Active tasks** detailed view.

5. Scroll down the display to the **Local unit of work (UOW) ID** field, and note or copy its value. An example value could be one similar to 8286F48104090001.
6. From the main menu, click **CICS operations views** > **Unit of Work (UOW) operations views** > **Unit of work**. The **Unit of work** tabular view is displayed.
7. Type or paste the UOW ID into the **Local unit of work (UOW) ID** field and click **Refresh**. You can summarize the **Unit of work** tabular view by clicking the **Summarize** icon at the top of the **Local unit of work (UOW) ID** column, but as this view typically covers a large number of pages, it is quicker to use the **Local unit of work (UOW) ID** field.

Note that if monitoring is inactive in a CICS system, the network Unit of Work ID is not available.

Relating a set of tasks to a user ID

In this example, you'll see how to identify the tasks associated with particular user ID.

1. If the current context isn't PLXPROD1, on the main menu, type PLXPROD1 into the **Context** field and click **Refresh**.
2. From the main menu, click **Active tasks**. The **Active tasks** tabular view, showing the status of all tasks in the current scope, is displayed.
3. To summarize the list of tasks by User ID, click the Summarize icon at the top of the **User ID** column. The **Active tasks** tabular view, showing the TASK data summarized by user ID, is displayed. The **Record count** column tells you how many tasks are associated with each user ID.
4. To display a list of tasks associated with a single user ID, click on record count for the user. The **Active tasks** tabular view is redisplayed showing just the tasks associated with that user.

Checking the status of a terminal

This example shows some of the ways in which you can check the status of a terminal.

To display information about all the terminals in the current context:

- From the main menu, set the **Context** field to PLZPROD1 and click **Refresh**, if necessary.
- Click **Terminals** to display the **Terminals** tabular view (TERMNL object).
- Type the terminal ID into the **Terminal ID** and click **Refresh**. The **Terminals** tabular view is redisplayed showing the status of each terminal for each CICS system it is logged on to: if a terminal is logged on to three CICS systems, it will have three entries in the **Terminals** tabular view.
- If you don't know the terminal ID, but are interested in terminals related to a particular user ID, click the Summarize icon at the top of the **User ID** column. Click the **Record count** field to redisplay the **Terminals** tabular view showing the terminals associated with a particular user.

Checking the status of a communications link

This example shows how you can check the status of a communications link.

1. If the current context isn't PLXPROD1, from the main menu type PLXPROD1 into the **Context** field and click **Refresh**.
2. From the main menu, click **ISC/MRO connections**. This view shows all the connections in the current scope.
3. Use the **Connection ID** and **Net Name** fields to refine the display.

4. To display details of a single connection, click the **Connection ID** field to display the detailed view.

Finding out which CICS systems a file is available to

This example shows how to identify the CICS systems that are able to use a particular file.

1. If the current context isn't PLXPROD1, from the main menu type PLXPROD1 into the **Context** field and click **Refresh**.
2. To display a list of local files, from the main menu, click **Local files**. The **Local files** tabular view (LOCFILE object) is displayed.
3. Refine the display using the **File ID**, **Enablement status** and **Open status** fields. Note that you do not have to use a specific file name; you can use generic names with wild card characters, for example PAY* to display all files that have PAY as the first three characters of their names.

Correlating local and remote file names

In this example, you'll see how to relate the name by which a particular file is known in a local CICS system to the name by which it is known in a remote CICS system.

1. If the current context isn't PLXPROD1, from the main menu, type PLXPROD1 into the **Context** field and click **Refresh**.
2. To display a list of remote file definitions, from the main menu, click **Remote files**. The **Remote files** tabular display (REMFILE object) is displayed.

   You can learn several things from this **Remote files** view:

   - You can see the number of remote-file definitions installed in CICSplex PLXPROD1, the names by which these files are known, for example PAYFILER, and the systems in which the remote file definitions are installed, for example CICSPA01 and CICSPAY02.
   - The **Remote file names** field contains the name by which the files are known in the CICS systems in which these are *local* files; for example, both files are known as PAYFILE1.
   - The name of the connection, for example AF01, between the CICS systems in which these files are known as local files. (This latter value is referred to as the “remote system name”, but in fact it is a connection ID.)
3. Use connection name AF01 to find out the name of the remote CICS system.
   - From the main menu, click **ISC and MRO connections** to display the **Connections** tabular view.
   - If necessary, you can refine the data displayed by typing AF01 into the **Connection ID** field and clicking **Refresh**.
   - Note the remote system name for the connection, for example CICSAF01, which is given in the **Net name** field.
4. The next step is to look at all local files called PAYFILE1 in the remote CICS system.
   - Change the scope, so that any data you get back from CICSPlex SM relates only to CICSAF01. To do this, from the main menu, type CICSAF01 into the **Scope** field and click **Refresh**.
   - From the main menu, click **Local files**.
   - On the **Local files** tabular view, type PAYFILE1 into the **File ID** field and click **Refresh**.
   - The **Local files** tabular view is redisplayed showing PAYFILE1 in CICS system CICSAF01.

Finding out which data set a program came from in a specified CICS system

This example shows how to identify the data set from which a particular instance of a program originated.

This example shows how to identify the data set from which a particular instance of a program originated.

1. If the current context isn't PLXPROD1, from the main menu, type PLXPROD1 into the **Context** field and click **Refresh**.
2. To display detailed information about a program in a specified CICS system, from the main menu, click **CICS operations views > Programs operations views**.
3. From the Programs tabular view, type the program name PRGPAYR1 into the **Program name** field and CICS system name CICSPA01 into the **Scope** field. Click **Refresh**.
4. Click the **Program name** field for PRGPAYR1 to display the **Programs** detailed view. The **Programs** detailed view is displayed, showing the LIBRARY name and the load data set name for CICSPA01

Finding out why a CICSPlex SM event occurred

This example shows you how to investigate what caused a real-time analysis event notification RTDPAY01 to be issued.

1. If the current context isn't PLXPROD1, change the **Context field** on the main menu to PLXPROD1 and click **Set**.
2. From the main menu, click **Real Time Analysis (RTA) outstanding events** to display the **RTA outstanding events** tabular view.
3. This view will show you that the CONNSTATUS value of the connection has triggered the event and that its current value is RELEASED. This might tell you all you need to know. If it doesn't, you can investigate further as described in the remaining steps of this example.
4. Look at the associated evaluation definition. To access this:
   - From the main menu, click **Administration views > RTA analysis point monitoring > Evaluations** to display the **Evaluation definitions** tabular view.
   - Click the**Name** field of the entry you are interested in to display **Evaluation definitions** detailed view.

     From this view, you can see that event RTDPAY01 is triggered when the value of the **CONNSTATUS** field in the CONNECT resource table is not ACQUIRED. (The **Field being evaluated** field is CONNSTATUS, the **Evaluation logical operator** field is NE (meaning “not equal to”); and the **Evaluation data value** field is ACQUIRED).
5. Next, you could look at the **ISC/MRO connections** view (CONNECT object):
   - From the main menu, click **ISC/MRO connections** to display the **ISC/MRO connections** tabular view.
   - If necessary, change the **Scope** field to CICSPT01 and click **Refresh**.
   - The**ISC/MRO connections** tabular view displays a list of connections for CICS system CICSPT01

Disabling a transaction in a single CICS system

This example shows you how to disable transaction PAY1 in CICS system CICSPA01. (CICSPA01 is in the CICSplex PLXPROD1, which is the current scope.) There are two ways of doing this.

For example, you can:

1. List all local transactions. From the main menu, click **Local or dynamic transactions**. The **Local or dynamic transactions** tabular view (LOCTRAN object), showing all local transactions in the current scope (PLXPROD1), is displayed.
2. To refine the display, type CICSPA01 in the **Scope** field, PAY1 in the **Transaction ID** field, and ENABLED in the **Enabled status** field. Click **Refresh**.
3. Click the Record check box beside the transaction and click the **Disable...** button.
4. The **Disable** view is displayed. Click **Yes**. The **Local or dynamic transactions** tabular view is redisplayed, showing the status of the transaction instance as DISABLED.

or you can:

1. List all local transactions. From the main menu, click **Local or dynamic transactions**. The **Local or dynamic transactions** tabular view (LOCTRAN object), showing all local transactions in the current scope (PLXPROD1), is displayed.
2. To refine the display, type CICSPA01 in the **Scope** field, PAY1 in the **Transaction ID** field, and ENABLED in the **Enabled status** field. Click **Refresh**.
3. Click the **Transaction ID** field for PAY1 to display the **Local or dynamic transactions** detailed view.
4. Use the drop-down menu to change the value of the **Enabled status** field to DISABLED. Click the **Apply changes** button. The **Local or dynamic transactions** tabular view is redisplayed showing a DISABLED status for transaction PAY1.

Disabling a transaction globally

This example shows how to disable a single transaction throughout a scope.

1. If the current context isn't PLXPROD1, on the main menu, type PLXPROD1 into the **Context** field and click **Refresh**.
2. From the main menu, click **Local and dynamic transactions**. The **Local and dynamic transactions** tabular view is displayed.
3. Type PAY1 in the **Transaction ID** field and click **Refresh**. The **Local and dynamic transactions** tabular view is redisplayed showing the instances of transaction PAY1.
4. Summarize the list of transaction instances. Click the Summarize icon at the top of the **Transaction ID** column. The **Local and dynamic transactions** tabular view is redisplayed showing one line for transaction PAY1 with a **Record count** field giving the number of instances of the transaction PAY1 in the current scope.
5. To disable every occurrence of transaction PAY1 represented in this summary line, click the Record check box and click the **Disable...** button. The **Disable** view is displayed.
6. Click the **Yes to *n* remaining** button, where *n* is the number of instances of the transaction. The **Local and dynamic transactions** tabular view is redisplayed, showing the summary line with the **Enabled status** field set to DISABLED.

   Note: You can disable each transaction individually by clicking the **Yes** button, but this is inefficient unless there is a good reason.

Finding out which resources are being monitored in a CICS system

This example shows how to find out which types of resource are being monitored in CICS system CICSPA01.

1. From the main menu, click **Monitoring views** > **Active monitor specifications**.
2. If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field.
3. In the **Scope** field, type in CICSPA01 and click **Refresh**.

   The Active monitor specifications tabular view now displays the active monitor definitions in CICS system CICSPA01.

For a more complete description of the Active monitor specifications view, see Default monitor definitions.

Deactivating a workload definition

This example describes how to use the Web User Interface (WUI) to deactivate the workload definition WLDPAY02.

1. Display active workload definitions:
   - From the main menu, click **Active workload views > Definitions**. This opens the **Active workload definitions** view.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - In the **Active workload definitions** view, type WLSPAY01 and click **Refresh**. The active workload definitions associated with workload specification WLSPAY01 are listed.
2. Discard workload definition WLDPAY02:
   a. Select the entry for WLDPAY02, and click the **Discard...** button. This opens the **Discard** confirmation view.
   b. Click **Yes** to confirm the action.

Be aware that, when you deactivate an active workload definition, you also deactivate any transaction groups associated with it if they aren't referenced by another workload definition in the same workload.

Discarding an active transaction from a workload

This example shows you how to discard an active transaction PAY2 from a workload EYUWLS02.

1. If the current context isn't PLXPROD1, on the main menu, type PLXPROD1 into the **Context** field.
2. From the main menu, click **Active workload views > Dynamic transactions**. The **Active workload dynamic transaction** tabular view (WLMATRAN object) is displayed.
3. If necessary, you can refine the display using the **Workload name**, **System ID of workload owner**, and **Transaction** fields.
4. To discard transaction PAY2, click the record check box beside the entry and click the **Force...** button. The **Force** confirmation view is displayed.
5. Click the **Yes** button to confirm the action. The **Active workload dynamic transaction** tabular view is redispayed, minus the entry for PAY2.

Administering BAS

You can use business application services to manage CICS resources.

Introduction to BAS

Business Application Services is the component of CICSPlex SM that is responsible for managing the CICS resource definition and installation process for business applications at your enterprise.

Business Application Services provides the following facilities:

Centralized resource definition
With BAS, you can implement resource definition and association across the entire CICSplex. The CICSPlex SM data repository (EYUDREP) can serve as the central repository for CICS resource definitions. CICSPlex SM minimizes the number of resource definitions you need for your CICSplex by:

- Providing a single-system image approach to defining CICS resources.
- Producing both local and remote instances of a resource from the attributes of a single definition.
- Managing multiple versions of a definition; for example, as the application progresses from testing to production.
- Generating multiple CICS connections from a single set of definitions.

Logical scoping
When your CICS resources are defined to CICSPlex SM, you can monitor and control those resources in terms of their participation in a named business application, rather than their physical location in the CICSplex. You can identify and refer to logically related resources as a set, regardless of where they reside at any given time.

Distributed resource installation
Resources that are defined to CICSPlex SM must still be installed in the appropriate systems, either by CICS or CICSPlex SM. You can use BAS to install your resources automatically at CICS initialization, or dynamically while a region is running. You can install a single resource in multiple CICS regions either locally or remotely, as appropriate.

Business Application Services supports the following CICS resources:

Application resources
These are the resources that support the business applications at your enterprise. They are the resources that an application requires to run:

- CICS BTS process types
- DB2 connections and transactions
- Document templates
- FEPI nodes, pools, property sets and targets
- Files and file key segment definitions
- IPIC connections
- LIBRARY resources
- Map sets
- Partition sets
- Pipeline
- Programs
- Sysplex enqueue models
- TCP/IP services
- Temporary storage models

- Transactions
- Transient data queues
- URI maps
- Web services

Region property resources
These region property resources are the global resources that support the running of a CICS region:

- Journals
- Journal models
- Local shared resource (LSR) pools
- Profiles
- Transaction classes
- Terminals
- Typeterms

Connectivity resources
These resources support the creation of connections between CICS regions and other systems:

- Connections
- Partners
- Sessions
- TCP/IP services
- IP interconnectivity (IPIC) connections

Methods of accessing BAS

CICS provides a number of interfaces for defining and managing BAS.

CICS Explorer

You can use CICS Explorer for day-to-day management of resource definitions. The CICS Explorer is a system management tool that provides a simple, easy to use way of managing one or more CICS systems and associated resources. Resource definitions can be created and updated using the CICS Explorer resource definition editor.

The CICSPlex SM API

You can use the CICSPlex SM API to write external programs that automate the management of CICS resource definitions. Such programs could be used to integrate the CICSPlex SM system management functions into your enterprise-wide change management process. For example, you could write an API program to coordinate resource definition changes with database or file updates, or the standard life cycle of an application.

The Web User Interface

You can use the Web User Interface (WUI) views for the day-to-day management of resource definitions. These views provide an immediate, interactive look at your resource definitions. You can create, update and remove resource definitions.

The views are grouped into basic and fully-functional BAS submenus:

- The basic views restrict the management of resources to the resource description, as used by CICS resource definition online (RDO).
- The fully functional menu, aimed at more advanced users, includes the option of managing resources by resource assignments as well as resource descriptions.

The batched repository-update facility

The CICSPlex SM batched repository-update facility can help you to create and maintain many resource definitions:

Defining large numbers of resources
The batched repository-update facility is ideal for creating and updating large numbers of resource definitions. You can start with an input file that contains one **CREATE** command for one resource definition and use that command as a template for other resource definitions. By copying and customizing the **CREATE** command, you can quickly build all the resource definitions of a given type that you require. When you submit the batched repository-update facility input file, CICSPlex SM creates all the resource definitions and adds them to the data repository.

Migrating resource definitions
The batched repository-update facility is an essential tool for migrating resource definitions from CICS to CICSPlex SM. CICSPlex SM provides an exit routine that can extract records from an existing CSD file and generate equivalent resource definitions for input to the batched repository-update facility. For more information about the exit routine, see "Extracting records from the CSD" on page 97.

Maintaining a centralized repository
The batched repository-update facility is useful for migrating resource definitions from one CICS platform to another, which is key to maintaining a centralized definition repository. You can use the **DUMP** command to retrieve existing resource definitions from the CICSPlex SM data repository. After making the required changes to the definitions, you can use the dump output as input to another batched repository-update facility run that creates resource definitions for the new CICS platform.

The BAS objects

A *BAS object* is an instance of a CICS resource in the CICSplex. Whichever interface you use to access BAS, the objects that you are interacting with are essentially the same.

There are two types of Business Application Services objects:

Resource definition views and objects
You use resource definition views to define instances of CICS resources. The attributes of each resource definition (*xxxx*DEF object) are identical to those of the equivalent CICS CEDA definition; for example, to define a CICS connection (CONNDEF object), you use the **Connection definitions** view.

Administration objects
You use administration objects to manage resources. These objects are split into the following areas:

Base objects
These objects are the foundation of BAS. They implement the assignment and installation of resources in CICS systems.

RASGNDEF
A resource assignment describes selected resource definitions of a given type and indicates how those resources are to be assigned to various CICS systems.

RESDESC
A resource description identifies sets of logically related resource definitions. The set of resources identified in a resource description can be used as the scope value for CICSPlex SM requests. The resources can also be installed as a set in CICS systems that support resource installation.

RESGROUP
A resource group is a set of related resource definitions. The resource definitions in a group can be of the same or different resource types.

Association objects
These objects control the relationships between the base administration objects and their resource definitions.

RASINDSC
Associates a resource assignment with a resource description.

RESINDSC
Associates a resource group with a resource description.

RESINGRP
Associates resource definitions of a given type with a resource group.

Process display objects
These objects illustrate how resources will be assigned to CICS systems.

RASPROC
Identifies the resource definitions to be selected when a given resource assignment is processed.

RDSCPROC
Identifies the resource definitions to be selected when a given resource description is processed.

SYSRES
Identifies the resources that are defined to a specified CICS system.

Connectivity objects
These objects describe the nature of connections between CICS regions and other systems.

CSYSDEF
Describes the operational characteristics of a CICS system, including resource installation options and the system ID to be used in identifying connections. You use the **CICS system definition view** to create connections to other CICS systems.

SYSLINK
Describes the connections that exist between CICS regions

in your CICSplex. You use the **CICS system link definitions** view to create and install CICS connections of different types.

Comparison of CEDA and BAS functions

Table 6 provides a comparison between CEDA administrative functions and BAS administrative functions.

Table 6. CEDA and BAS administrative functions

CICS CEDA	CPSM BAS	WUI view name
DEFINE resource	RESDEF CREATE	`resource` Definition
USERDEFINE resource	RESDEF CREATE against model	`resource` Definition
INSTALL resource	RESDEF INSTALL	`resource` Definition
VIEW resource	RESDEF BROWSE	`resource` Definition
ALTER resource	RESDEF ALTER	`resource` Definition
COPY group	RESGROUP CREATE members	Resource group definition
MOVE group	RESGROUP CREATE association	Resource group in resource description
INSTALL group	RESGROUP INSTALL	Resource group definition
DISPLAY group	RESGROUP	Resource group definition
CHECK group/list	Implicit - consistent set processing	n/a
DISPLAY list	RESDESC	Resource description definition
No equivalent	MAP	EYUSTARTMAPBAS(The actual name on the view will depend on what is being mapped.)
ADD group to list	RESGROUP ADD	Resource group definition
APPEND list to list	RESDESC CREATE model	n/a
EXPAND group/list	RESINDSC/RESINGRP	n/a
INSTALL list	RESDESC INSTALL	Resource description definition
DELETE	REMOVE	n/a
LOCK/UNLOCK	No equivalent (use security)	n/a

CICSPlex SM provides the same functions as the CICS CEDA transaction, with a few minor differences. CICSPlex SM performs automatically a function similar to CEDA CHECK when certain ADD or UPDATE functions are carried out.

BAS security considerations

Because of the importance of resource definitions to your CICSplex environment, CICSPlex SM enables you to define security for the BAS facilities.

Providing security for BAS is handled in the same way as it is for other CICSPlex SM components. You can define as narrow or as broad a range of BAS functions as you like and authorize as few or as many people as you like to use them. For security purposes, the BAS functions are divided into the following groups:

BAS.DEF
This group includes all of the resource definition views and the related BAS administration views. Users with UPDATE access to this group can

create, update, and remove definitions in the CICSPlex SM data repository. Users with READ access to this group can view definitions in the CICSPlex SM data repository.

BAS.resource
These groups are named according to the resource type they represent (such as BAS.CONNECT, for connection-related definitions). Each group includes the resource definition views for a given resource type. For example, BAS.CONNECT includes the **Connection definitions** views (CONNDEF objects) and **Session definitions** views (SESSDEF objects).

The purpose of these security groups is to further restrict a user's ability to install resources in CICS systems. A user must have ALTER access to the appropriate BAS.resource group in order to install the specified resources.

In addition to controlling access by function, you may want to limit the use of these functions to certain resources in certain CICS systems. CICSPlex SM also provides simulated CICS security checking, which enables you to control access to CICS resources and commands.

You should be aware of the need to take special care in the adequate protection of the BAS views, so that unauthorized users cannot create and administer resources.

If you are using the EXEC CICS CREATE command to build new resources, any definition created with the CICSplex as the context is automatically distributed to all CMASs in the CICSplex. Therefore, giving a user authority to create BAS objects is equivalent to giving authority to install resources on any CICS system in the CICSplex. When the CICS system starts, there is no check on who installed the resource in the system.

For details on setting up security for CICSPlex SM at your enterprise, see Implementing CICSPlex SM security.

Using the Web User Interface

Resource definitions are the most basic element of the Business Application Services environment. CICSPlex SM must know about your CICS resources in order to manage them. Defining your resources to CICSPlex SM is similar to using RDO to define them to CICS – you specify the attributes that describe the resource in one or more WUI views. But you do not have to define every instance of every resource in your CICSplex to CICSPlex SM manually. You can use a small number of resource definitions as templates for the creation of a large number of resources.

You can create a resource definition that describes many similar, if not identical, resources by specifying those attributes that are common to all the resources. You can even specify attributes that apply to a remote instance of the resource along with the local attributes. CICSPlex SM uses the appropriate subset of attributes as it assigns the local and remote resources to various CICS systems.

BAS administration views

In the Web User Interface, BAS functions are separated into basic and fully functional view menus. To access BAS functions from the WUI main menu click **Administration views**

At the bottom of the **Administration views** menu are two submenus:

Basic CICS resource administration views
These views provide a simplified RDO-like model of BAS including resource definitions, resource groups, and resource descriptions but not resource assignments.

Fully functional Business Application Services (BAS) administration views
In addition to the basic model, these views include links to resource assignment views aimed at more advanced users. Use these views to have more flexibility for managing resource definitions. See "Controlling resources by resource assignment" on page 79 for more information about resource assignments.

Links from both submenus are split into three groups:

Definitions
Includes the following links:

CICS resource definitions
Menu containing links to definition views for each resource type.

Resource groups
Link to definitional view for managing resource group definitions. Associated actions are Create, Update, Remove, Install and Add to Resource description.

Resource assignments (fully functional menu only)
Link to definitional view for creating and managing resource assignments. Associated actions are Create, Update, Remove and Add to Resource description.

Resource descriptions
Link to a definitional view for creating and managing resource descriptions. Associated actions are Create, Update, Remove, Install and Replace.

Associations
Includes the following links:

CICS resource definitions in resource group
Link to a tabular view displaying the resources within a resource group. The view includes a Remove action button allowing you to remove an association between a resource definition and its parent resource group. There is no create action with this view. Adding a resource to a group is carried out while defining the resource itself

Resource groups in description
Link to a definitional view for managing the associations between resource groups and resource descriptions. Associated actions are Create, Update and Remove.

Resource assignment in description (fully functional menu only)
Link to a definitional view for managing the associations between resource assignments and resource descriptions. Associated actions are Create, Update and Remove.

CICS system links
Link to a definitional view for managing CICS system link definitions. Associated actions are Create, Remove and Install.

Resources deployed by...
Includes the following links to views displaying active CICS resources:

Resource description
Link to a tabular view displaying deployed resources selected by resource description.

Resource assignment (fully functional menu only)
Link to a tabular view displaying deployed resources selected by resource assignment.

CICS system
Link to a tabular view displaying deployed resources selected by CICS system.

Reminder: Unless noted otherwise, only the context setting is recognized when you are creating and maintaining resource definitions.

Common WUI resource definition actions

Each WUI resource definition view supports the following actions for creating and maintaining resource definitions:

Add to resource group
To add a resource definition to a resource group.

Create To create a resource definition and add it to the data repository.

Map To generate a visual representation of related definitions in the data repository.

Install To install a resource in one or more active systems. For details of valid systems, see the descriptions of the individual BAS objects.

Remove
To remove a resource definition from the data repository.

Update
To update a resource definition in the data repository.

You can update multiple resources in a single operation by selecting multiple entries from a resource definition tabular view before clicking **Update**.

These actions and the views that result from them are similar for all the resource definition views that support them.

Accessing resource definition views: To access resource definition views:

- You can follow two paths from the WUI main menu to open the **CICS resource definitions** menu:
  - Click **Administration views** > **Basic CICS resource administration views** > **Resource definitions**.
  - Click **Administration views** > **Fully functional Business Application Services (BAS) administration views** > **Resource definitions**.

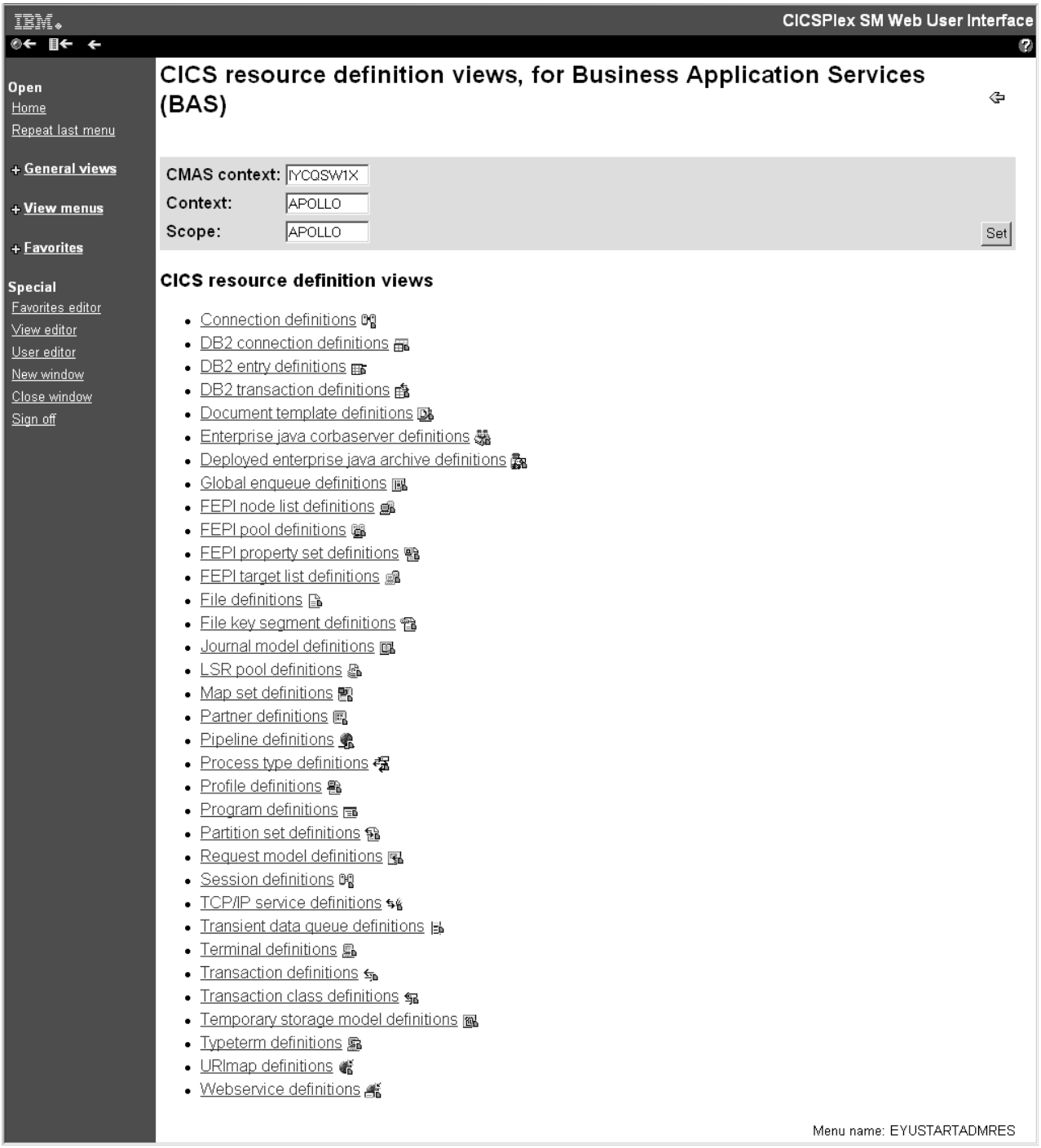


Figure 5. WUI resource definition menu

- Select the required resource from those listed to display a tabular view of existing resources. For example, in order to work with a CorbaServer definition, click **CorbaServer definitions** from the list to display a **CorbaServer definition** tabular view.

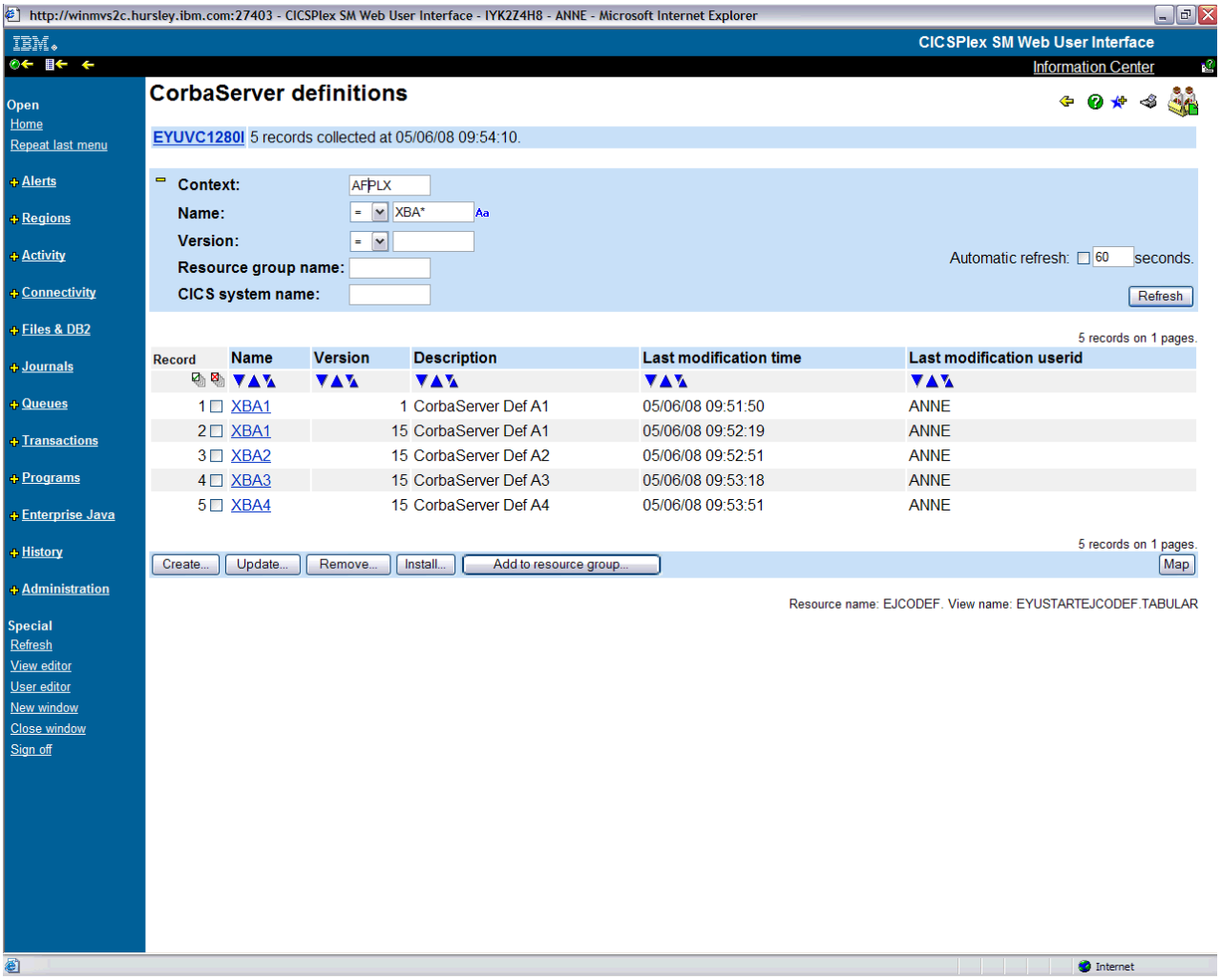


Figure 6. CorbaServer definition tabular view

See "BAS administration views" on page 62 for more information.

Creating CICS resource definitions: To create a new resource definition:

- From the tabular view for the selected resource, click the **Create...** button to display the create view for the resource. You can select an existing resource definition to use as a template before clicking the **Create...** button.
- When you have complete the definition, click **Yes** to create the definition and redisplay the resource tabular view.

Updating resource definition views: To update one or more resources:

- Select the required record or records using the adjacent check boxes and click the **Update** action button to display a resource definition view. This view is used for both the update and create actions.
- Make the required updates to the displayed fields. Use the **Yes** and **No** buttons to confirm or abandon the operation.

Removing CICS resources: To remove one or more resource definitions, select the required record or records using the adjacent check boxes and click the **Remove** action button. You are given the option to confirm or abandon the operation for each selected record.

Mapping CICS resources: To generate a map of related definitions, click **Map**.

Installing CICS resources: To install resource definition views, click the **Install...** button.

Common WUI definition fields

The majority of the information in the create input views for each resource definition is unique to the type of resource. However, the following fields are common to the first input view for every resource definition:

Name The name of the resource definition.

The length and format of the name varies by resource type. For example, a program name can be up to 8 characters long, but a connection name can be only 4 characters long.

Note: The names of resource definitions are case-sensitive in CICSPlex SM.

Version

The version number of the resource definition.

You can specify one of the following:

- An integer in the range 1 through 15, or
- Blank or 0, in which case CICSPlex SM assigns the next available version number.

This can be blank, or an integer in the range 0 through 15.

Note: If you create a resource definition of the same resource type and with the same name as an existing definition, a new version of the definition is created in the data repository.

Description

An optional string of up to 58 characters that describes the resource definition.

Resource group name

Optionally, the name of a resource group to which the resource definition should be added.

When the resource definition is created, it is automatically added to the specified resource group. This is one way of adding resource definitions to resource groups; alternatively, click the **Add to resource group** button on a resource definition view to add a single definition to a group.

User data area

Three optional strings of up to 8 characters each that allow you to provide additional site-specific data related to the resource definition.

You can use these fields for any purpose you choose; CICSPlex SM makes no use of the data.

The create views for each resource and the resource-specific information that you must provide are presented in the description of the resource definition.

Note:

1. For any resource definitions that contain password fields, the password you enter does not appear on the create view while you are typing it.

Web User Interface views for resource objects

You can use a simple approach to managing CICS resources using the CICSPlex SM object model of definitions in groups, groups associated with descriptions, and descriptions associated with CICS regions. Alternatively, you can use a more selective approach by using resource assignment to select and assign resources.

The following figures provide an overview of the WUI views that you can use to create some of the administration objects. The titles of the views are followed by the object names in parentheses. Figure 7 on page 69

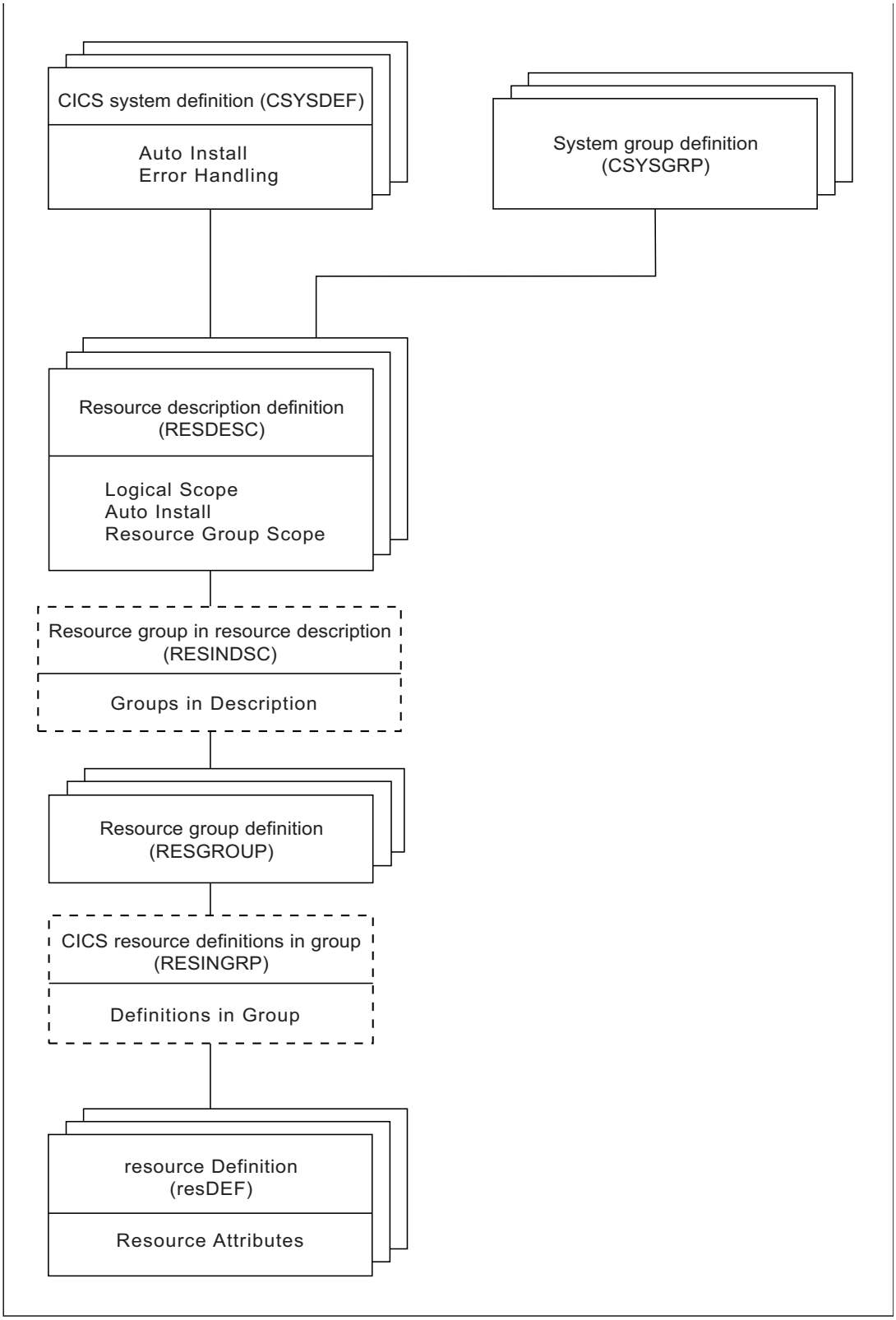


Figure 7. Views for managing CICS resources - a simple approach

Figure 8 on page 70

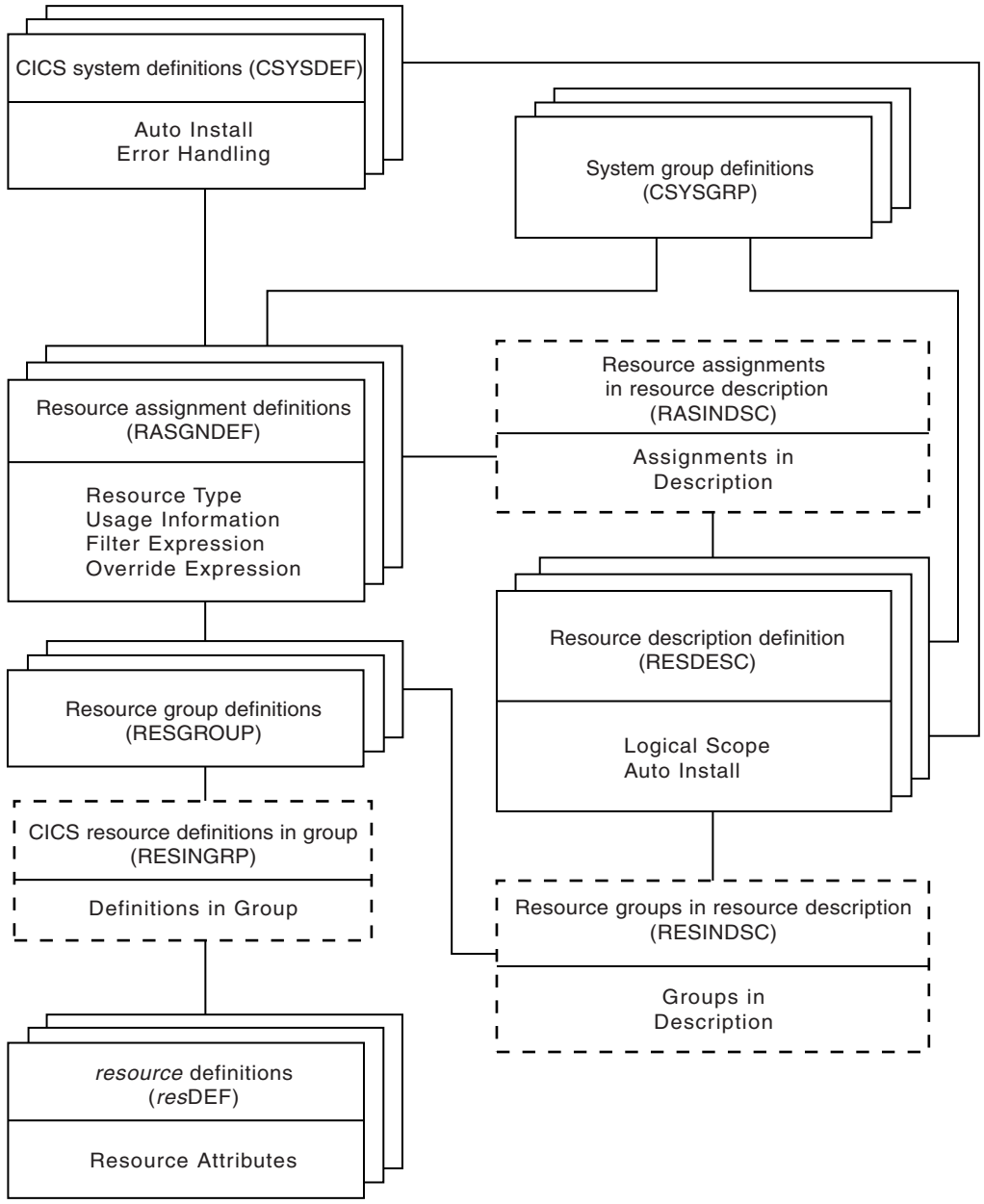


Figure 8. Views for managing CICS resources - a selective approach

Resource definition sets

About this task

The resource definitions you create can be members of *resource groups*. Resource groups can, in turn, be associated with *resource descriptions* and *resource assignments*. Resource groups, resource descriptions and resource assignments are convenient mechanisms for managing sets of resource definitions in ways that are appropriate to your enterprise.

Resource groups

A resource group can be any set of resource definitions that you want to manage as a unit. The resources in a group usually have something in common. They might be logically related by their use in a given application or communications network, or geographically related by their use at a given site.

A resource group can contain resource definitions of all types (such as connections, files, and journals). There is no real limit to the number or combination of resource definitions that can make up a group. However, only one version of a given resource can be included in a resource group at one time. You can maintain multiple versions of a resource definition in different resource groups, but not in the same group.

When you use the GET API command to create a result set of CICS definition records, you can limit your request to definitions in a given resource group. The GET command for each CICS definition object (such as CONNDEF) supports the following parameter:

RESGROUP(resgroup)
(Optional) Specify the name of an existing resource group from which CICS definition records should be selected.

You create resource groups by clicking the **Create** button in the **Resource groups definition** view. This action adds the resource group to the CICSPlex SM data repository.

You can also create a resource group using the CREATE command in the batched repository-update facility or the API. In that case, you can identify an existing resource group to be used as a model. The CREATE command for the RESGROUP object accepts the following parameters:

MODEL(resgroup)
(Optional) Specify the name of an existing resource group whose resource definitions are to be used by the new group.

MODE(option)
(Required, if you specified a MODEL value) Indicate which definitions are to be copied from the model resource group to the new group:

NO Do not copy any definitions from the model group.

ASSOCIATIONS
Copy the associations between resource definitions and the model group (RESINGRP objects) and create a new set of associations from the existing resources to the new group.

MEMBERS
Copy all the resource definitions in the model group and create a new set (different version number) for use by the new group.

You can manage resource groups independently, but the real advantage comes in associating them with one or more resource descriptions or resource assignments.

Adding resource definitions to a resource group:

There are several ways to create an association between a resource definition and a resource group. Both definitions must exist in the data repository before you can create the association.

Adding a definition when it is created

You can automatically associate a resource definition with a resource group when the definition is created by identifying the group in the **Resource group name** field. This is a standard field on the create panel for each resource type.

When you create CICS Definitions using the batched repository-update facility or API you can add them to an existing resource group by using the RESGROUP parameter. The CREATE command for each CICS Definition object (such as CONNDEF) supports the following parameter:

RESGROUP(resgroup)

(Optional) Specify the name of an existing resource group to which the CICS Definition should be added.

Adding individual or multiple definitions

Using the WUI, you can add one or more existing resource definitions *of a given type* to a group by selecting the definition or definitions on a resource definition tabular view and clicking the **Add to resource group** button.

Using a model resource group

Once a resource group is defined and populated with resource definitions, you can use that group as a model to populate other resource groups. When you create a new resource group, you have the option of specifying:

- A resource group whose resource definitions are to be used as a model by the newly created group.
- Which definitions are to be copied from the model group:
  - The actual resource definitions (to create an additional set of resources)
  - The associations between the model group and existing resources

Note: Adding a resource definition to a resource group could result in inconsistent resource set errors. For information about this type of problem and how to resolve it, see "Validation of a set of resources" on page 77.

Resource assignments

A resource assignment identifies resources of a given type that are to be assigned to one or more CICS systems as either local or remote. Rather than representing a whole set of resources (as resource groups and descriptions do), the purpose of a resource assignment is to selectively process the resources in a set.

With a single resource assignment, you can:

- Select specific resources from a resource group.
- Identify the CICS systems where local and remote instances of a resource should be assigned.
- Modify resource attributes for specific uses in specific CICS systems.

The resources selected by a resource assignment cannot be managed independently. The resources must be members of a resource group and the resource assignment must be associated with at least one resource description.

Resource descriptions

Similar to a resource group, a resource description represents a set of logically related resources. You can associate whole resource groups with a resource description to create a larger set of resources that can be managed more efficiently.

In addition, you can associate resource assignments with a resource description to create a select set of resources, such as an application that spans more than one CICS system.

A resource description represents the largest set of resources that can be managed as a unit by CICSPlex SM. It might consist of all the resources in several resource groups or resource assignments (much like a CSD group list) or the set of resources that make up a given application on various CICS systems.

The set of resources identified in a resource description can be:

- Identified as a logical scope (such as an application) for use in subsequent CICSPlex SM requests
- Automatically or dynamically installed in systems running CICS TS.

Management of CICS resources using CICSPlex SM

With Business Application Services, the most important decision you have to make is how to manage the sets of resources you create:

- By resource descriptions alone; see "Controlling resources by resource description" on page 78
- By resource assignments in conjunction with resource descriptions; see "Controlling resources by resource assignment" on page 79

You can use one or both of these approaches to control your CICS resources, depending on the situation and the degree of precision you require. Resource descriptions alone represent the simplest approach to managing resources. Using resource assignments provides access to the full range of Business Application Services features.

Multiple versions of a resource definition

As your business applications progress from development through testing and into production, the resources that support them may evolve as well. Since resources that are defined to CICSPlex SM exist independent of groups or other objects, versioning is necessary to support variations in resource definitions. This version support enables you to manage:

- A single version of a resource definition in multiple groups
- Multiple versions of the resource throughout the CICSplex.

For example, you can have three DB2TDEF definitions, each called DB2TR01, and each specifying a different (or the same) transaction IDs, each having a different version number.

Business Application Services can manage up to 15 versions of the same resource definition, each specifying the same or a different CICS resource.

When you create a resource definition, you can specify a version number for the definition. The version number is an integer in the range 1 through 15. If you leave the Version field blank, or if you specify 0 for the version number, then it is automatically assigned the first available version number.

The version number is assigned to the resource definition when the definition is stored in the CICSPlex SM data repository.

CICSPlex SM ensures that the version number is unique for the resource type of the definition.

Note:

1. CICSPlex SM does not generate a new version when you update an existing resource definition.
2. As with the name field of the resource definition, the version field cannot be changed while browsing or updating a resource definition in a view. Furthermore, when creating a new resource definition, the version field, (also like the name field) can be entered on the input panel only of the create view.
3. When you create resource definitions using the batched repository-update facility, or the application programming interface (API), you can use the DEFVER keyword to specify the version number of a new definition.
4. CICSPlex SM does not allow multiple versions of the same resource definition to be installed in a CICS system.

You can use version numbers to help identify a specific variant of a resource definition, providing you have a policy of using version numbers for that purpose. Otherwise, if you remove certain versions of a resource definition and then define new ones, the version number alone may not indicate the most recent version.

For example, suppose you define 15 versions of a resource definition (numbered 1 to 15) and then remove versions 3 and 12. The next time you create a new version of that resource definition, if you do not specify a version number, CICSPlex SM reuses the available version numbers from low to high. So, in this example, the latest version of the resource definition might be version 3.

For this reason, the version number alone might not be sufficient to identify the latest version of a resource definition. To enable you to do that, CICSPlex SM performs time-stamping, which provides a chronological record of the versions of a resource definition. The date and time at which a given version of a resource definition was created and last updated are maintained by CICSPlex SM in the CREATETIME and CHANGETIME attributes of the appropriate resource table. These values, are recorded using the time zone of the maintenance point CMAS, not the user who created or changed the definition. In addition, the values are fixed at the time they are recorded; they are not affected by any subsequent changes to the time zone of the maintenance point CMAS.

If you do not explicitly use the version number to identify particular versions, and you want to identify the last version created, you can either:

- Inspect the date and time fields
- Make explicit use of the user data fields of the definition when creating definitions. These fields are attributes of the resource definition, and can be used as filter criteria in the Install view of the **Resource assignments** and so on. For example, you could adopt a convention whereby the first user data field is designated as a control field, which may take either the value T (test) or P (production). To install the definition into a test system, USERDATA1=T would be used as the filter criterion.

Availability of resources for CICS releases

Some resources are not available in all of the supported CICS releases and this availability affects what resources display in the WUI views.

The WUI help for views and action commands provides information about the availability of resources.

When you display a resource definition view and your CICSplex includes regions running a release of CICS for which that resource is not available, those regions are

not included in the view. When you issue a resource definition view command and your CICSplex consists solely of regions running a release of CICS that is not available, a message is displayed. A message is also displayed when you issue an action command that is not available for the release of CICS on which your CICS region is running.

Defining connections between CICS regions

You can use CICSPlex SM to define and manage the connections between CICS regions. Instead of identifying each CICS region in a communication network to each of its partners as RDO requires, you can specify general connectivity information to be used by all the CICS regions in a CICSplex.

Before you begin

You must have defined the CICS regions to CICSPlex SM. If you want to connect regions using TCP/IP, you must have defined a hostname, network ID, and port number for each CICS region.

About this task

For each pair of CICS regions that are to communicate, you require four resource definitions. Using RDO, each definition is unique to a given pair of CICS regions. They cannot be reused for connections between different pairs of CICS regions. With Business Application Services, you create one system link (SYSLINK) for each pair of CICS regions. The system link definition describes the type of connection and connection definitions that are required. You can use these connection definitions to create any number of system links that share the same characteristics.

You can use either the CICS Explorer or the Web User Interface to define connections between CICS regions.

Procedure

1. Identify the CICS regions that you want to connect. CICSPlex SM uses the CICS system ID (SYSIDNT) attribute value to identify the system link.
2. Define the connection resource definitions that you want to reuse. Each connection resource definition is represented by a resource object.
   - To define ISC or MRO connections, create CONNDEF and SESSDEF resource objects for the connection and session definitions.

     Tip: When defining MRO connections in the WUI, you are advised to set the session definition receive prefix to < and the send prefix to >. If you define your own receive and send prefixes, you must create a session definition for each system link definition (SYSLINK object) to avoid duplicate session names being created.
   - To define an IPIC connection, create IPCONDEF and TCPDEF resource objects for the IPCONN and TCPIPSERVICE definitions. You can use the same TCPDEF for multiple SYSLINK connections in a CICS region when you want the connection to use the same port number.
3. Define the system links to create connections between the CICS regions. Optionally, you can base your new system link on a SYSLINK object that is already defined.
   a. Specify the names of the primary and secondary regions. The primary region contacts the resource definition objects and the secondary region is the target region for the connection.

b. Specify the connection type. For example, you might select SNA for an ISC or MRO connection or IPIC for a TCP/IP connection.
c. Specify the primary and secondary definitions for the connection that you want to reuse.
d. Create the SYSLINK object.

Results

The SYSLINK resource object is added to the data repository. If you are creating an IPIC connection, the system definition attributes of the primary and secondary regions can override any values specified for host, network ID, and port number in the IPCONDEF or TCPDEF resource objects.

What to do next

Install the system link. For details on how to install the system link using the WUI views, see "Installing system links using the WUI" on page 122.

Related concepts:

"CICS system link definitions" on page 120
With Business Application Services, you can create one system link (SYSLINK) for each pair of CICS regions. The system link definition describes the connection type and definitions that are required between the pair of regions. You can reuse connection definitions to create any number of system links that share the same characteristics.

Related tasks:

"Defining IPIC connections using BAS" on page 300
You can define IPIC connections by creating a BAS resource object, IPCONDEF.

"Defining ISC and MRO connections using BAS" on page 302
You define a resource definition for an ISC or MRO connection by creating a BAS resource object, CONNDEF.

Resource definition validation

CICSPlex SM performs many of the same resource definition checks as RDO does. But CICSPlex SM goes further, attempting to validate whole sets of resources associated with the CICS systems in your CICSplex.

Validation of individual resource definitions: As individual resources are defined or installed, CICSPlex SM checks the following:

Individual attributes of a resource

Each attribute of each resource definition is validated independently according to the CICS RDO guidelines for valid values. CICSPlex SM reports individual attribute errors as a resource is defined. A resource definition is not created and stored in the data repository until all of its attributes are valid.

Note:

1. If you specify blank spaces for an attribute, CICSPlex SM allows CICS to assign a default value, if there is one.
2. If you specify N/A for an attribute, CICSPlex SM processes the resource definition as if that attribute was not specified. Depending on what other attributes were specified, CICSPlex SM either ignores the attribute or selects an appropriate value according to the CICS RDO guidelines.

Interdependent resource attributes

Certain attributes of a resource definition can be dependent upon each other, and other attributes can be mutually exclusive. Such attribute combinations are validated using the CICS RDO guidelines. CICSPlex SM reports attribute combination errors as a resource is defined. A resource definition is not created and stored in the data repository until all of its interdependent attributes are resolved. Check the resource definition syntax diagram for information on attribute interdependency.

Release-specific resource attributes

Because a resource can be used by a number of CICS systems, you can specify the whole range of possible attributes when you define the resource to CICSPlex SM. However, when that resource is installed in a given CICS system, CICSPlex SM checks for and uses only those attributes that are appropriate to the release of CICS. CICSPlex SM keeps track of obsolete resource attributes from earlier releases of CICS just as RDO does, so that, when you install a definition in a CICS system, CICSPlex SM discards any attributes that are obsolete for that CICS release and retains the attributes that are appropriate.

Note: CICSPlex SM attempts to validate attribute values in such a way that the resource definition can be used with as many levels and platforms of CICS as possible. However, because of the wide variety and interdependency of resource attributes for different releases of CICS, CICSPlex SM might not be able to catch all potential attribute conflicts. So even if CICSPlex SM does not detect a problem, a particular release of CICS might fail a given resource installation request. For information about resource installation problems, see "Handling dynamic installation errors" on page 97.

Validation of a set of resources:

Maintaining a consistent set of resources for each system is an integral part of managing CICS resource definitions.

When you perform any of the following operations, the requested changes are checked against the existing resource set for each affected CICS system:

- Add or update a resource definition in a resource group
- Add a resource group in description
- Update a resource description
- Update a resource assignment
- Add or update a resource assignment in a description
- Add a CICS system to a CICS system group

CICSPlex SM flags a resource set as inconsistent if a resource being added or updated (referred to as the *candidate* resource) is in conflict with a resource that already exists in the CICS system.

For example, you would receive inconsistent resource set errors if you tried to:

- Assign different versions of the same resource to the same CICS system
- Assign a resource to the same CICS system as both local and remote

Note:

1. A DB2 entry definition (DB2EDEF object) that has a transaction ID specified can create both a DB2 entry (DB2NTRY object) and a DB2 transaction (DB2TRN) operational object when the DB2 entry definition (DB2EDEF object) is installed

(see DB2 entry resource definitions). Therefore, you may get inconsistent set errors because two or more DB2 entry definitions (DB2EDEF objects) have the same transaction id specified, or clash with an explicitly defined DB2 transaction definition (DB2TDEF object) that has the same name as that generated from a DB2 entry definition (DB2EDEF object), which would cause a conflict.

2. You can change the value of selected BAS objects using the **Override string** field in the **Resource assignments** view (RASGNDEF object), as described in topicon page "Resource assignment definitions" on page 114. If you use this method to change the Transid field of a DB2 entry definition (DB2EDEF object) and there is a resulting clash of names of DB2 transactions (DB2TRAN objects), CICSPlex SM does not detect this fact as part of inconsistent set processing.

Validation CICS system assignments: CICSPlex SM manages where resources are assigned by validating the target and related scope values that you specify. When you ask CICSPlex SM to:

- Update a resource description
- Update a resource assignment
- Add or update a resource assignment in description
- Add a CICS system to a CICS system group

the requested changes are checked to ensure that the target and related scope values are not in conflict with each other. CICSPlex SM flags the target and related scopes as inconsistent if:

- There is any overlap between the two (for example, the same CICS system is in both scopes)
- The related scope is anything other than a single CICS system for which a system ID is defined

If any of the changes you request would result in inconsistent scopes, messages to this effect are displayed at the top of the associated tabular view. Click the message numbers to display the full text of the messages and help in solving the problem.

Controlling resources by resource description

The simplest way to manage sets of resources is to associate resource groups directly with a resource description. To do this you would:

1. Create resource groups and add resource definitions to them.
2. Create a resource description (or identify an existing one) that you want to associate the resource groups with.

   Use the **Resource group scope name** field on the resource description to identify a CICS system or CICS system group where all the resources in the groups should be assigned.
3. Use the **Add to resource description** button on the **Resource group definition** view to associate one or more resource groups with the description. This creates a resource group-in-description link record (RESINDSC).

The result is that all of the resources in the resource groups are assigned to the specified CICS systems exactly as they were defined to CICSPlex SM. This is similar to the way in which RDO processes the definitions in a CSD group list.

As with RDO, this simple approach to managing your resources requires separate resource definitions for each element of a resource. So assigning a resource that is local to one CICS system and remote to another would require two resource

definitions. And the resources represented by a resource description are more likely to be physically related by the CICS systems where they reside than by any logical function such as an application.

Directly associating entire resource groups with a resource description is in keeping with the basic object model used by other CICSPlex SM components (such as Workload Manager). And this approach is sufficient for using Business Application Services in a manner similar to RDO. However, this can also be viewed as an interim step on the way to complete management of your CICS resources with the use of resource assignments.

Controlling resources by resource assignment

Resource assignments are a departure from the basic CICSPlex SM object model of definitions, groups, and descriptions. They add a significant degree of flexibility and control to the resource definition process. They also increase the precision with which you can manage the resources in your CICSplex.

Once you have gathered resource definitions into resource groups, you can use resource assignments to:

- Control resources of a given type in a given group. Each resource assignment applies to one type of resource (such as files) in one resource group.
- Identify resources as either local or remote and assign them to various CICS systems with a single resource definition. Local resources are assigned only to those CICS systems identified as target systems. Remote resources are assigned as remote to the target systems; they are also assigned as local resources to the related system you identify.
- Process selected resources from a group by specifying a filter expression. A filter expression is a character string made up of logical expressions to be used in filtering resources (such as resources whose names begin with PAY).
- Modify resource attributes for a particular use by specifying override expressions. An override expression is a character string that identifies changes to be made to one or more attributes of a resource when it is assigned to a given CICS system.

To take full advantage of Business Application Services, you should associate your resource groups with resource assignments and your assignments with a resource description. To do this, you would:

1. Create resource groups and add resource definitions to them.
2. Create one resource assignment for each type of resource you want to manage.

   Use the **Resource group name**, **Target scope name** and **Related scope name** fields on each resource assignment to identify resource groups and the CICS systems to which they should be assigned.

   You can also use a filter string expression to select resources from a group and an override string expression to modify specific resource attributes.
3. Create a resource description (or identify an existing one) that you want to associate the resource assignments with.

   In this approach, the resource description is really a means of grouping the resource assignments for various resources into a meaningful set, such as an application. The selection and assignment of resources are ultimately controlled by the resource assignments.

4. Use the **Add to resource description** button from the **Resource assignment definition** view to associate the resource assignments with the resource description. This creates a resource assignment-in-description link record (RASINDSC).

   Note that the same resource assignment can be associated with more than one resource description, just as the same resources are generally used by more than one application.

Depending on the resource assignment values, some or all of the resources in the resource groups may be assigned as local or remote resources in multiple CICS systems.

Using logical scopes to control application resources

Business Application Services enables you to monitor and control CICS resources according to their purpose and logical relationships within your enterprise. For example, rather than viewing the resources in one or more CICS systems or CICS system groups, you can display all the resources that are currently defined as being part of a business application. This allows you to specify a logical scope for CICSPlex SM requests, rather than a physical scope that is location-dependent and subject to change.

A business application can be any set of resources that represent a meaningful entity to the users in your enterprise. The resources can exist in any CICS system in the CICSplex. If the resources are defined to CICSPlex SM, Business Application Services can locate them and manage them regardless of what platform or release of CICS they are defined to.

For a business application to be recognized by CICSPlex SM , you must assign it a logical scope name in a resource description. When you create a resource description, you identify the resource definitions that make up your application and the CICS systems with which the application should be associated.

Note: The concept of a business application is independent of the CICSPlex SM resource installation capabilities. Even CICS systems that do not support resource installation can be included in a business application to be managed by CICSPlex SM.

To identify a set of resources as an application, you must:

1. Define the resources to CICSPlex SM using the Business Application Services resource definition views.
2. Create one or more resource groups (RESGROUP) and add the resource definitions to them.
3. Create a resource description (RESDESC) and specify a name to be used as the logical scope.
4. Decide how you want the resource definitions to be processed and then do one of the following:
   - Associate the resource groups directly with the resource description (via RESINDSC).
   - If you want to further qualify the set of resource definitions, associate the resource description with a resource assignment (RASGNDEF).

Once an application has been identified to CICSPlex SM as a logical scope, you can specify that name on any CICSPlex SM WUI view or API request that honors a scope value.

Note: A logical scope name is not a valid scope for resources that cannot be defined by BAS (such as system dump codes). However, a logical scope name is valid for **CICS Regions** (CICSRGN) and **Runtime MAS display** (MAS) views, which will display the regions that may contain resources in the named logical scope.

The following resources are not valid for logical scopes:

AIMODEL
DSKJRNL
EJCOSE
EJDJAR
JOURNAL
JVMSERV
MQCONN
RQMODEL
WEBSERV

Identifying remote resources to CICSPlex SM

The choice between using resource descriptions alone or using resource assignments affects the processing of remote resources. Remote resources are defined to the local CICS system but they reside in another system. It is possible for a remote resource to have one name in the local CICS system and a different name in the remote system. CICSPlex SM processes remote resource definitions differently depending on how you are managing your resources.

By resource descriptions alone

In this situation, each resource definition in a resource group is directly associated with a CICS system. So a remote resource consists of two definitions: one for the local CICS system and one for the remote system.

CICSPlex SM uses the remote system ID and remote name values in the resource definition to identify the remote resource.

By resource assignments

When you use resource assignments, a remote resource can be fully represented to both the local and remote systems by a single resource definition. CICSPlex SM selectively processes the attributes that are appropriate to each system.

The remote system ID in the resource assignment is the name of the connection that will be used between the local and remote system pair. If no name is specified, CICSPlex SM uses the CICS system ID (SYSIDNT) of the remote system as the name of the connection to be used between the local and remote systems.

If you specify a remote name in the resource definition, that name is used when assigning the resource to the related (remote) system. Otherwise, the local name (that is, the name you give the resource definition) is used in both the target and related systems.

Installation of CICS resources

You can use Business Application Services (BAS) to install CICS resources. As with CICS itself, CICSPlex SM can install resources either automatically at system initialization time or dynamically into an active system.

CICS regions can be running different releases of CICS, but not all resources are available on all levels of CICS regions; for details, see the individual descriptions of the resource definition objects. The installation facility uses the **EXEC CICS CREATE** command to create resources independently of the CSD.

When you use CICSPlex SM to install CICS resources, those resources can replace any identical resources that might exist in the system.

Note:

1. If you are using BAS to install resources automatically when a CICS system initializes, you should specify the CICSPlex SM system parameter MASPLTWAIT(YES) for that system. This parameter suspends PLT processing until all CICS resources are installed and the MAS is fully initialized. For information on specifying this parameter, see Preparing to start a z/OS MAS.
2. There are special considerations when arranging for activation of a DB2 connection via a DB2 connection definition (DB2CDEF object). For details, see Activating DB2 and IBM MQ connections during CICS startup.
3. It is not possible to use BAS to install a IBM MQ connection before the CICSPlex SM environment has been initialized.
4. It is not possible to install journal definitions (JRNLDEF objects).
5. Enqueue models forming nested generic enqueue names must be installed either in the disabled state or in order, from the most specific (for example, ABCD) to the least specific (for example, AB*). You can install disabled enqueue models in any order, but you must enable them in order from most specific to least specific. For more information, see Installing BAS global enqueue model definitions.
6. If the MAS supports the LOGMESSAGE option of the EXEC CREATE command, then you can use the CICSPlex SM system parameter BASLOGMSG(NO) to prevent CICS from logging the BAS CICS resource definitions to the CSDL transient data queue. You can also set BASLOGMSG(YES) to allow this logging to occur to help with problem determination.

Installing resource groups

When you install a resource group, you can install some or all of the resources of a single given type contained in the group.

About this task

You can use a filter expression to select the resources to be installed. You can either specify the required CICS system and usage information for the resources, or you can refer to an existing resource assignment for that information. And, just as you can for individual resources, you can provide temporary override values for specific attributes of the selected resources.

Procedure

1. From the WUI main menu, click **Administration views > Basic CICS resource administration views > Resource groups** to open the **Resource group definitions** tabular view. This view lists the existing resource groups in the current context.
2. Select the resource group to be installed and click the **Install** button to display the **Install** view. This screen prompts you to provide information about the resource definitions in the group and how the resources are to be installed. This information is normally supplied in a resource assignment. When you manually

install a resource group using the **Install** action button, you can either specify the install options explicitly or refer to an existing resource assignment. If you name a resource assignment, any values that you do specify here temporarily override the equivalent values in the assignment.

Note: Any values that you specify on this panel are in effect only for the duration of this single installation process. No resource assignments are created or updated as a result of this panel. If you want to use the same set of install options more than once, you should create a new resource assignment.

3. Provide the following information, as appropriate:

Resource assignment value

(Optional.) Enter the specific or generic name of an existing resource assignment whose values are to be used for this installation. If you enter a generic value, a list of valid resource assignments is displayed.

If you specify an assignment name, the following fields are optional on this panel:

- Target scope value
- Related scope value
- Usage value
- Mode value
- Override value

If you do supply values in these fields, those values temporarily override the equivalent assignment values. If you do not specify an assignment name, these fields are required.

Resource type

Select the type of resources to be installed from the drop down list.

Note: You cannot dynamically install the following types of resource definition:

- File key segment definitions (FSEGDEF objects)
- Journal defintions (JRNLDEF objects).
- Session definitions (SESSDEF objects).

Referenced assignment name

When the **Resource type** field contains CONNDEF (for connections), identify the resource assignment that applies to the related session definitions (SESSDEF objects). For each connection, CICSPlex SM requires one or more session definitions to properly construct the actual CICS link. Clicking on the adjacent  icon opens a resource selection screen, allowing you to choose a resource from a list of those available.

Target scope value

Enter the specific or generic name of an existing CICS system or CICS system group into which the specified resources are to be installed.

Related scope value

Enter the specific or generic name of an existing CICS system into which those resources identified as REMOTE are to be installed as LOCAL.

Note: For remote transaction definitions (TRANDEF objects) that are defined as dynamic, you can specify a CICS system group for the **Related scope value**. For all other remote resources, you can specify a CICS system group only if it consists of a single CICS system.

Usage value

Specify how the resources will be used:

LOCAL
The resources are contained within the target CICS system. LOCAL is valid for all supported resource types.

REMOTE
The resource definitions refer to resources that reside in a different CICS system. If you specify REMOTE, you must also specify a **Related scope value** to identify the CICS system that will contain the local instances of the resources. REMOTE is valid only for the following resource types:
- File definitions (FILEDEF objects)
- Program definitions (PROGDEF objects)
- Transient data queue definitions (TDQDEF objects)
- Transaction definitions (TRANDEF objects)

Note:
a. When you specify REMOTE, the resources are assigned to all the CICS systems identified in both the **Target scope value** and **Related scope value** fields. Likewise, when the resources associated with this assignment are installed, remote resources are installed in both the target and related scopes.
b. Although a temporary storage queue may be created on a remote system, the temporary storage model that controls the queue's attributes is always a local resource. Therefore, when you install a temporary storage model definition, the **Usage value** must always specify LOCAL. See Installing BAS temporary storage model definitions. For a description of the TSMDEF Remote system attribute, see Temporary storage model definitions - TSMDEF.

Mode value
For some resource types, CICSPlex SM requires additional information to determine which subset of resource attributes to use in completing the installation. The Mode value you should specify depends on the resource type being installed:

Programs (PROGDEF)
If you specified LOCAL in the Usage field, you can specify AUTO to have CICS automatically install programs into a system. AUTO means that no explicit definition of the programs is required in the CICS system. Otherwise, specify N/A.

If REMOTE is specified in the Usage field, you can identify how the program is to be routed:

DYNAM
Programs are processed by the dynamic routing program (DTR).

STAT Programs are sent to the remote CICS system identified in the Related Scope

Transactions (TRANDEF)
You can specify whether or not the transaction should be processed by the dynamic routing program. If the **Usage value** field contains REMOTE, a **Mode value** must be specified.

DYNAM
Transactions are processed by the dynamic routing program.

STAT Each transaction should be sent to the remote CICS system identified in the transaction definition

(TRANDEF). This mode may be specified only if the **Usage value** field contains REMOTE.

Note: The value you specify here overrides the Dynamic value in the TRANDEF.

Transient data queues (TDQDEF)
You can identify the type of transient data queue to be installed:

EXTRA
Extrapartition TDQ.

IND Indirect TDQ.

INTRA
Intrapartition TDQ.

If you specify N_a, CICSPlex SM uses the Type value in the TDQDEF to install the transient data queue. If the Type value is REMOTE, CICSPlex SM installs an indirect TDQ.

For all other resources, specify N_a because no mode data is required.

Overtype value
If you plan to specify an override expression for the resources, indicate which scope the override values should be applied to:

BOTH Apply the override values to both scopes.

NONE
Do not apply any override values.

RELATED
Apply the override values to the Related Scope only.

TARGET
Apply the override values to the Target Scope only.

Notify value
Specify the type of checking to be performed before attempting to install resources in the specified CICS systems:

NO No checking is performed.

INACTIVE
Check for CICS systems in the target scope that are not currently active.

RELEASE
Check for CICS systems in the target scope that do not support EXEC CICS CREATE commands.

FULL Perform both INACTIVE and RELEASE checking.

State check value
Indicate whether or not the existence and operational state of all resources are to be checked before an **EXEC CICS CREATE** command is issued.

NO The existence and operational state of all resources are not to be checked.

YES The existence and operational state of all resources are to be checked.

Force install value
Specify YES or NO to indicate whether you want to install the resources even if CICSPlex SM believes they do not need to be installed.

Normally, CICSPlex SM checks to see if it was responsible for placing the currently installed resource in the CICS system. If so, CICSPlex SM does not install the resource, to avoid inadvertently changing attributes of an active resource.

If you specify YES in this field, CICSPlex SM bypasses this duplicate resource checking and installs the new resource unconditionally.

Filter string

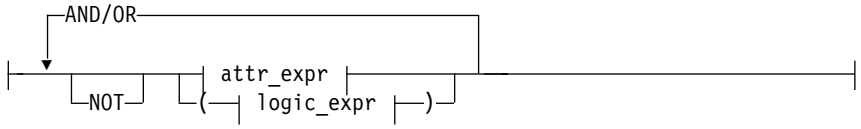
(Optional.) Identifies attributes that are to be used in selecting the resources to be installed. CICSPlex SM processes only those resources that meet the specified filter criteria.

A filter expression can be made up of one or more attribute expressions in the form:

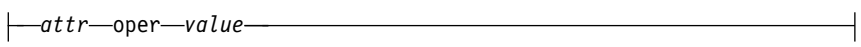
Filter expression



logic_expr:



attr_expr:



where:

attr
: Is the name of an attribute in the resource table for the specified resource. You can name the same attribute more than once in a filter expression.

oper
: Is one of the following comparison operators:

<	Less than
<=	Less than or equal to
=	Equal to
>=	Greater than or equal to
>	Greater than
¬=	Not equal to

value
: Is the value for which the attribute is being tested. The value must be a valid one for the attribute.

  If the attribute accepts character data, this value can be generic. Generic values can contain:

  - An asterisk (*), to represent any number of characters, including zero. The asterisk must be the last or only character in the specified value. For example:

    ```
    TRANID=PAY*
    ```

  - A plus sign (+), to represent a single character. A + can appear in one or more positions in the specified value. For example:

    ```
    TRANID=PY++
    ```

If the value contains imbedded blanks or special characters (such as periods, commas, or equal signs), the entire value string must be enclosed in single quotes. For example:

```
TERMID='Z AB'
```

To include a single quote or apostrophe in a value, you must repeat the character, like this:

```
DESCRIPTION='October''s Payroll'
```

AND/OR
Combines attribute expressions into compound logic expressions using the logical operators AND and OR, like this:

```
attr_expr AND attr_expr.
```

Filter expressions are evaluated from left to right. You can use parentheses to vary the meaning of a filter expression. For example, this expression:

```
attr_expr AND (attr_expr OR attr_expr).
```

has a different meaning than this one:

```
(attr_expr AND attr_expr) OR attr_expr.
```

NOT
Negates one or more attribute expressions.

You can negate a single attribute expression, like this:

```
NOT attr_expr
```

You can also negate multiple attribute expressions or even a whole filter expression, like this:

```
NOT (attr_expr OR attr_expr).
```

Note that you must place parentheses around the attribute expressions (or the filter expression) to be negated.

Override string
(Optional.) Identifies attributes of the specified resources whose values are to be overridden when they are installed in one or more of the specified scopes. (The value in the **Overtype value** field determines which scope the override values are applied to.)

An override expression can be made up of one or more attribute expressions in the form:

Override expression



where:
attr
Is the name of a modifiable attribute for the resource.
value
Is the value to which you want the attribute set. The following restrictions apply:

- The value must be a valid one for the attribute.
- If the value contains imbedded blanks or special characters (such as periods, commas, or equal signs), the entire value string must be enclosed in single quotes, like this:

```
DESCRIPTION='Payroll.OCT'.
```

- To include a single quote or apostrophe in a value, you must repeat the character, like this:

```
DESCRIPTION='October''s Payroll'.
```

4. Click **Yes** to install the resource group in the specified CICS systems.

Related tasks:

"Installing resource descriptions"
When you install a resource description, you are installing resources from resource groups that are associated, either directly or indirectly, with the description.

"Installing system links using the WUI" on page 122
When you install a system link, you are establishing a connection between two CICS regions that are managed by CICSPlex SM. The definitions referred to by that system link are installed in the target CICS regions.

Installing resource descriptions

When you install a resource description, you are installing resources from resource groups that are associated, either directly or indirectly, with the description.

Before you begin

To install resources using a resource description, the CICS regions must be active and must be running a release of CICS that supports the **EXEC CICS CREATE** command.

About this task

Procedure

1. From the WUI main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource descriptions** to open the **Resource description definition** tabular view. This view lists the existing resource descriptions in the current context.
2. Select the resource description that you want to install and click the **Install** action button. This action button opens an Install input panel.
3. Fill out the fields in the input panel to select what checks CICSPlex SM should run before installing the resources:
   a. Select the type of checking to be performed before attempting to install resources in the CICS regions associated with the description.
   b. Select whether or not the existence and operational state of all resources are to be checked before an **EXEC CICS CREATE** command is issued.
   c. Select whether or not you want CICSPlex SM to force the installation of the resources. CICSPlex SM checks to see if it installed the current resource in the CICS region. If so, CICSPlex SM does not install the resource, to avoid changing the attributes of an active resource. You can bypass this processing, to unconditionally install the new resource.
4. Click **Yes** to install the resource description in active CICS regions.

Results

When you use the **install** action from the **Resource description definition** view, CICSPlex SM attempts to install all of the resources associated with the resource description into the CICS regions named in the target scope and related scope fields.

- Resources that are directly associated with the description are installed in the CICS regions named in the **Resource group scope name** field of the description.
- Resources that are associated with the description using a resource assignment are installed in the target and related scope regions. You can identify these CICS regions by the resource assignment, the resource description, or the association between them (**Resource assignment in resource description** view).

What to do next

You can also replace the resources associated with an installed resource description with the resources associated with a new description. When you replace a resource description, CICSPlex SM performs the following processing:

- Discards any resources that are associated with the old resource description, but not the new one.
- Reinstalls any resources that are associated with both the old resource description and the new one, regardless of whether the definitions have changed.
- Installs any additional resources that are associated with the new resource description.

Related concepts:

"Dynamic resource installation" on page 92

"Automatic resource installation" on page 90

"Deciding where resources should be installed"

Related tasks:

"Installing resource groups" on page 82
When you install a resource group, you can install some or all of the resources of a single given type contained in the group.

"Installing system links using the WUI" on page 122
When you install a system link, you are establishing a connection between two CICS regions that are managed by CICSPlex SM. The definitions referred to by that system link are installed in the target CICS regions.

Deciding where resources should be installed

With Business Application Services, you can issue a single request and have resources installed throughout the CICSplex. The key is to define a resource as broadly as possible and install it in as many CICS systems as possible at one time. A single resource definition can be used to install multiple instances of the resource in multiple CICS systems. And that same resource definition can be used to install both local and remote resources. For example, a single transaction definition could be used to install local transactions in your application-owning regions (AORs) and remote transactions in your terminal-owning regions (TORs).

To determine what resources to install and where to install them, CICSPlex SM checks the target scope, related scope, and resource group values in your resource assignments, resource descriptions, and the associations between them. The information in these definitions is processed as follows:

1. Resource assignments (RASGNDEF objects) take precedence. Any values that you explicitly define in a resource assignments are used, regardless of any other values you may specify.
2. For any values that are not found in a resource assignment definition, CICSPlex SM checks the resource assignment-to-description association (RASINDSC object) and uses the values it finds there.

3. For any values that are not found in either the resource assignment or the resource assignment-to-description association definition, CICSPlex SM checks the resource description (RESDESC object) and uses those values. The resource description values serve as defaults, if no other values are specified.

So you could identify the standard target and related scope values for your enterprise in one or more resource description definitions. Then, for particular assignment purposes (of a particular resource type, for example), you could override those standard values by specifying different values in the resource assignment or resource assignment-to-description association definition.

Related tasks:

"Installing resource descriptions" on page 88
When you install a resource description, you are installing resources from resource groups that are associated, either directly or indirectly, with the description.

"Installing system links using the WUI" on page 122
When you install a system link, you are establishing a connection between two CICS regions that are managed by CICSPlex SM. The definitions referred to by that system link are installed in the target CICS regions.

Automatic resource installation

The automatic installation of resources in a CICS system is controlled by:

- The CICS system definition, which tells CICSPlex SM under what conditions resources should be installed and what to do if installation errors occur.
- One or more resource descriptions and, optionally, resource assignments, which tell CICSPlex SM what resources to install and how to install them.

When a CICS system initializes and identifies itself to a CMAS, CICSPlex SM reviews all the resource descriptions that are associated with that CICS system and determines the set of resources that should be installed.

Related tasks:

"Installing resource descriptions" on page 88
When you install a resource description, you are installing resources from resource groups that are associated, either directly or indirectly, with the description.

"Installing system links using the WUI" on page 122
When you install a system link, you are establishing a connection between two CICS regions that are managed by CICSPlex SM. The definitions referred to by that system link are installed in the target CICS regions.

Installing resources automatically

Resources can be installed in a CICS system automatically even if the maintenance point CMAS for the CICSplex is not active.

About this task

To automatically install a set of resources when a CICS system initializes:

Procedure

1. Update the CICS system definition, using the **CICS system definition** view (CSYSDEF object) to indicate:
   a. Whether resources should be installed every time the system initializes, only during a COLD or warm (AUTO) start, or not at all. CICSPlex SM handles the initial start of a CICS system in the same way as it does a cold start. An emergency restart of CICS is handled in the same way as a warm start.

b. How CICSPlex SM should handle any resource installation errors that might occur.

2. Create one or more resource descriptions, using the **Resource description** view (RESDESC object):
   a. Specify YES in the autoinstall field to enable automatic resource installation.
   b. Specify the groups of resources to be installed.

      If the resource groups are directly associated with a resource description, using the **Resource group in resource description** view (RESINDSC object), the resources are installed in the CICS systems named in the **Resource group scope name** field of the description.
3. Optional: Associate the resource descriptions with resource assignments, using the **Resource assignment definition** view (RASGNDEF object) to select specific resources and provide usage information and override values.

   In this case, the resources are installed in the CICS systems named in the Target Scope and Related Scope fields of the resource assignment, resource description, or the association between them.

Performance considerations for assigned resource descriptions:

Too many installation assignments with resource descriptions in a CICSPlex can affect performance.

Each time that a BAS resource definition is associated with a target CICS system through a resource description (RESDESC object), an entry for that installation assignment is made in the resource set table. The resource set table is an internal table in the BAS storage cache.

For example, consider a data repository with just one resource description definition, which has 50 program definitions (PROGDEF objects) associated with it in migration mode. When the target scope of the resource description is assigned to a single MAS, the resource set table is initialized with 50 entries; one entry for each program definition instance at the target MAS. If the resource description target scope is changed to a CICS system group that comprises 20 MASs, the number of entries in the resource set table increases to 1000 (50 resource definitions multiplied by 20 target regions). The resource set table is kept in contiguous storage to optimize performance.

Therefore, because the BAS storage cache has a finite size, there is a limit on the number of installation assignments that can be made with resource descriptions within a CICSPlex. The limit varies for each specific installation, but the assignment of more than 150,000 resource definitions across the whole of the CICSPlex might lead to performance problems. If a CICSPlex is expected to exceed that limit, consider reducing the number of static definitions by using autoinstall services.

Handling automatic installation errors

About this task

If any of the resources identified in the resource descriptions for a CICS system cannot be installed when the system initializes, CICSPlex SM:

- Issues EYUBNnnnn messages to the CICS job log and EYULOG. These messages describe the resources and the reasons they could not be installed, including any error codes that may have been returned by CICS.

Note: The job log will also contain CICS messages with detailed information on the installation errors.

- Responds according to the Recovery Action value in the **CICS system definition** view (CSYSDEF object):

  CONTINUE
  Continue installing other resources.

  IMMEDIATE
  Shut down the CICS system immediately.

  NORMAL
  Shut down the CICS system normally.

  PROMPT
  Prompt the operator console for an action. The resource installation process in the CICS system is suspended until the operator responds, but all other MAS processing continues.

  TERMINATE
  Terminate the resource installation process. No more resources are installed. Any resources that were successfully installed are not removed.

Dynamic resource installation

It is recommended that you install most of your resources automatically, as each CICS system initializes. However, at times it might be necessary to refresh those resources or install more resources to satisfy special circumstances. When a CICS system is running, you can use Business Application Services to install new or updated resources dynamically.

You can install a single resource in a single CICS system or a whole set of resources of various types in multiple CICS systems, complete with definition assignment and override values. When you install CICS resources dynamically, you can force those resources to replace any identical resources that were installed in the system previously.

Note:

1. The maintenance point CMAS for the CICSplex must be active when you attempt to install resources dynamically. If the maintenance point is not available, the installation request fails.
2. ⌂You cannot dynamically install session definitions (SESSDEF objects) directly. They can be installed indirectly through a SYSLINK resource or by defining a RASGNDEF (Resource Assignment Definition) for the SESSDEF, then installing the related CONNDEF with the RASGNDEF specified as the referenced resource assignment.

When you install an individual resource, you must identify the CICS systems where the resource is to be installed and provide information about its use as a local or remote resource. Optionally, you can provide override values for specific attributes of the resource. Any override values that you specify are used only for this one-time installation of the resource. The resource definition in the data repository remains unchanged.

You can use the **install** action command to install dynamically a resource into one or more active systems. For details of valid CICS systems, see the descriptions of the individual BAS objects. The options for installing a resource are the same

options that you can specify when you create a resource assignment (RASGNDEF object), including specifying an override expression to be applied for this installation.

Note: The **File key segment definitions** and **Session definitions** views (FSEGDEF and SESSDEF objects) do not support the **install** action command.

CICSPlex SM attempts to install all of the resources you identify, but sometimes conditions in the CICSplex prevent the installation process from completing successfully. When installation problems occur, CICSPlex SM provides detailed information about the errors.

Related tasks:

"Installing resource descriptions" on page 88
When you install a resource description, you are installing resources from resource groups that are associated, either directly or indirectly, with the description.

"Installing system links using the WUI" on page 122
When you install a system link, you are establishing a connection between two CICS regions that are managed by CICSPlex SM. The definitions referred to by that system link are installed in the target CICS regions.

Installing resources dynamically

About this task

To install a resource definition dynamically:

1. Open a resource definition screen by clicking **Administration views > Basic CICS resource administration views > CICS resource definitions**, then selecting the type of resource to be installed.

   Note: You can also access this view from the **Fully functional Business Application Services (BAS) administration views** menu.
2. Select one or more resources and click the **Install** button.
3. Provide the following information about the CICS systems where the resources are to be installed.

   Target scope value
   Enter the specific or generic name of an existing CICS system or CICS system group into which the specified resources are to be installed.

   Related scope value
   If you specify a **Usage value** of REMOTE, enter the specific or generic name of an existing CICS system into which the remote resource is to be installed as LOCAL.

   Note: For remote transaction definitions (TRANDEF objects) that are defined as dynamic, you can specify a CICS system group for the **Related scope value**. For all other remote resources, you can specify a CICS system group only if it consists of a single CICS system.

   Usage value
   Specify how the resource will be used:

   LOCAL
   The resource is contained within the target CICS system. LOCAL is valid for all supported resource types.

   REMOTE
   The resource definition refers to a resource installed in a different CICS system. If you specify REMOTE, you must also specify a **Related Scope value** to identify the CICS system that

will contain a local instance of the resource. REMOTE is valid only for the following resource types:
- File definitions (FILEDEF objects)
- Program definitions (PROGDEF objects)
- Transient data queue definitions (TDQDEF objects)
- Transaction definitions (TRANDEF objects)

Note:

a. When you specify REMOTE, the resources are assigned to all the CICS systems identified in both the **Target scope value** and **Related scope value** fields. Likewise, when the resources associated with this assignment are installed, remote resources are installed in both the target and related scopes.

b. Although a temporary storage queue may be created on a remote system, the temporary storage model that controls the queue's attributes is always a local resource. Therefore, when you install a temporary storage model definition, the **Usage value** must always specify LOCAL. See Installing BAS temporary storage model definitions. For a description of the temporary storage model definition Remote system attribute, see Temporary storage model definitions.

Mode value

For some resource types, CICSPlex SM requires additional information to determine which subset of resource attributes to use in completing the installation. The **Mode value** you should specify depends on the resource type being installed:

Programs (PROGDEF objects)

If you specified LOCAL in the **Usage value** field, you can specify AUTO to have CICS automatically install programs into a system. AUTO means that no explicit definition of the programs is required in the CICS system. Otherwise, specify N/A.

Transactions (TRANDEF objects)

You can specify whether or not the transaction should be processed by the dynamic routing program. If the **Usage value** field contains REMOTE, a **Mode value** must be specified as follows:

Note: The value you specify here overrides the **Dynamic routing option** value in the transaction definitions (TRANDEF objects).

DYNAM
Transactions are processed by the dynamic routing program.

STAT Each transaction should be sent to the remote CICS system identified in the transaction definition (TRANDEF object). This mode may be specified only if the **Usage value** field contains REMOTE.

Transient data queues (TDQDEF definitions)

You can identify the type of transient data queue to be installed:

EXTRA
Extrapartition TDQ

IND Indirect TDQ

INTRA
Intrapartition TDQ

If you specify N/A, CICSPlex SM uses the **Transient data queue type** value in the transient data queue definition to install the transient data queue. If this type value is REMOTE, CICSPlex SM installs an indirect transient data queue.

For all other resources, specify N/A because no mode data is required.

Overtype value
If you plan to specify an override expression for the resource, indicate which scope the override values should be applied to:

NONE
Do not apply any override values.

BOTH Apply the override values to both scopes.

RELATED
Apply the override values to the Related Scope only.

TARGET
Apply the override values to the Target Scope only.

Referenced resource assignment name
If you are installing connections from the **Connection definition** view, identify the resource assignment that applies to the related session definitions. For each connection, CICSPlex SM requires one or more session definitions to properly construct the actual CICS link.

Note: The **Referenced resource assignment name** field appears only when you are installing a connection from the **Connection definition** view.

4. Specify any pre-installation checks.

When you install resources into CICS systems dynamically, you can ask CICSPlex SM to perform the following checks before it attempts to install the resources:

- Are the CICS systems running?
- Do the CICS systems support the EXEC CICS CREATE command?

The value in the **Notify value** field determines, which, if any, checks are carried out.

If you request any of these pre-installation checks, CICSPlex SM performs them for all the resources you specified before any of the resources are installed.

To specify these checks, select one of the following values from the **Notify value** field:

INACTIVE
CICSPlex SM checks all of the CICS systems you identified to make sure they are currently active in the CICSplex. If any of the CICS systems are not active, CICSPlex SM returns a list of inactive systems.

RELEASE
CICSPlex SM checks for CICS systems in the target scope that do not support EXEC CICS CREATE commands. If any of the CICS systems are running a release of CICS that does not support EXEC CICS CREATE, CICSPlex SM returns a list of systems where resources cannot be installed.

FULL CICSPlex SM checks all of the CICS systems you identified to make sure they are currently active in the CICSplex, and checks that the CICS system is at the appropriate level for the resource being installed. If any of the CICS systems are not active, CICSPlex SM returns a list of inactive systems. If any of the CICS systems are running a release of CICS that does not support EXEC CICS CREATE, CICSPlex SM returns a list of systems where resources cannot be installed.

NO No checking is performed.

5. Request any consistent state check.

   If a resource that you are trying to install already exists in a CICS system, CICSPlex SM can check whether its current operational state would allow the resource to be replaced. For example, if a program with the same name and attributes exists in a CICS system, CICSPlex SM attempts to discard it. However, if that program is currently in use, CICSPlex SM cannot replace it with a new one. You use the **State check value** field to request a consistent state check:

   State check

   NO CICSPlex SM does not provide details on resource that are not installable because of their status before issuing an EXEC CICS CREATE command.

   YES CICSPlex SM provides details on resources that are not installable because of their status before issuing an EXEC CICS CREATE command.

   If you do not request a state check, CICSPlex SM passes the EXEC CICS CREATE request to CICS; if the resource is in a state that prevents it from being replaced, the request fails.

6. Specify a **Force install value**.

   Before installing a resource, CICSPlex SM checks to see if the same resource already exists in the CICS system and if CICSPlex SM itself was responsible for installing it. If so, CICSPlex SM considers the new resource to be a duplicate.

   In this situation, CICSPlex SM concludes that the new resource does not need to be installed because it is a duplicate of one that already exists. However, you may want to reinstall an existing resource if, for example, you have changed attributes of the definition, or you are supplying override values as part of the installation request. To do this, you can use the **Force install value** option when you dynamically install resources. This option is available when you:

   - Install an individual resource
   - Install a resource group
   - Install a resource description
   - Replace a resource description

   Force install value

   YES Install the specified resource unconditionally, without checking whether or not it is a duplicate

   NO Do not install the duplicate resource.

   By default, **Force install value** is set to No; CICSPlex SM does not normally force the installation of a resource it believes to be a duplicate. However, if you specify YES, you can bypass this duplicate resource checking. CICSPlex SM will install all of the specified resources unconditionally.

7. Provide any override expressions.

   This identifies attributes of the specified resource whose values are to be overridden when they are installed in one or more of the specified scopes. The value in the **Override string** field determines which scope the override values are applied to.

   (Optional.) An override expression can be made up of one or more attribute expressions in the form:

Override Expression



where:

attr
Is the name of a modifiable attribute for the resource.

value
Is the value to which you want the attribute set. The following restrictions apply:

- The value must be a valid one for the attribute.
- If the value contains imbedded blanks or special characters (such as periods, commas, or equal signs), the entire value string must be enclosed in single quotes, like this:

  ```
  DESCRIPTION='Payroll.OCT'.
  ```

- To include a single quote or apostrophe in a value, you must repeat the character, like this:

  ```
  DESCRIPTION='October''s Payroll'.
  ```

8. Click **Yes** to action any pre-installation checks and install the resource definition in the specified CICS systems. The resource definition tabular view is redisplayed.

   If the installation fails, messages containing diagnostic information are displayed on this screen.

Handling dynamic installation errors

When you ask CICSPlex SM to install one or more resources dynamically by using the **Install** button from WUI view, an **Install** view is displayed. After you provide the required information and click **Yes**, CICSPlex SM attempts to install the selected resources into the appropriate CICS systems. Note that the installation of resources into various CICS systems can take place in at the same time.

When the installation process is complete, if any of the resources could not be installed, the tabular view for the resources is displayed with one or more error messages at the beginning. For example, if you tried to install an IPIC connection definition, you might see a set of messages like these:

```
EYUVC1231E  'Install' (INSTALL) request failed. Request complete for 1 records. (Tableerror, Dataerror)
EYUVC1272I  Action (INSTALL) failed. Nothing installed (21).
EYUVC1273I  Action (INSTALL) failed for 'A0T0' (Ipcondef) version 1, in 'DEWCBBA0'. Install failure
EYUVC1279I  CICS information: EIBFN(303C - CREATE IPCONN) RESP(16 - INVREQ) RESP2(0, 631)
```

Click the error message number to display the full text of the message which contains reasons why the install failed and suggestions for solving the problem.

Extracting records from the CSD

To migrate resource definitions from your CICS system definition (CSD) file, CICSPlex SM provides an exit routine that can extract records from an existing CSD. The exit routine uses the EXTRACT command of the CICS DFHCSDUP utility to read CSD records. The extracted CSD records are processed by the CICSPlex SM-supplied extract routine EYU9BCSD to generate equivalent CICSPlex SM resource definition records that you can use as input to the batched repository-update facility.

Creating input to the extract routine EYU9BCSD

About this task

The input file for the CICSPlex SM extract routine EYU9BCSD consists of a series of control statements. These control statements describe the CSD records you want to extract and the resource groups with which they should be associated.

The input file must adhere to the following requirements:

- The file must have a fixed logical record length of 80.
- Each control statement must be contained on a single line.
- Any line with * in column 1 is treated as a comment.

The following control statements are supported:

RESGROUP(CSDGROUP | *resgroup*)
: Identifies the resource group or groups to be generated:

  CSDGROUP
  : A RESGROUP definition is generated for each CSD group presented to EYU9BCSD.

  resgroup
  : A single RESGROUP definition is generated using the specified name.

  The RESGROUP statement is optional and, if specified, only one is allowed per input file.

RESINGRP(CSDGROUP | *resgroup*)
: Identifies the resource group with which resource definitions are to be associated:

  CSDGROUP
  : Resource definitions are associated with a resource group having the same name as the original CSD group.

  resgroup
  : Resource definitions are associated with the specified resource group. The resource group must already be defined in the data repository for an association to be created.

  The RESINGRP statement is optional and, if specified, only one is allowed per input file. If you do not specify a RESINGRP statement, the batched repository-update facility CREATE xxxxDEF command is generated without a RESGROUP operand. In that case, the xxxxDEF resource definition is not automatically associated with any resource group.

objtype(resname)
: Identifies the CSD records to be processed by EYU9BCSD, where:

  objtype Is the CSD resource type, which may be one of the following:

  ATOMSERVICE, BUNDLE, CONNECTION, CORBASERVER, DB2CONN, DB2ENTRY, DB2TRAN, DJAR, DOCTEMPLATE, ENQMODEL, FILE, JOURNAL, IPCONN, JOURNALMODEL, LIBRARY, LSRPOOL, MAPSET, MQCONN, PARTITIONSET, PARTNER, PIPELINE, PROCESSTYPE, PROFILE, PROGRAM, REQUESTMODEL, SESSIONS, TCPIPSERVICE, TDQUEUE, TERMINAL, TRANCLASS, TRANSACTION, TSMODEL, TYPETERM, URIMAP, WEBSERVICE

You can specify multiple *objtype* statements in a single input file, but each one must represent a different resource type. Only one *objtype* statement of a given resource type is allowed per input file.

resname
Is the specific or generic name of a CSD resource of the specified type.

For example, PROGRAM(*) would process all the PROGRAM records in the CSD presented to EYU9BCSD. PROGRAM(AB+C*) would process only those PROGRAM records that match the generic pattern. Note that the asterisk (*) is interpreted according to CICSPlex SM rules for generics, not CEDA rules.

INQUOTES(NO | YES)
Identifies whether or not you want field values enclosed in quotes on the output data set. You may need to use this control statement if you have any data on your CSD that contains unbalanced parentheses. If you omit this keyword, the default value of NO is assumed.

NO The values of parameters are not enclosed in quotes on the output data set. This setting is perfectly adequate for input to the batched repository-update facility, but you might encounter problems if the parameter values contain unbalanced parentheses.

Note that, if you specify INQUOTES(NO), the EYU9BCSD output can be used as input to any release of the CICSPlex SM batched repository-update facility.

YES All values of parameters are enclosed in quotes on the output data set. The CICSPlex SM batched repository-update facility terminates the parameter value at the final quote, not at an embedded parenthesis.

Note that, if you specify INQUOTES(YES), the EYU9BCSD output can be used only with the CICSPlex SM batched repository-update facility at CICSPlex SM and later. The EYU9BCSD output is not compatible with, and cannot be used as input to, the batched repository-update facility supplied with earlier releases of CICSPlex SM.

For example, suppose a DESCRIPTION field contains the value:

```
1) Describe Resource
```

If you specify INQUOTES(NO), which is the default, the EXTRACT routine will produce the following statement in the output data set:

```
DESCRIPTION(1) Describe Resource)
```

The CICSPlex SM batched repository-update facility interprets this as a DESCRIPTION field containing the value 1, followed by two unrecognizable keywords.

If you specify INQUOTES(YES), EYU9BCSD places quotes around the field value. The output data set would contain the statement:

```
DESCRIPTION('1) Describe Resource')
```

This statement is interpreted correctly by the CICSPlex SM batched repository-update facility.

Submitting a job to EYU9BCSD

To submit a job to EYU9BCSD, you can use the **DFHCSDUP EXTRACT** command.

Procedure

Specify the **DFHCSDUP EXTRACT** command as follows:

```
EXtract LIst(listname) | Group(groupname)
        USerprogram(EYU9BCSD) OBJECTS
```

Notes:

- EYU9BCSD must be invoked from the USERPROGRAM keyword; it cannot be called on the entry linkage to DFHCSDUP using the EXITS parameter.
- The OBJECTS keyword is required.

Example

Figure 9 on page 101 is an example of the JCL that you can use to run EYU9BCSD. This sample JCL is supplied in the member EYUJCLEX in the CICSTS54.CPSM.SEYUSAMP library.

This example extracts resource definitions of all resource types from a specified CSD group (*group_name*). At the same time, a CICSPlex SM resource group (RESGROUP) is generated for that CSD group and associations are generated between the group and the resource definitions.

```
//*-------------------------------------------------------------
//*
//* Delete the extract output file for a rerun of this job
//*
//*-------------------------------------------------------------
//BR14OUT  EXEC PGM=IEFBR14
//EYUOUT    DD  DISP=(MOD,DELETE,DELETE),
//              DSN=cpsm.index.EYUOUT.group_name,
//              SPACE=(TRK,(1,1)),
//              UNIT=SYSDA
//*-------------------------------------------------------------
//*
//* Extract the CSD Resource Definitions
//*
//*-------------------------------------------------------------
//CSDXTRCT EXEC PGM=DFHCSDUP,REGION=0M,
//              COND=(0,NE),
//              PARM='CSD(READONLY)'
//STEPLIB   DD  DISP=SHR,DSN=cics.index.SDFHLOAD
//          DD  DISP=SHR,DSN=cpsm.index.SEYUAUTH
//DFHCSD    DD  DISP=SHR,DSN=cics.dfhcsd
//EYUOUT    DD  DISP=(,CATLG,DELETE),
//              DSN=cpsm.index.EYUOUT.group_name,
//              SPACE=(TRK,(1,5)),
//              UNIT=SYSDA
//SYSPRINT  DD  SYSOUT=*
//SYSIN     DD  *
 EXTRACT USERPROGRAM(EYU9BCSD) OBJECTS GROUP(group_name)
/*
//EYUIN     DD  *
 RESGROUP(group_name)
 RESINGRP(CSDGROUP)
 ATOMSERVICE(*)
 BUNDLE(*)
 CONNECTION(*)
 CORBASERVER(*)
 DB2CONN(*)
 DB2ENTRY(*)
 DB2TRAN(*)
 DJAR(*)
 DOCTEMPLATE(*)
 ENQMODEL(*)
 FILE(*)
 IPCONN(*)
 JOURNAL(*)
 JOURNALMODEL(*)
 JVMSERVER(*)
LIBRARY(*)
 LSRPOOL(*)
 MAPSET(*)
 MQCONN(*)
 PARTITIONSET(*)
 PARTNER(*)
 PIPELINE(*)
 PROCESSTYPE(*)
 PROFILE(*)
 PROGRAM(*)
 REQUESTMODEL(*)
 SESSIONS(*)
 TCPIPSERVICE(*)
 TDQUEUE(*)
 TERMINAL(*)
 TRANCLASS(*)
 TRANSACTION(*)
 TSMODEL(*)
 TYPETERM(*)
 URIMAP(*)
 WEBSERVICE(*)
/*
//*-------------------------------------------------------------
//*
//* List EYUOUT to view errors
```

Modify the sample JCL to provide the following information:

CSDXTRCT
The COMPAT keyword must be used on the CSDXTRCT PARM= statement to extract CICS resource attributes that are now obsolete; for example, the OMGINTERFACE, OMGMODULE, and OMGOPERATION attributes of a CICSPlex SM REQUESTMODEL resource definition.

EYUOUT Identify *cpsm.index.EYUOUT.group_name* as a sequential data set where the batched repository-update facility commands generated by EYU9BCSD can be written.

STEPLIB
Identify:

- *cics.index.SDFHLOAD* as the CICS load library containing the DFHCSDUP module.
- *cpsm.index.SEYUAUTH* as the CICSPlex SM load library containing EYU9BCSD.

DFHCSD Identify *cics.dfhcsd* as the VSAM data set that serves as the CSD file.

SYSIN Identify GROUP *group_name* as the CSD group from which definitions are to be extracted. The group name may contain wildcards. Identify LIST*list_name* as the CSD grouplist from which definitions are to be extracted. The list name may not contain wildcards.

For more details of the DFHCSDUP utility and its parameters, see System definition file utility program (DFHCSDUP).

To extract definitions from all the groups in a CSD group list:

1. Change GROUP(*group_name*) to LIST(*list_name*).
2. Identify a CSD group list.
3. Change all other occurrences of *group_name* to the appropriate *list_name*.

EYUIN If you specify LIST(*list_name*) in the SYSIN statement, change the RESGROUP value from *group_name* to CSDGROUP. Specifying CSDGROUP generates a resource group for each CSD group in the group list.

Output from EYU9BCSD

You can use the CICSPlex SM-supplied extract routine EYU9BCSD to generate CICSPlex SM resource definition records for each CSD record identified in your input file. The output from EYU9BCSD is used to populate the data repository.

The CICSPlex SM extract routine EYU9BCSD uses the data extracted from the CSD by the DFHCSDUP EXTRACT command to generate batched repository-update facility commands like those shown in Figure 10 on page 103.

```
/*
   RESGROUP(group_name)
   RESINGRP(CSDGROUP)
   PROCESSTYPE(*)
   TSMODEL(*)
   REQUESTMODEL(*)
*/
  CONTEXT EYUPLX01;
  CREATE RESGROUP     RESGROUP(group_name)
                      DESCRIPTION( )
                           ;
  CREATE PROCDEF          NAME(CICSPRTY)
                          DESCRIPTION(Sample CBTS Processtype )
                          STATUS(ENABLED)
                          FILE(CBTSFILE)
                          AUDITLOG( )
                          AUDITLEVEL(OFF)
                          RESGROUP(group_name)

  CREATE TSMDEF           NAME(SAMPLE)
                          DESCRIPTION(Sample TS Model )
                          PREFIX(ABCD )
                          LOCATION(AUXILIARY)
                          RECOVERY(NO)
                          SECURITY(NO)
                          POOLNAME( )
                          REMOTESYSTEM( )
                          REMOTEPREFIX( )
                          RESGROUP(group_name)
                          ;
  CREATE RQMDEF           NAME(REQMOD1)
                          DESCRIPTION(Sample Request Model )
                          OMGMODULE(*)
                          OMGINTERFACE(*)
                          OMGOPERATION(*)
                          TRANSID(TRNX)
                          RESGROUP(group_name)
                          ;
```

Figure 10. Sample edited output from EYU9BCSD

Note: If you did not specify a RESINGRP statement in your EYU9BCSD input, the CREATE xxxxDEF command is generated without a RESGROUP operand. That means the resource definition will not be associated with any resource group.

If multiple CSD records are found for the same resource type and name, multiple CREATE commands are generated, each with a different version number.

The batched repository-update facility CREATE commands are written to the EYUOUT output file you identified in the DFHCSDUP JCL.

Editing the EYUOUT file:
About this task

The CREATE commands are generated in the proper form and the proper sequence for use by the batched repository-update facility. However, before you submit the EYU9BCSD output to the batched repository-update facility, you must edit the EYUOUT file as follows:

Context

The batched repository-update facility needs to know the CICSPlex SM context for the resource definitions being processed. You must insert a

CONTEXT statement at the beginning of the file to identify the CICSplex to which the updates apply. See Figure 10 on page 103.

Passwords

The CSD records extracted by DFHCSDUP do not include passwords. Any resource definitions that include passwords are generated with blanks (X'40') in the password fields, unless you add the passwords manually.

You can edit individual CREATE commands in the file to add the appropriate password fields. The passwords are then included in the resource definitions that CICSPlex SM generates in the data repository. Be aware, however, that the batched repository-update facility output will include a visible record of the passwords that you entered.

Obsolete Fields

The CSD records extracted by DFHCSDUP do not include fields that are considered obsolete, but which are retained for compatibility (such as RSL in a map set, partition set program, or transaction definition).

You can edit individual CREATE commands in the file to add the appropriate fields. The additional fields are then included in the resource definitions that CICSPlex SM generates in the data repository.

Submitting EYUOUT to the batched repository-update facility:
About this task

After you have made the necessary changes to the EYU9BCSD output file, you can submit it as input to the batched repository-update facility.

For more information on the batched repository-update facility, see Administering CICSPlex SM.

Example BAS tasks

This section describes a number of typical BAS tasks.

Establishing CICSplex connectivity

This example uses the Web User Interface (WUI) to create the pairs of connection and session definitions that are required to connect the CICS systems in the supplied CICSplex, EYUPLX01.

Procedure

1. Create the first ISC connection definition.
   a. From the WUI main menu, click **Administration views** > **Basic CICS resource administration views** > **CICS resource definitions** > **Connection definitions** to open the **Connection definition** tabular view.
   b. If the current context is not EYUPLX01, specify EYUPLX01 in the **Context** field and click **Refresh**.
   c. Click **Create** and complete the Create panel as follows:

Field name	Value
Connection definition name	C001
Description	ISC Connection
Access method	z/OS Communications Server
Protocol	Appc
Nature of connection	Notapplic

Field name	Value
APPC terminal on single session APPC link	No
Data stream type	User
Record format	U
Queue limit	No
Maximum queue time	No
Autoconnect sessions for z/OS Communications Server	Yes
Connection status	Yes
Level of attach-time security	Local
Bind time security	No
Use default user ID	N_a
Persistent session recovery	Sysdefault
Exchange lognames (XLN) action	Keep

Other fields can remain blank.

d. Click **Yes** to confirm the operation. The new ISC connection is created and the **Connection definition** tabular view is redisplayed.

2. Create the associated session definition.
   a. From the WUI main menu, click **Administration views** > **CICS resource definition views** > **Session definitions** to open the **Session definition** tabular view.
   b. Click the **Create** button and complete the Create panel:

Field name	Value
Session definition name	S001
Definition version	0
Definition description	ISC session
Connection definition name	C001
Intercommunication link protocol	Appc
Maximum number of sessions in the group	4
Maximum number of contention winner sessions	2
Receive buffer size	4096
Session priority	0
Autoconnect option	YES
Session inservice	N_a
Chain assembly required	Yes
Honor release requests	No
Honor disconnect requests	No
Recovery option	Sysdefault
XRF recovery notification option	N_a

Other fields can remain blank.

c. Click **Yes** to confirm. The ISC session definition is created and the Session definition tabular view is redisplayed.

3. Define the link between the relevant CICS systems.
   a. From the WUI main menu, click **Administration views** > **Basic CICS resource administration views** > **CICS system links and related resources** > **All system links**.
   b. Click the **Create** button and complete the Create panel as follows:

Field name	Value
Primary CICS system name	EYUMAS1A
Secondary CICS system name	EYUMAS1B
Connection resource type	Sna
Primary connection definition name	C001
Primary connection definition version	1
Secondary connection definition name	S001
Secondary connection definition version	1

   c. Click **Yes** to create the link. The ISC link between EYUMAS1A and EYUMAS1B is created and the **All system links** view is redisplayed.
4. Reuse the existing ISC link definition to define system links between other CICS systems.
   a. In the **All system links** view, select the entry for EYUMAS1A and click **Create**. The Create System Link panel is displayed, showing the values you entered when creating the link between EYUMAS1A and EYUMAS1B.
   b. Update the **Primary CICS system name** field to create an ISC link between EYUMAS4A and EYUMAS1B.
   c. Click **Yes** to confirm. The ISC link between EYUMAS4A and EYUMAS1B is created and the **System link definition** view is redisplayed.

   Repeat this step to create ISC links between other CICS systems in the CICSplex.

Defining resources for an application

This example uses the Web User Interface (WUI) to create the resource definitions that are required for a workload manager (WLM) application.

About this task

The example describes the use of resource assignments and uses the **Fully functional Business Application Services (BAS) administration views** menu, intended for more advanced CICSPlex SM users.

Procedure

1. Create a resource group definition.
   a. From the WUI main menu, click **Administration views** > **Fully functional Business Application Services (BAS) administration views** > **CICS resource definitions** > **Resource groups** to open the **Resource group definition** tabular view.
   b. If the current context is not EYUPLX01, specify EYUPLX01 in the **Context** field and click **Refresh**.
   c. Click the **Create** action button and complete the Create panel as follows:
   Resource group name
   EYUBAG01

Description
SSET — WLM IVP application
Mode value
NO

Other fields can remain blank.

d. Click **Yes** to confirm. The **Resource group definition** tabular view is redisplayed.

You have created an empty group, EYUBAG01. The next step is to create the resource definitions that constitute the WLM application and add them to the group.

2. Create the transaction definition.
   a. From the WUI main menu, click **Administration views** > **Fully functional Business Application Services (BAS) administration views** > **CICS resource definitions** > **Transaction definitions** to open the **Transaction definition** tabular view.
   b. Click the **Create** action button and complete the Create panel as follows:
   Transaction definition name
   ETVP
   Definition version
   0
   Description
   SSET — Workload IVP application
   Resource group name
   EYUBAG01
   First program name
   EYUWLMVP
   Size in bytes of transaction work area
   0
   Transaction profile
   DFHCICST
   Enabled status
   Enabled
   Task data location
   Below
   Task data key
   User
   Storage clearance status
   No
   Runaway timeout value
   SYSTEM
   Shutdown run status
   Disabled
   Transaction isolation option
   Yes
   Dynamic routing option
   Yes
   Dynamic routing status
   Yes
   Remote system name
   1A3A
   Remote transaction name
   ETVP

Transaction routing profile
DFHCICSS
Queuing on local system
N_a
Transaction priority
1
Transaction class number
1
Transaction class name
DFHTCL00
CICS failure action
Backout
Indoubt wait option
Yes
Indoubt wait time (days, hours and minutes)
0
Indoubt failure processing action
Backout
Resource security checking
No
Command level security option
No

Other fields can remain blank.

c. Click **Yes** to confirm. The **Transaction definition** tabular view is redisplayed.

3. Create the program definition.
   a. From the WUI main menu, click **Administration views** > **Fully functional Business Application Services (BAS) administration views** > **CICS resource definition views** > **Program definitions** to open the **Program definition** tabular view.
   b. Click the **Create** action button and complete the Create panel as follows:
Program definition name
EYUWLMVP
Definition version
0
Definition description
SSET — Workload IVP definition
Resource group name
EYUBAG01
Language
Assembler
Reload new copy
No
Residence status
No
Program storage release
Normal
Use program from the link pack area (LPA)
No
Enabled status
Enabled
Resource security value
0

Display execution diagnostic facility (EDF) screens
Yes
Data location
Below
Program execution key
User
Concurrency status
Quasirent
Dynamic routing status
No
API subset restriction type
Fullapi
Hot pooling status
No

Other fields can remain blank.

c. Click **Yes** to confirm. The **Program Definition** tabular view is redisplayed.

4. Create the first file definition.
   a. From the WUI main menu, click **Administration views** > **Fully functional Business Application Services (BAS) administration views** > **CICS resource definitions** > **File definitions** to open the **File definition** tabular view.
   b. Click the **Create** action button and complete the Create panel as follows:
File definition name
EYUFIL01
Definition version
0
Definition description
Payroll updates — Local
Data set name
PAYROLL.EUTL3
Record level sharing (RLS) file access mode
No
Local shared resources pool ID
1
Default level of read integrity
Uncommitted
VSAM data set name sharing
Allreqs
Maximum concurrent requests against file
30
Initial status
Enabled
File open time
Firstref
Disposition of file
Share
Number of data buffers
31
Number of index buffers
30
Data table type
No
Maximum number of records in data table
NOLIMIT

Table name
IANSFILE
Update model
Locking
Load type
No
Record format
Variable
Operations (Add, browse, delete, read, update)
Yes (for all)
Read operations recorded on journal
None
Synchronous auto journaling for input
No
Rewrite/delete operations recorded on journal
No
Add operations recorded on journal
No
Synchronous auto journaling for output
No
Type of recovery
None
CICS VSAM file backup type
Static

Other fields can remain blank.

c. Click **Yes** to confirm the file creation. The file definition for EYUFIL01 is created and the **File definition** tabular view is redisplayed.

5. Reuse the existing file definition to create a definition for another file.
   a. In the **File definition** tabular view, select the entry for EYUFIL01 and click the **Create** action button. The Create File Definition panel is displayed, showing the values you entered when creating EYUFIL01.
   b. Change **File definition name** to EYUFIL02
   c. Make the following fields blank:
      Local shared resources pool ID
      Maximum concurrent requests against file
      Number of data buffers
      Number of index buffers
   d. Click **Yes**. The file definition for EYUFIL02 is created and the **File definition** tabular view is redisplayed.

   You have created all of the resource definitions for the WLM application. The next step is to assign those resources to the appropriate CICS systems.
6. Create a resource assignment for the transaction definition.
   a. From the WUI main menu, click **Administration views** > **Fully functional Business Application Services (BAS) administration views** > **Resource assignments** to open the **Resource assignment definition** tabular view.
   b. Click the **Create** action button to open a **Resource assignment definition** create view.

   Complete the Create panel as follows:
   Resource assignment definition name
   EYUBAA01
   Description
   SSET — Assign transaction definitions

Resource group name
EYUBAG01
Type of resource to be processed by assignment
TRANDEF
Resource usage type
Remote
Resource usage qualifier
Dynam
Target scope name
EYUMAS1A
Related scope name
EYUMAS1B
Scope that override is applied to
Related

Other fields can remain blank.

c. Click **Yes**. The resource assignment for transaction definitions is created and the **Resource assignment definition** tabular view is redisplayed.

Note: This example does not make use of filter and override expressions for the assignment.

7. Create a resource assignment for the program definition.
   a. In the **Resource assignment definition** tabular view, click the **Create** action button and complete the Create panel as follows:
   Resource assignment definition name
   EYUBAA02
   Description
   SSET — Assign program definitions
   Target scope name
   EYUCSG03
   Resource group name
   EYUBAG01
   Type of resource to be processed by assignment
   PROGDEF
   Resource usage type
   Local
   Resource usage qualifier
   N_a
   Scope that override is applied to
   Related

   Other fields can remain blank.

   b. Click **Yes**. The resource assignment for program definitions is created and the **Resource assignment definition** tabular view is redisplayed.
8. Create a resource assignment for the file definitions.
   a. In the **Resource assignment definition** tabular view, click the **Create** action button and complete the Create panel as follows:
   Resource assignment definition name
   EYUBAA03
   Description
   SSET — Assign file definitions
   Target scope name
   EYUCSG03

Related scope name
EYUMAS4A
Resource group name
EYUBAG01
Type of resource to be processed by assignment
FILEDEF
Resource usage type
Remote
Resource usage qualifier
N_a
Scope that override is applied to
Related

Other fields can remain blank.

b. Click **Yes**. The resource assignment for file definitions is created and the **Resource assignment definition** tabular view is redisplayed.

All of the resource assignments for the resource definitions have now been created. The next step is to group all of the resources together and identify them as an application.

9. Create a resource description for the WLM application.
   a. From the WUI main menu, click **Administration views** > **Fully functional Business Application Services (BAS) administration views** > **Resource descriptions** to open the **Resource description definition** tabular view.
   b. Click the **Create** action button and complete the Create panel as follows:
   Resource description name
   EYUBAD01
   Description
   SSET — WLM IVP Application
   Logical scope registration
   Yes
   Logical scope name
   WLMIVP
   Autoinstall request type
   Yes

   Other fields can remain blank.
   c. Click **Yes**. The resource description for the WLMIVP application is created and the **Resource description definition** tabular view is redisplayed.

   Note: This example does not make use of the fields relating to resource groups and the target and related scopes to which they apply. You already provided this information in the resource assignments you created.
10. Associate the resource assignment for each resource type with the WLMIVP resource description.
    a. From the WUI main menu, click **Administration views** > **Fully functional Business Application Services (BAS) administration views** > **Resource assignments** to open the **Resource assignment definition** tabular view.
    b. Select the entry for EYUBAA01 (the resource assignment for transaction definitions) and click the **Add to Resource description** button. Complete the **Add to Resource description** panel as follows:
    Description name
    EYUBAD01

Description
Trans Assigned to WLMIVP

Other fields can remain blank.

c. Click **Yes**. The association between EYUBAA01 and EYUBAD01 is created and the **Resource assignment definition** tabular view is redisplayed.

Repeat this step for resource assignments EYUBAA02 and EYUBAA03.

11. Modify the CICS system definitions to indicate that automatic resource installation is required each time a cold start is performed for the target systems.
    a. From the WUI main menu, click **Administration views** > **Topology administration views** > **CICS system definitions** to open the **CICS system definition** tabular view.
    b. Select the entry for the CICS system EYUMAS1A. and click the **Update** button.
    c. Locate the **Business Application Services** section of the panel and update the fields as follows:
    Install BAS resources option
    Coldonly
    BAS install failure action
    Continue
    d. Click **Yes**. The CICS system definition is updated and the **CICS system definition** tabular view is redisplayed.

    Repeat this step for other CICS systems in the target scope.

Installing CICS resources dynamically

About this task

This section provides examples of the various methods that CICSPlex SM supports for installing resources dynamically into active CICS systems using the Web User Interface (WUI). These methods are similar to the installation options provided by CEDA.

Installing an individual resource: This example installs an individual program into an active CICS system.

1. Display a list of the programs defined to CICSPlex SM.
   a. From the WUI main menu, click **Administration views > Basic CICS resource administration views > Resource definitions > Program definitions** to open the **Program definitions** tabular view.
   b. If the current context is not EYUPLX01, specify EYUPLX01 in the **Context** field and click **Refresh**.
2. Install the EYUWLMVP program.
   a. Select the entry for EYUWLMVP and click the **Install** button. The **Install** view is displayed.
   b. In the **Target Scope value** field, type in EYUMAS2A and click **Yes**. The program EYUWLMVP is installed in EYUMAS2A and the **Program definitions** tabular view is redisplayed.

Installing resources from a resource group: This example installs the programs defined in a given resource group into an active CICS system.

1. Display a list of the resource groups defined to CICSPlex SM.

a. From the WUI main menu, click **Administration views > Basic CICS resource administration views > Resource groups** to open the **Resource group definitions** tabular view.
b. If the current context is not EYUPLX01, specify EYUPLX01 in the **Context** field and click **Refresh**.

2. Install the programs in resource group EYUBAG01.
   a. Select the entry for EYUBAG01 and click the **Install...** button.
   b. Complete the **Install** view as follows:
      Resource type
      PROGDEF
      Target scope value
      EYUMAS2A

      The other fields can remain unchanged.
   c. Click **Yes**. All of the programs defined in EYUBAG01 are installed in EYUMAS2A and the **Resource group definition** tabular view is redisplayed.

Installing a resource description: This example installs all of the resources associated with a given resource description into one or more active CICS systems.

1. Display a list of the resource descriptions defined to CICSPlex SM.
   a. From the WUI main menu, click **Administration views > Basic CICS resource administration views > Resource descriptions** to open the **Resource description definitions** tabular view.
   b. If the current context is not EYUPLX01, specify EYUPLX01 in the **Context** field and click **Refresh**.
2. Install resource description EYUBAD01.
   a. Select the entry for EYUBAD01 and click the **Install...** button. The **Install** view is displayed.
   b. Accept the supplied values and click **Yes**.

      All of the resources associated with EYUBAD01 are installed according to the target and related scopes named in that resource description. The **Resource description** tabular view is redisplayed.

Resource assignment definitions

A resource assignment describes the characteristics of selected resource definitions and how those resources are to be assigned to CICS systems.

The resource definitions to be assigned must be of a single resource type (such as a file) and must be associated with a resource group. The resource assignment identifies which resource definitions in the group are selected and to which CICS systems they are assigned. A single resource definition can be assigned as both a local and remote resource in multiple CICS systems. A resource assignment must be associated with at least one resource description (RESDESC object) before any assignment can begin.

Accessing resource assignment definitions

About this task

To access from the main menu, click **Administration views** > **Fully functional Business Application Services (BAS) administration views** > **Resource assignment definitions**.

Creating a resource assignment
About this task

To define a resource assignment:

- Access the **Resource assignment definitions** view.
- To create a definition from an existing resource assignment, click on the check box and click the **Create...** button. To display a blank screen, click the **Create...** button.
- Complete the fields and click **Yes** to create the resource assignment. Click **No** to abandon the process.

Adding a resource assignment to a resource description
About this task

You can add a resource assignment to a resource description in two ways:

- Access the **Resource assignment definitions** view. Either:
  - Select a resource assignment by clicking the check box. Click the **Add to Resource description...** button. The **Add to Resource description** view is displayed.
  - Complete the fields and click **Yes** to create the association. Otherwise, click **No** to abandon the process.
- Or:
  - Click a resource assignment name to display the **Resource assignment definitions** (EYUSTARTRASGNDEF.DETAILED) view.
  - Click the **Add to Resource description...** button. The **Add to Resource description** view is displayed.
  - Complete the fields and click **Yes** to create the association. Otherwise, click **No** to abandon the process.

Note:

1. If you do not specify values for the **Group name**, **Target scope**, and **Related scope** fields on this view, you must do so on the associated resource description definition.
2. Adding a resource assignment to a resource description could result in inconsistent resource set or inconsistent scope errors. For information about these types of problems and how to resolve them, see "Validation of a set of resources" on page 77.

Resource assignments in resource descriptions

The **Resource assignments in a resource description** view describes the membership of a resource assignment (RASGNDEF object) in a resource description (RESDESC object). A **Resource assignments in a resource description** (RASINDSC) association is created automatically when a resource assignment is added to a resource description.

Accessing the Resource assignments in a resource description view
About this task

To display information about existing resource descriptions and the resource assignments associated with them, from the main menu, click:

- **Administration views > Fully functional Business Application Services (BAS) administration views > Resource assignments in resource descriptions**.

Updating a resource description-to-assignment association

To update a resource description-to-assignment association:

- Access the **Resource assignments in resource description** view and select a resource assignment by clicking the check box.
- Click the **Update...** button. The **Resource assignments in resource description** (EYUSTARTRASINDSC.CREATE) view is displayed.
- Update the fields and click **Yes** to update the association. Otherwise, click **No** to abandon the process.

Resource assignment process view

The **Resource assignment process** view (RASPROC object) displays the resources that will be selected when the specified resource assignment is processed.

Resources are selected based on the contents of the associated resource group and the selection criteria of the assignment itself.

Accessing the resource assignment process view

About this task

To display information about the expected results of the resource assignment process:

- From the main menu, click **Administration views > Fully functional Business Application Services (BAS) administration views**.
- From the **Resources deployed by...** submenu, click **Resource assignments** to display the **Resource selected by resource assignments** view.

1. Journal definitions (JRNLDEF objects), file key segment definitions (FSEGDEF objects), and session definitions (SESSDEF objects) can appear in a **Resource assignment process** view; this is to present a complete picture of your logical scope. Note, however, that those resources are never installed in a CICS system.
2. Connection definitions (CONNDEF objects) can be installed in a CICS system only if they have associated session definitions (as noted in the **Connection name** field). If the **Connection name** field for a session definition is blank, the connection cannot be installed.

Selecting resources by resource description

The **Resources selected by resource description** view displays the resources that will be selected when the specified resource description is processed.

Resources can be selected from:

- Resource assignments that are currently associated with the resource description
- Resource groups that are directly associated with the resource description

Accessing resources selected by resource description

About this task

You can access the **Resources selected by resource description** view in two ways:

-

- From the main menu, click **Administration views**. From the **Administration views** menu, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views**.
- From the menu, click **Resource descriptions** to display the **Resource descriptions** tabular view.
- Click a resource description name to display the **Resource descriptions** detailed view.
- Click the link **Associated resource definitions & systems** to display the **Resources selected by resource description** view.

• Or:

- From the main menu, click **Administration views**. From the **Administration views** menu, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views**.
- From the menu, Under Associations, click **CICS resource definitions in resource groups** to display the **CICS resource definitions in resource group** tabular view.
- Click a resource group name to display the **Resource group definitions** detailed view.
- Click the link **Resource descriptions with which this is associated** to display the **Resource groups in description** view.
- Click a resource description name to display the **Resource descriptions** detailed view.
- Click the link **Associated resource definitions & systems** to display the **Resources selected by resource description** view.

Resource descriptions

A resource description identifies a set of logically related resource definitions that can be installed in CICS systems that support resource installation or can be named as the scope for CICSPlex SM requests.

Accessing resource descriptions

About this task

To access resource descriptions

- From the main menu, click **Administration views**. From the **Administration views** menu, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views**.
- From the menu, click **Resource descriptions** to display the **Resource descriptions** tabular view.

Creating a resource description

About this task

To create a resource description:

- Access the **Resource descriptions** view.
- Click the **Create...** button to display a blank **Resource descriptions** detailed view. Otherwise, to base the new definition on an existing definition, click the Record check box and click the **Create...** button.
- Complete the fields and click the **Yes** button to create the resource description. Otherwise, click **No** to end the process.

Replacing a resource description
About this task

To replace a resource description:

- Access the **Resource descriptions** tabular view and select a resource description by clicking the Record check box.
- Click the **Replace...** button to display the **Resource descriptions** replace view.
- Amend the fields as necessary and click **Yes** to replace the resource description. otherwise click **No** to end the process.

When you replace a resource description, CICSPlex SM attempts to replace all of the resources associated with an installed resource description with the resources associated with a new description. That is, CICSPlex SM:

- Discards any resources that are associated with the old resource description, but not the new one.
- Reinstalls any resources that are associated with both the old resource description and the new one.
- Installs any additional resources that are associated with the new resource description.

For replacement to occur, the CICS systems named in the Target and Related scope fields of both resource descriptions must be active and must be running a release of CICS that supports the EXEC CICS CREATE command.

Note: For information on what happens if your request does not complete successfully, see "Handling dynamic installation errors" on page 97.

Resource groups definition view

A resource group (RESGROUP object) is used to associate one or more related resource definitions. The resource definitions in a resource group can be for the same or different resource types.

Accessing resource group definitions
About this task

To access the resource group definitions:

- From the main menu, click **Administration views**.
- From the **Administration views** menu, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views**.
- Under **Definitions**, click **Resource groups** to display the **Resource group definitions** tabular view.

Creating a resource group
About this task

To create a resource group:

1. Access the **Resource group definitions** (EYUSTARTRESGROUP.TABULAR) view as described in "Accessing resource group definitions."
2. Click the **Create...** button to display the **Resource group definitions** (EYUSTARTRESGROUP.CREATE) view.
3. Type in the attribute values.

4. Click Yes to create the resource group definition or No to return to the **Resource group definitions** view without creating the resource group.

Adding a resource group to a resource description
About this task

Complete these actions to add the resource group to the resource description:

1. Access the **Resource group definitions** (EYUSTARTRESGROUP.TABULAR) view as described in "Accessing resource group definitions" on page 118.
2. Select a resource group by clicking the box in the record column.
3. Click the **Add** to Resource description to display the **Add to Resource description** (EYUSTARTRESGRP.ADDTODSC) view.
4. Type in the name of the resource description. Optionally, supply more explanatory information in the **Description** field.
5. Click **Yes** to add the resource group to the resource description or click **No** to stop the process.

Note: Adding a resource group to a resource description might result in inconsistent resource set errors. For information about this type of problem and how to resolve it, see "Validation of a set of resources" on page 77.

Resource groups in description view

The Resource groups in description view describes the membership of a resource group (RESGROUP object) in a resource description (RESDESC object).

A **Resource groups in description** association is created automatically when a resource group is added to a resource description, that is, there is no association between the resource description and a resource assignment (RASGNDEF object).

Accessing resource groups in descriptions
About this task

To access resource groups in a resource description:

- From the main menu, click **Administration views**.
- From the **Administration views** menu, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views**.
- Under **Associations**, click **Resource groups in description** to display the **Resource groups in descriptions** tabular view.

Updating a resource description-to-group association
About this task

To update a resource description-to-group association:

- Access the **Resource groups in description** view.
- Select an association by clicking the Record check box and click the **Update...** button. The **Resource groups in description** create view is displayed.

Resource groups in description attributes

Description
(Optional.) A 1- to 30-character description of a resource description-to-group association.

Resource definitions in resource group view

The **Resource definitions in resource group** view (RESINGRP object) displays information about resource groups and the resource definitions associated with them.

A **Resource definitions in resource group** association is created automatically when a resource definition is added to a resource group (RESGROUP object).

Accessing resources in resource groups
About this task

To access resources in resource groups:

- From the main menu, click **Administration views**.
- From the Administration views menu, click either **CICS basic resource administration views** or **Fully functional Business Application Services (BAS) administration** views.
- From the menu, under **Associations**, click **Resource definitions in resource groups** to display the **CICS resource definitions in resource group** tabular view.

CICS system link definitions

With Business Application Services, you can create one system link (SYSLINK) for each pair of CICS regions. The system link definition describes the connection type and definitions that are required between the pair of regions. You can reuse connection definitions to create any number of system links that share the same characteristics.

You can define connections of different types using SYSLINK objects. These connections include IPIC, MRO, and ISC. The following example shows how you can reuse the same definitions for IPIC to create three different SYSLINK objects.

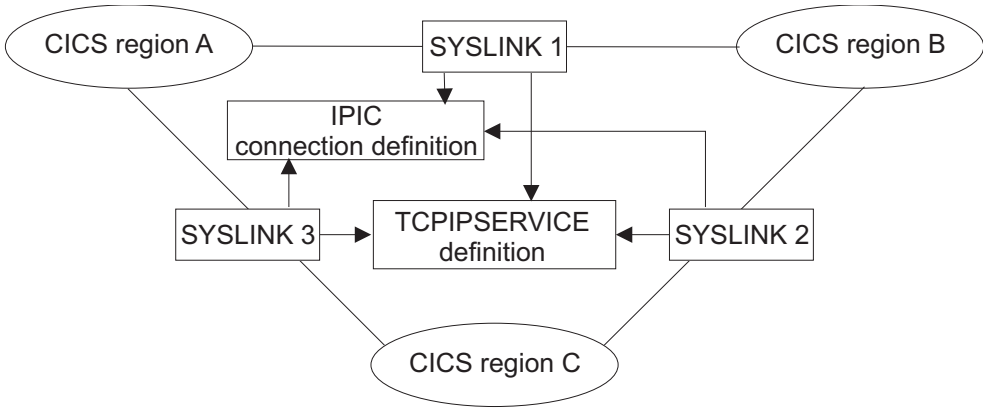


Figure 11. An example of reusing definitions to create connections

The APPLID and SYSID values used in the connections that are defined between the primary and secondary regions depend on when the regions were started and whether or not the APPLID and SYSIDNT values used in the CICS system definition (CICSSYS view) match the values in use by CICS:

- If the partner system is not active or not connected to CICSPlex SM, the APPLID and SYSIDNT values used for the connection definition are taken from the CICSSYS definition for the partner system.

- If the partner system is active and connected to CICSPlex SM, the APPLID and SYSIDNT used for the connection definition are the values currently in use by the partner system.

If you change the APPLID or SYSIDNT of a CICS region that is managed by CICSPlex SM, you must update the CICSSYS definition:

- After the values have been changed, the managed CICS region continues to use the old values as long as it remains active. During this time, partner systems installing system links that refer to this region use the old APPLID or SYSIDNT values.
- After the region has shut down following the change, and before it has started again, partner systems installing system links use the updated values from the CICSSYS definition.
- After the region has been restarted, it uses the new values. Partner systems installing links that refer to this region also use the new values.

The network ID, host, and port numbers of IPIC system links can also change when you install a SYSLINK resource object. These attribute values are overridden by the system definition of the primary and secondary regions, if specified, to ensure that the system link will work correctly when installed.

Limitations of viewing system definition links

A system link is identified in the data repository by both CICS region names. A given CICS region name might be the primary region for some system link definitions and the secondary region of others, depending on how the definition was created. Any definition that names that region, regardless of its position, is a valid system link. However, because the same region name can appear in either the Primary or Secondary field, the "CICS system link definitions" view of the Web User Interface has certain limitations:

- The SORT display command cannot display all the system links for a given CICS region together. You can use this command to sort records based on the contents of a single field, but the name of a CICS region can occur in either of two fields.
- A single "CICS system link definitions" view cannot display all the system links for a given CICS region to the exclusion of all other system links. Because a system can be either the primary or secondary system in a system link definition, a single "CICS system link definitions" view cannot adequately filter the records.

Related tasks:

"Defining connections between CICS regions" on page 75
You can use CICSPlex SM to define and manage the connections between CICS regions. Instead of identifying each CICS region in a communication network to each of its partners as RDO requires, you can specify general connectivity information to be used by all the CICS regions in a CICSplex.

Viewing CICS system link definitions

You can view your system links using either the CICS Explorer or the Web User Interface.

About this task

The **CICS system link definitions and related resources** menu in the WUI displays information about the connections between CICS regions in a CICSplex. From this menu, you can filter the system links based on connection type and look at related resource definitions.

To view system link definitions (SYSLINK objects) in the CICSplex using the Web User Interface:

Procedure

1. From the main menu, click **Administration views** and then **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
2. Select the appropriate link in the **CICS system link definitions and related resources** menu to view all system links or system links of a particular connection type. The **CICS system link definitions** view displays the system links.
3. Select the SYSLINK object that interests you from the list.

Related tasks:

"Removing a CICS system link" on page 124
You can remove a CICS system link from the data repository using either the CICS Explorer or the Web User Interface.

Installing system links using the WUI

When you install a system link, you are establishing a connection between two CICS regions that are managed by CICSPlex SM. The definitions referred to by that system link are installed in the target CICS regions.

Before you begin

You must have defined the required connection objects, as described in "Defining connections between CICS regions" on page 75.

About this task

You can install system links automatically at CICS initialization by specifying the ALWAYS attribute in the **Install BAS resources option** field of the CICS system definition. You can also install system links dynamically while a CICS region is active using the CICS Explorer or Web User Interface. The following procedure describes how to install system links dynamically using the WUI.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **CICS system links and related resources**.
2. Select the appropriate link to display all SYSLINK objects or filter by connection type.
3. Select the check box next to the SYSLINK that you want to install and click the **Install** button to open an Install input panel.
4. Fill out the fields in the input panel to select the checks that CICSPlex SM will run before installing the resources:
   a. Select the type of checking to be performed before attempting to install resources in the CICS regions associated with the description.

b. Select whether the existence and operational state of all resources are to be checked before an **EXEC CICS CREATE** command is issued.
c. Select whether you want CICSPlex SM to force the installation of the resources. CICSPlex SM checks to see if it installed the current resource in the CICS region. If it is installed, CICSPlex SM does not install the resource, to avoid changing the attributes of an active resource.

5. Click **Yes** to install the system link in the active CICS regions.

Results

CICSPlex SM creates and installs the resource definitions into the specified target CICS regions to create the connection. Some of the values are altered in the target regions by the installation process.

- For an MRO or IPIC connection, the Receive count is swapped with the Send count and the Receive size is swapped with the Send size on the CONNDEF or IPCONDEF resource objects.
- For an APPC connection, the Receive size field is swapped with the Send size and the “Maximum number of sessions supported as contention winners” is recalculated by subtracting the 'Maximum number of sessions supported as contention winners' from the “Maximum number of sessions in the group” in the primary CICS region.

For IPIC connections, the TCPDEF resource object installs first followed by the IPCONDEF. If a TCPDEF resource object of the same name and port number is already installed and is in the OPEN state, CICSPlex SM does not attempt to reinstall the resource object. Some of the values are altered in the definitions for both the primary and secondary regions:

- The URM value is always set to NO when the TCPDEF resource object is installed.
- If a network ID is specified in the system definition of the secondary region, it overrides the value of the network ID in the IPIC connection definition of the primary region.
- If a host or port number is specified in the system definition of the secondary region, it overrides the value of the host and port number in the IPIC connection definition of the primary region.
- An IPIC connection definition on the secondary region inherits the host and port number from the TCPDEF resource object.
- If the host and port number are specified in the system definition of the primary or secondary region, these values override the values in the TCPDEF resource object for that region. If the TCPDEF resource object is installing on the secondary region, the host and port number are taken from the IPCONDEF definition on the primary region.

What to do next

You can verify that the connection is active by looking at the installed resources on the pair of CICS regions.

Related concepts:

“Dynamic resource installation” on page 92

“Automatic resource installation” on page 90

“Deciding where resources should be installed” on page 89

Related tasks:

"Installing resource groups" on page 82
When you install a resource group, you can install some or all of the resources of a single given type contained in the group.

"Installing system links using the WUI" on page 122
When you install a system link, you are establishing a connection between two CICS regions that are managed by CICSPlex SM. The definitions referred to by that system link are installed in the target CICS regions.

"Installing resource descriptions" on page 88
When you install a resource description, you are installing resources from resource groups that are associated, either directly or indirectly, with the description.

Removing a CICS system link

You can remove a CICS system link from the data repository using either the CICS Explorer or the Web User Interface.

Procedure

1. From the main menu, click **Administration views** and then **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
2. Click **System link definitions** > **All system links** to access the **System link definitions** view.
3. Click the check box by the CICS system link that you want to remove.
4. Click **Remove...** to display the **Remove** view.
5. Click **Yes** to remove the CICS system link definition.

Results

The system link is removed from the data repository. However, removing a system link does not delete the resource objects that describe the connection from the data repository.

Related tasks:

"Viewing CICS system link definitions" on page 121
You can view your system links using either the CICS Explorer or the Web User Interface.

CICS system resources

The **Resources assigned to CICS systems** view displays the resources that will be assigned to a specified CICS system.

Resources are selected based on the resource descriptions currently associated with the CICS system.

Accessing the SYSRES view

About this task

To display information about the resources that will be assigned to a CICS system:

- From the main meu, click **Administration views**
- From the **Administration views** menu, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views**.
- In the **Resources deployed by...** submenu, click **CICS system**. The **Resource assigned to CICS systems** view is displayed

Administering the Web User Interface

This information provides guidance for administrators on managing the Web User Interface.

The CICSPlex SM Web User Interface transaction (COVC)

A CICSPlex SM Web User Interface server controller transaction (COVC) is supplied for use by an administrator with a terminal connected to the Web User Interface server CICS region.

The functions of this transaction are:

- To start up and shut down the Web User Interface environment
- To display a summary of Web User Interface status information
- To display details of active user sessions and allow termination of individual sessions
- To import and export Web User Interface repository information including supplied and customized view and menu definitions, map objects, user objects and user group profiles.
- To set trace flags dynamically.

If you run the COVC transaction, with no further input, that is by typing COVC followed by no other command, you are presented with the CICSPlex SM Web User Interface control panel, as shown in Figure 12.

```
 COVC               CICSPlex SM Web User Interface Control            EYUVCTR

                           1. Start Server
                           2. Stop Server
                           3. Status Details
                           4. User Sessions

                           5. Import
                           6. Export

                           7. Trace Flags

  CICSPlex SM, an element of CICS Transaction Server for z/OS, Ver 3 Rel 2
              Licensed materials - Property of IBM. 5695-M15
         (C) Copyright IBM Corp. 1994, 2006. All rights reserved


Current Status : Ready                                    Time : 19:01:51
Applid         : IYCQSTGW                                 Date : 05/25/2007



PF   1 Help      3 Exit                                       12 Return
```

Figure 12. CICSPlex Web User Interface control panel

Starting and stopping the Web User Interface server

If the Web User Interface server is not already started during PLT processing, you can start it by selecting the **Start Server** option from the COVC control panel. Message EYUVS0900I is issued on the control panel indicating that the Web User Interface server start has been requested.

To stop the Web User Interface server, select the **Stop Server** option from the COVC control panel. Message EYUVS0901I is issued on the control panel, indicating that the Web User Interface server Stop has been requested.

Note: Stopping the Web User Interface server using the COVC transaction shuts down the CICS system acting as the Web User Interface server on completion of the COVC transaction.

You can also start the Web User Interface server by issuing the following command:

```
COVC START
```

You can stop the Web User Interface server by issuing the following command:

```
COVC STOP
```

You can issue the COVC START and COVC STOP commands from the CICS terminal or from the console using the MVS Modify command.

If you attempt to start the Web User Interface server when it has already started, message EYUVS0902W is issued indicating that the Web User Interface server is currently active. Similarly, if you attempt to stop the Web User Interface server when it has already stopped, message EYUVS0903W is issued indicating that the Web User Interface server is currently inactive.

Do not use CEMT, the CICS Explorer, or the WUI CICSRGN view to shut down a WUI server region. If you use these methods, CICSPlex SM cleanup does not take place. In this situation, you might receive messages EYUXS0910I, EYUXS1014I, EYUXS1019W, and EYUXS1016E and an SVC dump with a title similar to the following example:

```
EYU9XSTR Dump,jobname,applid,sysname,LMAS,COVA,0000000,TRCV,EYU9XSTR,dd/mm/yyyy,hh:mm:ss
```

In addition to the SVC dump, API resources might be orphaned, as noted in the EYUXS1019W message.

Displaying status details

To display the Web User Interface server status details, select the **Status Details** option from the COVC control panel.

This option opens the **Status Details** panel, as shown in Figure 13 on page 127.

```
COVC               CICSPlex SM Web User Interface Control            EYUVCTS

                                Status Details

         CMAS Sysid            : QSTX
         Server Sysid          : QSGW
         CICSPlex SM Release   : 0320

         Secure Sockets        : No
         Port                  : 05126
         Hostname              : MVSXX.COMPANY.COM

         TCP/IP Service Name   : EYUWUI              TCP/IP Family : IPV4
         TCP/IP Service Status : Open
         TCP/IP Address        : 127.10.10.12

Current Status : Ready                                      Time : 19:04:49
Applid         : IYCQSTGW                                   Date : 02/27/2007




PF   1 Help      3 Exit                                        12 Return
```

Figure 13. Status Details panel

An explanation of some of the fields shown in Figure 13 follows:

- **CMAS Sysid**

  Is the system ID of the CMAS to which the Web User Interface server is connected.
- **Secure Sockets**

  Tells you if your Web User Interface server is using the secure sockets layer (SSL), as defined by the TCPIPSSL Web User Interface server initialization parameter.
- **Port**

  Is the TCP/IP port number specified on the TCPIPPORT Web User Interface server initialization parameter.
- **Hostname**

  Is the TCP/IP host name specified on the TCPIPHOSTNAME Web User Interface server initialization parameter.
- **TCP/IP Service Name**

  Is the name of TCPIPSERVICE being used by the Web User Interface.
- **TCP/IP Service Status**

  Is the status of TCPIPSERVICE being used by the Web User Interface.
- **TCP/IP Address**

  Is the colon hexadecimal or dotted decimal IP address of the TCPIPSERVICE being used by the Web User Interface, if you are using the CICSPlex SM element of CICS Transaction Server.
- **TCP/IP Family**

  Is the address format of the IP address of the TCPIPSERVICE being used by the Web User Interface, if you are using the CICSPlex SM element of CICS Transaction Server.

If you press PF12 to return to the control panel, message EYUVS0906I is displayed, indicating that the operation is complete.

Viewing user sessions

To view information about user sessions, select the **User Sessions** option from the COVC control panel.

This opens the **User Sessions** panel, as shown in Figure 14.

```
COVC               CICSPlex SM Web User Interface Control            EYUVCTU

                                User Sessions                   Page  1 of  1

 Current No. of Users :   1                    Inactive Timeout :    30 (mins)
 Maximum No. of Users :  20

    Userid    USERGrp   Inact  TimeA   Win D  ClientIp                 Status

    OPS1      OPSWUI1       4    3:17   7     10.10.10.25
    WUIADM    ADMWUIG       0    2:04   1     10.10.10.3
    MONCNSL   MONITOR       0    1:59   3     10.10.10.74              ENDING




 Current Status : Ready                                      Time : 11:29:05
 Applid         : IYCSZGW0                                   Date : 10/19/2006



 PF   1 Help      3 Exit                 7 Up        8 Down      12 Return
```

Figure 14. User sessions panel

An explanation of some of the fields shown in Figure 14 follows:

Maximum No. of Users
This is the maximum number of concurrent users allowed and is the value specified for the MAXUSERS initialization parameter.

Inactive Timeout
This is the period after which inactive user sessions are terminated and is the value specified for the INACTIVETIMEOUT initialization parameter. When inactive timeout is reached the user session is terminated.

Userid
The user ID of the user signed on to the Web User Interface.

UserGrp
The user group to which the user belongs.

Inact The period that the user session has been inactive.

TimeA
The period that the user has been logged on.

Win The number of windows that this user session currently has opened. This number is incremented every time the user selects the **New window** or **View Editor** button in the navigation frame, or the **New Editor** or **New Home window** button in the View Editor.

Note: This number is not necessarily decremented when the user closes a window. Closed windows remain active until the resources are reclaimed.

D The data interface used indicator.

ClientIP
The client web browser or proxy TCP/IP address. If the TCP/IP address

an IPv6 address, the address extends over two lines, which reduces the number of users visible per page. IPv4 addresses are displayed on a single line.

Status The purge status indicator.

If you press PF12 to return to the control panel, message EYUVS0906I is issued.

Ending a user session:

You can end a user session from the **User Sessions** COVC panel by typing **P** for purge, or **F** for force purge, against the user ID, then pressing the enter key.

Message EYUVS0912I is issued indicating that the purge request was successful. A message is also written to the EYULOG when the user session is terminated.

Note: Ending a user using the force purge command causes an AEXY abend and might also result in some resources not being reclaimed.

Importing and exporting WUI definitions

You can use COVC to back up and restore WUI definitions from the WUI data repository.

By using the COVC import and export functions, you can make safe copies of your WUI panel structures, and subsequently:

- Distribute them to other WUI servers.
- Apply service changes as a result of program temporary fixes (PTFs).
- Migrate definitions to other releases.

For more information about upgrading a WUI server and the contents of the WUI server repository, see Upgrade a WUI and the contents of the WUI server repository (EYUWREP).

Importing WUI definitions using COVC:

Use the COVC import function to import WUI data repository definitions from an external file. The file can be either an MVS sequential data set, or an MVS partitioned data set member.

If the definitions are contained within a sequential file, then that data set must be associated with a CICS extrapartition data set, and imported via the CICS Transient Data Queue name that the file is linked to. You must use the `Import from a TDQ` option of the **Import command** panel. If the definitions are contained within members of an MVS partitioned data set, then the data set and member identifiers can be specified directly on the **Import from a data set** panel that follows the **Import command** panel.

The view definition data comprises:

- View sets and menus
- WUI map objects
- User objects
- User group profiles

The IBM® supplied set of WUI view and menu definitions are in the SEYUVIEW partitioned data set, and so you need to specify the `Import from a data set`

function from the **Import command** panel. The advantage of using this import option is that individual member names can be specified on this panel, and so you can selectively restore individual elements of the backed up view set content.

View sets that are exported and imported with COVC import function have specific file definition requirements:

- Sequential files must be defined as:

  ```
  Record format: VB
  Logical record length: 32000
  Block size: 32004
  ```

- Partitioned data sets must be defined as:

  ```
  Record format: VB
  Logical record length: 32000
  Block size: 32760
  ```

Standard transient data queue definitions are provided for the COVE and COVI TD queues, and they associate to the EYUCOVE and EYUCOVI DD names for inclusion in your WUI server JCL. You can use these TDQUEUE definitions as models for further import/export extrapartition queues.

To import definitions from a sequential file associated with an Extra-partition TDQ:

1. Select the Import option from the control panel or use the **COVC IMPORT** command to open the **Import** panel.
2. Select Import from a TDQ on the **Import** panel to open the **Import a TDQ** panel. The following illustration shows the Import from a TDQ panel:

```
COVC               CICSPlex SM Web User Interface Control            EYUVCTW

                             Import from a TDQ


     Input TDQ name  :           Name of extrapartition TDQ for import


     Type            :           MEnu | Viewset | USERGrp | User |MAp |  All

     Import option   :           Skip | Overwrite | DELETE


Current Status : Ready                                    Time : 08:53:57
Applid         : CICSHW61                                 Date : 03/27/2007



PF   1 Help      3 Exit                                      12 Return
```

Figure 15. Import from a TDQ panel

3. Type in the name of the extrapartition Transient Data queue where the definitions are currently held; for example, COVI.
4. Complete the other blank fields as follows:

   Type Type in one of the following Types:
   MEnu To import only menus.
   Viewset
   To import only view sets.
   User To import only user objects.

USERGrp
To import only user group profiles.

MAp To import only map objects.

All To import all types of definitions.

Note: Importing any of the Types requires UPDATE access to the associated ESM profile:

- For MENUs : ESM profile EYUWUI.*.MENU.menuname
- For MAPs : ESM profile EYUWUI.*.MAP.mapname
- For VIEW sets : ESM profile EYUWUI.*.VIEW.viewsetname
- For USERs and USERGRPs : ESM profile EYUWUI.*.USER
- For ALL : All of the above profiles

Import option
Enter the action that you want the server to take if a duplicate definition is found in the input data set. That is, whether existing definitions are to be preserved, overwritten, or deleted:

Skip If you specify **Skip**, only the definitions that do not already exist in the input data set are imported.

Overwrite
If you specify **Overwrite**, definitions that already exist in the input data set are overwritten.

DELETE
Removes matching definitions of the selected type from the repository data set. For example, to selectively remove records from the repository, you can export the objects that you want to remove and then use the exported file with the import delete function to remove them.

Note: You can have a view set and menu with the same name.

5. Press **Enter** to start the operation.

To import definitions from a partitioned data set:

1. Select the `Import` option from the control panel or use the **`COVC IMPORT`** command to open the **Import** panel.
2. Select `Import from a data set` on the **Import** panel to open the **Import from a data set** panel. The following illustration shows the **Import from a data set** panel:

```
COVC               CICSPlex SM Web User Interface Control            EYUVCTI

                              Import from a data set


           Input data set name   :
                                  Name of data set for import

      Input data set member :      Member name, trailing * allowed

      Type            :            MEnu | Viewset | USERGrp | User |MAp |  All

      Import option   :            Skip | Overwrite | DELETE



Current Status : Readt                                      Time : 08:53:57
Applid         : CICSHW61                                   Date : 27/03/2007




PF   1 Help      3 Exit                                        12 Return
```

Figure 16. Import from a data set panel

3. Type in the name of the data set member that contains the supplied view and menu definitions to import. You can use an asterisk at the end of the input string to specify a group of data set members; for example, `EYUEA*` imports all of the members whose name begins with the characters EYUEA, which are all the English language menus and view sets from the IBM supplied SEYUVIEW data set.

   Note: You cannot leave the member name blank. If you do the panel dialog rejects your request. If your intention is to import from a sequential file, then that file must be associated with an extrapartition TD queue, and you must use the `Import from a TD Queue` subfunction to transfer the records into the WUI data repository.

4. Complete the other blank fields as follows:

   Type Type in one of the following Types:
   MEnu To import only menus.
   Viewset
   To import only view sets.
   User To import only user objects.
   USERGrp
   To import only user group profiles.
   MAp To import only map objects.
   All To import all types of definitions.

   Note: Importing any of the Types requires UPDATE access to the associated ESM profile:

   - For MENUs : ESM profile EYUWUI.*.MENU.menuname
   - For MAPs : ESM profile EYUWUI.*.MAP.mapname
   - For VIEW sets : ESM profile EYUWUI.*.VIEW.viewsetname
   - For USERs and USERGRPs : ESM profile EYUWUI.*.USER
   - For ALL : All of the above profiles

   Import option
   Enter the action that you want the server to take if a duplicate

definition is found in the input data set. That is, whether existing definitions are to be preserved, overwritten, or deleted:

Skip If you specify **Skip**, only the definitions that do not already exist in the input data set are imported.

Overwrite
If you specify **Overwrite**, definitions that already exist in the input data set are overwritten.

DELETE
Removes matching definitions of the selected type from the repository data set. For example, to selectively remove records from the repository, you can export the objects that you want to remove and then use the exported file with the import delete function to remove them.

Note: You can have a view set and menu with the same name.

5. Press **Enter** to start the operation.

Import completion:

Message EYUVS1016I is issued to mark the start of the import operation and EYUVS0916I is issued on the Import panel to indicate its successful completion.

If the import fails, complete view set and menu definitions that have already been read successfully remain in the repository but the failing definition and any that follow are not imported. Message EYUVS0917E is issued to indicate that the import has failed and a message is written to the EYULOG of the WUI server or the operator log.

You can import only those view sets and menus for which you have update access. Resources for which you do not have the necessary access are skipped and EYULOG message EYUVS1014W is issued. See Controlling access to Web User Interface resources for guidance on setting levels of access to view sets and menus.

If you press PF12 to return to the control panel, message EYUVS0906I is issued.

Exporting WUI definitions:

Use the COVC export function to export WUI data repository definitions to an external file. The file can be used as a backup to the WUI from which it was extracted, and can also be distributed to other WUI regions for replicating your customized WUI environment around your CICSplex.

The file can be either an MVS sequential data set, or a member of an MVS partitioned data set (PDS).

If the export target is an MVS sequential data set, then it should have the definition attributes of:

```
Record format: VB
Logical record length: 32000
Block size: 32004
```

If the export target is a member of a PDS, then it should have the definition attributes of:

```
Record format: VB
Logical record length: 32000
Block size: 32760
```

When the export operation is complete, then the target file is an offline backup for the records that are exported, and can be used in subsequent import operations in other WUI regions to migrate your WUI definitions around your CICSplex.

Note: Unlike the import operation (where you can select to import from a PDS member or from an extrapartition TD queue), export operations must be only executed against a TD queue name.

If you customize your WUI panel configuration, and want to flow that configuration to other WUI regions in your CICSplex (for the purposes of view consistency or WUI version migration), you must use the COVC transaction to export WUI definitions so that you can distribute definitions to other WUI servers or transfer definitions when you upgrade to a new release.

Sample definitions are supplied for the COVI and COVE extrapartition TD queues. If you want to export different elements of your WUI definitions to different data sets, then you must provide alternative TD queues (and related data sets) as the targets for each export operation. If you execute consecutive export requests to the same target TD queue, then each operation overwrites the contents of the previous one.

To export definitions from the WUI repository select the `Export` option from the control panel or use the command **`COVC EXPORT`**. This opens the COVC **Export** panel, as shown in Figure 17.

```
COVC               CICSPlex SM Web User Interface Control            EYUVCTE

                                 Export


  Output TDQ Name :              Name of extrapartition TDQ for export

  Type            : MENU         MEnu | Viewset | USERGrp | MAp | User | All

  Name            : *            Specific or generic name of a
                                 definition to export

  Lock option     : NONE         None | LOCK



Current Status : Ready                                  Time : 08:58:55
Applid         : CICSHW61                               Date : 09/12/2004




PF   1 Help      3 Exit                                     12 Return
```

Figure 17. Export panel

Complete the blank fields in the **Export** panel as follows:

- The Output TDQ Name is the name of the extrapartition transient data queue where the definitions are be exported to, for example, COVE.
- Type in one of the following Types:
  MEnu to export only menus

Viewset
to export only view sets
User to export only user objects
MAp to export only map objects.
USERGrp
to export only user group profiles.
All to export all types of definitions.

Note: Exporting any of the Types requires READ or UPDATE access to the associated ESM profile:

- For MENUs : ESM profile EYUWUI.*.MENU.menuname
- For MAPs : ESM profile EYUWUI.*.MAP.mapname
- For VIEW sets : ESM profile EYUWUI.*.VIEW.viewsetname
- For USERs and USERGRPs : ESM profile EYUWUI.*.USER
- For ALL : All of the above profiles

- **Name** is the specific or generic name of the object that is to be exported. The convention for using generic names, when exporting, is:
  - An asterisk (*) represents any number of characters. It must be the last or only character in the string. For example:
    - EYU* means all definitions that have a name beginning with the characters EYU
    - * means all definitions

    If the object being exported contains an asterisk (*) as part of its name, then it can be exported only generically. For example, if there are 3 objects *GROUP1, GROUP*2 and GROUP3, a Name value of * must be used to export *GROUP1 (and objects GROUP*2 and GROUP3 are also exported).

    A Name value of GROUP* could be used to export object GROUP*2 (which also causes GROUP3 to be exported).
- The Lock option enables you to apply a lock to exported definitions. When locked definitions are subsequently imported into a repository, they cannot be modified or deleted by using the view editor. Locked definitions cannot be unlocked: they can be removed only by using the delete option on the **Import** panel:

  NONE
  Do not lock unlocked definitions. Existing locked definitions are exported as locked definitions.

  LOCK Lock all exported definitions.

  Note: If you overwrite a set of unlocked definitions with a locked set, the only way to remove the locks is to re-import a set of unlocked definitions to overwrite the locked set. For this reason, you might want to keep a backup set of unlocked definitions before you replace them with a locked set.

When all the fields are complete, press Enter to export the view or menu definitions.

Message EYUVS0919I is issued on the **Export** panel, which indicates that the export was successful, and how many objects were written across. If the export fails, the data in the TDQ that you were writing to is incomplete so must be discarded. Message EYUVS0920E is issued indicating that it has failed and a message is written to the EYULOG of the Web User Interface server.

You can export only those definitions for which you have read or update access. Resources for which you do not have the necessary access are skipped and EYULOG message EYUVS1015W is issued. See Controlling access to Web User Interface resources for more information.

If you press PF12 to return to the control panel, message EYUVS0906I is issued.

Setting trace flags

To set trace flags dynamically, select the Trace Flags option from the control panel.

Attention: It is recommended that you activate trace only at the request of IBM support center personnel.

You are presented with the Trace Flags panel, as shown in Figure 18.

```
COVC               CICSPlex SM Web User Interface Control            EYUVCTT

                                Trace Flags

Overtype the trace, enter to update.

                               1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 3 3
             1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
Trace Flags : Y Y N N N N Y N N N Y N Y N Y N N N N N N N N N N N N N N N Y




Aux. Trace Status : Started

Current Status : Ready                                        Time : 08:26:46
Applid         : IYCQCTA5                                     Date : 02/27/2001



PF   1 Help      3 Exit                                         12 Return
```

Figure 18. Trace flags panel

You can control the amount of trace information produced by setting any of the appropriate trace flags. Thirty one independent trace flags are provided and you can overtype any of the flags, with Y or N, and press enter to change the settings.

Web User Interface server repository

The Web User Interface (WUI) server repository contains all the recoverable resources maintained by the WUI server.

This includes:

- View and menu definitions
- Map object definitions
- User profiles
- User group profiles.

The WUI server repository consists of a variable length record, key sequenced VSAM file created before using the WUI. By default you have one repository, which is not shared, for each WUI server.

The DDname of the WUI server repository must be included in the start-up JCL for the WUI server.

Definitions from the data repository can be imported and exported so that you can back up or distribute definitions to other Web User Interface servers, apply service changes as a result of program temporary fixes (PTFs), or migrate definitions to other releases. Exporting is carried out using the COVC transaction. Importing is carried out either using COVC or by specifying auto-import initialization parameters when you start a WUI server.

The IBM-supplied set of view set and menu definitions

The supplied set of view set and menu definitions including default map objects is supplied in CICSTS54.CPSM.SEYUVIEW data set.

The data set comprises a number of members. Each member contains one of the following:

- A map object definition.
- A user object definition.
- A user group profile definition.
- A menu object.
- All of the view set definitions associated with one CICSPlex SM object.

There are separate members for each of the supplied languages of which there are currently three.

The data set members are named **EYU**`ltccc`, where:

- `l` specifies the language; currently **E** for English, **S** for simplified Chinese and **K** for Japanese.
- `t` identifies a set of views. The current supplied WUI views and menus are all identified by the letter **A**.
- `ccc` identifies the resource with which the views are associated.

The member names match the 3-letter language identifiers that you specified on the **INITPARM** CICS system initialization parameter. These are as follows:

Table 7. Supported languages for the supplied set of views

Language	Language identifier
US English	ENU
Japanese	JPN
Simplified Chinese	CHS

Supplied views' naming conventions:

The names of all supplied views begin with the characters EYUSTART.

The naming convention for the supplied set of view and menu definitions is as follows:

Views EYUSTART*objectname.viewtype* , where *objectname* is the name of a resource, and *viewtype* can be one of the following:

- TABULAR

  A tabular view.
- DETAILED

A detail view. In some cases, when there is more than one associated with a tabular view, detail views are named DETAIL1, DETAIL2, and so on.

- *Name of an action*

  A data input panel for an action such as Create, or a confirmation panel

Menus

EYUSTART*menuname*

where *menuname* is the name of a menu. For example, EYUSTARTMENU displays the supplied home menu and navigation frame.

Map objects

EYUSTARTMAP*type*, where *type* is one of the following:

BAS
MON
RTA
WLM

The output log (EYULOG)

The Web User Interface uses the CICSPlex SM EYULOG of the Web User Interface server (and not of the CMAS) to record most of its operator messages. Other messages are written to the operator log.

An EYULOG message (either EYUVS1101I or EYUVS1102I) is issued each time a view set or menu is created, modified or deleted. Message EYUVS1016I is issued to record the start of an import, and includes the user ID and source transient data queue. This provides a useful audit trail to track Web User Interface update activity.

In addition, each view set and menu definition records details of the last change including the user ID and time. This information is preserved when view sets are exported or imported.

Source of customizable help

The customizable view and menu help is help that you can write if you want to provide additional help for your views and menus.

The customizable view and menu help can be served in two ways:

- By the Web User Interface server. If served by the Web User Interface the customizable view and menu help consists of a set of arbitrary HTML members stored as members in a partitioned data set. The CICS Web Interface template manager is used to serve members of this partitioned data set for delivery to the web browser.
- By an arbitrary external web server.

The DDname of the partitioned data set must have been specified in the start-up JCL for the Web User Interface server.

Access from the Web User Interface to an external server

The Web User Interface can access other web-based tools.

You can do this by:

- Linking to the customizable view and menu help served by an external web server

- A menu choice link to pages served by an external web server

See Customizing the Web User Interface for more information.

Providing access to WUI views and menus

The Web User Interface is accessed using standard Web browser software. Users can link to the WUI from any location that can launch a Web browser by supplying a valid URL.

Every time you access the Web User Interface, a new window is opened showing a new instance of the data. The different instances of the data are independent of each other. See Opening a new window for information about the maximum number of windows you can have open at any one time.

The URL must be correctly formatted for a HTTP or HTTPS request using escaping for reserved and unsafe characters with standard HTTP '%nn' notation, where nn is the hexadecimal representation of a character from the ISO–8859–1 code page. For example, '%7E' represents the tilda ('~') character. Except for the 'http' or 'https' prefix, the URL, in general, is not case sensitive unless the value of any query variables is case sensitive.

For information about the HTTP standard refer to RFC2068 - Hypertext Transfer Protocol - HTTP/1.1.

The URL is constructed as follows:

```
prefix:path?selection criteria
```

Note: The path and the selection criteria, which are specified as HTTP query variables, are separated by a question mark (?). If selection criteria are not present, the '?' should not be specified.

Prefix

The prefix depends on the configuration of your WUI server. It is either http, or https, if SSL is in use.

Path

There are several possible configurations for the WUI server path.

The path can be one of the following:

- //*hostname:port*/CICSPlexSM

  This takes you to the Welcome panel that contains a Begin Signon button.
- //*hostname:port*/CICSPlexSM/*code page*

  This takes you to the Welcome panel that contains a Begin Signon button. The code page that you specify here overrides the code page specified on the INITPARM system initialization parameter in the start-up JCL of the Web User Interface server.

  You can specify the default code page by leaving *code page* blank. For example:

  //*hostname:port*/CICSPlexSM//
- //*hostname:port*/CICSPlexSM/*code page*/*userid*

  This takes you directly to your home menu (which is the menu specified on the DEFAULTMENU system initialization parameter), if you are already signed on in the current web browser session.

If you are not signed on in the current web browser session, you are taken through the process described in Signing on with the WUI.

- *//hostname:port*/CICSPlexSM/*code page*/*userid*/MENU/*menuname*

  This takes you directly to the menu called *menuname*, if you are already signed on in the current web browser session.

  If you are not signed on in the current web browser session, you are taken through the signon process described in Signing on with the WUI, before the menu specified in the URL is displayed.

- *//hostname:port*/CICSPlexSM/*code page*/*userid*/VIEW/*viewsetname*

  This takes you directly to the default view within the view set called *viewsetname*, if you are already signed on in the current web browser session.

  If you are not signed on in the current web browser session, you are taken through the process described in Signing on with the WUI, before the default view within the viewset specified in the URL is displayed.

- *//hostname:port*/CICSPlexSM/*code page*/*userid*/VIEW/*viewsetname.viewname*

  This takes you directly to the view called *viewname* contained within the view set called *viewsetname*, if you are already signed on in the current web browser session.

  If you are not signed on in the current web browser session you will be taken through the signon process described in Signing on with the WUI, before the view specified in the URL is displayed.

- *//hostname:port*/CICSPlexSM/*code page*/*userid*/OBJECT/*objectname*

  This takes you directly to the default view set for object *objectname*, if you are already signed on in the current web browser session.

  If you are not signed on in the current web browser session, you are taken through the signon process described in Signing on with the WUI, before the default view for the object specified in the URL is displayed.

  You can specify any object name for object, and the default view set is EYUSTAR`objectname`, where `objectname` is the value of the URL. Note however that not all CICSPlex SM objects have starter set view sets.

  You can change the default view set for a subset of CPSM objects using the following Web User Interface server system parameters:

WUI server system parameter	**Objectname**
DEFAULTCICSPLEX	CICSPLEX
DEFAULTCICSRGN	CICSRGN
DEFAULTCONNECT	CONNECT
DEFAULTCSYSGRP	CSYSGRP
DEFAULTDB2SS	DB2SS
DEFAULTEJCOBEAN	EJCOBEAN
DEFAULTEJDJBEAN	EJDJBEAN
DEFAULTEVENT	EVENT
DEFAULTLOCFILE	LOCFILE
DEFAULTLOCTRAN	LOCTRAN
DEFAULTPROGRAM	PROGRAM
DEFAULTREMFILE	REMFILE
DEFAULTREMTRAN	REMTRAN
DEFAULTTASK	TASK

Note:

1. The *hostname* and *port* represent the IP address of the CICS Web Interface listener or the secure server, and are specified on the TCPIPHOSTNAME and TCPIPPORT Web User Interface server initialization parameters, respectively.
2. You need to specify *code page* only if you want to override the code page specified on the INITPARM system initialization parameter.

Selection criteria

In URLs, the selection criteria are specified as HTTP query variables.

Each query variable is specified as a variable name followed by '=' then a value. The variable names and values must be escaped using the HTTP standard notation, where necessary. Multiple query variables should be separated by an ampersand (&) character.

The Web User Interface supports query variables as follows:

- Query variables that can be used for menus and views
- Query variables that can be used for views only

Query variables that can be used for menus and views:

You can use certain query variables for both menus and views.

These are:

- CONTEXT

  This is the CICSplex name.
- CMASCONTEXT

  This is the CMAS name.
- SCOPE

  This is the CICSplex, CICS group, MAS or logical scope name.

Query variables that can be used for views only:

Some query variables can be used for views only.

These additional query variables are as follows:

- A_attrname, where attrname is the name of an attribute.

  This is an attribute filter. You can specify any number of attributes on a URL. You can specify characters, numbers, CVDA or EYUDA values. The default operator for an attribute filter is equality (=). If you want to use a different operator you can specify the operator value on the O_attrname query variable. See Table 8 on page 142 for a list of operators and their values.
- FILTERC, when set to 1, the request will force filter confirmation processing when the view is displayed.

  If FILTERC is not present, or is not set to 1, filter confirmation might still occur depending on the GLOBALPREFILTER Web User Interface system parameter or the user group option **Force filter confirmation**.
- P_parmname, where parmname is the name of a parameter.

  This is a parameter filter, as used for a CICSPlex SM API GET command.
- O_attrname, where attrname is the name of an attribute.

This is specified with the A_attrname query variable to change the equality (=) default operator. For a list of operator values that you can specify on the O_attrname query variable see Table 8.

Note: When using generic values only the equal to (=) and not equal to (<>) operators are valid.

Table 8. Operator values for the O_attrname query variable

Operator value (mnemonic)	Operator value (numeric)	Meaning
EQ	1	Equal to
NE	2	Not equal to
GT	3	Greater than
LT	4	Less than
GE	5	Greater than or equal to
LE	6	Less than or equal to

Specifying WUI object names

If you do not specify a view set name but specify an object name, the view set named on the Web User Interface server initialization operation options parameter, that represents the specified object, is opened.

If a view set has not been named to represent the specified object, the default view set, EYUSTART*objectname* is opened.

Examples of valid URL formats

The following examples show valid URL formats.

1.
```
http://MVSXX.COMPANY.COM:04445/CICSPLEXSM//JSMITH/MENU/OURHOME?
       CONTEXT=FRED&SCOPE=FRED
```
This is a request for a user to be directly presented with a home menu called OURHOME using context FRED and scope FRED.

2.
```
http://MVSXX.COMPANY.COM:04445/CICSPLEXSM//JSMITH/VIEW/OURLOCTRAN?
       CONTEXT=FRED&SCOPE=FRED&A_TRANID=PAY*
```
This is a request for a user to be directly presented with the default view, in view set OURLOCTRAN, displaying all the local transactions with a TRANID beginning with the characters PAY, using context FRED and scope FRED.

3.
```
http://MVSXX.COMPANY.COM:04445/CICSPLEXSM//JSMITH/VIEW/OURWLMAWAOR.TABLE1?
       P_WORKLOAD=WLDPAY01
```
This is a request for a user to be directly presented with the TABLE1 view, in view set OURWLMAWAOR, displaying active workload information about workload WLDPAY01, using the default context as specified in the DEFAULTCONTEXT Web User Interface server initialization parameter.

4.
```
http://MVSXX.COMPANY.COM:04445/CICSPLEXSM//JSMITH/VIEW/OURLOCTRAN?
       A_TRANID=P*&O_TRANID=NE
```
This is a request for a user to be directly presented with the default view, in view set OURLOCTRAN, displaying all the local transactions with a TRANID that does not begin with the character P.

5.

```
http://MVSXX.COMPANY.COM:04445/CICSPLEXSM//JSMITH/VIEW/OURTASK?
       A_PRIORITY=200&O_PRIORITY=GT
```

This is a request for a user to be directly presented with the default view, in view set OURTASK, displaying all the tasks with a PRIORITY greater than 200.

6. `http://MVSXX.COMPANY.COM:44455/CICSPLEXSM//TOXTETH/VIEW/EYUSTARTPROGRAM.TABULAR ?FILTERC=1`

   This is a request for a user to be presented with the filter confirmation screen of the EYUSTARTPROGRAM TABULAR view.

Setting CMAS and MAS trace flags

You can use the WUI to set CMAS and MAS trace flags.

You use the **CMAS detail** (EYUSTARTCMAS.TRACE) view to set CMAS trace flags and the **MASs known to CICSplex** (EYUSTARTMAS.TRACE) view to set MAS trace flags.

Configuring dynamic routing

You can define a transaction to CICS as either local or remote. Local transactions always run in the requesting region; remote transactions can be routed to any CICS system connected to the routing region. Routing of remote transactions can be dynamic, static, or ATI-controlled.

Dynamic routing with CICSPlex SM

Use CICSPlex SM to select the most appropriate target region for the execution of a dynamic transaction by using the workload management facility.

When a remote transaction is initiated, the CICS relay program is invoked. The CICS relay program links to the dynamic routing program EYU9XLOP. EYU9XLOP creates the environment necessary for CICSPlex SM-based dynamic routing and sets up the CICSPlex SM runtime environment. You must specify EYU9XLOP in the system initialization table (SIT) parameter.

- For static routing, ATI, and dynamic routing, set the DTRPGM SIT parameter that is associated with the requesting region that initiates the transaction:

  ```
  DTRPGM=EYU9XLOP
  ```

  Any target region that is also to act as a routing region must also specify DTRPGM in the SIT and must be set up as a routing region as described in "Associating a CICS system or system group with a workload specification" on page 175.

-

  For non-terminal-related **EXEC CICS START** commands, BTS activities, or enterprise beans, specify the system initialization parameter *DSRTPGM*=EYU9XLOP in the requesting region that initiates the request. Also set *DSRTPGM*=EYU9XLOP in all potential target regions if the DYROPTER field in the communications area or container for the routing program (mapped by the DFHDYPDS copybook) is to be set to Y.

  If you use CICSPlex SM to route non-terminal-related **EXEC CICS START** commands, the DYROPTER field is always set to Y. You must therefore always specify the system initialization parameter *DSRTPGM*=EYU9XLOP and ensure that the target region is part of the workload. Failing to ensure that the target region is defined to the workload results in the started transaction waiting for the workload to become available and the transaction hangs.

Note: If the target region is not going to be set up as a routing region, then do not specify EYU9XLOP in the DTRPGM and DSTRPGM SIT parameters. Specifying this parameter causes an endless loop for routed transactions in EYU9XLOP waiting for the workload, which never arrives.

CICS notifies EYU9XLOP of all routing requests. These requests are as follows:

- Route selection, route selection error, and transaction termination.
- For BTS (all supported releases of CICS), transaction initiation, transaction abend, and routing attempt complete.
- For non-terminal **EXEC CICS START** requests (all supported releases of CICS), transaction initiation, transaction abend, and routing attempt complete.

When CICS links to EYU9XLOP, it passes the CICS communication area DFHDYPDS to it.

Control then passes to the CICSPlex SM workload management facilities. CICSPlex SM initializes the workload management MAS agent code and engages its routing action process. This process is called internally if any of the following conditions are true:

- The EYU9WRAM user-replaceable module is not defined to CICS
- EYU9WRAM is defined to CICS, but is not available
- EYU9WRAM is defined to CICS, is available, and the load module is the assembly language version of the module as distributed with CICSPlex SM.

The internal routing action process produces the same results as running the assembly language version of EYU9WRAM as it is distributed with CICSPlex SM. If no additional dynamic routing control is required at your enterprise, the internal process provides better performance.

The EYU9WRAM module, or its equivalent internal process, receives the CICSPlex SM-based communication area EYURWCOM. An entry for EYU9WRAM is added to the CICS system definition file, DFHCSD, for each CICS system during installation. As distributed with CICSPlex SM, EYU9WRAM drives CICSPlex SM workload management processing. EYU9WRAM does this by first obtaining the appropriate list of target region candidates, based on the transaction group, and the terminal ID, LU-name, user ID, or process type. Then, EYU9WRAM selects a target region from the list of candidates.

CICS release requirements for dynamic routing

Here are CICS release requirements for regions involved in dynamic routing.

Table 9. Release requirements for regions involved in dynamic routing.

Release requirement for:	Routing regions	Target regions	Requesting regions
Dynamic transaction routing	Any supported release of CICS	Any supported release of CICS	-
EXEC CICS START commands	Any supported release of CICS	Any supported release of CICS	Any supported release of CICS
CICS Business Transaction Services (BTS)	Any supported release of CICS	Any supported release of CICS	Any supported release of CICS

Table 9. Release requirements for regions involved in dynamic routing. (continued)

Release requirement for:	Routing regions	Target regions	Requesting regions
Distributed program link (DPL)	Any supported release of CICS	Any supported release of CICS	-
Enterprise beans	CICS Transaction Server for z/OS, Version 4 Release 2 or earlier	CICS Transaction Server for z/OS, Version 4 Release 2 or earlier	-
Link3270 bridge	Any supported release of CICS	Any supported release of CICS	-

Sample source programs and copy books

Following installation, the module EYU9WRAM is loaded into CICSPlex SM.

It is an assembler-language, command-level program; its corresponding copy books are:

EYURWCOM
Defines the communication area

EYURWCOD
Defines literals for EYURWCOM

EYURWSVE
Defines each element of a target region scope list

EYURWSVD
Defines literals for EYURWSVE

To assist you in your customization effort, sample source programs and copy books for assembler, C, COBOL, and PL/I are distributed with CICSPlex SM. Copy books are located in language-specific libraries. All samples programs are located in the SEYUSAMP library. The names of the sample programs and copy books, and the CICSPlex SM libraries in which they can be found are listed in Table 10.

Table 10. Table 1. Sample programs and copy books

Language	Member name	Alias	Library
Assembler:			
Program	EYUAWRAM	EYU9WRAM	SEYUSAMP
Copybook 1	EYUAWCOM	EYURWCOM	SEYUMAC
Copybook 2	EYUAWCOD	EYURWCOD	SEYUMAC
Copybook 3	EYUAWSVE	EYURWSVE	SEYUMAC
Copybook 4	EYUAWSVD	EYURWSVD	SEYUMAC
COBOL:			
Program	EYULWRAM	EYU9WRAM	SEYUSAMP
Copybook 1	EYULWCOM	EYURWCOM	SEYUCOB
Copybook 2	EYULWCOD	EYURWCOD	SEYUCOB
Copybook 3	EYULWSVE	EYURWSVE	SEYUCOB
Copybook 4	EYULWSVD	EYURWSVD	SEYUCOB
PL/I:			
Program	EYUPWRAM	EYU9WRAM	SEYUSAMP
Copybook 1	EYUPWCOM	EYURWCOM	SEYUPL1
Copybook 2	EYUPWCOD	EYURWCOD	SEYUPL1

Table 10. Table 1. Sample programs and copy books (continued)

Language	Member name	Alias	Library
Copybook 3	EYUPWSVE	EYURWSVE	SEYUPL1
Copybook 4	EYUPWSVD	EYURWSVD	SEYUPL1
C:			
Program	EYUCWRAM	EYU9WRAM	SEYUSAMP
Copybook 1	EYUCWCOM	EYURWCOM	SEYUC370
Copybook 2	EYUCWCOD	EYURWCOD	SEYUC370
Copybook 3	EYUCWSVE	EYURWSVE	SEYUC370
Copybook 4	EYUCWSVD	EYURWSVD	SEYUC370

Optimized dynamic workload routing implementation

CICSPlex SM provides dynamic workload management for CICS. CICSPlex SM can augment its workload management decisions using current status information posted directly from CICS by using a region status (RS) server.

To optimize workload routing in a sysplex, you must configure and monitor a region status (RS) server, as part of a coupling facility data table. Full workload optimization takes place automatically when all workload regions are migrated to CICS TS for z/OS, Version 4.1 and later, and when a region status (RS) server is started in the same z/OS image as each region in the workload in the CICSplex.

For further details, see Setting up and running a region status server and Security for coupling facility data tables.

You can mix CICS TS for z/OS, Version 4.1 and later regions in a workload with regions using a previous version of CICS TS. However, workloads will run in a nonoptimized state because full workload optimization is achieved only when all regions in the workload are migrated to CICS TS for z/OS, Version 4.1 or later.

You define and modify CICSplexes using the EYUSTARTCPLEXDEF view set. Using the CPLEXDEF detail view, you can modify the coupling facility (CF) tuning parameters for the region status (RS) server, which provide sysplex optimized workload routing.

Note: You can also modify the default region status (RS) pool name that will be used by all regions in the CICSplex. When you do not to use the default name DFHRSTAT, you must change the name before starting any other regions in the CICSplex. CPSM will not prevent you from changing the pool name while the CICSplex is active. If you make a change while the CICSplex is active, all CMAS and MAS regions in the CICSplex must be restarted as soon as possible. Failure to do so can result in inconsistent data in the CPSM WLM views and WLM optimization is deactivated until all the regions in the CICSplex are restarted.

Sysplex optimized workload routing overview:

In CICS TS for z/OS, Version 4.1 and later, workload throughput is improved through a more efficient workload management optimization function. This function is most effective for distributed workloads, for which the routing and target regions are managed by different CMASs. With new CPSM WUI views, you can monitor the distribution of dynamic workloads through your CICSplex.

Sysplex optimized workload routing is enabled at the z/OS coupling facility level by a region status (RS) server.

When a target region is running in optimized mode, the target region maintains the task count using the CICS transaction manager. The count includes all tasks in the CICS region, not just those that are dynamically routed. The load value for the CICS region, with its basic health status, is periodically broadcast to the coupling facility, where it is available for interrogation by other CICS regions and CMASs and by other CICS address spaces. If region status data is available, CICSPlex SM uses the data when it makes its dynamic routing decision.

For sysplex optimized workloads, routing regions review the same status data in the coupling facility for a potential target region regardless of which CMAS manages it. As a result, the routing region is using status data that might be updated many times a second to evaluate a target region, rather than status data that might be up to 15 seconds old. The refresh interval can vary from 2 seconds down to 1 millisecond. As the scale of this value is reduced, the usage effect on the coupling facility increases. Choose a value that provides a balance between workload throughput and the effect on the coupling facility. The default refresh value is 200 milliseconds. In an environment in which all routing targets are in a similar health and connectivity state, the spread of work across the workload target scope is more evenly balanced than in nonoptimized mode.

If the coupling facility is not available, workload routing is managed by CICSPlex SM Workload Manager using z/OS data spaces owned by a CMAS to share cross-region load and status data.

Benefits of sysplex optimized workload routing

A sysplex optimized workload is a workload that is best suited to workloads contained in a single sysplex. For a workload that runs in a CICSplex that spans more than one sysplex, the benefits of optimized routing are reduced because region status data stored in the z/OS coupling facility is not shared across sysplexes.

Sysplex optimized workload routing is beneficial in the following scenarios:

- When a workload consists of routers and targets managed by different CMASs and the bulk of the dynamic traffic flows through the DSRTPGM exit. For example, if you use MQ triggers to feed transactional data into CICSplexes, where the trigger regions tend to be managed by different CMASs to the processing regions. In these instances, the benefit of running workloads in optimized state is that no workload batching occurs, and the overall workload runs through faster. Fewer, if any, routed transactions are waiting in the queue of a CICS region already at its MAXTASKS limit.
- When the topology of a CICSplex is such that regions in a workload can be managed by the same CMAS, and nondynamic throughput is a high proportion of the workload.

Impact of sysplex optimized workload routing on the coupling facility

Caching mechanisms are built into the coupling facility (CF) to reduce the number of I/O operations. CICS region status data is broadcast to the CF by target regions, and the data is subsequently read back by the routing regions when a route decision is being made. If CICS status data is broadcast at every change instance, and read back on every occasion that a route decision is made, the impact to the coupling facility might be considerable.

To reduce the impact to the coupling facility, CICS provides two system management parameters:

- **READRS** controls how long region status data is cached by a routing region before requesting a refresh.
- **UPDATERS** controls how often the CF is updated with task throughput data.

Region status server, read interval parameter (READRS):

You use the region status server read interval parameter in the CPLEXDEF, CSYSDEF, and MAS views to control how long region status data is cached by a routing region before requesting a refresh for sysplex optimized workload routing.

READRS={200|number}

In a workload running in optimized mode, the **READRS** value specifies the minimum interval, in milliseconds, between refreshes of a target region status from a CICS region status (RS) server. These refresh requests are issued by a routing region that is evaluating a target region for a dynamic routing request.

Note: You should only change the **READRS** value after considering the impact that the change might have on your workload and coupling facility throughput.

The value range is from 0 - 2000:

- A value of 0 means that a routing region requests a status update of a target region on every occasion that it examines the status of the target region.
- Values from 1 - 2000 specify the minimum time interval that must expire before the status of a target region can be refreshed.

A low interval value means that the RS server is polled more often for a status update. For workloads in QUEUE mode, this low value results in a smoother task load spread across the CICS regions in the workload target scope, *assuming all other health and link factors are equal*. However, the utilization of the RS server is correspondingly increased, which might result in higher utilization of your z/OS coupling facility.

The default value of the **READRS** parameter is 200 milliseconds.

The value specified in the EYUSTARTCPLEXDEF view set sets the read interval at the CICSplex level. However, you can override the interval at the CICS definition level to allow fine tuning of the value on an individual CICS target region basis.

You specify both the UPDATERS and the READRS parameters at the CICSplex definition (CPLEXDEF) level to establish default values for all regions in the CICSplex. You can override these values at the CICS system definition (CSYSDEF) level or at the MAS agent runtime (MAS) level.

At the CICS definition level, the value for **UPDATERS** and **READRS** is INHERIT, so that the values are adopted from the CICS system definition. By changing these values to explicit numeric values, the CICS system adopts the values specified on each successive restart. To implement a change to a running CICS region, the values must be applied using the MAS base tables or view sets. When the target region is restarted, it reemploys the specification from its CSYSDEF.

Region status server, update frequency parameter (UPDATERS):

You use the region status server update frequency parameter in the CPLEXDEF, CSYSDEF, and MAS views to control how often the coupling facility is updated with task throughput data for sysplex optimized workload routing.

UPDATERS={15|number}

In a workload running in optimized mode, the **UPDATERS** value indicates the frequency that the CICS region status (RS) server is called to modify the value of the task load in a target CICS region. This value is the default frequency value for all target CICS regions in the current CICSplex definition.

Note: You should only change the **UPDATERS** value after considering the impact that the change might have on your workload and coupling facility throughput.

The value range is from 0 - 25:

- A value of 0 means that the RS server is not notified of any task load count changes, because the optimized workload function for target regions in this CICSplex is not enabled.

  Note: A value of 0 does not suppress optimization of the workload routing function; a value of 0 suppresses only the target region RS domain broadcasting process.
- Values from 1 - 25 are applied as an arithmetic percentage to the MAXTASKS setting for a target. The resulting task count value is used as a numeric threshold to drive an update call to the RS server.

Specifying a value of zero effectively disables the optimized routing function for the target regions. For an optimized routing decision to be made, both the router and target must be in optimized mode.

For example, with a MAXTASKS setting of 120, and the UPDATERS set to 20, the RS server is called to update the WLM load count when the task count for a target region changes between these numbers of tasks:

- 23 and 24 tasks (20% of 120)
- 47 and 48 tasks (40% of 120)
- 71 and 72 tasks (60% of 120)
- 95 and 96 tasks (80% of 120)
- 119 and 120 tasks (100% of 120)

The RS server is updated when the task load for a target region increments or decrements across these boundaries.

If you set the **UPDATERS** parameter to a low value, the frequency of updates to the RS server increases across the task load range. For workloads in QUEUE mode, this low value results in a smoother task load spread across the target CICS regions in the workload scope, *assuming all other health and link factors are equal*. However, the utilization of the RS server is correspondingly increased, which might result in higher utilization of your z/OS coupling facility.

The default value for the **UPDATERS** parameter is 15.

The value specified in the EYUSTARTCPLEXDEF view set sets the update interval at the CICSplex level. However, you can override the interval at the CICS definition level to allow fine tuning of the value on an individual CICS target region basis.

You specify both the **UPDATERS** and the **READRS** parameters at the CICSplex definition (CPLEXDEF) level to establish default values for all target regions in the CICSplex. You can override these values at the CICS system definition (CSYSDEF) level or at the MAS agent runtime (MAS) level.

At the CICS definition level, the value for **UPDATERS** and **READRS** is INHERIT, so that the values are adopted from the CICS system definition. By changing these values to explicit numeric values, the CICS system adopts the values specified on each successive restart. To implement a change to a running CICS region, the values must be applied using the MAS base tables or view sets. When the target region is restarted, it uses the specification from its CSYSDEF.

Region status server, bottom-tier parameter (BOTRSUPD):

You use the region status server bottom-tier tuning parameter in the CPLEXDEF, CSYSDEF, and MAS views to control the workload distribution updates to the coupling facility (CF) during periods of low throughput.

BOTRSUPD={1|number}

For sysplex optimized workloads, the **BOTRSUPD** value is converted from a task load percentage to a real task count. That count is used to define the bottom-tier task load range, from zero up to this value.

Note: You should only change the **BOTRSUPD** value after considering the impact that the change might have on your workload and coupling facility throughput.

The value range is from 1 - 25. When the task load for a region falls within this range, the task load is then broadcast to the coupling facility (CF) for every change in the task load. When the load reaches this value, the RS server update frequency task rules are activated.

The default value of the **BOTRSUPD** parameter is 1%.

Change this value only after considering the impact that the change might have on your workload and coupling facility throughput. The **BOTRSUPD** parameter provides a smoother distribution of the workload during periods of low throughput. When your CICSplex consists of many target regions and you increase this value too much, you risk overloading the CF with update requests, which can result in degraded WLM and general z/OS subsystem performance.

When you need to modify the **BOTRSUPD** value, ensure that you monitor the performance of your coupling facility and WLM throughput capabilities for at least several days after modification.

Region status server, top-tier parameter (TOPRSUPD):

You use the region status server top-tier tuning parameter in the CPLEXDEF, CSYSDEF, and MAS views. It controls the workload when the workload management (WLM) max task health indicator is switched off for a target region,

to limit updates to the coupling facility (CF) when the region is close to the MAXTASK (MXT) setting during periods of high throughput.

TOPRSUPD={5|number}

For sysplex optimized workloads, the **TOPRSUPD** value is converted from a task load percentage to a real task count. That count is subtracted from the **MAXTASKS** value for the region to determine the top-tier task load range.

Note: You should only change the **TOPRSUPD** value after considering the impact that the change might have on your workload and coupling facility throughput.

The value range is from 1 - 25. The value is applied as an arithmetic percentage to the **MAXTASKS** setting for a region. The task count value is then subtracted from the **MAXTASKS** setting for the region to establish a task load top tier. When the task load in a region runs up to its **MAXTASKS** limit, the task load must then drop back below this value before the **MAXTASKS** state for the region is switched off and broadcast to the coupling facility.

The default value of the **TOPRSUPD** parameter is 5%.

Change the **TOPRSUPD** value only after considering the impact that the change might have on your workload and coupling facility throughput. When you increase this value too much, you see a workload batching effect in the upper load range of the workload. When you decrease the value too much, the upper-tier batching effect is reduced, but updates to the coupling facility can be significantly increased.

When you need to modify the **TOPRSUPD** value, ensure that you monitor the performance of your coupling facility and WLM throughput capabilities for at least several days after modification.

Optimization status:

You can use the Active workloads list view in the CICSPlex SM Web User Interface (WUI) to view the status of workloads.

Optimization status of the workload

You can use the Active workloads list view in the CICSPlex SM Web User Interface (WUI) to view the status of each workload active in the CICSplex.

The **Optimization status** attribute reports the sysplex optimization status of the current workload. The value is a combination of all of the workload router optimization statuses and all of the workload target optimization statuses.

These values are possible:

- ACTIVE: All targets and routers in the workload are running in optimized workload state.
- PARTIAL: At least one target and one router are running in optimized workload mode. Use the **Active routing regions** and **Active target regions** hyperlinks to determine which regions are not running in optimized state.
- INACTIVE: The workload is not running in an optimized state, for one or more of the following reasons:
  - No routing regions in the workload are running in an optimized state.
  - No target regions in the workload are running in an optimized state.

- No regions in the workload are running in an optimized state.
- The workload is designated as being nonoptimized by specifying a value of 0 for the RS server update frequency on the CICSplex definition or on all target CICS system definitions for this workload.

Optimization status for a CICS region

You can use the Routing regions or Target regions views located in the Active workloads menu to view the optimization status for the region.

The **Optimization status** attribute reports the status of the current target region for the optimized workload routing function.

These values are possible:

- ACTIVE: This target region is running in an optimized workload state.
- INACTIVE: This region can run in an optimized workload state; however, it is not currently optimized for one or more of the following reasons:
  - The region has no connection to an RS server.
  - The region is connected to an RS server; however, the server cannot connect to the z/OS coupling facility.
  - The optimization enablement setting for the region is set to *Disabled*. The enablement setting for the region must be set to *Enabled* before any optimized routing functions can be activated.

    Note: You can reset the optimization enablement setting in the CICS system definition view to change the value in preparation for the next region startup. The enablement setting can also be changed in an active region using the MAS view, but will revert to the setting in the CICS system definition when the region is restarted.
  - The RS server update frequency value for this region is 0, which means that the optimization capabilities for this region when acting as a routing target are not enabled.

    Note: You can set the *UPDATERS* value to 0 for regions that are used as dynamic routers only. Setting this value to 0 prevents the region from making unnecessary region status broadcasts to the Region Status (RS) server.
- N_A: The target region is not at a CICS release that supports region status recording. Only nonoptimized WLM routing decisions can be made.

Nonoptimized workload routing:

In releases before CICS TS for z/OS, Version 4.1, for nonoptimized workload management, and when a coupling facility is not available, workload routing is managed by CICSPlex SM Workload Manager using a data space owned by a CMAS to share cross-region load and status data.

Every CMAS manages a single WLM data space that it shares with every user CICS region (MAS) that it directly manages. When the CMAS initializes, it verifies and formats the data space with the structures necessary for all workloads associated with the CICS regions that it manages. When the user CICS regions begin routing dynamic traffic, the state of those CICS regions is recorded in this data space. Every 15 seconds, the CICSPLex SM agent in the user CICS region determines the task count at that time and reports to its owning CMAS. The

CMAS updates the load count in the target region descriptor of its WLM data space and broadcasts that value to other CMASs participating in workloads associated with the user CICS region.

In an environment in which all user CICS regions are managed by the same CMAS, all routing and target regions refer to the same physical structures in the WLM data space. Dynamic routing decisions are based on the most current load data for a potential routing target region. A routing decision is based on a combination of factors:

- The number of tasks in the region.
  - Factored as a percentile value, calculated by dividing the target region MAXTASKS setting with the current task count.
- The health status of the region.
  - Factored by assigning arithmetic weights, depending on whether the region is short-on-storage, taking a transaction dump, taking a system dump, running at its MAXTASKS limit, in a non-responsive state, or in a CPSM stall.

    Note: Health is assessed independently of system availability monitoring (SAM) and is not influenced by SAM settings.
- The speed of the link between the router and the target.
  - Factored by assigning arithmetic weights, depending on whether the target region is linked to the target by an MRO connection, an XCF connection, an LU6.2 connection, an IPIC connection, or if the target region is the router itself.

    Note: The link speed is not used for link-neutral algorithms.
- The z/OS WLM health state of the region.
  - Factored by assigning arithmetic weights, depending on the z/OS WLM health indicator (in the range 0 - 100) of a region provided by the z/OS WLM health service. The z/OS WLM health state is factored in only when the z/OS WLM health service is on. A region with a health indicator of zero is assigned a very high penalizing weight, so it is unlikely to receive work if any other region in the same scope has a z/OS WLM health indicator bigger than zero. Regions with indicators in the range 1 - 100 are treated equally in the routing decision.
- If any outstanding CICSPlex SM Realtime Analysis (RTA) Events are associated with the workload.
  - Factored by assigning arithmetic weights depending on the severity of the events outstanding. These events are factored in only when Event name is specified in the WLM specification for the workload or any Transaction Group definitions associated with it.
- If any transaction affinities are outstanding to override the dynamic routing decision.
  - Regardless of any other factors, if the routing request has an outstanding affinity associated with it, that affinity always overrides the route decision.

Workloads are spread across multiple z/OS images, so additional CMASs are configured to manage the user CICS regions on the disparate LPARs. Each WLM data space must maintain a complete set of structures to describe every CICS region in the workload, not just the CICS regions for which each CMAS is responsible. The WLM data space owned by each CMAS must be periodically synchronized with the WLM data spaces owned by other CMASs that are

participating in the workload. This synchronization occurs every 15 seconds from the MASs to their CMASs, and then out to all other CMASs in the workload.

The behavior of CICSPlex SM is different for DTRPGM and DSRTPGM requests:

- For DTRPGM requests, the routing region calls, from CICS, to decide if the target regions are synchronized with the execution of the request at the selected target, which is then followed by a call back from CICS on completion of the dynamic request. This call allows the router to increment the task load count before informing CICS of the target region system ID, and also to decrement the count on completion of the request.
- For DSRTPGM requests, the routing region calls, from CICS, to decide if targets are not synchronized with the selected target. Typically, these dynamic requests are asynchronous CICS starts. The router has no notification of when the routed transaction starts or finishes. Because of a lack of notification, CICSPlex SM stipulates that a DSRTPGM target region must also have the workload associated with the region, which transforms the targets into logical routing regions. This call allows the CICSPlex SM routing processes to determine that they are being called at the DSRTPGM target and, therefore, allows the task load count to be adjusted at transaction start and finish.

CICSPlex SM routing regions count the dynamic transaction throughput in a CICSplex, introducing an additional problem in that transactions started locally on the target regions remain unaccountable by the routing regions until a heartbeat occurs. The router transaction counts are not accurately synchronized until two heartbeats have occurred, the first to increment the count, and the second to decrement it again. This discrepancy, however, is not considered as severe as when a router and target are managed by different CMASs.

For multiple CMASs, the router regions evaluate status data for a target region as described in its local WLM data space. If that target region is managed by a different CMAS to that owned by the router, status data describing that target region can be up to 15 seconds old. For DTRPGM requests, this latency does not have a severe effect. For DSRTPGM requests, however, the effect can be significant, particularly when the workload throughput increases. The effect is known as workload batching.

For more information, see “Workload batching.”

Workload batching:

Workload batching occurs in heavily used workloads in multiple CMAS environments, where dynamic distributed (DSRTPGM) routing requests are being processed.

A target region and its routing regions can be managed by different CMASes. This is always the case when the router runs in a different LPAR to the targets. In this scenario, the router is using a different descriptor structure to evaluate the target status from the real descriptor structure employed by the target itself.

The target descriptor reviewed by the router is synchronized with the real descriptor at 15-second intervals by the CICSPlex SM heartbeat. The task count for the target region, as seen by the router, is refreshed at the same time. During a 15-second heartbeat interval, the router regards the target as being relatively busy, or relatively quiet, when compared to other potential target regions in the workload. Therefore, for that 15-second duration, the router continues to divert work towards, or away from, the target, depending on how busy it seems to be,

because the current task count in the target is not seen to change until the next heartbeat. This routing, based on the previous status, can make the target very busy or unused. The router reacts to this situation by more actively routing work towards, or away from, the target, so the batching cycle continues. This state continues until activity in the workload throughput declines, which settles down the batching cycle until the throughput activity increases.

If you are monitoring the task load across the CICSplex, you see some regions running at their MAXTASKS limit and being continually given dynamically routed traffic, and others remain unused. A snapshot taken 15 seconds later might show a reversal of utilization; the busy regions might be idle and the idle regions might now be at the MAXTASKS limit.

When you start your region status servers and optimize workloads, the effects of workload batching are removed.

Modifying dynamic routing

You can customize CICSPlex SM workload management processing by modifying the module EYU9WRAM.

EYU9WRAM uses the CICSPlex SM dynamic routing application programming interface (API), which is a special-purpose, call-level interface that provides the mechanism needed to request workload management actions. All calls are constructed using standard CALL statements. The CALL statement generates the linkage between the EYU9WRAM module and the CICSPlex SM Workload Manager component. The format of the CALL statement is shown here:

```
CALL WAPIENPT(DA_TOKEN,function)
```

where:

DA_TOKEN
: Identifies the dynamic routing API token supplied via the EYURWCOM communication area. This token is used by EYU9WAPI and must not be altered.

function
: Is the function to be performed, specified as:

  SM_SCOPE
  : Returns a list of eligible target regions.

  SM_BALANCE
  : Selects a target region from the list of eligible target regions.

  SM_ROUTE
  : Routes a transaction to a specific target region.

  SM_CREAFF
  : Creates an affinity.

  SM_DELAFF
  : Deletes an active affinity.

You can use SM_SCOPE and SM_BALANCE together to obtain a list of target regions and then select the target region to which a transaction is to be routed.

If you know that a transaction is always to be directed to a specific target region, you can use just SM_ROUTE.

As distributed, EYU9WRAM issues SM_SCOPE and SM_BALANCE calls. It does not include any SM_ROUTE calls. It includes unexecuted calls to SM_CREAFF and SM_DELAFF. You can modify the program to issue these calls.

Although all the examples use the assembler language form of the dynamic routing API verbs, you can also use these verbs in programs written in C, COBOL, and PL/I. Sample programs distributed with CICSPlex SM contain examples of the CALL statements for each of these languages.

Note: If you are modifying dynamic routing, be aware that:

- If they are not set, the values for application context are either zero (for the version) or nulls/low-values (for platform, application, and operation).
- String fields are padded with nulls, not spaces.

Important: As distributed, EYU9WRAM handles the workload routing and separation established via the workload management definitions by using the API verbs. Any changes you make to EYU9WRAM, therefore, might adversely impact the CICSPlex SM workload management facilities. For example, if you do not use SM_SCOPE, SM_BALANCE, or SM_ROUTE, each transaction occurrence is routed to the default target region identified when the transaction was defined to CICS. Thus, all CICSPlex SM workload management definitions are bypassed.

Nondynamic transaction considerations:

You do not have to include any calls through the API if a transaction is statically routed or is started by ATI. In these cases, the target region cannot be changed. The routing function is route notify. The route notify function is intended to notify the EYU9WRAM program that such a transaction is being routed.

If you do include any of these functions, the following occurs:

- An SM_SCOPE call returns a single entry in the SCOP_VECT. The entry is the target region associated with the statically defined transaction when it was defined, or with the destination specified on the EXEC CICS START command for ATI transactions.
- An SM_BALANCE call selects the target region associated with the transaction when it was defined to CICS. The CICSPlex SM Workload Manager will not create any affinity for the transaction.
- An SM_ROUTE call returns an exception response.

When EYU9WRAM is called for:

- Notification, any existing affinity relations are ignored and none are created.
- Route selection error, any existing affinity relations are ignored and none are created. In addition, the EYU9WRAM program as delivered will write a terminal message and terminate.
- Routing attempt complete, for CICS BTS transactions only. Any existing affinities are ignored. Any dynamic routing API function call results in a bad response. See “Non-terminal-related STARTs and CICS BTS considerations” on page 157.
- Transaction initiation, for CICS BTS transactions only. Any existing affinities are ignored. Any dynamic routing API function call results in a bad response. See “Non-terminal-related STARTs and CICS BTS considerations” on page 157.
- Transaction termination, any existing affinities are ignored. Any dynamic routing API function call results in an error response.
- Transaction abend, any existing affinities are ignored. Any dynamic routing API function call results in an error response.

Non-terminal-related STARTs and CICS BTS considerations:

When routing a transaction associated with either a CICS BTS activity or a non-terminal-related EXEC CICS START comand, the routing program, identified in the DSRTPGM SIT parameter, is invoked for both static and dynamic routing.

In the case of statically routed transactions, the EYU9WRAM program cannot alter the target region; see "Nondynamic transaction considerations" on page 156. In the case of dynamically routed transactions, the EYU9WRAM program may alter the target region; see "Selecting a target region from a set of target regions." However, in both cases, the EYU9WRAM program is invoked only for:

- In the requesting region:
  - Notification
  - Route selection
  - Route selection error
  - Route attempt complete
- In the target region:
  - Transaction initiation
  - Transaction termination
  - Transaction abend

For details of the function of route initiation, see Dynamically routing DPL requests.

Selecting a target region from a set of target regions:

As distributed, EYU9WRAM uses SM_SCOPE and SM_BALANCE to select a target region from the list of target regions defined for a transaction. The options that you set affect the way that the target region is chosen.

- SM_SCOPE returns a list of target regions for the current transaction occurrence. The target regions are those that are explicitly or implicitly associated with the requesting region by a workload specification.
- SM_BALANCE selects a target region from the list of candidate target regions returned by SM_SCOPE.

After an SM_SCOPE or SM_BALANCE call, the result of the operation is indicated in the response and reason fields of the EYURWCOM communication area.

Actions during route selection

A dynamic route selection occurs when a transaction or program is scheduled for routing.

- When SM_SCOPE is issued, the EYURWCOM communication area Scope Vector pointer is updated with the address of the target region scope list description area, SCOP_VECT. Also, the element count field is updated to contain the count of elements in the scope vector. Each element in the scope vector identifies a candidate target region and indicates its current status.

  During SM_BALANCE processing, the target region appearing first in the ordered list is selected for routing, unless the scope vector element EYURWSVE is marked ignore.
- When no affinity is associated with the current transaction occurrence, an SM_SCOPE call sorts the SCOP_VECT elements so that the target region that is the best candidate is placed first in the list.

During SM_BALANCE processing, the APPLID and SYSID of the most suitable target region are placed in the fields WCOM_SEL_AOR and WCOM_SEL_SYSID, respectively. Typically, this will be the first target region represented in the scope vector. However, if the EYU9WRAM program has marked the WSVE-IGNORE field on some of the SCOP_VECT elements to denote that the target region is to be ignored, the first target region in the scope vector that is not marked to be ignored will be selected.

Note:

1. If the transaction identifier and the ids of the terminal and user associated with that transaction match a transaction group to which an affinity is defined, the affinity is made active during SM_BALANCE processing.
2. With DPL, you can update the transaction id before the SM_SCOPE call.

- When an affinity is associated with the current transaction occurrence, an SM_SCOPE call normally causes only the target region with which the affinity exists to be identified in SCOP_VECT. An SM_BALANCE call then selects that target region. If the target region is not available for routing, the SM_BALANCE function will set a warning indicator. It will not attempt to select another target region.
- If the transaction is defined as a DTRTRAN, the EYURWCOM communication area will contain indicators denoting that the transaction is a DTRTRAN and that it will not be rejected by the Workload Manager. Processing is generally identical to the normal, non-DTRTRAN, case. Issuing SM_SCOPE returns a SCOP_VECT. Issuing SM_BALANCE selects a target region.

  The EYU9WRAM module might opt to reject the transaction before issuing the SM_SCOPE call. In this case, the Workload Manager returns to CICS with the reject indicator set to Y in the DFHDYPDS communication area. The sample EYU9WRAM program causes a DTRTRAN transaction to be rejected only if the transaction identifier is all blanks.

Actions during notification

Notification occurs when a static transaction or ATI transaction is being scheduled for routing.

- For statically routable transactions, ATI transactions, and BTS static routing requests, issuing SM_SCOPE causes the scope vector to contain a single target region. This is the target region associated with the transaction.

Actions during routing attempt complete

None, but you can tidy up and release any resources at this stage.

Actions during route selection error

A route selection error call occurs if the CICS link between the requesting region and target region is not available or is not defined.

- When no affinity is active: issue SM_SCOPE again. The candidate target regions identified by the SCOP_VECT it returns will not include the target region that caused the error. You can then use SM_BALANCE to select a new target region.
- When affinity became active as a result of the previous route selection:
  - If the lifetime associated with the affinity is PERMANENT, SYSTEM, ACTIVITY, or PROCESS, the target region causing the error will be included in scope list returned by SM_SCOPE. SM_BALANCE is required by affinity

rules to select that target region. It also returns a warning to EYU9WRAM. EYU9WRAM should then notify the user that an error has occurred.

  - If the lifetime associated with the affinity is SIGNON, LOGON, DELIMIT, or PCONV, the active affinity status is removed before control returns to EYU9WRAM. When you reissue SM_SCOPE, the target region causing the error will not be included in the scope list. If the workload specification is defined with Create Affinity YES for the transaction group, EYU9WRAM is notified that an affinity is defined and will be activated when you issue SM_BALANCE.

- When affinity was activated by a previous transaction instance, and you issue SM_SCOPE again, the scope list returned contains the previously selected target region. Since SM_BALANCE is required by affinity rules to select that target region, a warning is returned to EYU9WRAM. EYU9WRAM should then notify the user that an error has occurred.

Actions during transaction termination

Transaction termination occurs when a transaction has terminated normally.

- EYU9WRAM should release any resources it may have acquired.
- Issuing SM_SCOPE or SM_BALANCE or SM_ROUTE causes an exception response to be returned.

Actions during transaction abend

Transaction abend occurs when a transaction has terminated abnormally.

- EYU9WRAM should release any resources it may have acquired.
- Issuing SM_SCOPE or SM_BALANCE or SM_ROUTE causes an exception response to be returned.

Actions during transaction initiation

Transaction initiation occurs when a CICS BTS-related transaction, or an enterprise bean-related transaction, has been routed to the target region. No specific action is taken. The call is issued for information purposes only.

Selecting a specific target region:

SM_ROUTE requests that a specific target region is selected for routing. Use SM_ROUTE when you have application- or data-dependent requirements for explicit routing. For example, you might want to route a transaction associated with a specific user ID to a specific target region.

After an SM_ROUTE call, the result of the operation is stored in the response and reason fields of the EYURWCOM communication area.

A sample SM_ROUTE call is show here:

```
CALL WAPIENPT(DA_TOKEN,SM_ROUTE)
```

DA_TOKEN identifies the dynamic routing API token supplied via the EYURWCOM communication area. This token is used by EYU9WAPI and must not be altered.

Actions during route selection

The actions during route selection are:

- If there is only one connection between a requesting region and the target region, you can supply either the SYSID or the APPLID of the target region (CICSPlex SM will determine the appropriate, corresponding ID). Place the APPLID in the WCOM_SEL_AOR field of the EYURWCOM communication area. Place the SYSID in the WCOM_SEL_SYSID field.

  If there are multiple connections between a requesting region and the target region, supply both the SYSID and the APPLID, as described previously, to ensure that the correct target region is selected. Note that when both the SYSID and APPLID are supplied, they are not validated.

  The target region need not be defined to CICSPlex SM. The affinity status is not checked. Thus, no affinity is established as a result of this call and, if an affinity was in effect, it is ignored.
- Issuing SM_ROUTE during Route Notify processing causes an exception response to be returned.

Actions during routing attempt complete

None, but you can tidy up and release any resources at this stage.

Actions during route selection error

The EYU9WRAM program may issue a message and terminate. You may then issue SM_ROUTE again specifying a different target region, or issue SM_SCOPE and SM_BALANCE.

Actions during transaction termination

- EYU9WRAM should terminate any resources it may have acquired.
- Calling any API function causes an exception response to be returned.

Actions during transaction abend

- Calling any API function causes an exception response to be returned.

Actions during transaction initiation

At transaction initiation:

- EYU9WRAM should terminate any resources it may have acquired.
- Calling any API function causes an exception response to be returned.

Creating an affinity:

You can use SM_CREAFF to create an affinity if one does not already exist in the transaction group established for the transaction.

The transaction group must be defined with an affinity type and lifetime. The affinity created will have the same affinity type and lifetime as defined in the transaction group.

You should review “Affinity considerations” on page 161 before using SM_CREAFF.

Before calling SM_CREAFF, you must first call SM_SCOPE to obtain a scope list. SM_CREAFF will not create an affinity to an target region that is not in the scope list. In addition, you should set the EYUWRCOM communication area fields WCOM_SEL_AOR and WCOM_SEL_SYSID to the APPLID and SYSID, respectively, of the target region for which you want the affinity created.

EYU9WRAM contains a fragment of unexecuted code that you can use as a template for implementing the SM_CREAFF function.

The SM_CREAFF function cannot be called during:

- Route termination
- Route abend
- Route notify
- Route initiate
- Route complete

Deleting an affinity:

You can use SM_DELAFF to delete an active affinity.

You should review "Affinity considerations" before using SM_DELAFF.

Before calling SM_DELAFF, you must first call SM_SCOPE to obtain a scope list. The WCOM_AFF_STAT field in the EYURWCOM communication area contains a value indicating whether an affinity is active or committed. An active affinity can be deleted using SM_DELAFF. A committed affinity has a lifetime of SYSTEM or PERMANENT and cannot be deleted using SM_DELAFF.

EYU9WRAM contains a fragment of unexecuted code that you can use as a template for implementing the SM_DELAFF API function.

The SM_DELAFF function cannot be called during:

- Route notify
- Route initiate
- Route complete

Affinity considerations:

When you define an affinity, you must specify its lifetime. The affinity normally persists until its specified lifetime expires.

You can define one of the following types of lifetime:

Activity
: Expires when the CICS BTS activity ends

Delimit
: Expires when the PCONV mode of the transaction is END

Logon Expires when the terminal user logs off.

Pconv Expires when a transaction uses EXEC CICS RETURN specifying no NEXTTRANSID or the PCONV mode of the transaction is END.

CICS does not support pseudoconversations for APPC (LUTYPE6.2) devices.

Permanent
Expires when the workload of which the target region is a part terminates

Process
Expires when the CICS BTS process ends

Signon
Expires when the terminal user signs off.

System
Expires when the target region terminates

UOW Expires when the unit of work associated with the transaction ends. The unit of work ends either when a CICS SYNCPOINT or ROLLBACK request is run, or when the originating task terminates.

There are circumstances when SM_SCOPE generates a scope list containing a single affinity target region, but the target region is not available for routing. This happens when:

- The target region is down.
- The CICS link to the target region is down.
- The target region is currently active but it was shutdown and restarted after the affinity was created.

In these cases, the EYU9WRAM default processing issues a terminal message indicating that the affinity target region is not available and causes the transaction to terminate. If the affinity lifetime is PCONV (pseudoconversation), CICSPlex SM automatically deletes the affinity because it has expired (there is no NEXTTRANSID). However, the default EYU9WRAM processing does not delete any other affinities because the characteristics of the actual affinity to the target region are unknown. For example, a LOGON affinity may involve the use of the TCTUA to pass information to the target region. If the affinity is deleted when the target region is not available, the next transaction for the transaction group would cause a new target region to be selected. The transaction might fail upon using the TCTUA contents when routed to the new target region.

The sample EYU9WRAM program, which implements the default processing, contains a subroutine that checks on affinity status after a call to SM_SCOPE. When an affinity is active to an target region, but not committed, and the affinity target region status is not OK, the subroutine sends a message to the terminal user and then exits so that the EYU9WRAM program terminates. The subroutine contains an unexecuted code fragment that can be used to delete the affinity using the SM_DELAFF call. Before the unexecuted code fragment is a series of tests for the affinity lifetime of the active affinity. One or more of the branches can be changed to jump to the code fragment. The code fragment itself deletes the affinity, issues a message, and then returns so that the EYU9WRAM program exits, thereby causing the transaction to terminate. This processing can be modified so that the affinity is deleted, no message is issued, and the subroutine exits causing the mainline process to reexecute the SM_SCOPE call. In that case, a new set of target regions is received for use by SM_BALANCE.

The same subroutine also contains an unexecuted code fragment that can be enabled to create an affinity. In this case, the subroutine has determined that an affinity is defined but not active. It then checks the WCOM_AFF_AUTO indicator to determine whether CICSPlex SM should automatically create affinities during SM_BALANCE. The subroutine exits normally no matter what the answer is. You can enable the SM_CREAFF fragment in order to cause an affinity to be created.

The SM_CREAFF call may be used regardless of whether WCOM_AFF_AUTO does or does not indicate the automatic creation of affinities during SM_BALANCE. The SM_CREAFF call can therefore be used to:

- Create an affinity when CICSPlex SM will not.
- Create an affinity to a target region that CICSPlex SM would ordinarily not select.

The SM_CREAFF code fragment creates an affinity to the target region that appears first in the scope list returned by SM_SCOPE.

The following fields in the EYURWCOM communication area provide information regarding CICSPlex SM affinity processing.

- WCOM_AFF_STAT
- WCOM_AFFAOR_STAT
- WCOM_AFF_TYPE
- WCOM_AFF_LIFE
- WCOM_AFF_AUTO
- WCOM_WORK_NAME
- WCOM_TGRP_NAME

CICSPlex SM data areas

The EYU9WRAM program uses two data areas, communication area EYURWCOM and scope vector element EYURWSVE.

Literals for EYURWCOM are defined in EYURWCOD and literals for EYURWSVE are defined in EYURWSVD.

The names of the copy books that you can use to map these data areas are identified in Sample programs and copy books.

The scope vector element, EYURWSVE, contains information about the individual target regions associated with the list of candidate target regions returned by SM_SCOPE.

Creating a user-replacement module for EYU9WRAM

You can use the sample procedures provided in CICSTS54.CPSM.SEYUPROC to create replacement modules for EYU9WRAM.

The procedure members are as follows:

Assembler	EYUEITAL
C	EYUEITDL
PL/I	EYUEITPL
COBOL	EYUEITVL

1. Copy these procedures to a cataloged system procedure library. You can use the samples in Sample user-replacement modules.
2. Use the JCL samples to run the procedure and create the replacement module for EYU9WRAM. Note that lower case values shown in the sample JCL should be replaced with the appropriate values for your site. Also, you cannot use the CICSPlex SM API in EYU9WRAM.

Requesting additional dynamic routing support

This section contains Product-sensitive Programming Interface Information.

You can access the CICSPlex SM workload management facilities directly from an application program.

Note: If you are running CICS Transaction Server for OS/390® Version 1 Release 3 and later, it is recommended that you use the CICSPlex SM-supplied program EYU9XLOP for all your dynamic routing requirements. You need the information in this section only if you want to continue to use this function during migration to CICS Transaction Server for OS/390 Version 1 Release 3.

If your routing regions are CICS Transaction Server for OS/390 Version 1 Release 3 and later, or if you are using CICS BTS or enterprise beans, you do not need the information in this section. You should use the distributed routing facilities described in "Dynamic routing with CICSPlex SM" on page 143.

To write such a program, you should be familiar with:

- The interface between the CICS relay program and the defined dynamic routing program.
- CICSPlex SM workload management processing, as described in Introduction to workload management.
- The CICSPlex SM workload management routing action module, EYU9WRAM, as described in "Dynamic routing with CICSPlex SM" on page 143.

The primary method of invoking CICSPlex SM workload management is by defining module EYU9XLOP to CICS as the dynamic routing program. This causes EYU9XLOP to be invoked by the CICS relay program, allowing CICSPlex SM workload management to make a routing decision about each work request that can be sent to another CICS system.

If necessary, CICSPlex SM workload management can be invoked directly from an application program, without going through the CICS relay program. For CICS releases prior to CICS Transaction Server for OS/390 Version 1 Release 3, you can use CICSPlex SM Workload Management to determine the best target region for a distributed program link (DPL) from a requesting region. The application program you write must follow certain guidelines:

- The program must run in a CICS system that is defined and running as a routing region. You cannot access CICSPlex SM workload management from a target region.
- The program must issue its INIT and TERM calls from the same task. CICSPlex SM expects the program to imitate the processing done by the CICS relay program, which always calls at route initiation and route termination.

Note: Accessing workload management through a program that issues an EXEC CICS START command is not recommended with an asynchronous transaction start. Furthermore, EXEC CICS START commands that are not related with either a terminal or a user should not be used for transactions that have affinity relationships, as those relationships cannot be correctly resolved using this interface.

Accessing workload management from a program using a dynamic program load is not supported. CICSPlex SM workload management uses the CICS application programming interface to gather information about the current environment in which it is running. Due to DPL restrictions some of that information is not available, and unpredictable results may occur.

In order to make a routing decision, CICSPlex SM workload management needs certain information that is normally supplied by the CICS relay program. The CICS relay program derives the information from data available to CICS for the instance of the transaction being relayed. When you invoke CICSPlex SM workload management directly, you need to provide this information, including terminal-oriented data and the equivalent of a transaction name to identify the work to be routed.

How to start CICSPlex SM workload management

To start the CICSPlex SM workload management facilities, use an EXEC CICS LINK command, specifying EYU9XLOP as the program and identifying EYURWTRA as the communication area.

The format of the command is:

```
EXEC CICS LINK
     PROGRAM(EYU9XLOP)
     COMMAREA(EYURWTRA)
     LENGTH(=AL2(WTRA_LENGTH))
```

Much of the data normally passed from the CICS relay program to the dynamic routing program in the DFHDYPDS communication area must be generated by your program and passed to CICSPlex SM workload management. Other data that is normally derived by CICSPlex SM workload management from a transaction- and terminal-oriented environment must also be provided by your program. The assembler copy book EYURWTRA provides a map of the communication area to be passed to CICSPlex SM workload management.

The corresponding copy books and the CICSPlex SM libraries in which they can be found are:

Language	Member name	Library
Assembler	EYUAWTRA	SEYUMAC
COBOL	EYULWTRA	SEYUCOB
PL/I	EYUPWTRA	SEYUPL1
C	EYUCWTRA	SEYUC370

Before invoking CICSPlex SM workload management, you must initialize the EYURWTRA communication area.

For a list of the possible response and reason code values that can be returned in WTRA_API_RESP and WTRA_API_REAS, refer to the assembler copy book member EYURWCOD.

Processing considerations

After CICSPlex SM workload management processing, the WTRA_RESPONSE field contains a return code of either zero (0) or 8.

If the return code is 0, WTRA_SYSID contains the SYSID of the selected target region, and WTRA_APPLID contains its APPLID. With that information, you can proceed to route the unit of work to the target region.

If the return code is 8, you should inspect the WTRA_API_RESP and WTRA_API_REAS fields for more information. These fields contain the last response and reason codes returned to the CICSPlex SM workload management routing action module (EYU9WRAM). In most cases, the response and reason

codes describe what caused CICSPlex SM workload management to generate the return code of 8. Based on that information, you can decide how to proceed.

In some cases, however, the WTRA_RESPONSE field may contain a return code of 8, while the WTRA_API_RESP and WTRA_API_REAS fields have not been set by CICSPlex SM workload management. In those cases, an error was detected before invoking the routing action process. CICSPlex SM user trace records are written to the CICS trace data set for those types of errors. When this happens, your program should terminate processing.

When the return code is 8, you should also inspect the WTRA_OPTER field. If its value is WTRA_CALLYES:

1. Set the WTRA_FUNC field to WTRA_FUNCTRM for route termination.
2. Reinvoke CICSPlex SM workload management.
3. Terminate processing for the proposed unit of work.

If the WTRA_OPTER field contains a value of WTRA_CALLNO, terminate further processing for the proposed unit of work.

After the unit of work has completed in the target region, set the WTRA_FUNC field according to how the unit of work completed. If the unit of work completed successfully:

1. Set the WTRA_FUNC field to WTRA_FUNCTRM for route termination.
2. Optionally, set the WTRA_NEXTTRAN field to the ID of the next transaction to be used in the process. If there is no next transaction, set the field to all blanks.
3. Reinvoke CICSPlex SM workload management to request termination processing for the transaction.

If the unit of work abended or generated an error that you consider abnormal:

1. Set the WTRA_FUNC field to WTRA_FUNCABD to notify CICSPlex SM workload management that the routed transaction abended.
2. Reinvoke CICSPlex SM workload management to request abnormal termination processing for the transaction.

Route error considerations:

After you receive the SYSID and APPLID of a target region, you can attempt to route the unit of work to the target region.

However, the routing attempt may result in an error condition if the system is unavailable. When this happens, you should:

1. Set the WTRA_FUNC field to WTRA_FUNCERR to indicate a routing error.
2. Specify the reason for the error in the WTRA_ERR field.
3. Reinvoke CICSPlex SM workload management.

CICSPlex SM workload management provides another target from the scope list, if possible. If no other systems are available, the WTRA_RESPONSE field is set to 8 and the WTRA_API_RESP and WTRA_API_REAS fields describe the reason for the failure. You may have to invoke CICSPlex SM workload management more than once for routing errors until you receive a valid target region.

Transaction affinity considerations:

If the WTRA_TRANID, WTRA_USERID and WTRA_LUNAME fields cause CICSPlex SM workload management to select a transaction group that includes an affinity, the rules of transaction affinities are obeyed.

In this case, you should ensure that the WTRA_NEXTTRAN field is initialized with the ID of the next transaction before calling the route termination function.

If your units of work, or any subset of them, have an affinity relation defined, be careful in how you define that affinity. Since your program cannot provide SIGNOFF or LOGOFF processing, an affinity lifetime of SIGNON or LOGON, though valid, may cause an affinity relation to be built that is not removed until either the requesting region or the target region terminates.

The WTRA_NEXTTRAN field is most useful for pseudo-conversation affinities. For this affinity lifetime, CICSPlex SM workload management normally issues the EXEC CICS ASSIGN NEXTTRANSID command to retrieve the next transaction ID, if any, for the facility. Since that command is not available when CICSPlex SM workload management is invoked by your program, it is your responsibility to provide the ID of the next transaction.

For a description of CICSPlex SM workload management affinity processing, see Taking affinity relations into consideration. For details on specifying affinity relation and lifetime values, see Creating a transaction group.

Abend compensation considerations:

If the target region is running CICS TS, transactions initiated by your program can participate in abend compensation processing, provided that the active CICSPlex SM workload specifies it.

You should note that, if the work requests are either non-terminal-related EXEC CICS START commands, or BTS activities, the routing and target regions must be within the same MVS image for the routing region to detect that an abend has occurred.

Your program should notify CICSPlex SM workload management that a particular unit of work abended by specifying WTRA_FUNCABD in the WTRA_FUNC field. Then, if possible, CICSPlex SM workload management will tend to avoid selecting the same target region for the transaction (or set of transactions, if an affinity is defined) on subsequent route select functions.

For a description of CICSPlex SM workload management abend compensation processing, see Abend probabilities and workload management. For details on requesting abend compensation, see Creating a workload specification.

CMAS availability considerations:

If your program issues an EXEC CICS LINK for the EYU9XLOP program, but the requesting region in which your program is running has not yet fully connected to its target CMAS, you see message EYUXL0020I, indicating that an ESSS connection is in progress.

Your program waits indefinitely until the CMAS becomes available and the requesting region is joined to a workload. If you have connected successfully to the

CMAS and the MAS, but the CMAS has not installed any workload definitions to the MAS, you see a message indicating that the requesting region is waiting for a workload. You may need to set up and install workloads to rectify this situation.

Note: Once the requesting region has successfully connected to the CMAS, the CMAS can become inactive and workload management remains active.

Sample calling sequence

This code example illustrates a sample calling sequence for a program that accesses CICSPlex SM workload management facilities. It is not intended to be used as a sample program and is, therefore, not complete in every detail.

```
*-------------------------------------------------------------------*
         DFHEISTG  ,                    Define Workarea
WRK_WTRA       DS   CL(WTRA_LENGTH)
               DS   0D
WRK_UOWCOMM    DS   0C
WRK_UOW_RESP   DS   F
WRK_UOWCOMM_L  EQU  *-WRK_UOWCOMM
         COPY  EYURWTRA                 Include DSECT to map WTRA
SRVPGM   DFHEIENT EIBREG=R11,DATAREG=R13,CODEREG=R12

*-------------------------------------------------------------------*
* Initialize the WTRA COMMAREA.                                     *
*-------------------------------------------------------------------*
         LA    R8,WRK_WTRA              --> WTRA
         USING EYURWTRA,R8              *** USING WTRA ***
         MVC   WTRA_SLENGTH,=AL2(WTRA_LENGTH)
                                        Set length of block.
         MVI   WTRA_ARROW,C'>'          Set arrow.
         MVC   WTRA_NAME,=C'EYURWTRA'   Set the name.
         MVI   WTRA_BLANK,C' '          Set blank delimit.
         MVC   WTRA_PGMNAME,=CL8'SRVPGM  '
                                        Set program name.
         MVC   WTRA_TERMID,=CL4'TRM1'   Set TermID.
         MVC   WTRA_USERID,=CL8'USR1'   Set USERID.
         MVC   WTRA_LUNAME(8),=CL8'.NET1'
                                        Set LUNAME.
         MVC   WTRA_TRANID,=CL8'TRN1'   Set TRANID.
         MVC   WTRA_SYSID,=C'SYS1'      Set SYSID.
         MVC   WTRA_APPLID,=C'APPLID1' Set Applid.
*
* Set Application Context
*
         MVC   WTRA_PLATFORM,=CL64'PLATFORM_1.0.0'
         MVC   WTRA_APPLICATION,=CL64'APPLICATION_1.0.2'
         MVC   WTRA_MAJORVER,=F'1'
         MVC   WTRA_MINORVER,=F'1'
         MVC   WTRA_MICROVER,=F'1'
         MVC   WTRA_OPERATION,=CL64'PLEASE_ROUTE'
         MVI   WTRA_FUNC,WTRA_FUNCSEL   Set the Route Select Function.
         MVI   WTRA_DYRTYPE,WTRA_DYRTYPE_DYN
*-------------------------------------------------------------------*
* Invoke the WLM MAS Agent for Route Select.                        *
*-------------------------------------------------------------------*
ROUTE_SELECT   DS  0H
         BAS   R5,LINK_WLM              Go do it.
         CLC   WTRA_RESPONSE,=F'0'      Call go OK?
         BNE   CHECK_OPTER              ..no.
         BAS   R5,START_UOW             Go Start the UOW.
         LTR   R15,R15                  Work Completed?
         BZ    ROUTE_TERM               ..yes.
         BP    ROUTE_ABND               UOW gave non zero return code.
         C     R15,=F'-4'               SYSID error?
         BNE   ROUTE_ABND               ..no.
```

```
*--------------------------------------------------------------------*
* Invoke the WLM MAS Agent for Route Error.                          *
*--------------------------------------------------------------------*
ROUTE_ERROR    DS  0H
         MVI   WTRA_FUNC,WTRA_FUNCERR  Set the Termination Function.
         MVI   WTRA_ERR,WTRA_ERROUT    Say out of service.
         B     ROUTE_SELECT            Go Get another system.

*--------------------------------------------------------------------*
* Invoke the WLM MAS Agent for Route Abend.                          *
*--------------------------------------------------------------------*
ROUTE_ABND     DS  0H
         MVI   WTRA_FUNC,WTRA_FUNCABD  Set the Abend function.
         BAS   R5,LINK_WLM             Go terminate.
         CLC   WTRA_RESPONSE,=F'0'     OK?
         BE    EXIT_ABD                ..yes.
CHECK_OPTER    DS  0H
         CLI   WTRA_OPTER,WTRA_CALLYES Call WLM for Term?
         BNE   WLM_CALLERR             ..no.

*--------------------------------------------------------------------*
* Invoke the WLM MAS Agent for Route Termination                     *
*--------------------------------------------------------------------*
ROUTE_TERM     DS  0H
         MVI   WTRA_FUNC,WTRA_FUNCTRM  Set the Termination Function.
         MVC   WTRA_NEXTTRAN,=CL8'TRN2'                              X
                                       Set the next TRANID.
         BAS   R5,LINK_WLM             Go terminate.
         CLC   WTRA_RESPONSE,=F'0'     OK?
         BE    EXIT_TERMOK             ..yes. .

*--------------------------------------------------------------------*
* The WLM MAS AGENT returned an 8 in WTRA_RESPONSE                   *
*--------------------------------------------------------------------*
WLM_CALLERR    DS  0H

*--------------------------------------------------------------------*
* Process completed successfully                                     *
*--------------------------------------------------------------------*
EXIT_TERMOK    DS  0H

*--------------------------------------------------------------------*
* Route Abend Call returned a 0                                      *
*--------------------------------------------------------------------*
EXIT_ABD       DS  0H
EXIT           DS  0H
         EXEC  CICS RETURN
*--------------------------------------------------------------------*
* LINK_WLM      : Link to the WLM MAS AGENT                          *
*--------------------------------------------------------------------*
LINK_WLM       DS  0H
         EXEC  CICS LINK PROGRAM(EYU9XLOP)                           X
               COMMAREA(EYURWTRA) LENGTH(=AL2(WTRA_LENGTH))          X
         BR    R5                      Exit routine.
*--------------------------------------------------------------------*
* START_UOW     : Start the Unit Work.                               *
*--------------------------------------------------------------------*
START_UOW      DS  0H
         EXEC  CICS LINK PROGRAM(UOWPGM)                             X
               COMMAREA(WRK_UOWCOMM) LENGTH(=AL2(WRK_UOWCOMM_L))     X
               SYSID(WTRA_SYSID)                                     X
               RESP(WRK_EIBRESP)
         CLC   WRK_EIBRESP,DFHRESP(NORMAL)                           X
                                       Did call go ok?
         BE    START_UOWL              ..yes.
         L     R15,=F'-4'              Assume SYSIDERR
         CLC   WRK_EIBRESP,DFHRESP(SYSIDERR)                         X
```

```
                                        Is there one?
         BE    START_UOWX               ..yes.
         L     R15,=F'-8'               Load Failure code.
         B     START_UOWX               Go exit.
START_UOWL     DS  0H
         L     R15,WORK_UOW_RESP        Load Response Code.
START_UOWX     DS  0H
         BR    R5                       Exit routine.
```

Administering workloads with CICSPlex SM

CICSPlex SM workload management optimizes processor capacity in your enterprise. Workload management dynamically routes transactions and programs to whichever CICS region is the most appropriate at the time, taking into account any transaction affinities that exist.

Workload management definitions and their related views

You use the Web User Interface (WUI) workload management administration views to define a variety of workload management attributes.

Figure 19 on page 171 provides an overview of the workload management views from the perspective of the CICSPlex SM object model. In addition to these views, you can use the views to display information about and manage active workloads. You can also display a visual map of your workload management definitions by using the MAP button.

Figure 20 on page 172 illustrates the relationship between the components of a workload in a CICSplex and the views used to establish the workload.

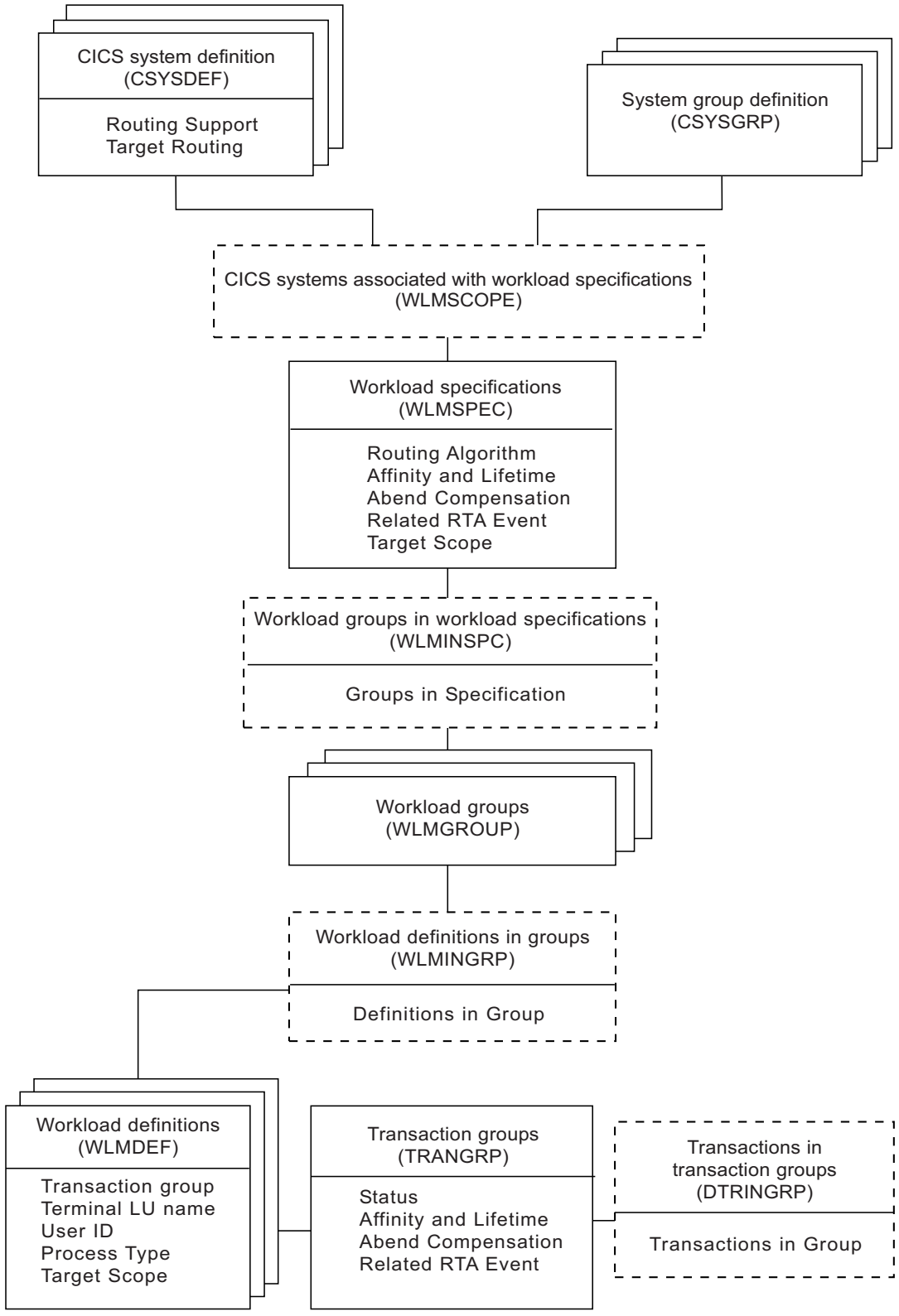


Figure 19. Views for creating workload management objects and associations

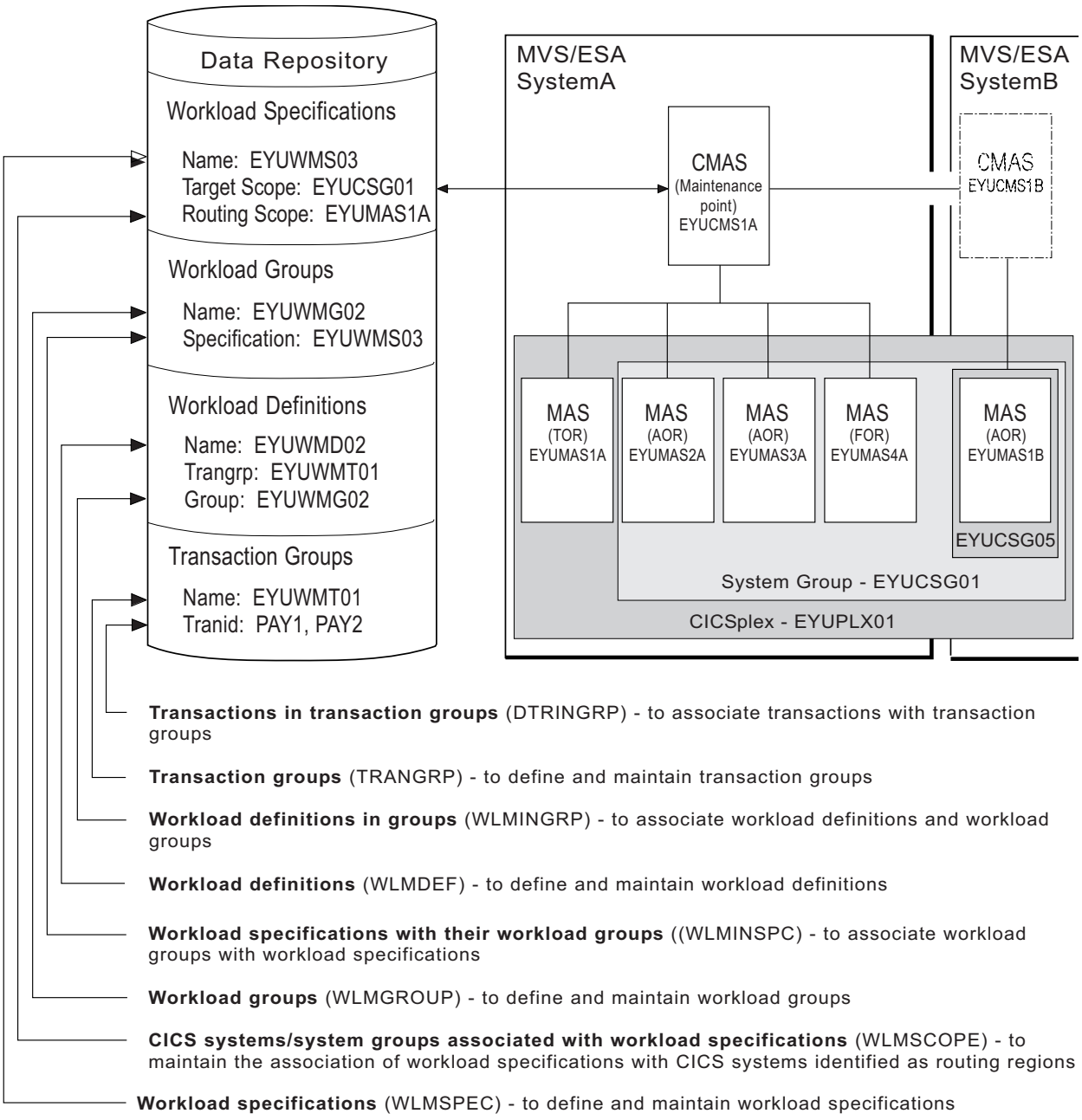


Figure 20. The relationship between a workload and the workload management views

Table 11 on page 173 shows the views you can use to create workload management definitions. It also indicates the information you can display and the actions you can perform using these views. To access these views in the Web User Interface, from the main menu, click **Administration views** > **Workload manager administration views**. For details of these views, see .

Table 11. Views to create and maintain workload management definitions

WUI view	Object name	Tasks Supported
Transactions in transaction groups	DTRINGRP	• Display all transaction groups within the current context. • Remove a transaction from a transaction group. • Display a map of workload definitions using the designated transaction group as a starting point.
CICS system groups associated with workload specifications	LNKSWSCG	• Display, create or remove the association between a workload specification and a CICS system group.
CICS systems associated with workload specifications	LNKSWSCS	• Display, create, update or remove a link between a workload specification and a CICS system. • Display a map of workload definitions using the designated definition as a starting point.
Transaction groups	TRANGRP	• Display, create, display, update, remove, or update a transaction group. • Add a transaction to a transaction group. • Install • Display a map of workload definitions using the designated transaction group as a starting point.
Workload definitions	WLMDEF	• Create, change, or remove a workload definition. • Add an association between a workload definition and a workload group. • Install a workload definition into a workload.
Workload groups	WLMGROUP	• Display, create, update, or remove a workload group. • Add an association between a workload group and a workload specification. • Install workload definitions associated with a workload group into a workload. • Display a map of workload definitions using the designated workload group as the starting point.
Workload definitions in groups	WLMINGRP	• Add or remove the association between a workload definition and a workload group.

Table 11. Views to create and maintain workload management definitions (continued)

WUI view	Object name	Tasks Supported
Workload specifications	WLMSPEC	• Display, create, update, or remove a workload specification. • Add an association between a workload specification and a CICS system. • Add an association between a workload specification and a CICS system group. • Display a map of workload definitions using the designated workload specification as a starting point.
Workload groups in workload specifications	WLMINSPC	• Remove the association between a workload group and a workload specification. • Display a map of workload definitions using the designated definition as a starting point.

Table 12 shows the views you can use to manage active workloads. It also indicates the information you can display and the actions you can perform using these views. To access these views in the Web User Interface, from the main menu, click **Active workload views**.

Table 12. Views to manage active workloads

WUI view	Object name	Tasks Supported
Active workloads	WLMAWORK	• Display active workloads within the current context.
Routing regions in an active workload	WLMAWTOR	• Display active routing regions that are associated with a workload.
Target regions in an active workload	WLMAWAOR	• Display target regions that are associated with a workload. • Activate a target region associated with an active workload. • Quiesce a target region associated with an active workload.
Active workload definitions	WLMAWDEF	• Display active workload definitions associated with a workload. • Discard an active workload definition.
Active workload transaction groups	WLMATGRP	• Display active transaction groups associated with a workload. • Change the status of a transaction group to active. • Change the status of an active transaction group to dormant.

Table 12. Views to manage active workloads (continued)

WUI view	Object name	Tasks Supported
Active workload dynamic transactions	WLMATRAN	• Display active transactions associated with a workload. • Discard a transaction from a transaction group.
Active workload transaction group affinities	WLMATAFF	• Display the active affinities for a transaction group associated with a workload. • Discard an affinity entity.

Creating workload management definitions using the WUI

This section contains examples of the tasks involved in creating and managing workload management definitions using the WUI. Unless noted otherwise, only the context is recognized when you are creating and maintaining workload management definitions.

Creating a workload specification

A WLM specification identifies a workload and one or more CICS systems acting as target regions. The specification also defines the attributes of the default transaction group. You can use the WUI **WLM specifications** view to create a workload specification.

To create a workload specification and add it to the data repository:

- From the WUI main menu, click **Administration views > Workload manager administration views > Specifications** to open the **WLM specifications** tabular view.

  This view displays a list of existing workload specifications. It has action buttons that allow you to create, update, and remove workload specifications, and to associate CICS systems and CICS system groups with a workload specification.
- Click the **Create...** button. To use some of the information from an existing definition in the creation of your new definition, select an existing definition by selecting an adjacent check box in the **Record** column.
- Click the **Create...** button.
- Complete the fields and click the **Yes** button to create the new specification. Otherwise, click **No** to abandon the process.

The **WLM specification** view is redisplayed and includes an entry for the new definition.

Associating a CICS system or system group with a workload specification:

Each workload specification has a default target scope and one or more CICS systems or CICS system groups associated with it.

These associated CICS systems or groups are known as the routing scope. The default target scope is identified when you create the specification. Associated CICS systems and system groups are identified when you add the routing region to the specification.

Follow this procedure to associate a CICS system group to an existing workload specification:

1. Click **Administration views > Workload manager administration views—>Specifications** to open the **WLM specifications** view.

   This view displays a list of existing workload specifications.
2. Select a workload specification and click the **Associate CICS group...** button. This opens the **Associate CICS group...** view.
3. In the **CICS system group field**, enter the specific or generic name of an existing CICS system group that represents one or more routing regions.

   Note: A CICS system or CICS system group acting as a routing region can be associated with only one workload specification at a time. A specification, however, can be associated with any number of CICS systems and CICS system groups.
4. Select one of the following options to indicate how the CICS systems that make up the CICS system group are to use the workload specification associated with the CICS system group:

   FORCE
   All CICS systems currently associated with the CICS system group are to use the workload specification. (The workload specification attribute for each CICS system changes to INHERIT, indicating that the specification was acquired from the CICS system group). If you add a new CICS system to the CICS system group, it does not automatically inherit the FORCE option. You must specify NULL or FORCE when adding a CICS system to a CICS system group.

   NULL Those CICS systems in the CICS system group that are not associated with a workload specification are to use this workload specification. (The workload specification attribute for those CICS systems changes to INHERIT, indicating that the specification was acquired from the CICS system group.)

   NONE
   Only the CICS system group is to be associated with the workload specification. The CICS systems in the CICS system group are not affected. That is, if there is no association between a CICS system and a workload specification, none is established; if there is an association, either explicitly established or inherited from another CICS system group, it is unchanged.

   Note:

   a. If the CICS system group includes other CICS system groups, all of the CICS systems, including those in subordinate CICS system groups, are affected by the value specified in this field.
   b. The CICS systems designated as the default target scope when you created the workload specification must be accessible to the CICS systems identified as the routing scope. Therefore, you should verify that the appropriate CICS connections exist between each routing region and all of the CICS systems in the target scope identified here.
5. Click **Yes** to update the workload specification in the data repository. Otherwise, click **No** to abandon the process.

Once you associate a CICS system or system group to a workload specification, the specification is automatically installed whenever an associated CICS system is started. Any workload definitions associated with the specification through workload groups are also automatically installed.

However, if you associate the workload specification with a CICS system that is already active, the new specification is not immediately available. To turn workload management on:

1. Click **Administration views > Topology administration views > System definitions** to display a list of active CICS systems.
2. Select the CICS system and click the **Update...** button
3. In the **Workload manager status** field, specify **YES**, and click the **Yes** button to turn on workload management. Otherwise, click **No** to abandon the process.

Updating a link between a WLM specification and a CICS system: Procedure

1. From the main menu, click **Administration views** > **Workload manager administration views**.
2. From the Workload manager administration views menu, click **Specifications to system links**. The WLM specifications to CICS system links view (LNKSWSCS object) is displayed.
3. Check the box for the WLM specification to be updated. You can check more than one box.
4. Click the **Change Spec Association** button to display the Change Spec Association (EYUSTARTLNKSWSCS.CHGSPEC) view.
5. Type the new name in the **New WLM specification name** field and select an appropriate inherit option.
   - Click **Yes** to update the link between a monitor specification and a CICS system group.
   - Click **No** to abandon the process.

Updating a link between a WLM specification and a CICS system group: Procedure

1. From the main menu, click **Administration views** > **Workload manager administration views**.
2. From the Workload manager administration views menu, click **Specifications to system group links**. The WLM specifications to CICS system links view (LNKSWSCG object) is displayed. For more information about the LNKSxSCG parameters, see LNKSxSCG Records (LNKSMSCG, LNKSRSCG, LNKSWSCG).
3. Check the box for the WLM specification to be updated. You can check more than one box.
4. Click the **Change Spec Association** button to display the Change Spec Association (EYUSTARTLNKSWSCG.CHGSPEC) view.
5. Type the new name in the **New WLM specification name** field and select an appropriate inherit option.
   - Click **Yes** to update the link between a monitor specification and a CICS system group.
   - Click **No** to abandon the process.

Creating a transaction group

A transaction group is an association of logically similar transactions. The similarity can be based on workload management (WLM) or affinity requirements, common shared processing requirements, or any other user-determined characteristic.

About this task

For workload management, any WLM information you specify in the transaction group, including the routing algorithm type, overrides the defaults supplied in the associated workload specification (WLMSPEC). If you specify alternative WLM attributes in a transaction group, you can change workload routing characteristics for the associated transactions dynamically without stopping your routing region.

Procedure

1. Click **Administration views** > **Workload manager administration views** > **Transaction group definitions** to open the **Transaction group definitions** view.

   This view displays a list of existing transaction group definitions. You can create, update, and remove transaction group definitions, and add a transaction to a transaction group.
2. Optional: To use information from an existing definition when you create a new definition, select the check box in the Record column next to the required existing definition.
3. Click **Create**.
4. Provide the appropriate information to create your transaction group definition.

   See Transaction group definitions - TRANGRP for a description of the fields in this view.
5. Click **Yes** to create the new definition and add it to the data repository.

   The **Transaction group definitions** view is displayed again with an entry for the new definition.

What to do next

If you modify the WLM information for an installed transaction group, you must discard its associated WLM definition (WLMDEF) then reinstall it, so that the transaction group named by the WLM definition is also refreshed. However, if you want to change the routing algorithm type (the ALGTYPE attribute), you can change it immediately without discarding and reinstalling the associated WLMDEF by using the Active workload transaction groups (WLMATGRP) views and the **SET** command.

Creating a workload definition

You can use workload definitions to route work requests to a specific set of target regions based on the terminal and user names, or the process types, associated with those work requests. This section describes how to create a workload definition and add it to the data repository.

The terminal and user names may be either specific or generic. For example, you can create a workload definition that causes all transactions initiated by any user from terminals with logical unit names starting with NET to be routed to the target scope identified as EYUCSG01.

The transaction match criteria that CICSPlex SM uses to determine if a transaction should be routed are as follows:

- Is the transaction identifier part of a transaction group associated with the workload definition?
- Is there a definition specifying separation by process type? Is there a match? If so, use this definition. If not, is there a definition specifying separation by terminal logical unit name and user ID?

- In what order should the terminal and user names associated with the transaction be evaluated; that is, which name is to be used as the primary filter?
- Do the user and terminal names associated with the transaction match the name patterns specified with the workload definition?

The rules for establishing terminal and user name patterns are:

- When there are multiple workload definitions, the field containing the name identified as the primary filter can contain the same specific or generic pattern; the contents of the field used as the secondary filter must always be unique. For example, the following definitions are valid when USERID is the primary filter and LUNAME is the secondary filter. They are not valid, however, when LUNAME is the primary filter because the user identifiers are not unique.

```
Entry Name     :  EYUWMD01  EYUWMD02  EYUWMD03
Trangroup Name :  EYUTNG01  EYUTNG01  EYUTNG01
Terminal Luname:  LUR*      LUL*      LUT*
User ID        :  PIE*      PIE*      PIE*
```

- When a generic name is specified, the pattern with the most matching leading characters has precedence. For example, with the following patterns:

```
A37AR*
A37+R*
```

  Pattern A37AR* is selected when the input is A37AR123. Pattern A37+R* is selected when the input is A37TRAP.

- Terminal LU name patterns are matched on the concatenated values of network name and logical unit name. The following are valid terminal LU name patterns:

```
NETWORK1.LU12345678   - A specific luname
NETWORK1.LU1*         - Generic lunames in the network
NETWORK1.*            - All lunames in the network
NET*                  - All lunames in a generic network
.LU12345678           - A specific luname within all networks
.* or *               - All lunames within all networks
```

To create a workload definition and add it to the data repository:

1. Click **Administration views** > **Workload manager administration views** > **Workload definitions** to open the **Workload management definition** view.

   This view displays a list of existing workload management definitions. It has action buttons that allow you to create, update, remove and install workload definitions, and to add a workload definition to a workload group.
2. If you want to use some of the information from an existing definition in the creation of your new definition, select an existing definition by selection by selecting an adjacent check box in the **Record** column.
3. Click the **Create** action button.
4. Provide the following information, as appropriate:

   Workload management definition name
   Specify a 1- to 8-character name for the workload definition. The name can contain alphabetic, numeric, or national characters. However, the first character must be alphabetic.

   Description
   (Optional) Specify a 1- to 30-character description of the definition.

   Trangroup group name
   (Optional) Enter the specific or generic name of a transaction group. If you enter a generic value, a list of valid transaction groups is displayed.

If you do not identify a transaction group, the default transaction group for the specification is assumed.

Terminal LU name
Enter a specific logical unit name or a pattern, using the format:

```
[network_qualifier_name][.luname]
```

where both the `network_qualifier_name` and the `luname` are between 1 and 8 characters in length. Both the `network_qualifier_name` and the `luname` are optional, however one must be specified. If the `luname` is specified it must be prefixed by a period sign.

A pattern can include the characters + (plus sign), * (asterisk), or both; where the plus sign represents any non-blank character and can be specified anywhere in the pattern and the asterisk represents a range of zero or more characters that may include blanks. The asterisk must only be used at the end of the pattern.

User ID
Enter a specific user ID or a pattern. A pattern can include the characters + (plus sign), * (asterisk), or both.

Note: The Terminal Luname and User ID values are used when CICSPlex SM attempts to match a transaction with this definition.

BTS process type
Enter a specific process type or a pattern. A pattern may include + (plus sign), * (asterisk), or both.

Note: If you specify anything other than an * in this field, the luname and user id fields must be set to an *. Similarly, if there is anything other than an * in either luname and user id, this field must be set to *. You cannot separate a workload by process type, luname and user id.

Scope name of set of target systems
Enter the specific or generic name of a CICS system or CICS system group to be used as target regions for dynamic routing requests. If you enter a generic value, a list of valid CICS systems and CICS system groups is displayed.

Note: The specified CICS system or CICS system group must be accessible to the CICS systems identified as the routing scope with the workload specification to which this definition is associated. Therefore, you should verify that the appropriate CICS connections exist between each routing region and all of the CICS systems identified here as the target scope.

5. Click **Yes** to create the new definition.

   The **Workload management definition** view is redisplayed and includes an entry for the new definition.

Creating a workload group

A workload group is used to associate one or more related workload definitions.

An example of how to use this view can be found in “Routing a specific transaction to a specific target region” on page 218. This section describes how to create a workload group definition and add it to the data repository.

- Click **Administration views—>Workload manager administration views—>Groups** to open the **WLM groups** view.

  This view displays a list of your existing workload management group definitions. It has action buttons that allow you to create, update, remove and install workload groups, and to add a group to a workload specification.
- If you want to use some of the information from an existing definition in the creation of your new definition, select an existing definition by selecting an adjacent check box in the **Record** column.
- Click the **Create** action button.
-

  Provide the following information, as appropriate:

  Workload management group name
  Specify a 1- to 8-character name for the workload group. The name can contain alphabetic, numeric, or national characters. However, the first character must be alphabetic.

  Description
  (Optional.) Specify a 1- to 30-character description of the workload group.
- Click **Yes** to create the new definition.

  The **Workload management group** view is redisplayed and includes an entry for the new definition.

About workload view route fields

Use the "Active workload target distribution factors" and "Summarized active target region distribution trends" views together with route fields statistics displayed in the active workload views to understand what is happening in workload management.

You can use the route fields statistics information in the "Summarized active target region distribution trends" view to verify that your existing workload is running correctly, and that it is not losing transactions. The "Summarized active target region distribution trends" view also provides a new perspective on events inside WLM during the routing process.

Using the "Active workload views", you can highlight potential issues with your setup. For example, if routing is called and continually retrying to discover other available targets.

You can see counts of what is happening inside WLM; for example, the number of `Route completes` versus the number of `Route selects`. An example of this is the `Route notifies` field which shows you when you are linking to a program that is defined as **`DYNAMIC(YES)`** and you have provided a SYSID.

Using the "Summarized active target region distribution trends" view with the "Active workload target distribution factors" view can help you understand WLM routing decisions and behavior of CICSPlex SM. You might want to understand why some regions are receiving more work than others, and an analysis of `Route Selections` shows which regions are receiving more work than others.

Figure 21 on page 182 illustrates the route field processes involved in distributed routing.

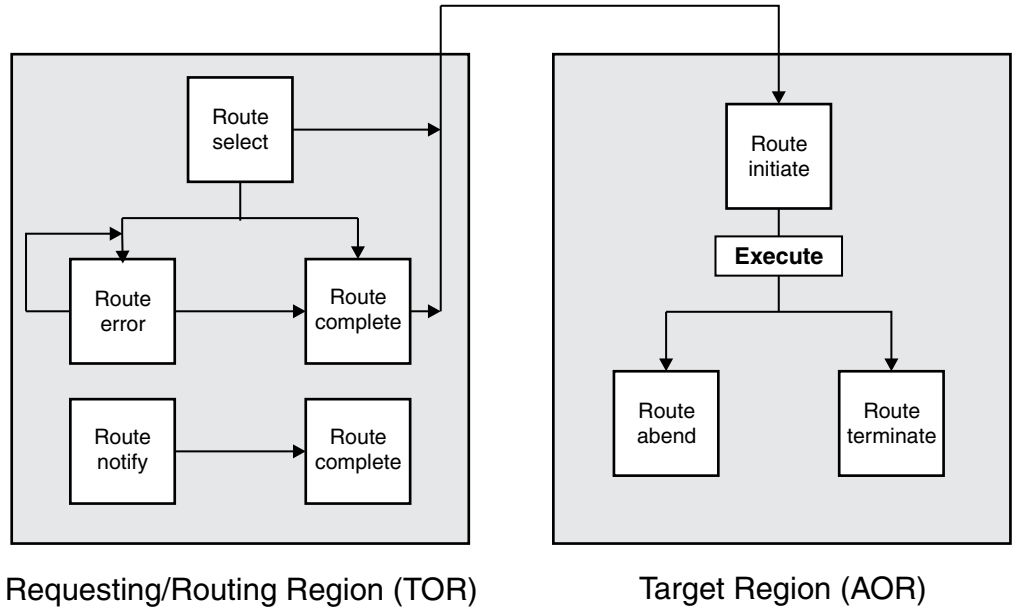


Figure 21. Conceptual view of distributed routing

Figure 22 illustrates the route field processes involved in dynamic routing.

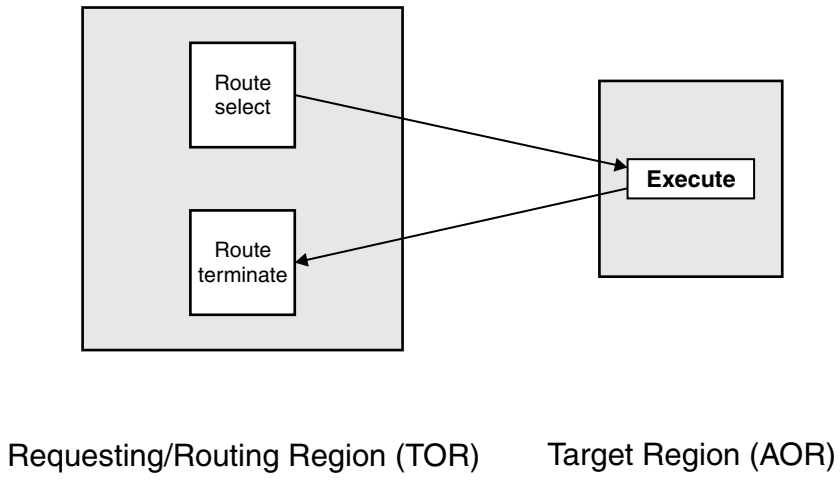


Figure 22. Conceptual view of dynamic routing

These definitions describe the route fields:

Route select
Route select is updated when this region is selected as a target by CICSPlex SM workload management.

Route initiate
Route initiate is updated when a task routed using the distributed workload model starts on a target system.

Route error
Route error is updated when the region selected by CICSPlex SM is unreachable; for example, the connection is out of service, or no sessions are available. CICSPlex SM then attempts to select another region. This reselection is not counted as a `Route select`, and the `Route select` count for any subsequent region is not updated. A high number of `route errors` can indicate that there are insufficient sessions to run the workload. The lack of sessions can cause increased response time and CPU time because CICSPlex SM must try the routing again, potentially several times.

Route complete
Route complete is updated when a task that is routed using the distributed workload model starts on the target system. Route complete indicates to the routing system that its responsibility for this task is complete.

Route notify
Route notify is updated when a task is routed to a target region that is selected by the SYSID option on the LINK or START command. Route notify informs CICSPlex SM of the routing; CICSPlex SM does not choose the region. Route notify is a variant of static routing, in which the program or transaction is defined as Dynamic, but the API that calls it specifies a SYSID.

Route abend
Route abend is updated when a task is routed to a target region and subsequently abends; for example, because the transaction is not defined in that system or the program is unavailable.

Route terminate
Route terminate is updated when a task has completed in a target region, whether at the end of a distributed program link (DPL) or a dynamic transaction routing (DTR) request, or when a task that is routed using the distributed workload model finishes.

Managing workloads

CICSPlex SM workload management optimizes processor capacity in your enterprise. Workload management achieves this by dynamically routing transactions and programs to whichever CICS region is the most appropriate at the time, taking into account any transaction affinities that exist.

When you have identified your workload management requirements, define them to CICSPlex SM as described in .

What is workload management?

The workload management (WLM) function provides the capability to control where your work requests are run, in order to optimize performance and workload throughput. WLM uses the CICSPlex SM dynamic routing program EYU9XLOP to route work requests to the most suitable target region from a predefined set of target regions.

In a CICSplex or BTS-set, resources such as transactions and programs required in one region may be owned by another. For example, you may have a terminal-owning region (TOR) that requires access to transactions owned by an application-owning region (AOR).

You can specify the location of a resource when you are designing your system. Then, requests of a specific resource are always routed to the same region. Typically, the location of the resource is specified in the installed resource definition. This is known as *static routing*.

With *dynamic routing*, the decision on where to run a piece of work is made by the user-replaceable dynamic routing program (called the dynamic *transaction* routing program in previous releases). The user-replaceable program EYU9XLOP creates the environment necessary for CICSPlex SM dynamic routing, and sets up the runtime environment.

The CICSPlex SM dynamic routing program supports:

- *Workload separation*
- *Workload routing*
- *Intertransaction affinity*

The dynamic routing program can route:

- Transactions initiated at a terminal
- Eligible **EXEC CICS START** requests that are associated with a terminal
- Eligible **EXEC CICS START** requests that are not associated with a terminal
- Dynamic program link (DPL) requests that are received using:
  - The CICS Web Interface
  - CICS Transaction Gateway
  - External CICS interface (EXCI) client programs
  - Any CICS client workstation products using the External Call Interface (ECI)
  - Distributed Computing Environment (DCE) remote procedure calls (RPCs)
  - Open Network Computing (ONC) RPCs
  - The Link3270 bridge
  - Any function that issues an EXEC CICS LINK PROGRAM request
- CICS business transaction services (BTS) processes and activities

In CICSPlex SM, dynamic routing is managed by the Workload Manager component of CICSPlex SM.

The CICS regions involved in dynamic routing may act as one or more of the following:

Requesting region
: The CICS region in which the work request originates.

Routing region
: The CICS region in which the decision is taken on where the work will run.

Target region
: The CICS region where the request is actioned.

For dynamic transaction routing, the requesting region and the routing region are typically TORs, and the target region is typically an AOR.

For inbound DPL client requests, the requesting region and the routing region are typically TORs, and the target region is typically an AOR.

For **EXEC CICS START** commands associated with a terminal, the requesting region is typically an AOR, the routing region is typically a TOR, and the target region is typically an AOR.

For peer-to-peer DPL requests, for EXEC CICS START commands that are not associated with a terminal, for CICS business transaction services processes and activities, and for Link3270 bridge requests, the requesting region, routing region, and target region are typically AORs.

Dynamic routing models:

You can implement dynamic routing using one of two possible models: the *hub model*, in which routing is controlled by a single routing region; and the *distributed model*, in which every CICS region can operate as a routing region.

The traditional hub model:

The traditional hub model is the model used for the dynamic routing of transactions, **EXEC CICS START** commands associated with a terminal, and inbound client DPL requests. The request is initiated in the requesting region, typically a TOR, which also acts as the routing region. The request is routed to a target region, selected from the specified target group, where the program is executed.

The traditional hub model is shown in Figure 23 on page 186.

The "hub" model is *hierarchical*, in which routing is controlled by one region (the routing region, that is, the TOR). Normally, a routing program runs only in the routing region. This model has the advantage of being relatively simple to implement. For example, compared with the distributed model, there are few inter-region connections to maintain. The disadvantages of the hub model are:

- If you use only one hub to route transactions and program-link requests across your target regions, the hub routing region is a single point-of-failure.
- If you use more than one hub to route transactions and program-link requests across the same set of target regions, you may have problems with distributed data. For example, if the routing program keeps a count of routed transactions for load balancing purposes, each hub routing region will need access to this data, which may be maintained in a local temporary storage queue.

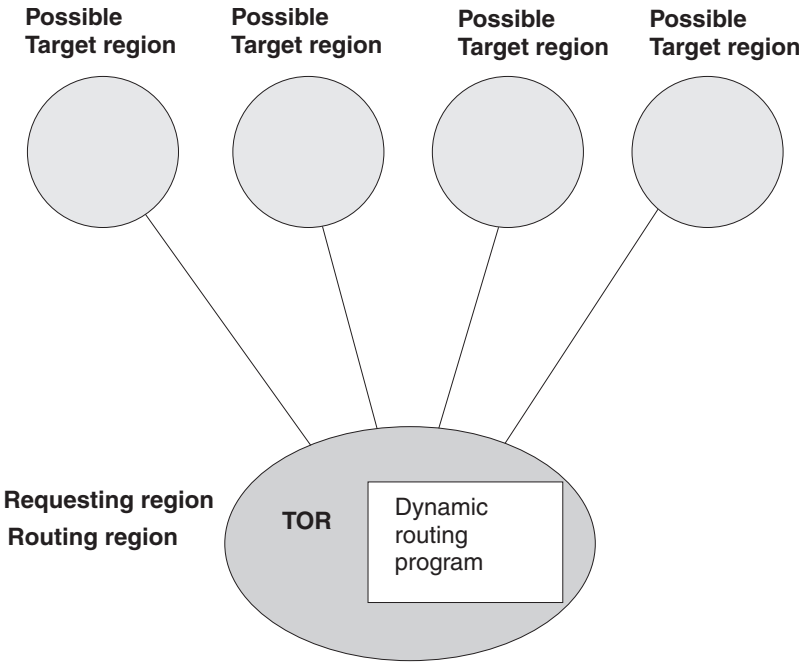


Figure 23. Dynamic routing using a hub routing model

The distributed model:

The distributed model is used for the dynamic routing of **EXEC CICS START** requests that are not related to a terminal, BTS activities, and Link3270 bridge requests. Each CICS system in the target group may act as a requesting region, routing region, and target region. A distributed routing program runs in each region.

The distributed model is shown in Figure 24 on page 187.

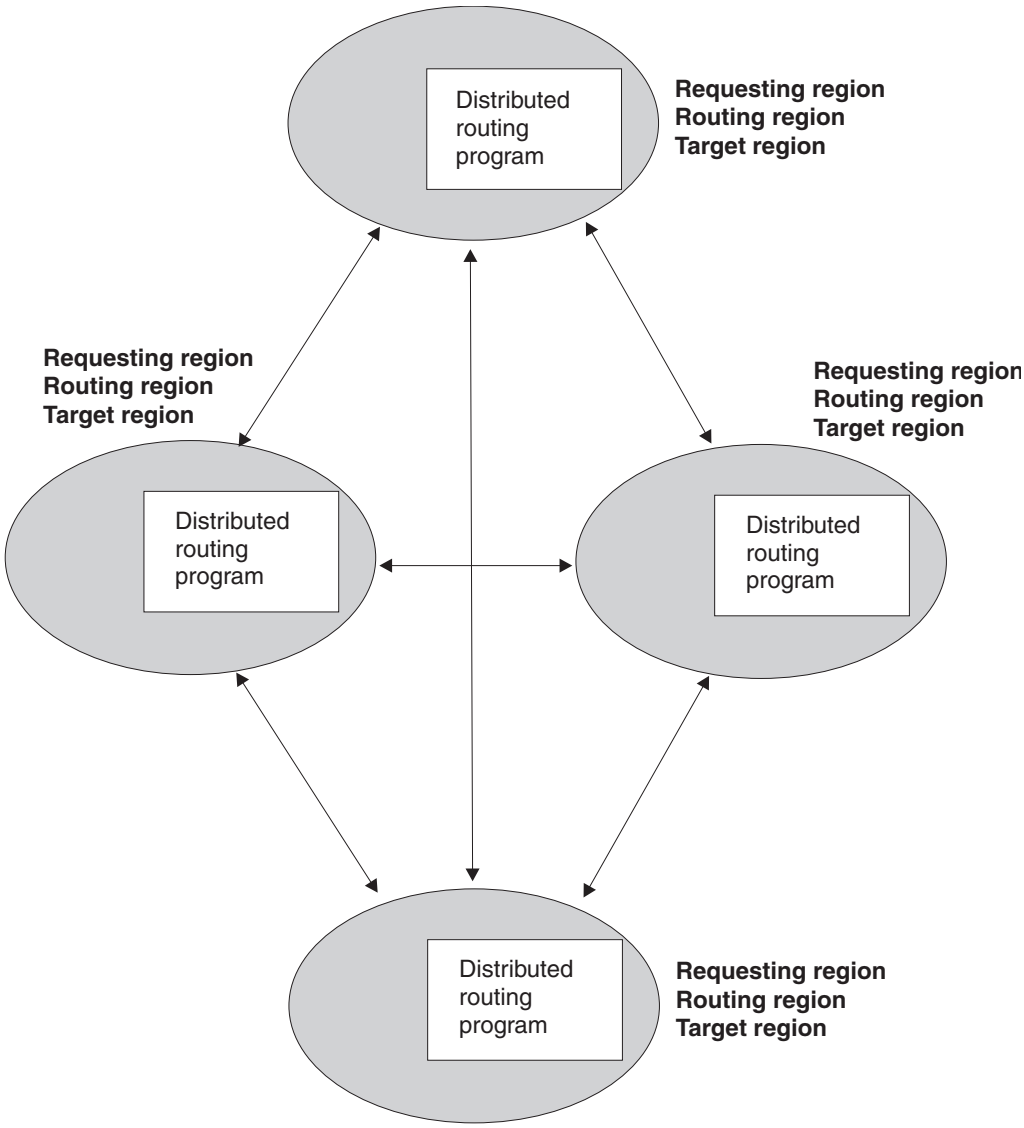


Figure 24. Dynamic routing using a distributed routing model. Note that, for CICSPlex SM, the dynamic routing program EYU9XLOP performs also the distributed routing function.

The advantage of the distributed model is that there is no single point of failure. The disadvantages are:

- Compared with the hub model, there are a great many inter-region connections to maintain.
- You may have problems with distributed data. For example, any data used to make routing decisions must be available to all regions. With CICSPlex SM, this problem is solved by the use of data spaces.

Advantages of WLM:

The WLM function in CICSPlex SM is of particular benefit in those enterprises that are running CICS on Parallel Transaction Servers (PTSs), because CICSPlex SM can route work throughout the sysplex.

With WLM in your enterprise, you have:

- The ability to route all types of program link request dynamically to improve the performance and reliability of inbound client and peer-to-peer DPLs.
- The ability to route **EXEC CICS START TRANSID TERMID** commands dynamically to improve the performance and reliability of the applications using these commands.
- The ability to integrate workload routing for terminal-initiated transactions, non-terminal-initiated transactions, EXCI clients, CICS clients, CICS web support, CICS Transaction Gateway, and started tasks.
- The ability to integrate BTS processes and activities fully into the workload separation and workload routing functions.
- The ability to integrate enterprise bean invocations into the workload routing and workload separation functions.
- The ability to perform workload routing and separation for Link3270 bridge requests.
- Optimum performance and response times for a variable and unpredictable workload.
- Work routed away from a failing target region to an active target region.
- Opportunities for increased throughput and improved performance.
- Reduced risk of bottlenecks
- Individual target regions taken out of service without impact to the end-user.
- Less operator intervention.

For full details, see Configuring workload management.

Workload routing

Workload routing is the directing of transactions or programs among a group of target regions according to the availability, health, and activity levels of those target regions. You can use workload routing in addition to, or in place of, workload separation.

CICSPlex SM can route a workload among a defined group of target regions by selecting, when each transaction is initiated, the target region that is likely to deliver the best performance.

Workload routing is statistical. CICSPlex SM uses one of the following four algorithms to determine which target region processes the work:

- Goal
- Queue
- Link neutral goal
- Link neutral queue

If any transaction affinities are outstanding for the transaction being routed, the affinity target region is selected, regardless of the algorithm used.

With the goal and link neutral goal algorithms, the appropriate target region is selected based on the ability of that region to achieve the expected response time. With the queue and link neutral queue algorithms, the appropriate target region is selected such that the load is distributed across a set of target regions.

If the goal or link neutral goal algorithm does not identify a specific target region, the queue or link neutral queue algorithm, respectively, is applied to the remaining set of target regions.

If all the available target regions are equally capable of handling the work, a target region is selected randomly from the group. Therefore, in systems that are lightly loaded, there is no predetermined order in which work is allocated to equally capable target regions.

The queue algorithm and the goal algorithm allow for the type of connection between a target region and its routing region. A weighting factor is allocated to each type of connection, such that links are put in the following order of priority:

- Local
- MRO/IRC and MRO/XM (local LPAR)
- MRO/XCF (remote LPAR)
- IPIC (local LPAR)
- IPIC (remote LPAR)
- LU6.2
- Indirect

CICSPlex SM uses the weighting factor of the link as a multiplier against the task load and other factors to determine an overall routing weight. At the end of the evaluation, the region with the lightest weight is usually selected as the target region.

For example, if all other factors are equal, a target region that is connected to its requesting region by using MRO/XCF is preferred to a target region that is connected by using IPIC. IPIC connections between routing and target regions in the same LPAR have a lower weighting than IPIC connections to target regions in a different LPAR, so that if other factors are equal, local IPIC connections are preferred to remote IPIC connections.

Control level for workload routing

To use workload routing, you must specify a default routing algorithm for the workload at the workload specification (WLMSPEC) level. You can optionally specify a routing algorithm at the transaction group (TRANGRP) level. An algorithm specified in a transaction group overrides the default algorithm that is associated with the workload specification.

The default routing algorithm is applied to every routed dynamic transaction in the workload, except those transactions that are associated with a transaction group that has a routing algorithm specified. You can specify one of the following routing algorithms:

- QUEUE
- LNQUEUE
- GOAL
- LNGOAL

To change the routing algorithm specified at the workload specification level, you must close down all regions that participate in the workload so that workload is refreshed with the new algorithm specification.

At the transaction group level, you can specify a routing algorithm dynamically. The specified dynamic routing algorithm is applied to every routed dynamic transaction that is associated with the transaction group. Therefore, you can apply an alternative routing algorithm to specific transaction codes in the same workload.

If you specify an alternative routing algorithm at the transaction group level, you can change workload routing characteristics for specific target regions dynamically without stopping your routing region. If you modify an installed transaction group, you must discard its associated WLM definition (WLMDEF) and then reinstall it, so that the transaction group named by the WLM definition is also refreshed. To change the routing algorithm type immediately without discarding and reinstalling the associated WLMDEF, you can use the Active workload transaction groups (WLMATGRP) views and the **SET** command to change the ALGTYPE attribute.

You can specify one of the following routing algorithms:

- INHERIT
- QUEUE
- LNQUEUE
- GOAL
- LNGOAL

INHERIT means that transaction group uses the routing algorithm that is associated with the workload specification for the workload.

Link neutral workload routing

In some situations, link weighting has a strong impact on the routing behavior and can prevent CICS transaction routing across system boundaries in a single-site parallel sysplex environment. To use workload routing without link weighting, you can use the link neutral goal and link neutral queue algorithms. These algorithms are identical to the goal and queue algorithms, respectively, except that the type of connection between the routing and target region is not considered.

Link neutral algorithms can be useful to route dynamic transactions, for example those that might require services from MVS subsystems. With queue and goal algorithms, routers focus dynamic traffic on the systems with the fastest links, which probably reside in the same LPAR. This behavior might overload subsystems in the local MVS image, and under use the remote MVS images that participate in the workload. If you assign these transactions to a transaction group that uses a link neutral algorithm, the routed dynamic traffic is routed more evenly between the local and remote LPARs, and the load on those subsystems is spread.

However, remember that with a link neutral algorithm, if other factors are equal, all target regions have equal preference. The most remote target regions, connected with the slowest telecommunications links, might have equal preference with a locally connected MRO region, or the routing region itself if it is part of the routing target scope. Therefore, consider carefully whether to specify a link neutral algorithm at the workload specification (WLMSPEC) level, because it might affect every dynamically routed transaction. As a result, the workload manager might not select the best target region for dynamic routing traffic and the overall workload throughput might deteriorate.

If you require a link neutral algorithm for a specific transaction set, assign the algorithm to the workload management transaction group (TRANGRP) that identifies those transactions.

The queue algorithm:

When CICSPlex SM uses the queue algorithm, if the transaction being routed has no active affinities, the load is distributed across a set of target regions. Selection criteria include the current task load, the health state, and the type of connection between the router and the target region.

If the transaction being routed has no active affinities, the queue algorithm causes CICSPlex SM to select the target region that conforms to the following set of criteria:

- The region has the shortest queue of work waiting to be processed, relative to the maximum number of tasks permitted in the target region. This queue of work, also called the *load count*, is the count of all active and queued user tasks. By default, tasks queued for both MAXTASKS and TRANCLASS attributes are included in the load count. Use of the "Task load queue mode" attribute in the CSYSDEF resource table allows sites to exclude tasks queued for the TRANCLASS attribute from the load count. For more information about the "Task load queue mode" attribute in the CSYSDEF resource table, see CICS system definitions - CSYSDEF.
- The region is the least affected by conditions such as short-on-storage, SYSDUMP, and TRANDUMP.
- The region is the least likely to cause the transaction to stop.
- The region is the shortest path for interregion communication.
- The region has a z/OS WLM health indicator in the range 1-100.

The queue algorithm maximizes work throughput and standardizes response times across the CICSplex. This algorithm is very robust; it can accommodate differences in processor power, different maximum task values in the target regions, asymmetric target region configurations, and an unpredictable workload.

The link neutral queue algorithm:

The link neutral queue (LNQUEUE) algorithm corresponds to the queue algorithm, except that the type of connection between the routing and target region is not considered.

If a transaction being routed has no active affinities, the link neutral queue algorithm causes CICSPlex SM to select the target region that conforms the following set of criteria:

- The region has the shortest queue of work waiting to be processed, relative to the maximum number of tasks permitted in the target region. This queue of work, also called the *load count*, is the count of all active and queued user tasks. By default, tasks queued for both MAXTASKS and TRANCLASS attributes are included in the load count. Use of the "Task load queue mode" attribute in the CSYSDEF resource table allows sites to exclude tasks queued for the TRANCLASS attribute from the load count. For more information about the "Task load queue mode" attribute in the CSYSDEF resource table, see CICS system definitions - CSYSDEF.
- The region is the least affected by conditions such as short-on-storage, SYSDUMP, and TRANDUMP.
- The region is the least likely to cause the transaction to stop.
- The region has a z/OS WLM health indicator in the range 1-100.

The link neutral queue algorithm provides efficient work throughput and response times across the CICSplex. Similarly to the queue algorithm, this algorithm can accommodate differences in processor power and different maximum task values in the target regions. However, it does not allow for communications link speeds between the router and a target. Compared to the queue algorithm, this algorithm might spread a workload across a target scope more evenly, but the workload might not complete as quickly.

The goal algorithm:

The Goal algorithm may be used when dynamic routing decisions are primarily concerned with the ability of a region to achieve response time targets.

Goal mode routing should only be employed where routers and targets are managed by the same CMAS in the following scenarios:

- Dynamic routing using DTRPGM for dynamic transactions.
- Dynamic routing using DTRPGM for EXEC CICS START TERMID over APPC or MRO connections.
- Distributed routing using DSRTPGM for business transaction service routing.

In any other dynamic routing scenario, the QUEUE or LNQUEUE algorithms should be used.

If a transaction being routed has no active affinities then the goal algorithm causes CICSPlex SM to select the target region that conforms to the following set of criteria:

- Is the least affected by conditions such as short-on-storage, SYSDUMP, and TRANDUMP.
- Is the least likely to cause the transaction to stop.
- Is the most likely to meet the transaction response-time goals (either average or percentile) set for it (and for other transactions in its class) using the Workload Manager component of z/OS.
- Is the shortest path for interregion communication.
- Is the AOR with the shortest queue of transactions, relative to MAXTASK, waiting to be processed.
- Has a z/OS WLM health indicator in the range 1 - 100.

The link neutral goal algorithm:

The link neutral goal (LNGOAL) algorithm corresponds to the goal algorithm, except that the type of connection between the routing and target region is not considered.

If a transaction being routed has no active affinities, the link neutral goal algorithm causes CICSPlex SM to select the target region that conforms the following set of criteria:

- The region is the least affected by conditions such as short-on-storage, SYSDUMP, and TRANDUMP.
- The region is the least likely to cause the transaction to stop.
- The region is the most likely to meet the transaction response-time goals, either average or percentile, set for it (and for other transactions in its class) using the Workload Manager component of z/OS.

- The region is the AOR with the shortest queue of transactions, relative to MAXTASK, waiting to be processed.
- The region has a z/OS WLM health indicator in the range 1-100.

Workload separation

Workload separation routes work from a requesting or routing region among a set of target regions, but the requirements of users, terminals, the transactions themselves, and their BTS process type, can influence which target region set is used.

The routing of particular transactions or programs to a particular group of target regions is based on any combination either of user ID, terminal ID, and transaction group. For BTS processes, routing is based on a combination of transaction group and process type. For enterprise bean-related transactions, routing is based on transaction group. For Link3270 bridge requests, separating by terminal luname is subject to some restrictions. See Separating Link3270 bridge workloads for more information.

For example, you can specify that:

- Any transaction initiated by users whose user IDs begin with the characters "PAY" must be routed to a target region in CICS system group AORPAY1.
- Any transaction initiated from a terminal whose LU name begins with the characters "NYORK" must be routed to a target region in CICS system group AORNYORK.
- Any transaction belonging to the transaction group ACCOUNTS must be routed to a target region in CICS system group AORACCNT.
- All processes associated with a BTS process type TRAVEL are routed to a target region in one BTS-set, and all processes associated with BTS process-type PAYROLL are routed to another BTS-set.
- All enterprise bean-related transactions belonging to transaction group STOCK are routed to any target region in CICS system group STOCKTG, if the user id matches that in the workload definition.

The decision as to which region is selected from the group of target regions that meet the workload separation criteria is based on the same routing criteria as described in "Workload routing" on page 188. The algorithm that is applied when making the routing decision can either be specified at the individual workload separation level or can be left to default to the algorithm used by basic workload routing.

Intertransaction affinity

An intertransaction affinity is a relationship between transactions, of a specified duration, that requires them to be processed by the same target region. For example, you might have a pseudoconversation made up of three separate transactions, and each transaction passes data to the next transaction in the sequence via a temporary storage queue (which may be shared in the distributed model). You would then specify that all three transactions must be processed by the same target region, and that this affinity lasts for the duration of the pseudoconversation.

(If you did not define this affinity to CICSPlex SM, each transaction could be routed to a different target region and would therefore be unable to access temporary-storage data left by the previous transaction.) The target region itself is selected by CICSPlex SM from the specified target scope.

Workload management and the IBM CICS Interdependency Analyzer for z/OS understand affinities between BTS processes and activities. BTS itself does not introduce affinities, and discourages programming techniques that do, but it does handle existing code that may introduce affinities. You should define such affinities to workload management, so that it can make sensible routing decisions. It is particularly important to specify each affinity's lifetime; failure to do so may restrict unnecessarily workload management's routing options.

Workload management and the IBM CICS Interdependency Analyzer for z/OS do not understand affinities between routable non-terminal-related EXEC CICS START commands, or between DPLs not associated with a user id or a terminal. You should take steps either to remove any affinities from your applications, or to ensure that your applications honor any affinities.

Note that, if data is passed between transactions via the COMMAREA on the EXEC CICS RETURN command, no such affinity exists: the COMMAREA is passed back to the requesting region, and so can be passed to the target selected to process the next transaction in the sequence.

How intertransaction affinities are honored:

When the first transaction from a group of related transactions is started, CICSPlex SM selects an appropriate region from the specified target scope.

If there is more than one suitable region in the target scope, CICSPlex SM selects one using the current workload routing algorithm. Subsequent transactions in the same group that meet the affinity criteria are directed to the same region as the first transaction. If subsequent transactions do not meet the affinity criteria (for example, if the same pseudoconversation is started from a different user ID), the selection process for a suitable region starts again.

Workload management resources

You can set up and manage your workload environment using the workload management WUI view sets and resource objects.

Table 13. WUI view sets and resource objects for managing workloads

WUI view set	Object name	Description
Transactions in transaction groups	DTRINGRP	This object displays information about the transactions associated with one or more transaction groups.
WLM specifications to system group links	LNKSWSCG	CICS system groups associated with workload specifications
WLM specifications to CICS system links	LNKSWSCS	CICS systems associated with workload specifications
Transaction groups	TRANGRP	A transaction group is an association of logically similar transactions. The similarity may be based on affinity requirements, common shared processing requirements, or any other user-determined characteristics. The transaction group is included as part of the workload definition, which in turn defines the CICS system group to be used as the target region. Any transaction that is not specifically associated with a transaction group is assigned to the default transaction group.

Table 13. WUI view sets and resource objects for managing workloads (continued)

WUI view set	Object name	Description
Active workload transaction group affinities	WLMATAFF	This object shows information about the active affinities for a transaction group associated with a workload within the CICSplex identified as the context. An affinity becomes active when the first transaction associated with the transaction group is dynamically routed to a target region.
Active workload transaction groups	WLMATGRP	This object shows information about transaction groups associated with a workload that is within the CICSplex identified as the context.
Active workload dynamic transactions	WLMATRAN	This object shows information about all active transactions associated with a workload that is within the CICSplex identified as the context.
Target regions in an active workload	WLMAWAOR	This object shows information about all target regions that are associated with a workload that is within the CICSplex identified as the context.
Active workload definitions	WLMAWDEF	This object shows information about active workload definitions associated with a workload that is within the CICSplex identified as the context.
Active workloads	WLMAWORK	This object shows information about active workloads within the CICSplex identified as the context. A workload is active within a CICSplex as long as: • A CICS system that is acting as a routing region or target region, and is participating in the workload, is connected to that CICSplex. • Any transaction causes an affinity lifetime of PERMANENT to be established.
Routing regions in an active workload	WLMAWTOR	This object shows information about routing regions that are associated with a workload that is within the CICSplex identified as the context.
Workload definitions	WLMDEF	This object identifies which transactions are to be routed to which CICS system group. You identify the transactions by transaction group, and within the group either by LU name and user id, or by process type.
Workload groups	WLMGROUP	This object is used to associate one or more workload definitions.
Workload definitions in groups	WLMINGRP	This object displays the names of workload groups and the workload definitions associated with them.
Workload groups in workload specifications	WLMINSPC	This object displays the names of workload specifications and the workload groups associated with them.
Workload specifications	WLMSPEC	A workload specification identifies a workload and one or more CICS system groups acting as target regions. It also defines the attributes of the default transaction group.

The WLM object model is shown in Figure 25 on page 196. For each object, the name of the WUI view is followed by the resource name in parentheses.

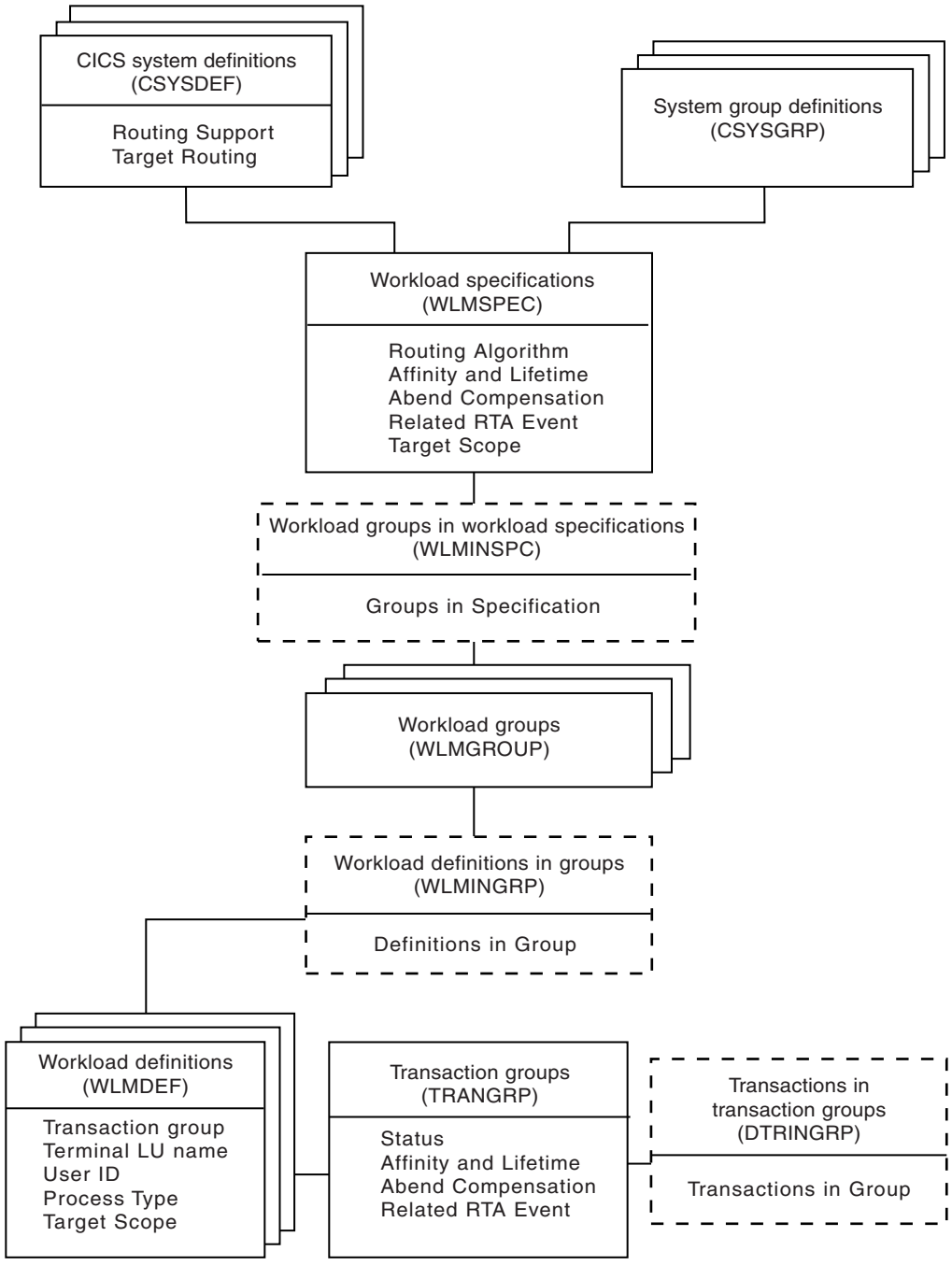


Figure 25. The WLM object model

Planning for WLM

This section provides some instructions to help you determine the extent to which you can use CICSPlex SM workload management in your enterprise.

Workload routing or workload separation?:

Use workload routing wherever possible because it makes the best use of the available CICS systems, and provides opportunities for increased throughput and

improved performance. Implement workload separation (by process type, user, terminal, and transaction) only where strictly necessary because it prevents full exploitation of CICSPlex SM workload routing functions.

If you have defined more than one CICSplex, and have made the division to reflect use of CICS systems by different groups of users, for example, it is possible that you will be able to use simple workload routing rather than workload separation in the CICSplex. For example, if you have separated the CICS systems used by group A from the CICS systems used by group B by defining two CICSplexes, you can implement workload routing in each CICSplex. If you have not taken this approach, you might consider it necessary to recognize such groupings by implementing workload separation.

There are two major activities in your planning for WLM:

- Identifying the workloads in your enterprise.
- Identifying intertransaction affinities and trying to remove them.

Identifying the workloads:

To plan for WLM, you shall begin by identifying the workloads processed in your enterprise. The worklods are certain to be apparent in any underlying TOR–AOR–FOR configurations. Next, confirm that the current CICSPlex SM configuration of CICS systems supports the identified workloads.

In particular:

- Routing regions and target regions from a single workload must be in the same CICSplex. That is, the supplied dynamic routing program cannot route transactions beyond the confines of the CICSplex. (It is possible to route transactions outside of the CICSplex by customizing the supplied dynamic routing program. Customization of the supplied dynamic routing program is described in Modifying dynamic routing.)
- A routing region must be:
  - A CICS TS region.
  - A local MAS, that is, the routing region cannot be running on an MVS image on which there is no CMAS.
  - In only one workload, that is, the routing region can be associated with only one active workload specification at a time.
- A target region can be:
  - a local MAS
  - in multiple workloads
  - any CICS system managed by CICSPlex SM

Identifying intertransaction affinities:

Intertransaction affinities, which require related transactions to be processed by the same target region, prevent optimum workload distribution. In general, they arise either because of the way in which one transaction passes data to another, or because of a requirement to coordinate the processing of two or more transactions. Identifying affinities isn't always easy, but there are some methods you can use.

For example, you can review application design documentation or source code; you can run CICStraces; or you can use the IBM CICS Interdependency Analyzer

for z/OS. For a detailed discussion of intertransaction affinities and ways of identifying them, see the publication *Dynamic Transaction Routing in a CICSplex*.

Having identified any affinities in a workload, you should make every attempt to remove them. If you cannot remove them completely, gauge the duration of the affinity and try to minimize it. You can define an intertransaction affinity to CICSPlex SM as lasting:

- While the user's session is active
- For the duration of the terminal session
- While the target region remains active
- While the workload is active
- For the duration of a pseudoconversation
- While the BTS activity is active
- While the BTS process is active

Be aware that CICSPlex SM must honor an active affinity: if an affinity is active but the target region becomes unavailable, the transaction isn't routed. In the case of a BTS transaction, BTS will wait for the region to start.

Implementing WLM

What you have to do to use CICSPlex SM workload management functions varies depending on whether you want to implement workload routing only, or whether you also want to implement some workload separation, and possibly define one or more transaction affinities in the same CICSplex.

You will get the best results if you follow this process:

1. Identify candidates for dynamic routing
2. Implement workload routing for each workload in the CICSplex where dynamic routing is possible.
3. Add any necessary workload separation requirements.
4. Define any intertransaction affinities.

Each step is described in the remainder of this section.

Identifying dynamic routing candidates:

Not all work requests are candidates for dynamic routing.

The conditions that have to apply for a work request to be eligible are listed in Dynamic Routing.

For further details:

- See EXEC CICS LINK and EXEC CICS START commands.
- See EXEC CICS RUN ASYNCHRONOUS command.
- See CICS resources and Administering BAS for information about CICS and CICSPlex SM resources.
- See Deploying applications to a JVM server for information about Java™.
- See Overview of CICS external interfaces for more information about the Link3270 bridge.

Implementing workload routing:

To implement workload routing for a group of target regions, you must associate a routing region or a routing system group with a workload specification. Optionally, you can apply alternative routing to a specified group of transaction in the workload.

About this task

To use workload routing, you specify routing characteristics in the workload specification (WLMSPEC object). These characteristics apply to all of the transactions in the workload.

However, you can override these routing characteristics by supplying associated pairs of WLM definitions and transaction group definitions (WLMDEF and TRANGRP objects) that specify a specialized routing evaluation to be applied to one or more transactions. For workload routing, you specify a different routing algorithm in a transaction group definition. If you specify an alternative routing algorithm at the transaction group level, you can change workload routing characteristics dynamically without stopping routing regions.

Procedure

1. If there is more than one routing region in a single workload, create a CICS system group of those routing regions, using the CICS system group (CSYSGRP) object.
2. Create a CICS system group of the target regions to which the routing regions can route transactions, again using CSYSGRP. This group could include every CICS system in the CICSplex.
3. Create one workload specification for each workload in the CICSplex, using the workload management specification (WLMSPEC) object. In the workload specification:
   a. Specify the name of the target system group as the target scope value.
   b. Identify which routing algorithm to use for workload routing. You can use one of the following algorithms:
      - QUEUE
      - LNQUEUE
      - GOAL
      - LNGOAL
4. Associate the routing region, or the routing system group, with the workload specification. You can have multiple workloads in a single CICSplex, but a routing region or group of routing regions can belong to only one active workload specification at a time.
5. Optional: Override the routing algorithm for specific transactions in the workload by specifying a different routing algorithm in a transaction group definition. See Creating a transaction group.

   If you modify an installed transaction group, you must discard its associated WLM definition (WLMDEF) and then reinstall it, so that the transaction group named by the WLM definition is also refreshed. To change the routing algorithm type immediately without discarding and reinstalling the associated WLMDEF, you can use the Active workload transaction groups (WLMATGRP) views and the **SET** command to change the ALGTYPE attribute.

Effect of the z/OS WLM health service on CPSM workload routing:

In a CICS region, if the z/OS Workload Manager (z/OS WLM) health service is active, which is the default, CPSM WLM takes account of the region's z/OS WLM health state in the routing decision.

For CPSM WLM to take into account the z/OS WLM health state in the target regions, both the routing and target regions must be at a minimum of CICS TS V5.4 (CICS and CPSM libraries), otherwise the z/OS WLM health state will be ignored and the target regions will be deemed to be ready to receive work.

If the service is disabled, to activate this service for a CICS region, you must set the **WLMHEALTH** system initialization parameter.

The z/OS WLM health state of a region is reflected by a z/OS WLM health indicator in the range 0 - 100. A value of 1-100 means that the region is ready to receive work whereas a z/OS WLM health indicator of 0 means that it is not ready to receive work. When the **WLMHEALTH** SIT parameter is set to OFF, the region is deemed as always ready to receive work.

If the target region has a z/OS WLM health indicator of zero, it is assigned a very high penalizing weight in the routing algorithm. Therefore, the region is less likely to receive work. Note that the region remains active, so it might receive work if no other healthier regions are available in the same scope. This is different from quiescing a target region, which removes the region as a candidate target from all workloads, regardless of the availability of other target regions. For more information, see Quiescing a target region in an active workload.

During the CICS warm-up or cool-down process, CICS adjusts the z/OS WLM health indicator of the region. As a result, this affects the routing decision of CPSM WLM, which restricts workload into the region during that process. For more information about what happens during CICS warm-up or cool-down, see CICS warm-up and cool-down by use of z/OS Workload Manager health service.

You can deliberately make a region less favorable in CPSM routing decisions by setting its z/OS WLM open status to CLOSE or IMMCLOSE in the **MVS workload management** (MVSWLM) view.

Adding workload separation requirements:

To implement workload separation in the same workload, by any combination either of user id, terminal id, and transaction group, or of process type and transaction group, do the following:

1. Create a CICS system group *for each set of target regions*, using the **System group definitions** view (CSYSGRP object). For example, if:
   - Transactions initiated by users ABC* from terminals NETA* must be routed to target regions 2 through 7

   and
   - Transactions initiated by users HIJ* from any terminal must be routed to target regions 5 through 9

   two target system groups must be defined: one group includes target regions 2 through 7, and one group includes target regions 5 through 9.
2. Define a transaction group, using the **Transaction groups** view (TRANGRP object), if workload separation by transaction is to be implemented. For

example, if transactions EFG1, EFG2, and EFG3 must be routed to a specific group of target regions, you must define a transaction group to include those transactions.

3. Create one workload definition, using the **Workload definitions** view (WLMDEF object), for each user, terminal, and transaction group combination. For the example in item 1 on page 200 (above):
   - One workload definition would be required for the combination of any transaction, users ABC*, and terminals NETA*.
   - One workload definition would be required for the combination of any transaction, users HIJ*, and any terminal.

   A third workload definition would be required to support the workload separation by transaction described in item 2 on page 200. In each workload definition, include the name of the appropriate target region system group to which eligible transactions are to be routed.
4. If the workload definitions are to be installed automatically when the first requesting region in the workload starts, you should use the **Workload groups** view (WLMGROUP object) to:
   a. Create a workload group.
   b. Add the workload definitions to the workload group.
   c. Associate the workload group with the workload specification.

   Automatic installation of the workload definitions is likely to be required, because workload separation is usually a regular and consistent requirement. However, you can also install a workload group or individual workload definitions manually for immediate effect.

Defining intertransaction affinities:

If there is a requirement for multiple transactions in the workload to be processed by the *same* target region, then do the following:

1. Create a transaction group, using the **Transaction groups** view (TRANGRP object), for each set of transactions within the workload that share an affinity. For example, if transactions MNO1, MNO2, and MNO3 must be processed by the same target region (perhaps because they run in sequence and leave data for the next transaction), define a transaction group to include those three transactions specifying the affinity type and its duration.
2. If you want to implement workload separation, create a workload definition for each transaction group and user or terminal pattern, using the **Workload definitions** view (WLMDEF object). For example, if the intertransaction affinity described in item 1 (above) applies to any user from terminals NYORK*, the workload definition must include that information. In addition, the workload definition identifies the set of target regions from which CICSPlex SM can select one. This could be every target region in the CICSplex, or some subset of target regions.

   Note that you can define an intertransaction affinity to CICSPlex SM without also implementing workload separation. In this case, no workload definition is required and CICSPlex SM routes the first transaction in the group to a suitable target region from the set identified in the workload specification. Subsequent transactions in the transaction group are routed to the same target region while the affinity is active.
3. If the workload definitions are to be installed automatically when the first routing region in the workload starts, you should use the **Workload groups** view (WLMGROUP object) to:

a. Create a workload group.
b. Add the workload definitions to the workload group.
c. Associate the workload group with the workload specification.

You can also install a workload group or individual workload definitions manually for immediate effect.

Note: It's important that you define routing regions and target regions in groups, to ensure that changes to the composition of those groups are automatically reflected in CICSPlex SM workload management.

A recommended approach:

You can click the **Map** button to display a visual map of the WLM definitions in your data repository. When you decide to implement WLM functions in your enterprise, you should begin by defining the appropriate objects.

You should:

- Use the **WLM definitions** view to create a workload definition (WLMDEF object).
- Use the **WLM groups** view to create a workload group (WLMGROUP object).
- Use the **WLM specifications** view to create a workload specification (WLMSPEC object).

Then, to create associations between these objects:

- Use the **WLM definitions** view to add the workload definition to the workload group (WLMINGRP object).
- Use the **Workload groups** view to add the workload group to the workload specification (WLMINSPC object).
- Use the **Workload specifications** view to associate the workload specification with a CICS system (LNKSWSCS object) or CICS system group (LNKSWSCG object). For more information about the LNKSxSCG parameters, see LNKSxSCG Records (LNKSMSCG, LNKSRSCG, LNKSWSCG).

If you want to see a list of the objects and associations you have already defined, use one of the following views:

- The **Workload definitions in groups** view (WLMINGRP object)
- The **Workload groups in workload specifications** view (WLMINSPC object)
- The **WLM specifications to CICS system links** view (LNKSWSCS object)
- The **WLM specifications to CICS system group links** view (LNKSWSCG object).

Example tasks

All the workload management examples are based on the same configuration. The CICSplex, PLXPROD1 consists of one TOR, CICSPT01, and three AORs, CICSPA01, CICSPA02, and CICSPA03. You will see how the roles played by these CICS regions vary, depending on the nature of the individual task.

These sections include a number of typical workload management example tasks and illustrates how these tasks can be carried out using the Web User Interface (WUI).

For any task, you must be aware of the scope, that is, of the CICS systems, with which you are working. If the scope is a single CICS system, any data you retrieve

from CICSPlex SM relates to that single system. If the scope is a group of CICS systems, the data relates to all of the systems in the group. If the scope is a CICSplex, the data relates to every system in that CICSplex. For all of the examples in these sections, the initial scope is CICSplex PLXPROD1.

Managing a workload

This example describes how to use the Web User Interface (WUI) to get CICSPlex SM to manage a workload: that is, to route all work from a single routing region to a suitable target region.

For this task, a "suitable" target region is the one with the shortest queue of work requests, relative to the maximum number of tasks permitted in the target region. This queue of work, also called the *load count*, is the queue of all active and queued user tasks. By default, tasks queued for both MAXTASKS and TRANCLASS are included in the load count. Use of the "Task load queue mode" attribute in the CSYSDEF resource table allows sites to exclude tasks queued for TRANCLASS from the load count. For more information about the "Task load queue mode" attribute in the CSYSDEF resource table, see .

The TOR (CICSPT01) is the requesting region and the routing region, and the three AORs (CICSPA01, CICSPA02, and CICSPA03) are all target regions. None of the CICS regions are currently running.

If some of your work requests can't be routed freely (perhaps you want work requests from a particular user always to go to the same target region, for example), don't worry. You'll see how to add that requirement in a later example task ("Routing a specific transaction to a specific target region" on page 218).

1. Create a CICS system group that will include all of the target regions among which the work requests ("the workload") can be routed dynamically.
   - From the main menu, click **Administration views > Topology administration views > System groups** to open the **System group definitions** tabular view.

     If the current context is not PLXPROD1, specify `PLXPROD1` in the **Context** field and click **Refresh**.
   - Click **Create** to open the **System group definitions** create view.
   - Type the following:

System group name	`CSGTGTS1`
Description	`All target regions in CICSplex PLXPROD1`

   - Click **Yes** to create the system group

     The **System group definitions** tabular view is redisplayed, this time showing an entry for CICS system group CSGTGTS1.

   At this point, the group CSGTGTS1 exists, but is empty.
2. Specify to CICSPlex SM which target regions belong to the group. To add target regions to CICS system group CSGTGTS1:
   - From the main menu click **Administration views > Topology administration views > System definitions** to open the **CICS system definitions** tabular view
   - Select the entries for the CICS systems CICSPA01, CICSPA02 and CICSPA03 and click **Add to CICS system group** .
   - In the **Group which member will join** field, type `CSGTGTS1` and click **Yes to 3 remaining**. This adds the three selected systems to your new group.
3. Create a workload specification:

- From the main menu click **Administration views > Workload manager administration views > Specifications** to open the **WLM specifications** tabular view.
- Click **Create**, and type the following information:

WLM specification name	`WLSPAY01`
Description	`Manage payroll workload in PLXPROD1`
Primary search criterion	`USERID`
Default target scope	`CSGTGTS1`
Algorithm type	`QUEUE`

Leave the remaining fields empty or accept the defaults.

Note:
- A **Primary search criterion** value of USERID is shown in this example, though in fact it does not matter whether you specify USERID or LUNAME, because the **Primary search criterion** value has no effect on simple workload searching. It is used only for some kinds of workload separation, which is the subject of a later example. You must supply a value because CICSPlex SM doesn't know, at this stage, that you aren't going to use this workload specification for workload separation.
- The **Default target scope** value is the name of the single target region, or group of target regions, to which work requests can be routed.
- The **Algorithm type** value, QUEUE, tells CICSPlex SM to select the target region that has the shortest queue of work requests.
- The **Description** is optional, but is worth providing. (When you are confronted with a list of specification names, and have no way of telling one from another, you will appreciate its value.)

Click **Yes**. The **WLM specification** tabular view is redisplayed, this time showing an entry for the new WLM Specification, WLSPAY01.

4. Tell CICSPlex SM about the region that is going to be routing the work requests to the target regions in group CSGTGTS1. To associate the workload specification with a routing region:
   - In the **WLM specifications** view, select the entry for the WLSPAY01 specification, and click **Associate CICS system**.
   - In the **CICS system** field, enter the name of the routing region (CICSPT01, in this example) and click **Yes**.

   To check that the association between the routing region and the workload specification has worked:
   - On the **WLM specifications** tabular view, click the name **WLSPAY01** to show the details of this specification.
   - Click the link **CICS systems associated with this workload specification** to show the **WLM specifications to CICS system links** tabular view (LNKSWSCS object).

   Note: You can also access this view from the main menu by clicking **Administration views > Workload management administration views > Specifications to system links**.
5. Activate workload management in the routing region:
   - From the main menu click **Administration views > Topology administration views > System definitions** to open the **CICS system definitions** tabular view.
   - Select the entry for CICSPT01 and click **Update**, to open a detail view of CICSPT01.

- Change the **AOR dynamic routing mode** field to **YES**. Click **Yes** to return to the **CICS system definition** tabular view.

  This change takes effect when the target region CICSPT01 is next started.

6. Activate workload management in the target regions:
   - From the **CICS system definitions** tabular view, select the entry for CICSPA01 and click **Update** to open a detail view of CICSPA01.
   - Change the **Workload manager status** field to **YES**. Click **Yes** to return to the **CICS system definitions** tabular view.

     This change takes effect when the target region CICSPT01 is next started.

   Repeat this step for target regions CICSPA02 and CICSPA03.

When the routing region and the target regions have been started, you can check that the workload is active from the main menu by clicking **Active workload views > Active workloads**. This opens the **Active workloads** tabular view, showing the workload specification WLSPAY01 as active.

To see which target regions are being routed to, click **Active workload views > Target regions in an active workload**. The displayed view shows all active target regions being routed to by workload WLSPAY01. All of the target regions listed belong to the CICS system group CSGTGTS1.

How to establish an optimized workload

You can use a CICS region status server to share CICS region status data in a sysplex rapidly to support optimized workload management. A region status server services only region status requests, rather than region status and user application requests.

About this task

CICS region status data is broadcast to the sysplex using a data table that is named after the hosting CICSplex for the region. Each region in the CICSplex is described by a single record in the CICSplex data table. The data tables are held in coupling facility structures, with access controlled by a coupling facility data table (CFDT) server. You must set up one CFDT server for each pool in an MVS image.

You can put related groups of region status tables in separate pools. For example, you might have one pool for production and another for test. A pool is defined as a list structure in the coupling facility resource management (CRFM) policy. The pool name is used to form the server name with the prefix DFHCF and is specified in the startup JCL for the server.

Note:

- You must use different pool names for your region status server if you have two separate CICSplexes of the same name in the sysplex.
- Ensure that the relevant authorization is provided. See Security for coupling facility data tables.

To set up and manage a region status server, use the following procedure.

Procedure

1. Ensure that you have a list structure for a region status server pool.

   For the best performance, define a new dedicated list structure for a region status server pool. For more information, see “Defining a list structure for a region status server” on page 206.

Optionally, you can use an existing CFDT pool to store your CICSplex data tables. However, the throughput of your optimized workloads might be impeded by any user application activity to the specified pool name, and any application throughput to the pool might be affected by the sysplex optimized workloads.

Note: You must use a different pool name from the pool name that you use for the RS server if you already have a CFDT with the same name as your CICSplex.

2. Define and start a region status server job to run in an MVS batch region. For more information, see Defining and starting a region status server region.

What to do next

After you have successfully started your region status server, you can issue commands to manage the region status server and delete it if required. For more information, see Controlling region status servers and Deleting region status server pools.

Defining a list structure for a region status server:

The region status server pool is defined in the list structure for a coupling facility data table. You define the list structure in a coupling facility resource manager (CFRM) policy.

About this task

You must allocate storage in the coupling facility to store CICS status.

CICS records the status of a CICS region in a coupling facility data table named after the CICSplex to which the region belongs. That table must belong to a CFDT pool that is named in the CICSplex definition for that CICSplex. The default name is DFHRSTAT. In each z/OS image, there must be a region status server for each region status pool that will serve the CICS regions belonging to that CICSplex. A CICSplex data table contains one region status record for each region in that CICSplex.

Define the structure in the current coupling facility resource management (CFRM) policy by using the IXCMIAPU utility. For an example of this utility, see member IXCCFRMP in the SYS1.SAMPLIB library. An example of a policy statement for a region status server pool is shown in Figure 27 on page 208.

You must authorize server access to the list structure. For details, see Authorizing server access to a list structure.

Procedure

1. Specify the name of the list structure. The name is formed by adding the prefix DFHCFLS_ to your chosen pool name, giving DFHCFLS_*poolname*. The default pool name as implemented by CPSM is DFHRSTAT.

   You define and modify CICSplexes using the EYUSTARTCPLEXDEF view set. Using the CPLEXDEF detail view, you can modify the coupling facility (CF) tuning parameters for the region status (RS) server, which provide sysplex optimized workload routing.

Note: You can also modify the default region status (RS) pool name that will be used by all regions in the CICSplex. When you do not to use the default name DFHRSTAT, you must change the name before starting any other regions in the CICSplex. CPSM will not prevent you from changing the pool name while the CICSplex is active. If you make a change while the CICSplex is active, all CMAS and MAS regions in the CICSplex must be restarted as soon as possible. Failure to do so can result in inconsistent data in the CPSM WLM views and WLM optimization is deactivated until all the regions in the CICSplex are restarted.

2. Specify the size of the list structure. Although the record size and calculations shown in Figure 26 can be useful for your own information, you must use the IBM CFSizer tool to calculate the **INITSIZE** and **SIZE** parameters. The CFSizer tool takes minimums into consideration, but the calculations in Figure 26 do not. Failure to get valid sizing parameters using the CFSizer tool could result in a CICS runtime failure and DFHCF0403, DFHCF0409, and DFHCF0481 messages.

   When using the CFSizer tool, select **CICS Data Tables list structure** and specify the following values:

   Maximum number of tables
   Specify the number of CICSplexes that you have defined in CPSM and that will be using Sysplex Optimized Workloads. This is usually a very low number.

   Average rounded record size
   40

   Total records
   Specify the total number of CICS regions that will connect to all CICSplexes.

   Target usage percent
   Use the default.

   Maximum expansion percent
   Use the default.

   You can also specify ALLOWAUTOALT(YES), which enables automatic changes in the ratio of elements to entries, to make better use of the space within the structure.

A region status record is approximately 40 bytes long.

If PLEX1 contains 100 regions, PLEX2 contains 300 regions, and PLEX3 contains 1000 regions, the required structures are as follows:

- Poolname = DFHRSTAT, Table name = PLEX1, 100 regions x 40 bytes = 4 000 bytes total
- Poolname = DFHRSTAT, Table name = PLEX2, 300 regions x 40 bytes = 12 000 bytes total
- Poolname = DFHRSTAT, Table name = PLEX3, 1000 regions x 40 bytes = 40 000 bytes total

Figure 26. Example: Calculations of required structures

3. Specify the preference list of coupling facilities in which the policy can be stored.
4. When you have updated the CFRM new policy with the new structure definition, activate the policy using the following MVS command:

   ```
   SETXCF START,POLICY,POLNAME=policyname,TYPE=CFRM
   ```

Where *policyname* is the CFRM policy being started, for example, DFHCFLS_DFHRSTAT. Note that defining the CFRM policy statements for a list structure does not create the list structure. The structure is created the first time an attempt is made to connect to it, which occurs when the first coupling facility data table (CFDT) server that refers to the corresponding pool is started.

Example

```
STRUCTURE  NAME(DFHCFLS_DFHRSTAT)
    SIZE(7168)
    INITSIZE(6144)
    PREFLIST(FACIL01,FACIL02)
```

Figure 27. Example definition of a list structure for region status servers

Defining and starting a region status server region:

When you start a region status server, you activate a pool in an MVS image for that server.

Before you begin

Before you start a region status server region, you must define the region status server structure to be used for the pool. For information about defining a region status server list structure, see "Defining a list structure for a region status server" on page 206.

About this task

You can start the server as a started task, started job, or as a batch job. This task explains how to start a region status server job, to run in an MVS batch region. The job or task must start the region status server program, DFHCFMN, from the CICS authorized library, CICSTS54.CICS.SDFHAUTH.

Procedure

1. Specify the DFHCFMN program either in a SYSIN data set defined in the JCL, or in the **PARM** parameter on the EXEC statement.
2. Specify the mandatory and optional startup parameters for the DFHCFMN program. If you specify a startup parameter in both the SYSIN data set and the **PARM** parameter, the **PARM** value overrides the SYSIN value because the **MVS START** command can override the **PARM** value.
   a. You must specify a SYSPRINT DD statement for the print file.
   b. You must specify a SYSIN DD statement for the server parameters.

      Tip: To ensure that all pool-related parameters are consistent across MVS images, you must use the same SYSIN parameter data set, or an identical copy of it, for all servers accessing the same pool, and to specify in the PARM field any parameters that vary between servers.
   c. You must specify the region status pool name.
   d. You must concatenate the license activation data set (the SDFHLIC library) to the STEPLIB DD statement.
   e. You can specify the **REGION** parameter. This parameter ensures that the coupling facility data table server region has enough storage to process the maximum number of data table requests that can run concurrently.

f. You can specify **TIME=NOLIMIT**. The server task remains in a wait, during most normal processing, because server processing is performed under the TCB of the client CICS region. If you omit this parameter, your server job might fail with abend S522 (wait limit exceeded), depending on the JWT value specified in the SMFPRM*xx* member of SYS1.PARMLIB.

g. Specify additional parameters as required. For example, you might want to control the maximum number of queues that are to be supported in the pool and the number of buffers that the server is to allocate. You might also need to add the required security access. See Authorizing a CICS region to a coupling facility data table.

Results

The region status server is running, ready to receive and broadcast region status data to the CICS regions connected to it. The CICS regions connect through the poolname that is specified in the CICSplex definition.

Region status server JCL example

```
//PRODRSS1 JOB  ...
//RSSERVER EXEC PGM=DFHCFMN,REGION=40M,TIME=NOLIMIT    CICS CFDT Server for RS
//STEPLIB  DD   DSN=CICSTS54.CICS.SDFHAUTH,DISP=SHR    Authorized library
//         DD   DSN=CICSTS54.CICS.SDFHLIC,DISP=SHR     License activation data set
//SYSPRINT DD   SYSOUT=*                               Messages and statistics
//SYSIN    DD   *
POOLNAME=DFHRSTAT                                     Pool name
MAXTABLES=100                                         Allow up to 100 tables
/*
```

Figure 28. Sample JCL to start a region status server address space

For an example of security parameters, see Authorizing a CICS region to a coupling facility data table.

Controlling region status servers:

You can issue commands to control a region status server, using the MVS **MODIFY (F)** command to specify the job or started task name of the server region, followed by the server command.

About this task

The general form of an MVS modify command, using the short form F, is as follows:

```
F job_name,command parameters... comments
```

You use the MODIFY command to pass information to a job or started task. In this task, you use the following commands to control the region status servers.

Procedure

- To modify the server initialization parameters, use the MVS **SET** command:

  ```
  SET keyword=operand[,keyword=operand,...]
  ```

  The **SET** command can be abbreviated to **T**, as for the MVS **SET** command. See "The SET command options" on page 210 for details.
- To display the values of one or more parameter values or statistics summary information on the console, use the **DISPLAY** command:

```
DISPLAY keyword[=operand][,keyword[=operand,]...]
```

The valid keywords for **DISPLAY** are all the initialization parameters, plus an additional set described under "DISPLAY and PRINT command options" on page 212.

The **DISPLAY** command can be abbreviated to **D**, as for the MVS **DISPLAY** command.

- To print the output that the **DISPLAY** command produces, use the MVS **PRINT** command:

  ```
  PRINT keyword[=operand][,keyword[=operand,]...]
  ```

  The **PRINT** command produces the same output as DISPLAY, supporting the same keywords, but on the print file only.
- To delete a table, use the **DELETE TABLE**=*name* command. The table must not be in use for this command to succeed. You can abbreviate the command to **DEL**.
- To stop the server normally, use the **STOP** command. The server waits for any active connections to end first, and prevents any new connections while it is waiting. You can abbreviate the command to **P**. You can also use the **MVS STOP** command, which is equivalent to issuing the server STOP command through the **MVS MODIFY** command. The syntax of the **STOP** command is:

  ```
  STOP|P [jobname.]identifier[,A=asid]
  ```
- To terminate the server immediately, use the **CANCEL** command. You can also specify whether the server automatically restarts with the RESTART option. For information about CANCEL RESTART see "The CANCEL command options" on page 215.
- The server also responds to Cross System Extended Services (XES) events such as an operator **SETXCF** command to alter the structure size. If the server can no longer access the coupling facility, it automatically issues a server **CANCEL** command to close itself down immediately.

The SET command options:

You can use the SET command to modify groups of server initialization parameters.

These system initialization parameter groups are:

- The statistics parameters
- The debug trace parameters
- The lock wait parameters
- The warning parameters
- The automatic ALTER parameters.

The following **SET** keywords are used to modify the server's recovery status of an inactive CICS region that had unresolved units of work when it last terminated:

RESTARTED=*applid*
: Establish a temporary recoverable connection for the given APPLID. This resolves any units of work that were in commit or backout processing when the region last terminated, and indicates whether there are any remaining indoubt units of work.

  This keyword can be abbreviated to **RESTART** or **REST**.

COMMITTED={*applid*|*applid.uowid***}**
Establish a temporary recoverable connection for the specified APPLID and commit all indoubt units of work, or, if *uowid* is also specified, commit that specific unit of work.

This command should be used **only** when it is not possible to restart the original CICS region to resolve the work normally, because it can result in inconsistency between coupling facility data table resources and other CICS resources updated by the same unit of work.

This keyword can be abbreviated to **COMMIT** or **COMM**.

BACKEDOUT={*applid*|*applid.uowid***}**
Establish a temporary recoverable connection for the specified APPLID and back out all indoubt units of work, or, if *uowid* is also specified, back out that specific unit of work.

This command should be used *only* when it is not possible to restart the original CICS region to resolve the work normally, because it can result in inconsistency between coupling facility data table resources and other CICS resources updated by the same unit of work.

This keyword can be abbreviated to **BACKOUT** or **BACK**.

Use the following **SET** parameters to modify options relating to a specific table:

TABLE=*name*
specifies the table to which the following table-related parameters in the same command are to be applied. This parameter is required before any table-related parameters.

MAXRECS=*number*
Modify the maximum number of records that can be stored in the table specified by the preceding **TABLE** parameter.

If the maximum number is set to a value less than the current number of records in the table, no new records can be stored until records have been deleted to reduce the current number to within the new maximum limit. For a recoverable table, this also means that records cannot be updated, because the recoverable update process adds a new record on the rewrite operation then deletes the original record when the transaction completes.

This keyword can also be specified as **MAXNUMRECS**.

AVAILABLE={YES|NO}
Specify whether the table named by the preceding **TABLE** parameter is available for new OPEN requests. If the table is made unavailable, a CICS region that subsequently issues an OPEN request for the table receives a response indicating that it is unavailable, but regions that currently have the table open are not affected. Even when a table is marked as unavailable, a server can implicitly open it on behalf of a CICS region to allow recoverable work to be resolved during restart processing.

This keyword can be abbreviated to **AVAIL**.

Examples of the SET command: The following example changes the statistics options:

```
SET STATSOPT=BOTH,EOD=21:00,STATSINT=06:00
```

The following example modifies the maximum number of records allowed in the specified table:

```
SET TABLE=PAYECFT1,MAXRECS=200000
```

DISPLAY and PRINT command options:

You can use the DISPLAY (and PRINT) commands to display the values of any initialization parameters plus some additional information.

Some of the parameters that provide additional information support generic names. You specify generic names using the following wildcard characters:

- An * (asterisk symbol). Use this anywhere in the parameter value to represent from 0 to 8 characters of any value. For example, CICSH* to represent all the CICS APPLIDs in a CICSplex identified by the letter H.
- A % (per cent symbol). Use this anywhere in the parameter value to represent only one character of any value. For example, CICS%T* to represent all the TOR APPLIDs in all CICSplexes.

The parameters supported by the DISPLAY and PRINT commands are as follows:

APPLIDS
Display the APPLID and MVS system name for every CICS region that currently has a recoverable connection to the pool. This command returns information not only for the server to which the MODIFY command is issued, but for all other servers connected to the same pool.

This keyword can be abbreviated to **APPLID**, **APPLS** or **APPL**.

APPLID={*applid*|*generic***}**
Display the APPLID and MVS system name for each region that currently has a recoverable connection to the server's pool, and whose APPLID matches *applid* or *generic*. This command returns information not only for the server to which the MODIFY command is issued, but for all other servers connected to the same pool.

applid Use this for a specific APPLID, which should match only one region in the sysplex.

generic Use a suitable generic value when you want to obtain information about several regions.

If *applid* or *generic* is not specified, the server treats this as equivalent to the command DISPLAY APPLIDS.

This keyword can also be specified as **APPLIDS**, **APPLS** or **APPL**.

ARMREGISTERED
Shows whether ARM registration was successful (YES or NO).

CONNECTIONS
Display the jobnames and applids of the regions currently connected to the server to which the command is issued.

This keyword can be abbreviated to **CONN**.

TABLES
Display the names of all tables currently allocated in the pool.

TABLE={*name*|*generic_name***}**
Display information about the attributes and status of a specific table, or of a set of tables whose names match the generic name.

If no table name is specified, this is treated as equivalent to DISPLAY TABLES.

TABLEUSERS
Display the CICS APPLIDs of the regions that are currently using each of the tables currently defined in the pool.

This keyword can be abbreviated to **TABLEU**.

TABLEUSERS={*name*|*generic_name***}**
Display the CICS APPLIDs of the regions that are currently using the specified table, or using each of the set of tables whose names match the generic name.

If no table name is specified, this is treated as equivalent to DISPLAY TABLEUSERS.

This keyword can be abbreviated to **TABLEU**

UOWIDS
Display the applids of all regions that currently have unresolved recoverable units of work, together with the number of units of work that are currently in doubt, or are in the process of being committed or backed out. The information displayed does not include units of work that have not yet started the resolution process; that is, units of work that are still in flight.

This keyword can be abbreviated to **UOWS**.

UOWIDS={*applid*|*generic_applid***}**∨**{***applid***.*|*generic_applid***.*}**
Display, for the specified regions if they currently have unresolved recoverable units of work, information about those units of work. The information displayed does not include units of work that have not yet started the resolution process; that is, units of work that are still in flight. The information returned depends on the form of operand used.

applid|*generic_applid*
This form of operand displays the number of units of work that are currently in doubt, or are in the process of being committed or backed out.

If you specify *applid*, the server displays UOW information for a specific APPLID, which should correspond to only one region in the sysplex.

If you specify *generic_applid* the server displays UOW information for all the APPLIDs that match the generic APPLID specified.

*applid***.***|*generic_applid***.***
This form of operand displays:

- The state and local UOWID of each individual unit of work, followed by
- A summary of the number of units of work that are currently in doubt, or are in the process of being committed or backed out.

If you specify *applid*.*, the server displays the UOW information for a specific APPLID, which should correspond to only one region in the sysplex.

If you specify *generic_applid*.*, the server displays UOW information for all the APPLIDs that match the generic APPLID specified.

This keyword can be abbreviated to **UOWS**.

UOWID=*applid.uowid*
Display the state of an individual unresolved unit of work, identified by its applid and local unit of work ID (UOWID). Enter the local UOWID as 16 hexadecimal digits.

This keyword can be abbreviated to **UOW**.

DISPLAY and PRINT options for statistics summaries:

Use the following parameters to display or print statistics:

CFSTATS
Display statistics for coupling facility interface accesses and responses from the server.

This keyword can also be specified as **CFST** or **STATSCF**.

POOLSTATS
Display usage statistics for the pool list structure as a whole. This is based on information returned by coupling facility access requests, therefore it is only as current as the most recent request made through the server to which the command is issued.

This keyword can be abbreviated to **POOLST**.

TABLESTATS
Display statistics for requests, processed by the server to which the command is issued, for each table plus a summary of all requests processed, including those that are not table-specific, such as unit of work control.

Note that only tables with a non-zero number of requests since the start of the current statistics interval are shown.

This keyword can also be specified as **TABLEST**.

TABLESTATS={*name*|*generic_name***}**
Display request statistics for the specified table or tables.

name A specific table name in the pool accessed by the server. Returns statistics for this table only.

generic_name
A generic name that you can use to obtain statistics about a number of tables. Returns statistics for any table name that matches the generic name.

This keyword can be abbreviated to **TABLEST**.

STORAGESTATS
Display main storage allocation statistics for the server address space.

This keyword can be abbreviated to **STORAGEST** or **STGST**.

DISPLAY and PRINT options for combined lists of information:

These keywords represent combined lists of information:

PARAMETERS
Display the main parameter values. These are POOLNAME, SECURITY, SECURITYPREFIX, statistics options, and list structure options.

This keyword can be abbreviated to **PARM** or **PARMS**.

ALLPARAMETERS
Display all parameter values.

This keyword can be abbreviated to **ALLPARMS**.

STATISTICS
Display all available statistics.

This keyword can be abbreviated to **STAT** or **STATS**.

INITIALIZED
Display the parameters and statistics that are usually displayed when initialization is complete. This is equivalent to PARM, POOLSTATS, STGSTATS.

This keyword can be abbreviated to **INIT**.

ARM
Display all ARM-related parameter values:

- ARMELEMENTNAME
- ARMELEMENTTYPE
- ARMREGISTERED

This keyword can be coded as **ARMSTATUS**.

The CANCEL command options:

You can use the CANCEL command to request an automatic restart.

Specify the following parameter:

RESTART={NO∨YES}
Terminate the server immediately, specifying whether or not automatic restart should be requested. The default is RESTART=NO.

If the server encounters an unrecoverable problem with the coupling facility connection, consisting either of lost connectivity or a structure failure, it cancels itself using the CANCEL RESTART=YES command. This terminates the existing connection and shuts down the server. A new instance of the server job is then started.

A server can also be restarted explicitly using either the server command CANCEL RESTART=YES or the MVS command CANCEL jobname,ARMRESTART.

You can also enter RESTART on its own for RESTART=YES, NORESTART for RESTART=NO.

Deleting region status server pools:

You can delete a region status server pool by deleting its coupling facility list structure. You might do this for a service upgrade, or when a clean sysplex restart is required.

Before you begin

You can delete a structure only when no servers are connected to the pool; otherwise, MVS rejects the command.

About this task

For example:

```
SETXCF FORCE,STRUCTURE,STRNAME=DFHCFLS_poolname
```

You can verify that the pool has been successfully deleted by issuing the XCF command shown here:

```
D XCF STRUCTURE,STRNAME=DFHCFLS_poolname
```

Note that if you delete a region status server structure while CICS regions and workload are running, you disable CICSPlex SM WLM optimized functions.

What to do next

When you attempt to start a server for a pool that has been deleted (or attempt to reload the pool), it is allocated as a new structure. The newly allocated structure uses size and location attributes specified by the currently active CFRM policy and other values determined by the server initialization parameters (in particular, **MAXTABLES**).

Adding a region to an existing target region scope

This example describes how to use the Web User Interface (WUI) to increase the number of regions in an existing target scope without disrupting an existing workload.

Assume that you have implemented workload routing in CICSplex PLXPROD1, via workload specification WLSPAY01, and that work requests are being routed among target regions CICSPA01, CICSPA02, and CICSPA03. These target regions all belong to CICS system group CSGTGTS1. Now you want to add a fourth region CICSPA04 to group CSGTGTS1. Region CICSPA04 has been defined to CICSplex PLXPROD1 and is running and is linked to the routing region CICSPT01

1. Add target region CICSPA04 to CICS system group CSGTGTS1:
   a. From the Web User Interface main menu click **Administration views > Topology administration views > System definitions** to open the **CICS system definitions** tabular view.

      If the current context is not `PLXPROD1`, specify `PLXPROD1` in the **Context** field and click **Refresh**.
   b. Select the entry for CICSPA04, and click the **Add to CICS system group** button. The **Add to CICS system group** view is displayed.
   c. In the **Group which member will join** field, enter the name `CSGTGTS1` and click **Yes**.
2. Update the CICSPlex SM definition of target region CICSPA04:
   a. From the **CICS system definitions** tabular view, select the entry for CICSPA04 and click **Update**.
   b. Change the **Workload manager status** field to **YES** from the menu. Click **Yes** to confirm the update.

   This change takes effect when the target region CICSPA04 is next started.

When the target region CICSPA04 has been started, you can check that the workload is active by clicking **Active workload views > Target regions in an active workload**. This opens the **Target region in an active workload** view showing all target regions (including CICSPA04) to which work requests in this workload can be routed.

Removing a region from a target region scope

CICS system group CSGTGTS1 contains four target regions (CICSPA01, CICSPA02, CICSPA03, and CICSPA04) in CICSplex PLXPROD1. Work requests are routed among these target regions, and the routing is controlled by workload specification WLSPAY01.

This example describes how to use the Web User Interface (WUI) to remove region CICSPA04 from the group CSGTGTS1, without disrupting the active workload.

1. Remove target region CICSPA04 from CICS system group CSGTGTS1:

- From the Web User Interface main menu click **Administration views > Topology administration views > System groups** to open the **System group definitions** tabular view.

  If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
- Click CSGTGTS1 in the **System group name** field to open a detail view and click the **CICS systems in this CICS system group** link. This opens the **CICS system to CICS system group links** tabular view.
- Click the Record check box beside the entry for CICSPA04 and click the **Remove...** button. This opens the **Remove** confirmation view.
- Click **Yes** to confirm the update.

2. To check that CICSPA04 has been removed, from the main menu click **Active workload views > Target regions in an active workload**. This opens the **Target region in an active workload** view showing all target regions to which the workload can be routed. CICSPA04 should not appear in the list.

Adding a routing region to an active workload

Use the Web User Interface (WUI) to add a second routing region to an active workload, without disrupting that workload.

Assume that you are still routing the workload in CICSplex PLXPROD1, via workload specification WLSPAY01, and that work requests are being routed by CICSPT01 among the target regions in CICS system group CSGTGTS1. Now you want to add a second routing region - CICSPT02 - to the workload. Region CICSPT02 has been defined to CICSplex PLXPROD1 (using the **CICS system definitions** views), is running, and is linked to the target regions CICSPA01, CICSPA02, and CICSPA03.

1. Update the CICSPlex SM definition for CICS system CICSPT02:
   - From the Web User Interface main menu click **Administration views > Topology administration views > System definitions** to open the **CICS system definitions** tabular view.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - Select the record for CICSPT02 and click the **Update...** button.
   - Change the **AOR dynamic routing mode** field to YES.
   - Click **Yes** to confirm the update. This change takes effect when routing region CICSPT02 is next started.
2. Associate CICSPT02 with workload specification WLSPAY01:
   - From the main menu, click **Administration views > Workload manager administration views > Specifications**.
   - On the **WLM specifications** view, click the Record check box beside the entry for WLSPAY01 and click **Associate CICS system...**.
   - In the **CICS system** field, type in CICSPT02 and click **Yes** to confirm the update.

When CICSPT02 has been restarted, you can verify that it has been added to WLSPAY01 as follows:

- Open the **WLM specification** tabular view and click the entry for WLSPAY01. This opens a detail view.
- Click the **CICS systems associated with this workload specification** link. Both CICSPT01 and CICSPT02 should be listed in the **WLM specifications to CICS system links** tabular view.

To check that CICSPT02 is part of the active workload, from the main menu, click **Active workload views > Routing regions in an active workload** This opens a tabular view showing entries for both CICSPT01 and CICSPT02.

Quiescing a target region in an active workload

This example describes how to use the Web User Interface (WUI) to quiesce the target region CICSPA03, which belongs to the active workload WLSPAY01.

You might need to do this so that you can apply maintenance to a region, for example. The regions CICSPT01 and CICSPT02 are routing work requests among three target regions (CICSPA01, CICSPA02, and CICSPA03) when you perform this task. If you want to make a region undesirable in the routing decision but keep it active, see Effect of the z/OSWLM health service on CPSM workload routing.

1. List the target regions associated with workload WLSPAY01.
   - From the Web User Interface main menu click **Active workload views > Target regions in an active workload** to open the **Target region in active workload** view.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - In the **Workload name** field type WLSPAY01 and click **Refresh**. This redisplays the **Target region in active workload** view. The three CICS regions CICSPA01, CICSPA02 and CICSPA03 are listed. Their status is active.
2. Quiesce target region CICSPA03:
   - On the **Target region in active workload** view, select the entry for target region CICSPA03 and click the **Quiesce...** button. This opens the **Quiesce** confirmation view.
   - Click **Yes** to confirm the action. The **Target region in active workload** view is redisplayed, showing the **Target region status** value for CICSPA03 changed to QUIESCED. No new work requests are routed to the target region, though any work already running there is allowed to complete.

Routing a specific transaction to a specific target region

Use the Web User Interface (WUI) to define some workload separation requirements to CICSPlex SM.

This example describes how to use the Web User Interface (WUI) to always route the transaction PAY1 to the target region CICSPA02, which belongs to CICS system group CSGTGTS1. You are still working in CICSplex PLXPROD1, and workload routing, from a single CICSPT01 among target regions in the group CSGTGTS1, is in effect.

1. If the transaction to be routed is to be started with EXEC CICS START, it should be defined as ROUTABLE.
2. Create a transaction group:
   - From the main menu, click **Administration views > Workload manager administration views > Transaction group definitions**. This opens the **Transaction group definitions** view.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - Click the **Create...** button, and provide the following information:

Name	TRGPAY01
Description	Send PAY1 to CICSPA02
Affinity relation and lifetime checking status	ACTIVE
Primary search criterion	USERID

You can leave the remaining fields blank or accept the defaults.

Click **Yes**. The **Transaction group definitions** view is redisplayed, now showing the name of the transaction group TRGPAY01.

3. Add transaction PAY1 to transaction group TRGPAY01:
   - In the **Transaction group definitions** view, select the entry for TRGPAY01, and click the **Add transaction...** button.
   - In the **Transaction name** field, type the name PAY1 and click **Yes** to confirm. The **Transaction group definitions** view is redisplayed.
4. Create a workload definition:
   - From the main menu, click **Administration views > Workload manager administration views > Definitions**. This opens the **WLM definitions** view, listing any workload definitions already created in PLXPROD1.
   - Click the **Create...** button, and provide the following information:

Workload management definition	WLDPAY01
Description	Separate TRGPAY01 to CICSPA02
Transaction group name	TRGPAY01
Scope name of set of target systems	CICSPA02

   - Click **Yes** to confirm.
5. Create a workload group. (A workload group is essential if you want a workload definition to be installed automatically when the routing region that's routing the transactions is started.)
   - From the main menu, click **Administration views > Workload manager administration views > Groups**. This open the **WLM groups** view, listing any workload groups already created in PLXPROD1.
   - Click the **Create...** button, and type in the following:

Workload management group	WLGPAY01
Description	Workload group for WLDPAY01

   - Click **Yes** to confirm. The **WLM groups** view is redisplayed.
6. Add the workload group WLGPAY01 to the existing workload specification WLSPAY01:
   - In the **WLM groups** view, select the entry for WLGPAY01, and click the **Add to WLM specification...** button.
   - In the **Specification name** field, enter the name of the existing workload specification, WLSPAY01 and click **Yes**. The **WLM groups** view is redisplayed.
7. Add the workload definition to the workload group:
   - From the main menu, click **Administration views > Workload manager administration views > Definitions** to open the **WLM definitions** view.
   - Select the entry for WLDPAY01, and click the **Add to WLM group...** button.
   - In the **Resource group name** field, type WLGPAY01 and click **Yes**. The **WLM definition** view is redisplayed.
8. Install the workload group into the active workload.

   Because the workload WLSPAY01 is already active, you have to install the new workload group WLGPAY01 explicitly. If you did not install WLGPAY01, it would not take effect until the routing region CICSPT01 and the target regions in CICS system group CSGTGTS1 were next started.
   - From the main menu, click , **Administration views > Workload manager administration views > Groups** to open the **WLM groups** tabular view.
   - Select the entry for WLGPAY01 and click the **Install...** button.

- In the **Workload name** field, type WLSPAY01, and, in the **Workload owner** field, type in the SYSID of the system on which the workload specification WLSPAY01 was created.

  Click **Yes** to confirm

Because you are reusing a workload specification that is already active in CICSplex PLXPROD1, and have installed the workload group, the workload separation you have defined in this example takes immediate effect.

You can check that the new workload definition WLDPAY01 is active by opening the **WLM definitions** view. This should include an entry for WLDPAY01 in workload WLSPAY01. When transaction PAY1 is next started, by any user and from any terminal, CICSPlex SM will route it to target region CICSPA02.

Routing particular transactions from a given user to a specific target region

This example describes how to use the Web User Interface (WUI) to route particular transactions from a given user to a specific target region.

This example task again describes how to use the Web User Interface in a refinement of the previous example ("Routing a specific transaction to a specific target region" on page 218). This time, the user ID value is to be an additional factor in determining where transactions are to be routed: transactions PAY6, PAY7, PAY8, and PAY9, when started from user ID USRPAY03, must be routed to target region CICSPA03 in CICSplex PLXPROD1.

1. Create a transaction group.
   - From the Web User Interface main menu, click **Administration views > Workload manager administration views > Transaction group definitions**. This opens the **Transaction group definitions** tabular view.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - Click the **Create...** button, and provide the following information:

Name	TRGPAY02
Description	Send USRPAY03's transactions to CICSPA03
Affinity relation and lifetime checking status	ACTIVE
Primary search criterion	USERID

     You can leave the remaining fields or accept the defaults.
   - Click **Yes** to confirm. The **Transaction group definitions** tabular view is redisplayed.
2. Identify the transactions that belong to group TRGPAY02:
   - In the **Transaction group definitions** tabular view, select the entry for TRGPAY02, and click the **Add transaction...** button.
   - In the **Transaction name** field, type in the name of the first transaction PAY6, and click **Yes** to confirm.

     Repeat this step for three more transactions: PAY7, PAY8, and PAY9.
3. Create a workload definition:
   - From the main menu, click , **Administration views > Workload manager administration views > Definitions**. This opens the **WLM definitions** tabular view, listing any workload definitions already created in PLXPROD1.
   - Click the **Create...** button, and provide the following information:

Workload management definition	WLDPAY02
Description	Separate TRGPAY02 to CICSPA03
Transaction group name	TRGPAY02
User ID	USRPAY03
Scope name of set of target systems	CICSPA03

- Click **Yes** to confirm.

4. Add the workload definition to the existing workload group:
   - From the main menu, click , **Administration views > Workload manager administration views—>Definitions** to open the **WLM definition** view.
   - Select the entry for WLDPAY0 and click the **Add to WLM group** button.
   - In the **Resource group name** field, type WLGPAY01 (the name of the workload group you created in the previous example). Workload group WLGPAY01 is already associated with the active workload specification WLSPAY01.
   - Click **Yes** to confirm.
5. Install the new workload definition into the active workload:

   Because group WLGPAY01 is already associated with the active workload WLSPAY01, changes you make to that group will not take effect until the routing region CICSPT01, and the target regions in CICS system group CSGTGTS1, are next started. To make the new workload definition take effect immediately, you must install it explicitly in WLSPAY01:
   - Open the **WLM definitions** view again, select the entry for WLDPAY02, and click the **Install...** button.
   - In the **Workload name** field, type in WLSPAY01 and in the **Workload owner** field, type in the SYSID of the system on which the workload specification WLSPAY01 was created.

Because you have explicitly installed the workload definition WLDPAY02 in the active workload WLSPAY01, the workload separation requirements you have defined in this example take immediate effect.

Honoring a pseudoconversational transaction

This example describes how to use the Web User Interface (WUI) to ensure that multiple transactions, among which there is an affinity, are routed to the same target region.

As before, you are working in CICSplex PLXPROD1 and are routing transactions from CICSPT01 to the target regions in CICS system group CSGTGTS1.

1. Create a transaction group:
   - From the main menu, click **Administration views > Workload manager administration views > Transaction group definitions**. This opens the **Transaction group definitions** tabular view.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - Click the **Create...** button, and provide the following information:

Name	TRGPAY03
Description	Pseudoconversational transaction
Affinity relation and lifetime checking status	ACTIVE
Primary search criterion	USERID
Affinity relationship	USERID
Affinity lifetime	PCONV

Notice that the **Affinity relationship** and **Affinity lifetime** fields must be completed. These values tell CICSPlex SM that the transactions in this group constitute a pseudoconversational transaction (PCONV), and that this affinity lasts while those transactions are coming from the same user ID (USERID). If one of them is initiated from a different user ID, CICSPlex SM can select a different target region. Of course, the same type of affinity will then come into play in that second target region. You can ignore any fields that have been left blank or accept the defaults.
   - Click **Yes** to confirm. The **Transaction group definitions** tabular view is redisplayed.
2. Identify the transactions that belong to group TRGPAY03:
   - In the **Transaction group definitions** tabular view, select the entry for TRGPAY03 and click the **Add transaction...** button.
   - In the **Transaction name** field, type in the name of the first transaction PAY2 and click **Yes** to confirm.

     Repeat this step for three more transactions: PAY3, PAY4, and PAY5.

     You can see that PAY2 starts the pseudoconversation and PAY5 ends it.
3. Create a workload definition:
   - From the main menu, click **Administration views > Workload manager administration views > Definitions**. This opens the **WLM definitions** view, listing any workload definitions already created in PLXPROD1.
   - Click the **Create...** button, and provide the following information:

Workload management definition	WLDPAY03
Description	TRGPAY03 to the same target region
Transaction group name	TRGPAY03
Scope name of set of target systems	CSGTGTS1

   - Click **Yes** to confirm.
4. Add the workload definition to the workload group:
   - From the main menu, click **Administration views > Workload manager administration views > Definitions** to open the **WLM definitions** tabular view.
   - Select the entry for WLDPAY03 and click the **Add to WLM group...** button.
   - In the **Resource group name** field, type WLGPAY01.
   - Click **Yes** to confirm.
5. Because group WLGPAY01 is already associated with the active workload WLSPAY01, changes you make to that group will not take effect until the routing region CICSPT01, and the target regions in CICS system group CSGTGTS1, are next started. To make the new workload definition take effect immediately, you must install it explicitly in WLSPAY01. To install the new workload definition into the active workload:
   - Open the **WLM definitions** view again, select the entry for WLDPAY03, and click the **Install...** button.
   - In the **Workload name** field, type in WLSPAY01, and in the **Workload owner** field, type in the SYSID of the system on which the workload specification WLSPAY01 was created.

Because you have explicitly installed the workload definition WLDPAY03 in the active workload WLSPAY01, CICSPlex SM is able to honor this pseudoconversational transaction immediately. Be aware that you are able to use the single workload specification WLSPAY01 for both workload routing and workload separation because you did *not* specify default **Affinity relationship** and

Affinity lifetime values in WLSPAY01. Had you done so, you would have had to create different workload specifications for workload routing and workload separation.

Deactivating a workload definition

This example describes how to use the Web User Interface (WUI) to deactivate a workload definition.

This example describes how to use the Web User Interface (WUI) to deactivate the workload definition WLDPAY02 created in the example "Routing particular transactions from a given user to a specific target region" on page 220.

1. Display active workload definitions:
   - From the main menu, click **Active workload views > Definitions**. This opens the **Active workload definitions** view.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - In the **Active workload definitions** view, type WLSPAY01 and click **Refresh**. The active workload definitions associated with workload specification WLSPAY01 are listed.
2. Discard workload definition WLDPAY02:
   a. Select the entry for WLDPAY02, and click the **Discard...** button. This opens the **Discard** confirmation view.
   b. Click **Yes** to confirm the action.

Be aware that, when you deactivate an active workload definition, you also deactivate any transaction groups associated with it if they aren't referenced by another workload definition in the same workload.

Updating an active workload definition

This example describes how to use the Web User Interface (WUI) to update an active workload definition and then reinstall it in the active workload.

In the example "Routing particular transactions from a given user to a specific target region" on page 220, you created the transaction group TRGPAY02 and named it in the workload definition WLDPAY02. In this example, you'll see how to remove TRGPAY02 and replace it with a new transaction group, TRGPAY04, which has already been created.

1. Display active workload definitions:
   - From the main menu, click **Active workload views > Definitions**. This opens the **Active workload definitions** tabular view.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - In the **Active workload definitions** view, type WLSPAY01 and click **Refresh**. The active workload definitions associated with workload specification WLSPAY01 are listed.

   Make a note of the value in the **System ID of workload owner** field for WLDPAY02 (CM1B, in this example).
2. Update workload definition WLDPAY02.
   - From the main menu, click **Administration views > Workload manager administration views > Definitions** to open the **WLM definition** tabular view.
   - Select the entry for WLDPAY02 and click the **Update...** button. The **WLM definitions** create view is displayed.

- In the **WLM definitions** create view, change the **Transaction group name** to TRGPAY04 and change the **Description** text to "Separate TRGPAY04 to CICSPA03"
- Click **Yes**. The **WLM definitions** tabular view is redisplayed.

3. Install the updated workload definition in WLSPAY01:

   In the **WLM definitions** tabular view, select the entry for WLDPAY02 and click the **Install...** view. The **Install** view is displayed. In the **Workload name** field, type WLSPAY01. In the **Workload owner** field, type the 4-character ID of the workload owner that you made a note of in step 1 on page 223. Click **Yes**. The updated workload definition is installed in workload WLSPAY01.
4. Check that the updated workload definition has been installed:
   - From the main menu, click **Active workload views > Definitions**. This opens the **Active workload definitions** tabular view showing the updated definition. Check that TRGPAY02 has been replaced by TRGPAY04.
5. Check that transaction group TRGPAY02 is inactive and that transaction group TRGPAY04 is now active:
   - From the main menu, click **Active workload views > Transaction groups** to view the status of the two transaction groups.

Note:

Updating the **User ID**, **Terminal LU name**, **BTS process type**, or **Scope name of set of target systems** fields in a workload definition prevents the workload definition from being reinstalled dynamically. To reinstall the workload definition into an active workload, you must:
- From the **Active workload definitions** tabular view, click the **Discard...** button to discard the active workload definition
- From the workload management **Definitions** view, click the **Install...** button to install the workload definition into the workload.

Alternatively, to reinstall workload definitions with changed attributes, use a batch API program to disable access to the affected application, discard the **Active workload definitions** view, install the **WLM definitions** view, and re-enable the affected application.

Discarding an active transaction from a workload

This example describes how to use the Web User Interface (WUI) to discard an active transaction from a workload.

1. Display active transactions.
   - From the main menu, click **Active workload views > Dynamic transactions**.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - The **Active workload dynamic transactions** tabular view shows the active transactions associated with workload specification EYUWLS02
2. Discard transaction PAY2:
   - From the **Active workload dynamic transactions** view, select transaction PAY2, and click the **Force...** button. The **Force** confirmation view is displayed.
   - Click **Yes** to confirm the action.

Updating a workload specification

This example describes how to use the Web User Interface to update a workload specification.

About this task

In this example, the workload specification to be updated is WLSPAY01, which you created in the example "Managing a workload" on page 203.

Consider the effects of this task carefully. In particular, the updated workload specification cannot take effect immediately. For the update to take immediate effect, you must stop and then restart both the routing region with which the workload specification is associated and the target regions to which the routing region routes transactions.

Procedure

1. Update workload specification WLSPAY01.
   a. From the Web User Interface main menu, click **Administration views** > **Workload manager administration views** > **Specifications** to open the **WLM specifications** (WLMSPEC) tabular view.

      If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   b. Select the entry for WLSPAY01 and click the **Update** button.
   c. Change the **Algorithm type** field from `QUEUE` to `GOAL`.
   d. Click **Yes**. The view is redisplayed showing the updated entry for WLSPAY01.
2. Display the **Active workload** view:
   a. From the main menu, click **Active workload views** > **Active workloads**.
   b. In the **Active workloads** tabular view, type in the workload name WLSPAY01 and click **Refresh**.

   The **Active workloads** tabular view is redisplayed. You will see that the algorithm type for WLM specification WLSPAY01 is still QUEUE. This is because region CICSPT01 doesn't know about the changes you've made.

What to do next

If you want the updated workload specification to take effect immediately, use the **CICS regions** view to stop the routing regions and the target regions to which they route, and then restart them. The regions must all be shut down together and not restarted until each CMAS that had CICS elements participating in the named workload issues message EYUWM0410I confirming that the workload specification has terminated successfully. If CICS regions that are members of the workload restart before receiving message EYUWM0410I, the existing workload specification will continue to be used and the updates to the workload specification will not be in effect. After the routing regions are restarted, display the **Active workloads** tabular view and you will see that the **Algorithm type** field has been updated to `GOAL`.

Using real-time analysis to select a target region for workload routing

Use CICSPlex SM's real-time analysis functions to produce data that will help in the selection of a target region during workload routing.

The number of items on the temporary storage queue will be monitored for each target region to which work can be routed. When the number of items rises above 50, a real-time analysis event notification (severity HS) and an external message will be issued. When an event notification is issued, CICSPlex SM's workload-routing function is notified and uses the information, in addition to the standard queue algorithm criteria, in selecting the best target region.

A CICS system group CSGTGTS3 has already been created and contains four target regions (CICSPA01, CICSPA02, CICSPA03, and CICSPA04). The target regions are currently running. Work is currently being routed among these target regions by the routing region CICSPT03.

1. Create a real-time analysis evaluation definition:
   - From the main menu, click **Administration views** > **RTA MAS resource monitoring** > **Evaluations**. This opens the **Evaluation definitions** tabular view, listing any evaluation definitions already created in PLXPROD1.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - Click the **Create...** button, and provide the following information:

Name	RTEPAY15
Description	TSQ NUMITEMS > 50
Sample interval	300
Resource table name	MTSQGBL
Instance identifier of evaluated resource	*
Method of evaluating results in result set	ANY
Separate task indicator	NO
Name of field being evaluated	PUTQAUX
Evaluation type	VALUE
Evaluation logical operator	GT
Evaluation data value	50
Severity assigned when result meets criteria	HS
Name of a view that may provide extra information	MTSQGBL

   - Click **Yes** to create the new evaluation definition.
2. Create a real-time analysis action definition:
   - From the main menu, click **Administration views** > **RTA MAS resource monitoring** > **Actions**. This opens the **Action definitions** view.
   - Click the **Create...** button, and provide the following information:

Action	RTAPAY15
Description	NUMITEMS IN TSQ > 50
Generate event option	YES
Name of view that may provide useful information	TSQ
Action priority	255
Message to send when event occurs	AUX TSQUEUE PUTQ ITEMS > 50
Generate external message option	YES
External message sent when event occurs	AUX TSQUEUE PUTQ ITEMS > 50
External message sent when event is cleared	AUX TSQUEUE PUTQ ITEMS < 50
Generate SNA generic alert option	NO
MVS automatic restart	NO

   - Click **Yes** to create the new RTA action definition. The **Action definitions** tabular view is redisplayed.
3. Create an analysis definition:
   - From the main menu, click **Administration views** > **RTA MAS resource monitoring** > **Definitions**. This opens the **RTA definitions** view.
   - Click the **Create...** button, and provide the following information:

Name	RTDPAY15
Description	TSQ NUMITEMS FOR WLM /RTA

Execute evaluation modification string	NO
Analysis interval	300
Action definition name	RTAPAY15
Count of true evaluations before VLS raised	0001
Count of false evaluations before VLS resolved	0001
Count of true evaluations before LS raised	001
Count of false evaluations before LS resolved	001
Count of true evaluations before LW raised	001
Count of false evaluations before LW resolved	001
Count of true evaluations before HW raised	001
Count of false evaluations before HW resolved	001
Count of true evaluations before HS raised	001
Count of false evaluations before HS resolved	0001
Count of true evaluations before VHS raised	0001
Count of false evaluations before VHS resolved	0001
Count of false evaluations before VHS resolved	0001
Evaluation expression	RTEPAY15

- Click **Yes** to create the new analysis definition. The **Analysis definitions** tabular view is redisplayed.

4. Create an analysis group:
   - From the main menu, click**Administration views** > **RTA MAS resource monitoring** > **Groups**. This opens the **RTA groups** tabular view.
   - Click the **Create...** button, and provide the following information:

RTA group	RTGPAY09
Description	RTA/WLM Group

   - Click **Yes** to create the new analysis group. The **RTA groups** tabular view is redisplayed.
5. Add the analysis definition to the analysis group:
   - From the main menu, click **Administration views** > **RTA MAS resource monitoring** > **Definitions**. This opens the **RTA definitions** view.
   - Click the record check box beside the entry for RTDPAY15 and click the **Add to RTA group...** button. The **Add to RTA group** view is displayed
   - In the **Resource group name** field type RTGPAY09 and click **Yes**. The **RTA definitions** tabular view is redisplayed
6. Create an analysis specification:
   - From the main menu, click **Administration views** > **RTA MAS resource monitoring** > **Specifications**. This opens the **RTA specifications** tabular view.
   - Click the **Create...** button, and provide the following information:

RTA specification name	RTSPAY09

- Click **Yes** and the **RTA specifications** tabular view is redisplayed, listing the new RTA specification.

7. Add the analysis group to the analysis specification:
   - From the main menu, click **Administration views** > **RTA MAS resource monitoring** > **Groups**. This opens the **RTA groups** tabular view.
   - Click the record check box beside the entry for RTGPAY09 and click the **Add to RTA specification...** button. The **Add to RTA specification** view is displayed
   - In the **RTA specname** field, type RTSPAY09 and click **Yes**. The **RTA groups** tabular view is redisplayed
8. Set the scope of the analysis specification.:
   - From the main menu, click **Administration views** > **RTA MAS resource monitoring** > **Specifications**. This opens the **RTA specifications** tabular view.
   - Click the record check box beside the entry for RTGPAY09 and click the **Associate CICS group...** button. The **Associate CICS group** view is displayed
   - In the **CICS system group** field, type CSGTGTS3 and select the **Force** option. Click **Yes** and the **RTA specifications** tabular view is redisplayed.
9. Activate real-time analysis in the target regions in CSGTGTS3:
   - From the main menu, click **Administration views** > **RTA system availability monitoring** > **CICS system definitions**. This opens the **CICS system definitions** tabular view.
   - Click the record check box beside the entry for CICS system CICSPA01, click the **Update...** button, and provide the following information:

CICS system definition name	CICSPA01
Description	Target region 1 on System A
Real time analysis status	YES
Severity for system availability monitoring event	NO
Severity for short-on-storage (SOS) event	NO
Severity for system dump event	NO
Severity for transaction dump event	NO
Severity for CICS-at-maximum-tasks event	NO
Severity for CICS-stalled event	NO

   - Click **Yes** to confirm the change. The CICS system definition is updated and the change, which is permanent, takes immediate effect. You do not have to restart CICS system CICSPA01. Repeat this step for the target regions CICSPA02, CICSPA03, and CICSPA04.
10. The workload specification WLSPAY02 is already being used for workload routing among the target regions in CSGTGTS3. You must update the specification to add the real-time analysis data to the standard target region selection criteria. To update the workload specification:
    - From the main menu, click **Administration views** > **Workload manager administration views** > **Specifications**. This opens the**WLM specifications** tabular view.
    - Click the record check box beside the entry for WLSPAY02, click the **Update...** button, and provide the following information:

Name	WLSPAY02
Description	Workload using RTA for target region selection
Primary search criterion	USERID
Default target scope	CSGTGTS3
RTA event name	RTDPAY15
Acceptable level of abend probability	0
Acceptable abend load threshold	0
Algorithm type	QUEUE

- Click **Yes** to update the specification.

  Notice that the **RTA event** field value is the name of the analysis definition you created in step 3 on page 226.

When the routing region CICSPT03 and the target regions in CICS system group CSGTGTS3 are next started, the routing region routes transactions among the target regions using both the standard queue algorithm criteria and the analysis definition RTDPAY15 to select a target region.

Dynamic routing with EXEC CICS START TERMID

Use the Web User Interface (WUI) to set up dynamic routing capability for a transaction started with **EXEC CICS START**, that specifies a terminal ID and a transaction ID, and to use the GOAL algorithm to select the target region.

Note: You should check the system requirements before trying to route **EXEC CICS START TERMID** dynamically. See CICSPlex SM workload requirements.

In this example, a program running in CICSPA01 begins with **EXEC CICS START**, which is associated with terminal TRM1, to run transaction PAY1, for which you require a 2-second response time. Terminal TRM1 is associated with region CICSPT01. Transaction PAY1 may execute in any region connected to CICSPT01, that is, in CICSPA01, CICSPA02, or CICSPA03.

This example uses the environment that has already been created as part of earlier examples. You are working in CICSplex PLXPROD1, which comprises TOR CICSPT01 and AORs CICSPA01, CICSPA02, and CICSPA03 in CICS system group CSGTGTS1. Transaction group TRGPAY03 has transactions PAY1, PAY2, PAY3, and PAY4 associated with it. Workload definition WLDPAY03 was defined to tell CICSPlex SM that transactions in group TRGPAY03 must be routed to a target region in CICS system group CSGTGS1.

As you want to use the GOAL algorithm, you need to define, in MVS Workload Manager, a Service Class with the required response time and allocate that Service Class to transaction PAY1. For example, you could specify:
- A Service Class of Fast that has an average response time of 2 seconds.
- A classification rule that associates Classification Subsystem CICS with transaction ID PAY1 and Service Class Fast.

For more information about Service Classes, see the information about the goal algorithm in Management of the work in a workload.

In CICSPlex SM:

1. Create a workload specification.
   - From the main menu, click **Administration views** > **Workload manager administration views** > **Specifications**. This opens the **WLM specifications** tabular view.

If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
- Click the **Create** button, and provide the following information:

Name	WLSDYN01
Description	Dynamic routing START
Primary search criterion	USERID
Default target scope	CSGTGTS1
Acceptable level of abend probability	0
Acceptable abend load threshold	0
Algorithm type	GOAL

- Click **Yes** to create the specification.

You must supply:
- A name for the specification (WLSDYN01 in this example).
- A **Primary search criterion** value. USERID is shown in this example, though in fact it doesn't matter whether you specify USERID or LUNAME, because the **Primary search criterion** value has no effect on simple workload routing. It is used only for some kinds of workload separation, but you have to supply a value because CICSPlex SM doesn't know, at this stage, that you aren't going to use this workload specification for workload separation.
- A **Default target scope** value, which is the name of the single target region, or group of target regions, to which transactions can be routed.
- An **Algorithm type** value. For this example, use GOAL, because the criteria for selecting the target region are based on the requirement that the transaction has a response time of 2 seconds.

When you click **Yes**, the **WLM specifications** tabular view is redisplayed, this time showing an entry for the new workload specification, WLSDYN01.

2. The next step is to tell CICSPlex SM about the region that's going to be routing the work requests to the target regions in group CSGTGTS1. To associate the workload specification with a routing region:
   - On the **WLM specifications** tabular view, click the Record check box beside the entry for the WLSDYN01 specification and click the **Associate CICS system** button.
   - Type WLSDYN01 in the **CICS system** field and click **Yes**. The **WLM specifications** tabular view is redisplayed and you can check that the association between the routing region and the workload specification has been created.
3. Activate workload routing in the routing region:
   - From the main menu, click **Administration views** > **Topology administration views** > **System definitions**. This opens the **CICS system definitions** tabular view.
   - Click the Record check box beside the entry for CICSPT01 and click the **Update** button.
   - In the **Workload manager status** field, select YES from the drop-down menu. This change takes effect when CICSPT01 is next started.
4. Activate workload routing in the target regions.
   - From the main menu, click **Administration views** > **Topology administration views** > **System definitions**. This opens the **CICS system definitions** tabular view.
   - Click the Record check box beside the entry for CICSPA01 and click the **Update** button.

- In the **AOR dynamic routing mode** field, select YES from the drop-down menu. This change takes effect when the target region CICSPA01 is next started.

Repeat this step for target regions CICSPA02 and CICSPA03.

5. Install program definitions:
   - From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Program definitions**. This opens the **Program definitions** tabular view.
   - Click the Record check box beside the entry for CICSPA01 and click the **Update** button.
   - Set the **Dynamic routing status** field to NO from the drop-down box.
   - Click **Yes** to confirm. The **Program definitions** tabular view is redisplayed.
   - Click the Record check box beside the entry for CICSPA01 and click the **Install** button.
   - Type CICSPA01 in the **Target scope value** field and click Yes to confirm.

   Repeat this step for CICSPA02 and CICSPA03.
6. Install transaction definitions:
   - From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Transaction definitions**. This opens the **Transaction definitions** tabular view.
   - From the **Transaction definitions** view, select PAY1 and click the **Install** button. Type CICSPA01 in the **Target scope value** field.
   - Click Yes to confirm.

   You can either update the transaction definitions to specify these field values, or you can specify override values when you install the transaction definitions.

In this example task, a program running in CICSPA01, the requesting region, issues an **EXEC CICS START** command that specifies a transaction ID of PAY1 and a terminal ID TRM1. The START command is function shipped to CICSPT01, the TOR that owns the specified terminal. CICSPT01 acts as the routing region and invokes the dynamic routing exit, which selects the target region. All the AORs in CICS system group CSGTGS1 are possible target regions; the actual target region is selected on the basis of the GOAL criterion of a response time of 2 seconds. CICSPlex SM obtains the Service Class of transaction PAY1 and the identity of the target region to which that Service Class is allocated, from a CICSPlex SM-maintained table.

Dynamic routing of an inbound client DPL request

This example describes how to use the Web User Interface (WUI) to set up dynamic routing capability for a DPL request from a CICS client, and to use the GOAL algorithm to select the target region.

Before you begin

You should check the system requirements before trying to dynamically route inbound client DPL requests. See CICSPlex SM workload requirements.

About this task

In this example, a request is received to run transaction PAY1 to invoke client program PAYPROG1. PAYPROG1 issues an **EXEC CICS LINK** command to server program PAYPROG2. You require transaction PAY1 to have a 2-second response time.

This example uses the environment that was used for "Dynamic routing with EXEC CICS START TERMID" on page 229.

As you want to use the GOAL algorithm, you need to define, in MVS Workload Manager, a Service Class with the required response time and allocate that Service Class to the transaction. For example, you could specify:
- A Service Class of Fast with a average response time of 2 seconds.
- A classification rule that associates Classification subsystem CICS with transaction ID PAY1 and Service Class Fast.

For more information about Service Classes, see the information about the goal algorithm in Management of the work in a workload.

Perform the following procedure in CICSPlex SM.

Procedure

1. Set the dynamic routing status value for program PAYPROG1.
   a. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Program definitions** > . This opens the **Program definitions** tabular view.
   b. If the current context is not PLXPROD1, specify `PLXPROD1` in the **Context** field and click **Refresh**.
   c. Click the Record check box beside the entry for PAYPROG1 and click the **Update** button. From the drop-down box, set the **Dynamic routing status** field to NO.
   d. Click **Yes** to confirm.
2. Install program definitions.
   a. From the **Program definitions** tabular view, click the Record check box beside the entry for PAYPROG1 and click the **Install** button.
   b. Type `CICSPA01` in the **Target scope value** field.
   c. Click **Yes** to confirm.

   Repeat this step to install PAYPROG1 in target scopes CICSPA02 and CICSPA03.

   For details of defining and installing program definitions, see Creating resources with BAS: PROGRAM resource definitions.
3. Install the transaction definition.
   a. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Transaction definitions**. This opens the **Transaction definitions** tabular view.
   b. If the current context is not PLXPROD1, specify `PLXPROD1` in the **Context** field and click **Refresh**.
   c. From the **Transaction definitions** view, click the Record check box beside the entry for PAY1 and click the **Install** button.
   d. Type `CICSPA01` in the **Target scope value** field.
   e. Click **Yes** to confirm.

   Repeat this step to install PAY1 in target scopes CICSPA02 and CICSPA03.

   The transaction definition should point to the mirror program DFHMIRS. For details of defining and installing transaction definitions, see Creating resources with BAS: Transaction resource definitions.

Dynamic routing of a peer-to-peer DPL request

This example describes how to use the Web User Interface (WUI) to set up dynamic routing for a peer-to-peer DPL request, and to use the GOAL algorithm to select the target region.

Note: You should check the system requirements before trying to dynamically route peer-to-peer DPL requests. See CICSPlex SM workload requirements.

In this example, transaction PAY1 runs program PAYPROG1, which issues an **EXEC CICS LINK** command to program PAYPROG2. You require transaction PAY1 to have a response time of 4 seconds.

This example uses the environment that was used for "Dynamic routing with EXEC CICS START TERMID" on page 229. However, because this is a peer-to-peer dynamic linking request, only the AORs are involved and each AOR may act as a requesting, routing, or target region.

As you want to use the GOAL algorithm, you need to define, in MVS Workload Manager, a Service Class with the required response time and allocate that Service Class to the transaction. For example, you could specify:

- A Service Class of Medium with an average response time of 4 seconds.
- A classification rule associating Classification Subsystem CICS with transaction ID PAY1 and Service Class Medium.

For more information about Service Classes, see the information about the goal algorithm in Management of the work in a workload.

In CICSPlex SM:

1. The first step is to set the dynamic routing status value for program PAYPROG1. To do this:
   - From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Program definitions**. This opens the **Program definitions** tabular view.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - Click the Record check box beside the entry for PAYPROG1 and click the **Update...** button.
   - Set the **Dynamic routing status** field to NO from the drop-down box.
   - Click **Yes** to confirm.
2. Install program definitions:
   - From the **Program definitions** tabular view, click the Record check box beside the entry for PAYPROG1 and click the **Install...** button.
   - Type CICSPA01 in the **Target scope value** field.
   - Click **Yes** to confirm.

   Repeat this step to install PAYPROG1 in target scopes CICSPA02 and CICSPA03.

   For details of defining and installing program definitions, see Creating resources with BAS: PROGRAM resource definitions.

   You don't need to install program definition PAYPROG2 in the regions, but if you do, PAYPROG2 should be defined as dynamic.
3. Install the transaction definition:
   - From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Transaction definitions**. This opens the **Transaction definitions** tabular view.

If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
- From the **Transaction definitions** tabular view, Click the Record check box beside the entry for PAY2 and click the **Install...** button.
- Type CICSPA01 in the **Target scope value** field.
- Click **Yes** to confirm.

The transaction definition should point to the mirror program DFHMIRS.

Repeat this step to install PAY2 in target scopes CICSPA02 and CICSPA03.

Routing CICS BTS activities

Use the Web User Interface (WUI) to route a CICS BTS-related workload.

This example uses the configuration that has been used for earlier examples. You are working in CICSplex PLXPROD1, which comprises AORs CICSPA01, CICSPA02, and CICSPA03 in CICS system group CSGTGTS1. These three systems may act as routing and target regions. In addition, it is assumed that the RLS file for the BTS process type is accessible to all CICS system in CICS system group CSGTGTS1, and that all the systems in CICS system group CSGTGTS1 are interconnected.

Note: You should check the system requirements before trying to dynamically route CICS BTS activities. See "Separating CICS BTS activities" on page 235 and CICS release requirements for dynamic routing.

1. Activate workload routing for the systems in CSGTGTS1.
   - From the main menu, click **Administration views > Topology administration views > System definitions**. This opens the **System Definitions** tabular view.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - Click the record check box beside the entry for CICSPA01 and click the **Update...** button.
   - Select YES from the drop-down box for both the **Workload manager status** field and in the **AOR dynamic routing mode** field . These changes takes effect when the target region CICSPA01 is next started.

   Repeat this step for target regions CICSPA02 and CICSPA03.
2. Create a workload specification:
   - From the main menu, click **Administration views > Workload manager administration views > Specifications**. This opens the **WLM specifications** tabular view.
   - Click the **Create...** button, and provide the following information:

Name	WLSCBTS
Description	Routing CICS BTS activity
Primary search criterion	USERID
Default target scope	CSGTGTS1
Acceptable level of abend probability	0
Acceptable abend load threshold	0
Algorithm type	LNQUEUE

   - Click **Yes** to confirm. The **WLM specifications** tabular view is redisplayed.

   You must supply :
   - A name for the specification (WLSCBTS in this example).
   - A primary search criterion value. USERID is shown in this example, though in fact it does not matter whether you specify USERID or LUNAME, because the primary search criterion value has no effect on simple workload routing.

It is used only for some kinds of workload separation, but you have to supply a value because CICSPlex SM cannot determine, at this stage, that you are not going to use this workload specification for workload separation.
   - A default target scope value, which is the name of the single target region, or group of target regions, to which transactions can be routed. In this example, use CSGTGTS1.
   - An algorithm Type value. For this example, use LNQUEUE. The LNQUEUE (link neutral queue) algorithm ignores the type of link between routing and target regions but otherwise uses the same routing criteria as the QUEUE algorithm.
3. Associate the workload specification with routing region scope CSGTGTS1.
   - Click the Record check box beside the entry for WLSCBTS and click the **Associate CICS system...** button.
   - In the **CICS system** field, type CSGTGTS1.
   - Click **Yes** to confirm. The **WLM specifications** tabular view is redisplayed.
4. Specify the system initialization parameter DSRTPGM is set to EYU9XLOP.

   You can do this either in the system initialization parameter of each region in the CICS system group, or by using the **CICS system definitions** view.
5. Activate workload management:
   - From the main menu, click **CICSPlex SM operations views > MASs known to CICSplex**. This opens the **MASs known to CICSplex** tabular view.
   - Click CICS system name CICSPA01 open the **MASs known to CICSplex** detailed view for CICSPA01.
   - In the **Workload manager status** field, select YES from the drop-down list to start managing workloads for this CICS system.
   - Click **Apply changes**.

   Repeat this step to activate workload management for CICSPA02 and CICSPA03.
6. Program your BTS activities to run asynchronously.

When the routing and target regions in system group CSGTGS1 are next started, BTS activities are routed among the target regions.

Separating CICS BTS activities

This example describes how to use the Web User Interface (WUI) to separate a CICS BTS-related workload.

In this example, BTS activity BTSACT1 has an affinity of LIFETIME and runs under transaction ID BTS1 and process type SALES. This example uses the configuration that has been used for the example in "Routing CICS BTS activities" on page 234. Similarly, the system initialization parameter DSRTPGM must be set to EYU9XLOP.

Note: You should check the system requirements before trying to dynamically route CICS BTS activities. See CICS release requirements for dynamic routing.

1. Create a transaction group:
   - From the main menu, click **Administration views > Workload manager administration views > Transaction groups definitions**. This opens the **Transaction group definitions** tabular view.

     If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   - Click the **Create...** and provide the following information:

Name	TRGCBTS1

Description	CICS BTS transaction group
Affinity relation and lifetime checking status	ACTIVE
Primary search criterion	USERID
Affinity relationship	BAPPL
Affinity lifetime	ACTIVITY
Acceptable level of abend probability	0
Acceptable abend load threshold	0
Algorithm type	QUEUE

You can ignore any fields that have been left blank.

- Click **Yes** to redisplay the **Transaction group definitions** tabular view, now showing the name of the transaction group TRGCBTS1.

  Notice that the **Affinity relationship** and **Affinity lifetime** fields must be completed. These values tell CICSPlex SM that the transactions in this group constitute a BTS affinity, and that this affinity lasts while those transactions are coming from the same BTS application. If one of them is initiated from a different BTS application, CICSPlex SM can select a different target region. Of course, the same type of affinity will then come into play in that second target region.

2. Identify the transactions in group TRGCBTS1:
   - From the **Transaction group definitions** view select the entry for TRGCBTS1 and click the **Add transaction...** to open the **Add transaction** tabular view.
   - In the **Transaction name** field, type BTS1 and click **Yes** to add the transaction to the Transaction group. The **Transaction group definition** view is redisplayed.
3. Create a workload definition:
   - From the main menu, click **Administration views > Workload manager administration views > Definitions**. This opens the **WLM definitions** tabular view.
   - Click the **Create...** button and provide the following information:

Workload management definition	WLDCBTS3
Description	Separate CICS BTS activities
Transaction group name	TRGCBTS1
BTS process type	SALES
Scope name of set of target systems	CSGTGTS1

   - Click **Yes** and the **WLM definitions** tabular view is redisplayed.

   These values tell CICSPlex SM that transactions in group TRGCBTS1, and of process type SALES, must go to a target region in group CSGTGTS1. CICSPlex SM can select the most appropriate target region at the time the transaction is initiated.
4. Add the workload definition to the workload group:
   - In the **WLM definition** tabular view, click the Record check box beside the entry for the WLDCBTS1 and click the **Add to WLM group...** button. The **Add to WLM group** view is displayed.
   - In the **Resource group name** field, type WLGCBTS1 and click **Yes**. The **WLM definitions** tabular view is redisplayed.
5. Add the workload group to a workload specification:
   - From the main menu, click **Administration views > Workload manager administration views > Groups**. This opens the **WLM group** tabular view.
   - In the **WLM group** view, click the Record check box beside the entry for the WLDCBTS1 and click the **Add to WLM specification...** button. The **Add to WLM specification** view is displayed.

- In the **Specification name** field, type WLGCBTS1 and click **Yes**. The **WLM groups** tabular view is redisplayed.

Managing a Link3270 bridge workload

These examples describe how to use the Web User Interface (WUI) to manage a Link3270 bridge workload.

In the case of Link3270 bridge requests, the client application in the requester region calls the Link3270 bridge using **EXEC CICS LINK**, EXCI or ECI, and passes a communication area to the bridge router program, DFHL3270, which runs in the router region. The transaction ID that is used for Link3270 bridge workload routing is the name that is passed to DFHL3270 in the communication area and is not necessarily the same as the transaction name entered at the terminal or workstation. The target regions contain the bridge environment in which the target transaction runs.

When CICSPlex SM is in use and the CICSPlex SM routing exit, EYU9XLOP, is specified as the **DTRPGM** system initialization parameter, DFHL3270 uses CICS distributed program linking to pass control to EYU9XLOP. The mirror program, DFHMIRS, passes the following information to EYU9XLOP in the DFHDYPDS communication area:

- A DYRTYPE value of 8, which indicates a Link3270 bridge request type
- An eight-character bridge token in the DYRBRTK field
- The transaction ID of the transaction that is to run in the target region in the DYRTRAN field.

For more information about the Link3270 bridge, see Introduction to the 3270 bridge.

For more information about CICS distributed program linking, see CICS distributed program link.

Routing a Link3270 bridge workload:

In this example CICSPT01 is the router region and the target regions are CICSPA01, CICSPA02 and CICSPA03.

1. If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
2. Set the DTRPGM system initialization parameter to EYU9XLOP in all regions.
3. Update definitions
   a. From the Web User Interface main menu, click **Administration views > Topology administration views > System definitions** to open the **CICS system definition** tabular view.
   b. Select the entry for CICSPT01 and click **Update** to open a detail view of CICSPT01.
   c. Scroll down to the **Workload manager status** field and select **YES** from the menu.
   d. Scroll down to the **AOR dynamic routing mode** field and select **YES** from the menu .
   e. Click **Yes** at the bottom of the view to return to the **CICS system definitions** tabular view. See Administering CICSPlex SM for a description of the CICS system definition view.

      This change takes effect when the target region CICSPA01 is next started.

      Repeat this for the regions CICSPA01, CICSPA02 and CICSPA03.
4. Create a CICS system group

a. From the main menu click **Administration views > Topology administration views > System groups** to open the **System group definitions** tabular view.
b. Scroll to the bottom of the view and click **Create**, to create a system group called CSGTGTS1

   CSGTGTS1, in this example, is to contain the regions that are to act as targets. See Administering CICSPlex SM for a description of the **System group definitions** view.)

5. Add the target regions to CSGTGTS1.
6. Create a workload specification
   a. From the main menu click **Administration views > Workload manager administration views > Specifications** to open the **WLM specifications** tabular view (WLMSPEC object).
   b. Scroll to the bottom of the view, click **Create**, and provide the following information:

      WLM specification name
      BRSPEC01
      Description
      Link3270 Bridge Workload
      Primary search criterion
      USERID
      Automatic affinity creation option
      N/A
      Default target scope
      BRITGTS1
      Algorithm type
      QUEUE

      Leave the remaining fields empty or accept the defaults.

   You must supply:

   - The name of the workload specification. In this example it is called BRSPEC01.
   - A **Primary search criterion** value. USERID is shown in this example, though in fact it doesn't matter whether you specify USERID or LUNAME, because the **Primary search criterion** value has no effect on simple workload routing. It is used only for some kinds of workload separation, but you have to supply a value because CICSPlex SM doesn't know, at this stage, that you aren't going to use this workload specification for workload separation.
   - A **Default target scope**, which is the name of the region or group of regions (BRITGTS1 in this example) to which work is to be routed.
   - An **Algorithm type**. This example uses QUEUE but you can specify either QUEUE, LNQUEUE, GOAL, or LNGOAL for Link3270 bridge requests.
7. Associate the workload specification with the routing region scope
   - On the **WLM specifications** tabular view, select the record for BRSPEC01 and click the **Associate CICS system...** button.
   - Enter the routing region scope into the **CICS system** field and click **Yes**.

When the regions are next restarted, the workload will be routed across the target regions. You can use the **Active workloads** view (WLMAWORK object) to check that workload specification BRSPEC01 is active. You can use the **Target region in active workload** view (WLMAWAOR object) to see to which target regions workloads are being routed.

Separating a Link3270 bridge workload:

You can separate Link3270 bridge workloads by user ID, transaction group, or LU name.

About this task

You can separate by LU name only if you are overriding the NETNAME that the bridge generates automatically. Be aware of the restrictions on the use of LUNAME when separating Link3270 bridge workloads. For more information, see Separating Link3270 bridge workloads. For Link3270 bridge workloads, the LU name is the eight–character NETNAME of the terminal running the client transaction that started the Link3270 bridge, rather than the NETNAME of the bridge facility itself.

To separate by bridge facility NETNAME, you must modify the EYU9WRAM module. For more information, see Separating Link3270 bridge workloads. CICS routes all transactions running under the same bridge facility to the same target region. You cannot force them to go to different regions.

The following example describes how to separate a bridge workload by userid and transaction group. The example uses the same configuration as that described in "Creating workload management definitions using the WUI" on page 175.

Add the following definitions to the definitions that you created in "Creating workload management definitions using the WUI" on page 175.

Procedure

1. Create a transaction group.
   a. From the Web User Interface main menu, click **Administration views** > **Workload manager administration views** > **Transaction group definitions**. The **Transaction group definition** view opens, listing any transaction groups already defined in PLXPROD1.

      If the current context is not PLXPROD1, specify `PLXPROD1` in the **Context** field and click **Refresh**.
   b. Scroll to the bottom of the view, click **Create**, and provide the following information:

      Transaction group name
      TRGBRI01
      Description
      Link3270 bridge transaction group
      Affinity relation and lifetime checking status
      ACTIVE
      Primary search criterion
      User ID
      Automatic affinity creation option
      N/A

      You can leave the remaining fields or accept the defaults.
   c. Click **Yes**. The **Transaction group definition** view is redisplayed, now showing the name of the transaction group TRGBRI01.

      Leave the **Affinity relationship** and **Affinity lifetime** fields blank and the **Automatic affinity creation option** field set to N/A because CICSPlex SM does not handle affinities between Link3270 bridge transactions.

Note: If you want to separate by LUNAME, you must enter `LUNAME` in the **Primary search criterion** field of the **Transaction group definition** create view.

2. Identify the transactions in group TRGBRI01.
   a. In the **Transaction group definition** view, select the entry for TRGPAY03, and click **Add transaction**.
   b. Type the name BRI1 in the **Transaction name** field, and click **Yes** to confirm. The **Transaction group definition** view is redisplayed.
3. Repeat the previous two steps for any further transactions that you want to be routed to different regions.
4. Create a workload definition.
   a. From the main menu, click **Administration views** > **Workload manager administration views** > **Definitions**. The **Workload management definition** view opens.
   b. Scroll to the bottom of the view, click **Create**, and provide the following information:
      Workload management definition name
      WLDBRI01
      Description
      Separate Link3270 bridge activities
      Transaction group name
      TRGBRI01
      Terminal LU name
      *
      User ID
      BRIUSER1
      BTS process type
      *
      Scope name of set of target systems
      CICSPA01

      These values indicate that transactions in group TRGBRI01 entered by BRIUSER1 are to be routed to CICSPA01.
   c. Click **Yes** to confirm.

   Note: If you want to separate by LUNAME, you must enter the LUNAME in the **Terminal LU name** field of the **Workload management definition** create view.
5. Repeat the previous step for any further transaction groups you have created for transactions that are to be routed to different regions.
6. Create a workload group. A workload group is essential if you want a workload definition to be installed automatically when the routing region that is routing the transactions is started.
   a. From the main menu, click **Administration views** > **Workload manager administration views** > **Groups**. The **Workload management group** view opens, listing any workload groups already created in PLXPROD1.
   b. Click **Create** and type in the following information:
      Workload management group name
      WLGBRI01
      Description
      Workload Group for WLDBRI01
   c. Click **Yes** to confirm. The **Workload management group** view is redisplayed.

7. Add the workload definition WLDBRI01 and any other workload definitions you have created to WLGBRI01.
   a. From the main menu, click **Administration views** > **Workload manager administration views** > **Definitions**. The **Workload management definition** view opens.
   b. Select the entry for WLDBRI01, click **Add to WLM group**, and provide the following information:
      Workload management definition name
      WLDPAY01
      Description
      Link3270 bridge workload definition
      Resource group name
      WLGBRI01
   c. Click **Yes** to confirm.
   d. Repeat for any additional workload definitions that you created earlier.
8. Add workload group WLGBRI01 to workload specification BRSPEC01.
   a. From the main menu, click **Administration views** > **Workload manager administration views** > **Groups**. The **Workload management (WLM) group** view opens.
   b. Select the entry for WLGBRI01, click **Add to WLM specification**, and type `BRSPEC01` in the **Specification name** field.
   c. Click **Yes** to confirm.
9. Install definition into the active workload.
   a. From the main menu, click **Administration views** > **Workload manager administration views** > **Definitions**. The **Workload management definition** view opens.
   b. Select the entry for WLDBRI01, and click **Install** to install it into the active workload. Click **Yes** to confirm. The workload separation definitions you created take effect immediately.
   c. Click **Yes** to confirm.

What to do next

You can check that the workload definition is active using the **Workload definition installed in active workload** view.

Administering resources with CICSPlex SM

You can manage all of your CICS and CICSPlex SM resources through any of the following interfaces; the CICS Explorer, the CICS Management Client Interface (CMCI), a WUI view, or using the CICSPlex SM API.

Manage your resource definitions in the following ways:

- Using the CMCI, which accepts HTTP requests from your application.
- Using the CICS Explorer, which takes advantage of CMCI.
- Using the CICSPlex SM Web User Interface (WUI).
- Adding CICSPlex SM API commands directly to your application.

Managing and installing resources

Use Business Application Services (BAS) to manage and install CICS resources that are stored on the CICSPlex SM data repository.

Use CSD to manage and install CICS resources that are stored on the CICS System Definition (CSD) repository.

You must define a CSDGROUP for a CSD resource and a DEFVER for a BAS resource.

Managing resources using Business Application Services (BAS)

Business Applications Services is the component of CICSPlex SM that you use to manage the CICS resource definition and installation process for business applications at your enterprise.

What is Business Application Services (BAS)?

Business Application Services (BAS) is an alternative to resource definition online (RDO) that enables you to manage CICS resources in terms of the business application to which they belong, rather than their physical location in the CICSplex.

A business application can be any set of resources that represent a meaningful entity in your enterprise. Within the application, you can group together resources of a particular type and define the run-time characteristics of that group. At run-time, you can refine the selection of resources to be installed by using a filter expression, and you can change the resource attributes by using an override expression.

Limitations of RDO:

RDO is the traditional CICS method of defining resources to CICS systems.

With RDO, resource definitions are tied to a single group and groups that are processed sequentially from a group list. Any duplicate definition found later in the process overrides any earlier one. In addition, the very nature of the definitions that RDO requires and the extent to which they are available to multiple CICS systems can prove limiting. RDO has several disadvantages in a CICSPlex SM environment:

- Resources are assigned to groups that are assigned to specified CICS systems.
- Resource definitions have to be duplicated across CICS systems, unless the CSD is shared.
- Each end of every communications link has to be defined explicitly.

BAS concepts:

BAS enables you to view and manage your resources in terms of their use in your business, and independently of their physical location.

This section introduces the basic concepts of the BAS function.

Logical scoping:

Once your CICS resources are defined to CICSPlex SM, you can monitor and control resources in terms of their participation in a named business application, rather than their physical location in the CICSplex.

Logically-related resources can be identified and referred to as a set, regardless of where they reside at any given time.

Sets of definitions can be reused and associated with any number of other logical associations of resources that reflect your business needs, rather than your system configuration.

If you set the scope to be your application, any operation or monitoring views will display only those resources that satisfy your selection criteria. This gives you the power to control precisely how those resources are managed.

Multiple versions of a resource definition:

With BAS, you can have multiple versions of the same resource.

Each time you create a new definition for the same resource and the same name, BAS allocates a new version number. Note that a new version number is not created if you update the resource. You can specify a specific version of a resource definition by its version number.

Version support allows you to develop resource definitions as your business applications develop. You can then have, for example, a single version of a resource in multiple groups, or multiple versions of the resource throughout the CICSplex. Note that you can install only one version of a resource in a CICS system at one time.

Centralized resource definition:

RDO definitions are held in a CICS System Definition (CSD) file. BAS resources are held on a central data repository that is accessed by all the CICS systems in the CICSplex.

The CICSPlex SM data repository (EYUDREP) serves as the central repository for all your CICS resource definitions. This minimizes the number of resource definitions you need for your CICSplex by:

- Providing a single system image approach to defining CICS resources across all supported platforms.
- Producing both local and remote instances of a resource from a single definition.
- Managing multiple versions of a definition. For example, you can have different versions of the resources for an application as it progresses through a number of test phases.
- Generating multiple CICS communication links from a single set of connection and session definitions.

CICS system links:

With Business Application Services, you can create one set of BAS resource objects to define the connection definitions and reuse them in many CICS regions by using a system link (SYSLINK) object. The established method of defining connections between CICS regions is to use RDO to manually create and install definitions that describe the connection. Each resource definition is unique to the CICS region and cannot be reused in other regions.

The system link definition describes the type of connection and connection definitions that are required to create a connection between a pair of CICS regions. You can use these connection definitions as a model to create any number of system links that share the same characteristics.

You can define different types of connections using SYSLINK objects:

- MRO or ISC connections require CONNDEF and SESSDEF resource objects to describe the CONNECTION and SESSION resources.
- IPIC connections require IPCONDEF and TCPDEF resource objects to describe the IPCONN and TCPIPSERVICE resources.

When you install a SYSLINK that uses these model definitions, the resource definitions are installed in the CICS regions automatically to create the connection.

Distributed resource installation:

Resources that are defined to CICSPlex SM must still be installed in the appropriate systems, either by CICS or by CICSPlex SM.

You can use BAS to install your resources either automatically, at CICS initialization, or dynamically, while a system is running. A single resource can be installed in multiple CICS systems either locally or remotely, as appropriate.

Two forms of BAS:

You can use BAS in two ways; The migration form, or in the full-function form. You can use either or both of these forms, depending on the situation and degree of precision you require.

- Migration form, in which resource groups are associated with resource descriptions. In this form, resource descriptions are similar to group lists. See Figure 29 on page 245 and "Using migration form BAS" on page 252.
- Full-function form, in which resource assignments are used to qualify the contents of resource groups and resource descriptions, and to control the assignment of resources to CICS systems. See Figure 30 on page 246 and "Using full-function form BAS" on page 252.

The simplest form is the migration form using resource descriptions. You create resource definitions and resource groups, and associate them with one or more resource descriptions. It is the resource description that defines the logical scope for the resources. The resources are assigned to specific CICS systems and you therefore still need separate definitions for a resource that is local to one system and remote to another. This approach to BAS is similar to using RDO, in that the resource description is analogous to the group list. You in effect create a version of your CSD on the CICSPlex SM data repository. Though this is a good position from which to establish your CICSPlex SM resources environment, you cannot take advantage of all the facilities offered by BAS.

To take advantage of the facilities offered by BAS to manage your resources in terms of the business application rather than location, you need to use resource assignments. A resource assignment selects resources of a particular type from a group, and assigns them to the appropriate CICS system. A resource assignment is associated with a resource description. The resource description then no longer functions like a group list, but becomes a user-defined, logical set of resources, such as an application.

Using resource assignments allows you to manage your individual resources and change their attributes for individual systems, or to suit special circumstances. You can:

- Control resources of a given type in a given group.

- Identify resources as either local or remote, and assign them to various CICS systems with a single resource definition.
- Process selected resources from a group by specifying a filter expression.
- Modify resource attributes for a particular use by specifying override expressions.

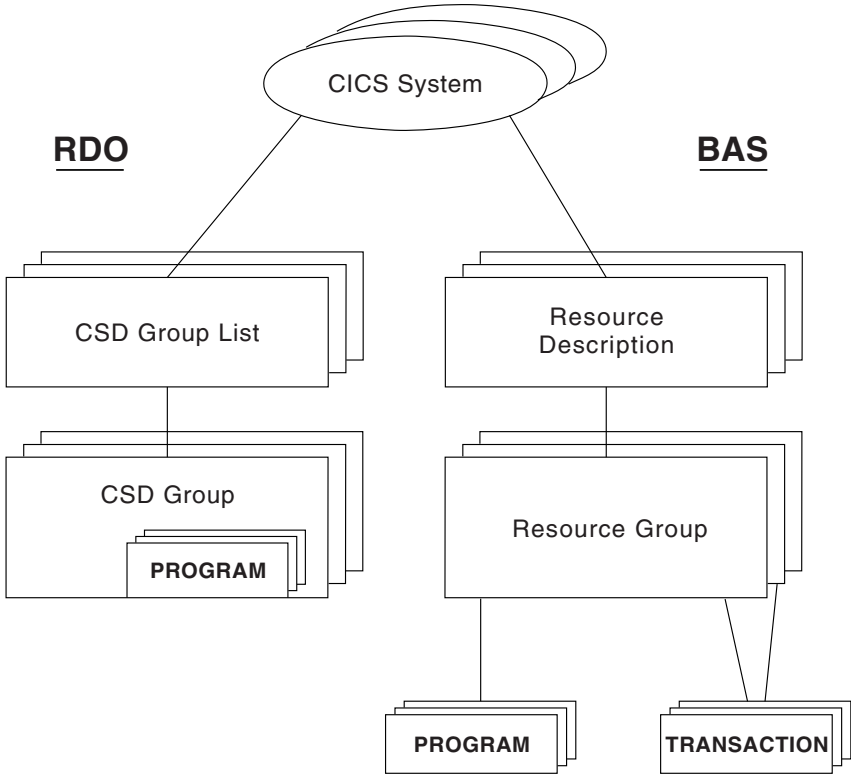


Figure 29. Migration form BAS

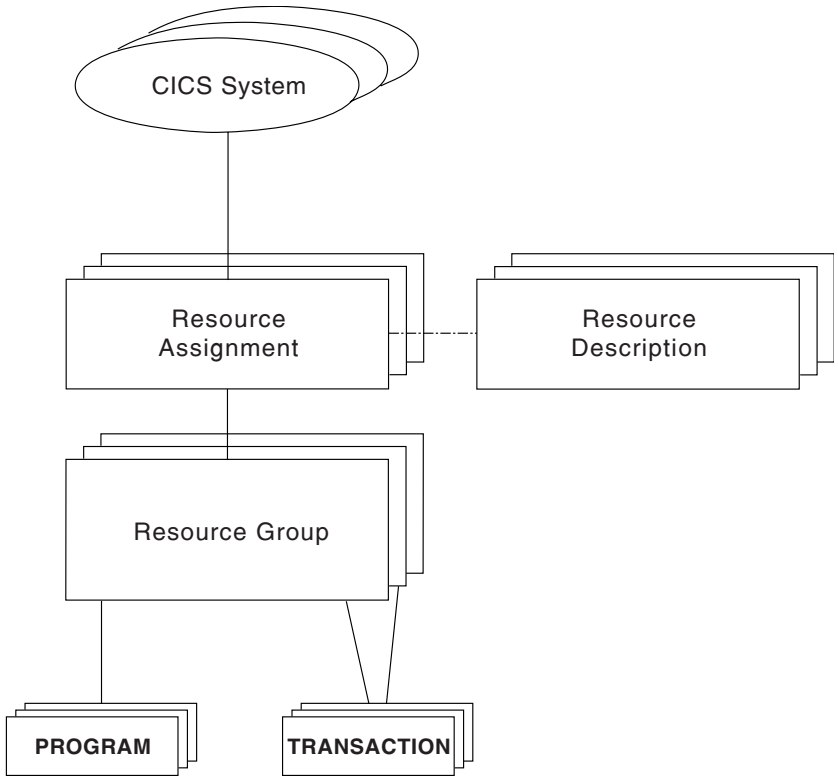


Figure 30. Full-function BAS

Advantages of using BAS:

The BAS approach to the management of resources offers several advantages over RDO.

The advantages are as follows:

- A familiar, RDO-like definition process with a choice of interfaces (WUI, batch or API).
- Logical scoping, that allows you to handle your resources in terms of business application rather than location.
- A common definition repository for all resources in a CICSplex, across all supported CICS platforms.
- A reduction in the number of definitions required, with the ability to reuse definitions and override individual attributes as needed.
- Consistent resource definitions and a great deal of control over the definition process.
- A resource can be added to additional regions by adding it to the groups that define where the application will run.
- Because the application is known to CICSPlex SM, commands can be directed to a scope that matches the application, not to an arbitrary group of regions.

Managing BAS

Your BAS environment is set up and managed using these WUI view sets and resource administration objects.

Table 14. WUI view sets and resource administration objects

WUI view set	Object name	Description
Resource assignment definitions	RASGNDEF	A resource assignment describes the characteristics of the selected resource definition type, and how those resources are to be assigned to CICS systems. The assigned resources must all be of one type, for example, files, and must belong to a resource group. A resource can be assigned as both local and remote in one or more CICS systems. Before you can use the resource assignment, you must associate with a resource description; see the **Resource description definitions** (RESDESC) view. This object is also used to identify the attributes to be used in selecting the resources to be assigned and any attribute values to be changed when the resources are assigned.
Resource assignments in resource description	RASINDSC	This view displays information about resource descriptions, and the resource assignments associated with them. This information includes, for each resource, its resource group and any assigned CICS system to CICS system group.
Resource selected by resource assignments	RASPROC	This view displays the resources that will be processed when the specified resource assignment is processed. The resources displayed are selected from those in the associated resource group, using any supplied selection criteria.
Resource selected by resource description	RDSCPROC	This view displays the resources that will be selected when a specified resource description is processed. The resources can be selected from resource groups that are directly related to the resource description, as in migration form BAS, and from resource assignments, using any selection criteria currently in effect.
Resource description definitions	RESDESC	A resource description identifies a set of resource groups, and hence resource definitions. You use this object to specify whether or not you want to use logical scoping for this resource description, and the CICS systems for the associated resource groups.
Resource group definitions	RESGROUP	This object is used to associate one or more related resource definitions. The resource definitions may be of the same or different types.
Resource groups in descriptions	RESINDSC	This view displays information about existing resource descriptions and the resource groups associated with them.
Resource definitions in resource groups	RESINGRP	This view displays information about existing resource groups and the resource definitions associated with them.
CICS system link definitions	SYSLINK	This view displays information about the links that exist between CICS systems in the CICSplex. The information includes the names of the CICS systems and the names of the connection and session definitions used in defining the link.
CICS system resources	SYSRES	This view displays the resources that will be assigned to a specified CICS system. The resources are selected on the basis of the resource descriptions currently associated with the CICS system.

Table 14. WUI view sets and resource administration objects (continued)

WUI view set	Object name	Description
Resource definitions	*res*DEF where *res* identifies the resource being defined	For each resource definition type, there is a resource definition object that defines the attributes for that definition. The available resource types (shown in parentheses) and the WUI views used to define them for CICSPlex SM are: • Atomservice definitions view (ATOMDEF object) • BUNDLE definitions view (BUNDDEF object) • CICS-deployed jar file definitions view (EJDJDEF object) • DB2 connection definitions view (DB2CDEF object) • DB2 entry definitions view (DB2EDEF object) • DB2 transaction definitions view (DB2TDEF object) • Deployed enterprise java archive definitions view (EJCODEF object) • Document template definitions view (DOCDEF object) • FEPI node list definitions view (FENODDEF object) • FEPI pool definitions view (FEPOODEF object) • FEPI property definitions view (FEPRODEF object) • FEPI target list definitions view (FETRGDEF object) • File definitions view (FILEDEF object) • File segment view (FSEGDEF object) • Global enqueues view (ENQMDEF object) • IPIC connection definitions (IPCONDEF object) • ISC/MRO connection definitions view (CONNDEF object) • Journal definitions view (JRNLDEF object) • Journal model definitions view (JRNMDEF object) • LIBRARY definitions view (LIBDEF object) • LSR pool definitions view (LSRDEF object) • Map set definitions view (MAPDEF object) • Partner definitions view (PARTDEF object) • Pipeline definitions view (PIPELINE object) • Process type definitions view (PROCDEF object) • Profile definitions view (PROFDEF object) • Program definitions view (PROGDEF object) • Partition set definitions view (PRTNDEF object) • Request model definitions view (RQMDEF object) • Session definitions view (SESSDEF object) • TCPIP service definitions view (TCPDEF object) • Transient data queue definitions view (TDQDEF object) • Terminal definitions view (TERMDEF object) • Transaction definitions view (TRANDEF object) • Transaction class definitions view (TRNCLDEF object) • Temporary storage model definitions view (TSMDEF object) • Typeterm definitions view (TYPTMDEF object) • IBM MQ connection definition view (MQCONDEF object)

The object models showing the relationships between these objects are shown in Figure 31 on page 249 and Figure 32 on page 250. The view titles are followed by

the resource name in parentheses.

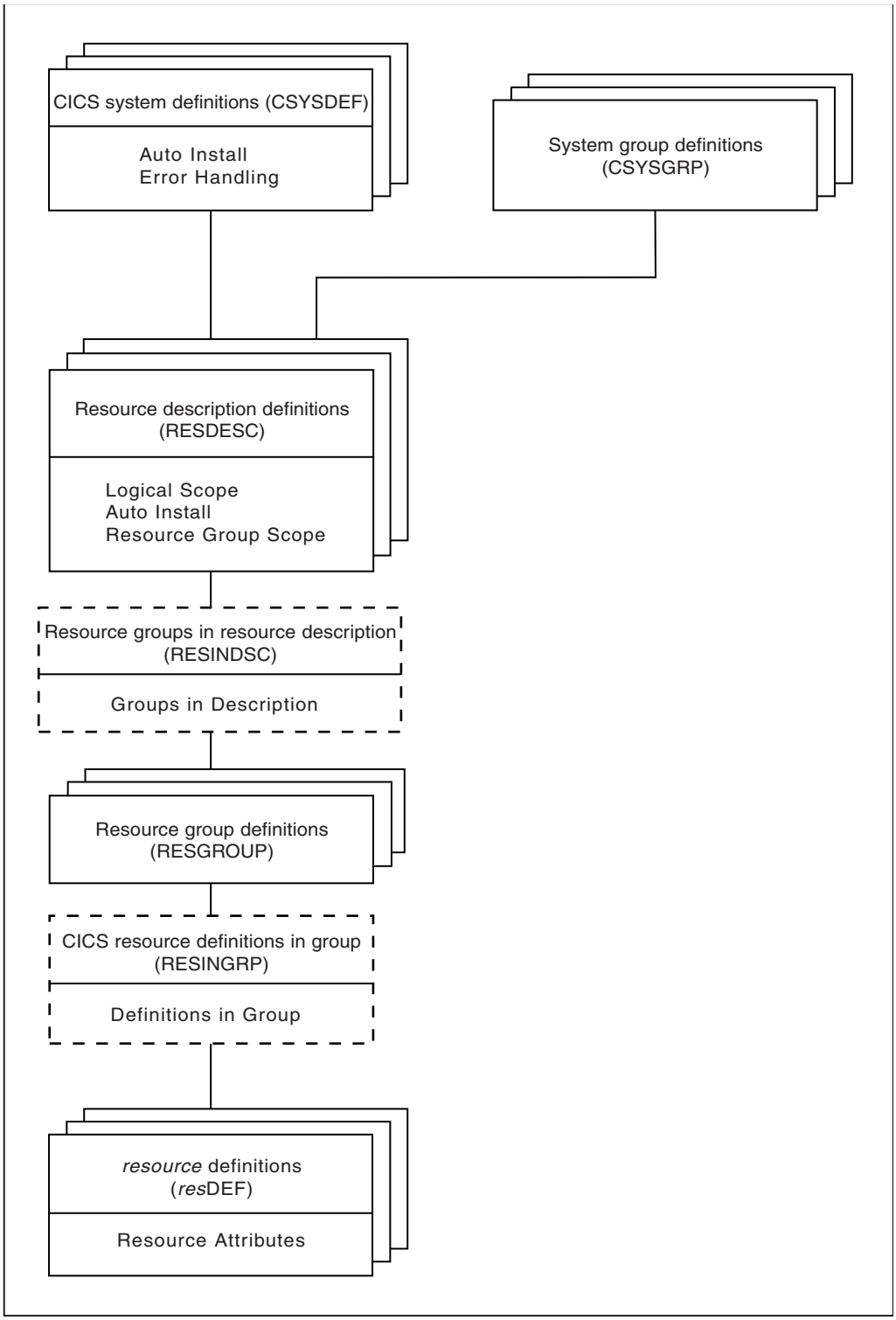


Figure 31. The migration form BAS object model

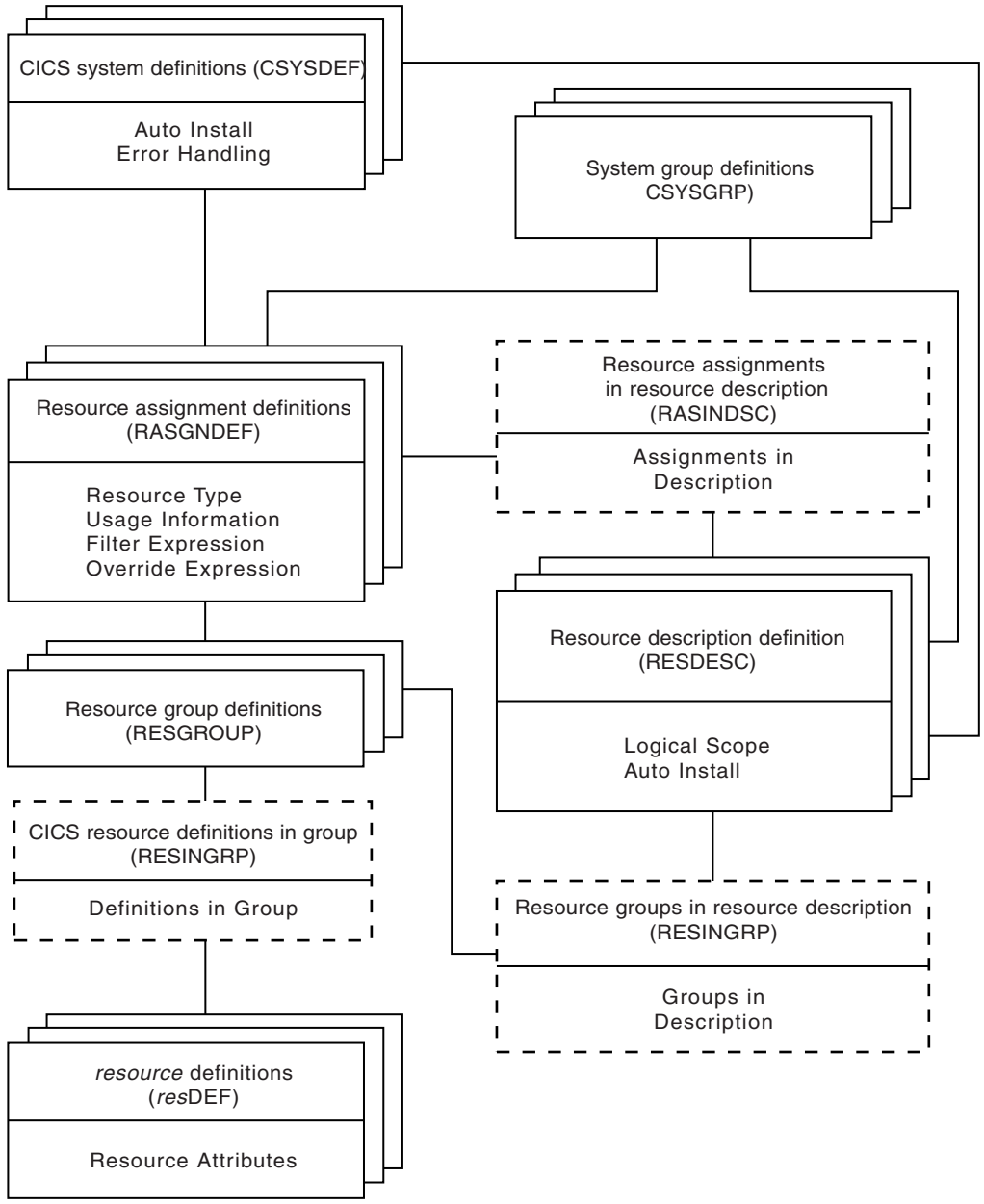


Figure 32. The full-function BAS object model

Migrating your resource definitions

You do not have to re-create your resource definitions and resource groups in BAS. You can migrate your existing CSD structures.

About this task

To move your resource definitions and resource groups from your CSDs to the data repository, use the following process. This process maintains the relationship between resources and groups. You can migrate all or part of a CSD, or more than one CSD, at any one time.

Procedure

1. Use the EXTRACT command of the DFHCSDUP utility routine to read the CSD records.
2. Use the CICSPlex SM extract routine EYU9BCSD to create batched repository-update facility commands.
3. Input these commands to The batched repository-update facility in Administering to create resource definitions and resource groups, and the objects that link them.

Related information:

Defining resources

You can use BAS to define and maintain resource definitions across a CICSplex. By creating resource definition objects in the data repository, you can use these objects as templates for creating large numbers of resource definitions.

The definition of resources for CICSPlex SM is similar to CICS RDO. To define a resource, you create a *resource definition object*. You describe the attributes of the resource in the definition but you do not have to define every occurrence of every resource; you can use a small number of resource definitions as templates for the creation of large numbers of resources. The resource definitions are stored in the data repository for the CICSplex.

The differences between CICSPlex SM resource definition objects and CICS resource definitions are:

- The same resource definition can be used by any CICS region in the CICSplex, across all supported platforms.
- You can define to CICSPlex SM all the attributes of each resource, including both local and remote values. CICSPlex SM determines the correct subset of attributes to use when the resource definition is assigned to a CICS region.
- You do not have to define every instance of your resources from scratch. You can create a resource definition as a "template" for many resources with similar, even identical, attribute values. You can specify temporary or permanent variations, called *overrides*, for CICSPlex SM to create resources with different sets of values.
- You can create multiple versions of the same named resource definition. Each version is effectively a different resource definition, and can be used by different CICS systems or for different system requirements. For example, you might have different resource requirements for development and test systems. See "Validating resources."

You can create resource definition objects in three ways:

- Using the administration views in CICS Explorer or the BAS administration and definition views in the Web User Interface
- Using the batched repository-update facility (see The batched repository-update facility)
- Using the CICSPlex SM API; see Developing CICSPlex SM applications.

Validating resources:

BAS performs many of the same resource definitions checks as RDO does.

As individual resources are defined and installed, BAS checks:

- Individual attributes of a resource
- Interdependent resources attributes
- Release-specific resource attributes

In addition, BAS checks that each *set* of resources is consistent. Every time you make a change to a resource set, BAS checks that the resource being added or updated is not in conflict with a resource already in the CICS system. For example, you would get an inconsistent set error if you tried to assign different versions of the same resource to the same CICS system, or assign a resource as both local and remote.

BAS also provides a MAP function that allows you to check that your resource associations are what you want. You use this facility to display the structure of your resource associations, starting at any point in hierarchy.

Defining resource groups:

A *resource group* is a set of related resource definitions that you want to manage as a unit. Resources groups are defined using the **Resource group** view (RESGROUP object). The resource definitions in a group may be of the same type or of different types, but usually have something in common. They might be logically related by their use in a given application or communications network, or geographically related by their use at a given site.

There is no real limit to the number or combination of resource definitions that can make up a group. However, only one version of any given resource can be included in a resource group at one time. You have to maintain each version of a resource definition in a different resource group.

Using migration form BAS

With migration form BAS, your resource groups are associated directly with *resource descriptions*.

A resource description specifies whether or not you are using logical scoping, and the CICS systems for the resource groups associated with the resource description. See Figure 31 on page 249.

When you have migrated or defined your resources and resource groups, you need to create resource descriptions to define your applications. Resource descriptions are defined using the RESDESC object. A resource description is directly related to one or more resource groups that are to be managed as an entity. In the migration form BAS model, this relationship can be considered to represent a logical scope, but the resource description is really analogous to a RDO group list, in that all the resources are tied to a given CICS system or CICS system group.

Using full-function form BAS

With full-function form BAS, resource groups are not associated directly with resource descriptions.

An additional object, the *resource assignment* (RASGNDEF), defines the characteristics and usage of a selected resource type from a resource group. The resource assignment is associated with a resource description, which can then be used to represent a business application. See Figure 32 on page 250.

These objects are used to define your resources in terms of their business application.

Using resource assignments:

Power and flexibility in the management of resources is offered by the *resource assignment* (RASGNDEF) object.

Note: If you are using the migration form of BAS, you do not use resource assignments.

Each resource assignment relates to one resource type within a resource group, and it must be associated with a resource description, if it is to be used in logical scoping or automatically installed. Each resource group can be in more than one resource assignment.

You can further refine the selection of resources within the type specified by the resource assignment by using a filter expression, and you can change the resource attributes using an override expression. You can combine in the expression an unlimited number of attribute values, using the logical operators AND, OR, and NOT. When the resource description is specified as the scope, CICSPlex SM processes only those resources that meet the specified selection criteria. This gives you a great deal of control over the management of your resources.

Each resource assignment must be added to a resource description, if it is to be installed and used in logical scoping. Creating resource assignments and adding them to a resource description enables you to manage sets of resources with a logical scope that can span many CICS systems. In this case, the resource description becomes, in effect, a user-defined, logical set of resources, such as an application. You might have several different resource descriptions associated with a given CICS system, each one representing a different set of resources.

For example, with a resource assignment, you can:

- Select specific resources from a resource group.
- Identify the CICS systems where local and remote instances of a resource should be assigned.
- Temporarily override the values of specific resource attributes.

The resources selected by a resource assignment cannot be managed independently. The resources must be members of a *resource group* and the resource assignment must be associated with at least one resource description.

Using resource descriptions:

With full-function BAS, a resource description represents an application, that is, a set of logically-related resources that can span more that one CICS system. The resource description thus identifies the *logical scope* of the application.

Each resource group to be used as part of the application must be added to the resource description. You can associate whole resource groups with a resource description to create a larger set of resources (much like a CSD group list). This allows you to manage the resources more efficiently. The set of resources identified in a resource description can be:

- Identified as a logical scope (such as an application) for use in subsequent CICSPlex SM requests
- Installed either automatically, when the CICS system identifies itself to CICSPlex SM as a MAS, or dynamically, while the CICS system is up and running.

The BAS objects that are used for creating and managing these resource associations shown in Figure 31 on page 249 and their functions are summarized in Table 14 on page 247.

Installing applications and resources

Optionally, as an alternative to installing resources from the CSD, you can use BAS to install your resources, from the data repository.

BAS allows you to install all the resources associated with an application, by installing the resource description, or one resource group. BAS applies any resource assignments you have associated with the application resource description or resource group, and selects the actual resources to be installed on the basis of those criteria. Alternatively, you can install an individual resource into one or more CICS systems, either locally or remotely, as appropriate.

BAS can install resources either automatically at system initialization time or dynamically into an active CICS system. Before installing a resource, CICSPlex SM performs checks to determine whether the resource already exists in the CICS system. The normal situation is that if the resource exists, the new resource is considered a duplicate and is not installed. However, when you dynamically install resources, BAS offers the option of bypassing the duplicate resource checking and forcing the unconditional installation of resources.

Automatic installation
: When a CICS system initializes and identifies itself to a CMAS, BAS reviews the resources associated with that system and decides the set of resources to be installed.

Dynamic installation
: You can install resources dynamically into an active CICS system by clicking the **install** button either from the appropriate resource definition view, or from one of the following views:

- **Resource group definitions** view.
- **Resource description definitions** view.
- **System link definitions** view.

Security considerations

Because of the importance of resource definitions to your CICSPlex SM environment, you need to consider carefully the implications of allowing users access to certain types of resource or to certain functions.

You can allow a user to have access to all resource definition views and their related administration views, or you can restrict access to the definition views for a particular resource type. You can also define the type of access a user has, for example, one user might have read-only access to **ISC/MRO connection definitions** views (CONNDEF object) and **Session definitions** views (SESSDEF object), but update access (which permits creation and administration of resources) to all other resource types. You need to make sure that the BAS views are adequately protected, so that unauthorized users cannot create and administer resources.

You should also take care if you are running CICS TS, and are using the EXEC CICS CREATE command to build new resources. Any definition created with the CICSplex as the context is automatically distributed to all CMASs in the CICSplex. Therefore, giving a user authority to create BAS objects is potentially equivalent to

giving authority to install resources on any CICS system in the CICSplex. When the CICS system starts, there is no check on who installed the resource in the system.

For details on setting up security for CICSPlex SM at your enterprise, see BAS security considerations.

Planning for BAS

BAS allows you to create CICSPlex SM objects that define your resources and to group them in such a way that you have close control over the running of your applications.

You do not have to transfer all your CSD resources to CICSPlex SM at the same time, neither do you have to decide at the outset which approach you will use. You can extract the resource definition records from one or more CSDs, or only a subset of records from one CSD. You can move directly to using full-function BAS, or you can use migration form BAS, and gradually move towards full-function BAS. You can use RDO, migration form BAS, and full-function BAS in the same CICSplex.

This section poses some of the questions you might like to consider when you start planning to implement BAS in your enterprise:

- If you are going to use the extract facilities:
  - In what order do you want to extract your CSDs?
  - Do you want all the records from a CSD or a subset?
  - Are you going to extract more than one CSD at a time?
- Are you going to use the migration form approach?
- Are you going to implement full-function BAS? You then need to think about how your business applications use resources and the assignments you need to create.
- Which resources are to be installed automatically and which are to be installed dynamically?
- Which definitions are required before PLT processing? Definitions required before PLT phase 2 processing must be in the CSD.
- Where are the resources to be installed?
- Do you need to define manually any resources that are not defined in the CSD?
- What security measures do you need to implement? (See “Security considerations” on page 254).

The CICS Interdependency Analyzer can assist you in the planning and understanding of your application resource flow; it shows you:

- Transaction resource dependencies; that is, the sets of resources used by individual CICS transactions, and on which the transactions depend in order to run successfully
- Transaction affinities; that is, those groups of transactions that have affinities with each other, meaning that the whole group must be installed in the same region, or in a particular region

For more information about CICS Interdependency Analyzer, see CICS Interdependency Analyzer for z/OS.

Implementing BAS

This section describes a route you could take to implement BAS on your CICSplex.

Creating migration for BAS:

The first stage in the process of moving to using BAS is to migrate your resources from CICS to CICSPlex SM:

- Move your resource definitions, resource groups, and the relationships between them, from the CSD to the CICSPlex SM data repository. This process, which is described in "Migrating your resource definitions" on page 250, gives you an intermediary resource hierarchy that is very like CEDA, in that each resource definition is in a resource group.
- Create definitions and groups for any resources that are not held on the CSD.
- Create applications by associating each resource group with a resource description.

There are no resource assignments and, although you can now run your CICSPlex SM system perfectly satisfactorily, you will not be taking advantage of the special functionality offered by BAS.

Once you have extracted your CEDA definitions, you can proceed to migrate your resource definitions to full BAS function, as described in "Migrating to the use of resource assignments."

Migrating to the use of resource assignments:

You don't have to migrate all your resources to resource assignments at the same time.

You can identify certain resources in which you are interested, remove them from direct association with resource definitions, and create resource assignments, using the **Resource assignment definitions** view (RASGNDEF object) for them. When you are happy with the resource assignments, you can move on to defining another set of resource definitions.

As you move towards processing your resource definitions more full-functionally, you should remove resource groups from direct association with a resource description and identify them instead in one or more resource assignments.

Note: You can use the same resource description to manage both whole resource groups and selected resources identified in resource assignments. As you begin to take advantage of the resource assignment capabilities, you may have to update some of the underlying resource definitions. For example, a resource definition that was previously associated as is with a CICS system might require additional attributes before it can be assigned as both a local and remote resource in different CICS systems.

A recommended approach:

When you decide to implement BAS functions in your enterprise, you should begin by defining the appropriate objects.

This section summarizes the preceding sections. You should:

- Extract resource definitions and resource groups from the CSD, as described in "Migrating your resource definitions" on page 250. Alternatively:
  - Use the appropriate resource definition views to create resource definitions.
  - Use the **Resource group definitions** view to create resource groups (RESGROUP objects).

- Use the **Resource assignment definitions** view to create resource assignments (RASGNDEF object) .
- Use the **Resource description definitions** view to a create resource description to associate the definitions and assignments just created (RESDESC object).

Then, to create associations between these objects:

- Use the appropriate resource definition view to add resource definitions to a resource group (RESINGRP object).
- Use the **Resource group definitions** (RESGROUP) view to add the resource group to a resource description (RESINDESC object).
- Use the **Resource assignment definitions** view (RASGNDEF object) to associate the resource assignment with a resource description (RASINDSC object).
- Use the **Resource assignment definitions** view (RASGNDEF object) to associate the resource assignment with a CICS system or CICS system groups.

You can use the **Map** action button to display a visual map of the BAS definitions in your data repository. If you want to see a list of the objects and associations you have already defined, use the **Resource definitions in resource groups** view (RESINGRP object).

Where next?

Once you have identified your BAS requirements, you need to set up your resources and their associations.

This is described in Creating resources with BAS in Administering.

The Discovery Library Adapter for CICS

The Discovery Library Adapter (DLA) for CICS is a utility that collects information during runtime about CICS and CICSPlex SM resources. It generates XML files that can be used by a discovery library reader to track these resources and their interdependencies across your enterprise.

The CICS DLA uses CICSPlex SM services to generate XML files that conform to the Discovery Library IdML XML schema and Common Data Model. The XML files called discovery library books can be loaded by several products including Tivoli® Change and Configuration Management Database (CCMDB) and Tivoli Business Service Management (TBSM).

The CICS DLA operates against all the CICSplexes that are associated with a specified CMAS. The specified CMAS must be running at the current release level; however, the CICS regions discovered by the DLA can be at earlier release levels, as allowed by the cross-release support rules for CICSPlex SM.

To use the CICS DLA you run EYUJXDD0 as a batch job on a z/OS system. Running the DLA creates IdML discovery library books in a PDS data set. The DLA also writes control files and debug information to this data set.

When you run the DLA, it can generate three types of discovery library books:

- One CTSPLEX discovery library book containing summary information about discovered CICSplexes
- One or more CICSPLEX discovery library books containing information about the CICS system topology in a CICSplex and also the CICSPlex SM logical scopes and their associated resources.

- One or more CICSREGION discovery library books containing information about CICS resources associated with a CICS region

The DLA also generates FTP PUT and RENAME statements to facilitate the transfer of the discovery library books to the discovery library file store (DLFS) located on your local system or accessible through a network connection. You control whether the FTP transfer is carried out as part of the DLA run or is done later as an independent operation.

From the DLFS you can load the discovery library books into CCMDB or TBSM using FTP or another transfer mechanism.

You control the output of the DLA using input parameters. These parameters control the range and depth of the discovery and specify which discovery library books are created. The parameters also set general options about the operating environment, including the name of the CMAS under which the discovery takes place. You can supply these parameters in startup JCL or in an input file referred to by the parameter DD statement in the JCL.

You can run the DLA in either create mode or refresh mode:

- Create mode is the default. In this mode, the DLA produces a snapshot of your CICSplexes. The DLA produces discovery library books that might not contain information about all affected resources because some are not currently active.
- In refresh mode, the discovery library books contain everything known about the environment. The reader treats as obsolete anything that was previously loaded from a similar discovery library book and is not in this discovery library book. CCMDB and TBSM support refresh mode by deleting these obsolete resources. Refresh mode can be useful when there has been a significant configuration change but you should use it with caution because of the large amount of processing that might be involved.

Running the CICS DLA

To use the CICS DLA, you specify the necessary DLA parameters with startup JCL file, run the DLA utility as a batch program, then transfer the discovery library books in the resulting data set to the discovery library file store for exploitation by a discovery library reader.

Before you begin

- Ensure that CICS and CICSPlex SM are properly installed and configured. You must install CICSPlex SM because the CICS DLA uses the CICSPlex SM API.
- Ensure that you have the necessary update access to the partitioned data set used for the IdML output of the DLA.

About this task

This task assumes that you want to use FTP to transfer the DLA output to your DLFS. If you use a transfer mechanism other than FTP, you must ensure the discovery library books are saved in the DLFS using the correct naming conventions.

To run the DLA:

Procedure

1. Open the sample JCL file EYUJXDD0 in the SEYUSAMP library for editing. EYUJXDD0 contains startup JCL and sample input parameters for controlling the operation of the DLA.
2. Enter high-level qualifiers for CICS, CICSPlex SM, and for the CICS DLA partitioned data set by overtyping the parameter values in `CPSMHLQ=@thlq@.CPSM`, `CICSHLQ=@thlq@.CICS` with your own values.
3. Specify the CMAS, your z/OS IP host name, and your organization name using the mandatory **SET CMAS**, **SET HOSTNAME**, and **SET ORGNAME** parameters respectively.
4. Ensure that the **SET FTP** parameter is set to `YES`, the default. With this parameter set to YES, if the operation runs successfully, the DLA automatically transfers the discovered data to the DLFS as part of the DLA operation. FTP PUT and RENAME statements are always generated as part of the DLA run regardless of the SET FTP parameter.
5. Specify the remaining **SET** parameters. If you want to accept the default values, you do not have to make any changes. If you want to make changes to any parameters, overtype the defaults with your own values. For example, if you want to run the DLA in refresh mode, specify `SET REFRESH YES`.
6. Specify the **BOOK TYPE** parameters. These three parameters control which of the three types of discovery library books are generated, and also which information the discovery library books contain.

   You can include multiple instances of each of these parameters and use the optional *cplexname* or *cics_name* attributes to include or exclude the specific CICSplexes or CICS regions from the information gathering process. The default for each of these parameters is YES, which means that all discovery library books of the specified type are included in the discovery. If you want to select specific discovery library books, set the parameter to NO, to suppress the discovery of all discovery library books of that type, and then add one or more subsequent parameters specifying the discovery library books to be selected. For example, if you want to select only the CICSPLEX discovery library book named `plex1` specify:

   ```
   BOOK TYPE CICSPLEX NO
   BOOK TYPE CICSPLEX.plex1 YES
   ```

   If you specify `BOOK TYPE CICSPLEX.plex1 NO`, the DLA generates an discovery library book for each CICSplex associated with the CMAS except CICSplex `plex1`.

   You can also specify partial CICSplex or CICS region names. For example, to select only CICS regions beginning with the letter `a`, specify:

   ```
   BOOK TYPE CICSREGION NO
   BOOK TYPE CICSREGION.a YES
   ```

   If you omit *cplexname* or *cics_name* attributes, the parameter applies to all of the CICSplexes or CICS regions associated with the CMAS.

   Using multiple instances of the same **BOOK TYPE** parameter can lead to consequences that are difficult to predict. The DLA processes these parameters in the order that they are included in the input file. It is therefore possible for one parameter to conflict with an earlier one.
7. Save and submit the EYUJXDD0 module to start the DLA operation. The DLA populates a partitioned data set with discovery library books containing the discovered data. The default name of the data set is *hlq*`.`*cmas*`.CICSTS.DLA`*nnn*`.IDML`, where *hlq* is the high-level qualifier you supply, *cmas* is the name of the CMAS specified in the **SET CMAS** parameter, and *nnn* is

the CICS version number, for example 660. If the data set already exists, its contents are overwritten with the newly discovered data.

The DLA also creates FTP PUT and RENAME statements in to facilitate the transfer of the data.

If the DLA operation is successful, it generates a return code of zero, then continues and transfers the discovered data to the DLFS using the FTP statements in the data set member @FTPRUN.

If the DLA generates a nonzero return code, or if you have specified **SET FTP NO**, the DLA does not carry out the FTP part of the operation. You can run the EYUJXDD1 module at any time to carry out the FTP step independently. In this case, the DLA uses the FTP statements from the @FTPALLP or @FTPCHGP data set members to transfer the data.

Results

After transferring the DLA output, your DLFS contains the discovery library books required for validation and exploitation by your discovery library reader.

The CICS DLA package

The CICS DLA is shipped as a series of modules in the SEYUAUTH, SEYULOAD, SEYUSAMP, and SEYUPROC CICSPlex SM libraries.

Table 15. DLA modules

Modules	Library	Description
EYU9XDDA	SEYULOAD	Includes the main program and any other EYU9XDD*c* programs it calls.
EYUJXDD0	SEYUSAMP	Batch JCL for calling procedure EYUJXDDP to run the DL and transfer the IdML members to the DLFS.
EYUJXDD1	SEYUSAMP	Batch JCL to transfer the IdML members to the DLFS as a stand-alone job.
EYUJXDDP	SEYUPROC	Procedural JCL for running the DLA.
EYUMCT1C EYUMCT2C	SEYUAUTH	Simplified Chinese message load modules.
EYUMCT1E EYUMCT2E	SEYUAUTH	English language message load modules.
EYUMCT1K EYUMCT2K	SEYUAUTH	Japanese Kanji message load modules.

CICS DLA sample module EYUJXDD0

EYUJXDD0 contains JCL for starting EYUJXDDP to run the DLA.

```
//EYUJXDD0 JOB CLASS=A,MSGCLASS=A,NOTIFY=&SYSUID
//           JCLLIB ORDER=(@thlq@.SEYUPROC)
//*
//*****************************************************************
//*                                                               *
//*   MODULE NAME = EYUJXDD0                                      *
//*                                                               *
//*   DESCRIPTIVE NAME = %PRODUCT CPSM Batch Utility Program      *
//*                      Sample JCL for invoking EYU9XDDA         *
//*                                                               *
//*    @BANNER_START                          02                  *
//*    Licensed Materials - Property of IBM                       *
//*                                                               *
```

```
//*    "Restricted Materials of IBM"                                *
//*                                                                 *
//*    5655-M15                                                     *
//*                                                                 *
//*    (C) Copyright IBM Corp. 1990, 2006                           *
//*                                                                 *
//*    @BANNER_END                                                  *
//*                                                                 *
//*   STATUS = %EUR                                                 *
//*                                                                 *
//*   CHANGE ACTIVITY :                                             *
//*                                                                 *
//*        $MOD(EYUJXDD0),COMP(DAT),PROD(%PRODUCT):                 *
//*                                                                 *
//*     PN= REASON REL YYMMDD HDXIII : REMARKS                      *
//*    $L0= 906    %EU 080723 HDJXSRW: Walkthrough updates          *
//*    $P1= D22432 %EU 081009 HDJXSRW: Sample JCL changes           *
//*    $P2= D22801 %EU 081128 HDGFCAH: Correct DLA JCL              *
//*    $P3= D26284 %EU 090429 HDGPGRK: JCL Error in EYUJXDD0        *
//*    $P4= D26354 %EU 090505 HD4HAPF: JCL errors                   *
//*                                                                 *
//*******************************************************************
//*                                                                 *
//* Member EYUJXDD0 required variables are:                         *
//* ---------------------------------------                         *
//* @thlq@     -  High level target library index                   *
//* @hlq@      -  A user defined qualifier for the DLA              *
//*-----------------------------------------------------------------*
//* The following in-stream procedure is executed by step EYUJXDD0. *
//* The parameters should be defined before execution, including    *
//* the parameter outlined in the SYSIN statement. Also SET any     *
//* optional input parameters required in the SYSIN statement.      *
//*******************************************************************
//*
//EYUJXDD0 EXEC EYUJXDDP,REGION=4096K,
//             CPSMHLQ=@thlq@.CPSM,
//             CICSHLQ=@thlq@.CICS
//*
//EYU9XDDA.SYSIN DD *
SET CMAS CMASNAME
SET HOSTNAME HOST_NAME
SET ORGNAME ORGANIZATION_NAME
/*
//*
//*EYU9XDDA Syntax Quick Reference:
//*
//*comments: a * in column one indicates a comment line
//*wildcards: resource_type and resource_id may be set to a * to
//*          indicate a generic value.
//*
//*SET MESSAGE_LANGUAGE CHS|ENU|JPN
//*    Sets the required language for message outputs. The default is
//*    English (ENU).
//*
//*SET CMAS CMASNAME
//*    Sets the CMAS name for which the CICS TS DLA run is to be
//*    performed.
//*
//*SET FEEDBACK QUIET|VERBOSE
//*   Controls the amount of information displayed by EYU9XDDA
//*   when a CICSPlex SM API error occurs:
//*     QUIET   (the default) only basic error messages are
//*             written.
//*     VERBOSE CICSPlex SM Feedback data (if available) will be
//*             displayed.
//*
//*SET HOSTNAME hostname
//*    Sets the name of host session. No default exists.
//*
//*SET ORGNAME ORGANIZATION_NAME
//*    Sets the name of the organization. The default is SET ORGNAME
//*    <defaultOrg>. This is a special value that tells CCMDB that the
//*    CICS resources are related to the CCMDB defined default
//*    organization.
//*
//*SET LIMIT (1-99999999)
//*    An integer specifying a limit to the number of resources to be
//*    discovered. The default is 10000.
//*
//*SET REFRESH YES|NO
```

```
//*    Sets the type of DLA run to be performed. SET REFRESH YES will
//*    cause readers of the books (CCMDB and TBSM) to delete existing
//*    data from the corresponding books provided by the CICS TS DLA.
//*    The default is NO.
//*
//*SET FTP YES|NO
//*    Sets the type of FTP run to be performed.
//*    The default is YES.
//*    SET FTP NO will transfer no books to the DLFS
//*
//*    SET FTP YES will transfer books to the DLFS, based upon the
//*    setting of the SET REFRESH parameter as follows:.
//*    When SET REFRESH YES, then the @FTPALLP member is used to
//*    transfer all IDML books generated by EYU9XDDA.
//*
//*    When SET REFRESH NO, then the @FTPCHGP member is used to
//*    transfer all IDML books which have been changed by EYU9XDDA.
//*
//*SET IGNORE_CHECKSUMS YES|NO
//*    The DLA calculates a CHECKSUM for each book it creates and only
//*    replaces a previously discovered book if the CHECKSUM is
//*    different. The default is NO, meaning that the CHECKSUM will be
//*    calculated.
//*
//*SET CONSOLE_MESSAGES YES|NO
//*    Allows an MVS SLIP trap to be set and triggers a dump for a
//*    specified message to aid covered problem determination.
//*    Can only be used with English messages.
//*
//*BOOK TYPE CICSPLEX.nnnnnnnn YES|NO
//*    Checks whether the CICS TS DLA should produce an output book for
//*    the data about all the discovered CICSplexes. The default is YES.
//*    You can suppress outputting of books by supplying a full or
//*    partial CICSplex name
//*
//*BOOK TYPE CICSREGION.nnnnnnnn YES|NO
//*    Checks whether the CICS TS DLA should produce an output book with
//*    a summary of all the discovered CICSregions. The default is YES.
//*    You can suppress outputting of books by supplying a full or parti
//*    partial CICSregion name
//*
//*BOOK TYPE CTSPLEX.nnnnnnnn YES|NO
//*    Checks whether the CICS TS DLA should produce an output book with
//*    a summary of all the discovered CICSplexes. The default is YES.
//*
//*
//*    If the DLA completed successfully then the FTP program is
//*    invoked to transfer the IDML to the DLFS.
//*
//*EYU9XDDA FTP Syntax Quick Reference:
//*
//*<dlfs-hostname>
//*    Define the name of the DLFS server to FTP the IDML books to.
//*
//*<username>
//*    The name of the user to login in to the DLFS server.
//*
//*<password>
//*    Password required for <username>.
//*
//*</u/userdirectory>
//*    Define the target directory to store the IDML book in.
//*
//         IF   (RC = 0) THEN      ; Only FTP if the DLA was successful
//FTPSTEP  EXEC PGM=FTP,REGION=2048K
//SYSPRINT DD   SYSOUT=*
//SYSABEND DD   SYSOUT=*
//INPUT    DD   *
<dlfs-hostname>
<username>
<password>
pwd
cd </u/userdirectory>
lcd //DD:EYU9XDDA.IDMLFILE
/*
//         DD   DISP=SHR,DSN=@hlq@.CMAS.CICSTS.DLANNN.IDML(@FTPRUN)
//         ENDIF
/*
/*
```

CICS DLA sample module EYUJXDD1

The EYUJXDD1 module contains JCL for transferring IdML members to the DLFS as a stand-alone job.

```
//EYUJXDD1 JOB CLASS=A,MSGCLASS=A,NOTIFY=&SYSUID
//*
//*********************************************************************
//*                                                                   *
//*   MODULE NAME = EYUJXDD1                                          *
//*                                                                   *
//*   DESCRIPTIVE NAME = %PRODUCT CPSM Batch Utility Program          *
//*                      Sample JCL for CICS DLA FTP                  *
//*                                                                   *
//*    @BANNER_START                           02                     *
//*    Licensed Materials - Property of IBM                           *
//*                                                                   *
//*    "Restricted Materials of IBM"                                  *
//*                                                                   *
//*    5655-M15                                                       *
//*                                                                   *
//*    (C) Copyright IBM Corp. 1990, 2006                             *
//*                                                                   *
//*    @BANNER_END                                                    *
//*                                                                   *
//*   STATUS = %EUR                                                   *
//*                                                                   *
//*   CHANGE ACTIVITY :                                               *
//*                                                                   *
//*        $MOD(EYUJXDD1),COMP(DAT),PROD(%PRODUCT):                   *
//*                                                                   *
//*     PN= REASON REL YYMMDD HDXIII : REMARKS                        *
//*    $L0= 906    %EU 090126 HDGFCAH: Initial development            *
//*                                                                   *
//*********************************************************************
//*
//*EYU9XDDA FTP Syntax Quick Reference:
//*
//*<dlfs-hostname>
//*    Define the name of the DLFS server to FTP the IDML books to.
//*
//*<username>
//*    The name of the user to login in to the DLFS server.
//*
//*<password>
//*    Password required for <username>.
//*
//*</u/userdirectory>
//*    Define the target directory to store the IDML book in.
//*
//*
//FTPSTEP  EXEC PGM=FTP,REGION=2048K
//SYSPRINT DD   SYSOUT=*
//SYSABEND DD   SYSOUT=*
//IDMLFILE DD   DISP=SHR,DSN=HLQ.CMAS.CICSTS.DLANNN.IDML
//INPUT    DD   *
<dlfs-hostname>
<username>
<password>
pwd
cd </u/userdirectory>
lcd //DD:IDMLFILE
/*
//         DD   DISP=SHR,DSN=HLQ.CMAS.CICSTS.DLANNN.IDML(@FTPRUN)
/*
```

CICS DLA sample module EYUJXDDP

The EYUJXDDP module contains procedural JCL for running the DLA.

```
//*********************************************************************
//*                                                                   *
//*   MODULE NAME = EYUJXDDP                                          *
//*                                                                   *
//*   DESCRIPTIVE NAME = %PRODUCT CPSM Batch Utility Program          *
//*                      Sample JCL for invoking EYU9XDDA             *
//*                                                                   *
//*    @BANNER_START                           02                     *
//*    Licensed Materials - Property of IBM                           *
//*                                                                   *
```

```
//*    "Restricted Materials of IBM"                                *
//*                                                                 *
//*    5655-M15                                                     *
//*                                                                 *
//*                                                                 *
//*    @BANNER_END                                                  *
//*                                                                 *
//*   STATUS = %EUR                                                 *
//*                                                                 *
//*   CHANGE ACTIVITY :                                             *
//*                                                                 *
//*        $MOD(EYUJXDDP),COMP(DAT),PROD(%PRODUCT):                 *
//*                                                                 *
//*     PN= REASON REL YYMMDD HDXIII : REMARKS                      *
//*    $L0= 906    %EU 080613 HDJSRW : Initial development          *
//*    $L1= 906    %EU 080723 HDJXSRW: Walkthrough updates          *
//*    $P1= D22432 %EU 081009 HDJXSRW: Sample JCL changes           *
//*    $P2= D22801 %EU 081128 HDGFCAH: Correct DLA JCL              *
//*    $P3= D26122 %EU 090423 HDGPGRK: JCL error in EYUJXDDP        *
//*    $P4= D26354 %EU 090505 HD4HAPF: JCL errors                   *
//*                                                                 *
//*******************************************************************
//*                                                                 *
//* Member EYUJXDDP required variables are:                         *
//* ---------------------------------------                         *
//* @thlq@     -  High level target library index                   *
//* @hlq@      -  A user defined qualifier for the DLA              *
//*******************************************************************
//EYUJXDDP PROC CPSMHLQ=@thlq@.CPSM,
//             CICSHLQ=@thlq@.CICS
//*
//EYU9XDDA EXEC PGM=EYU9XDDA
//*
//STEPLIB  DD   DISP=SHR,DSN=&CPSMHLQ..SEYULOAD
//         DD   DISP=SHR,DSN=&CPSMHLQ..SEYUAUTH
//         DD   DISP=SHR,DSN=&CICSHLQ..SDFHAUTH
//         DD   DISP=SHR,DSN=&CICSHLQ..SDFHLOAD
//*
//SYSPRINT DD   SYSOUT=*
//SYSDUMP  DD   SYSOUT=*
//IDMLFILE DD   DSN=@hlq@.CMAS.CICSTS.DLANNN.IDML,
//              DISP=(NEW,CATLG,DELETE),
//              DCB=(DSORG=PS,RECFM=FB,LRECL=250,BLKSIZE=4000),
//              SPACE=(CYL,(25,10,25),RLSE)
//*
//*SYSMDUMP DD  DISP=(,CATLG),DSN=@userid@.EYU9XDDA.SYSMDUMP,
//*             UNIT=SYSDA,SPACE=(CYL,(50,25)),
//*             DCB=(DSORG=PS,RECFM=FBS,LRECL=4160,BLKSIZE=24960)
//*    Un-comment the SYSMDUMP DD statement if you need to add a
//*    SYSMDUMP DD.
//*    You may need to modify this statement to meet your
//*    installations requirements
//*
//EYUSYSIN DD   DDNAME=SYSIN
//         PEND
```

DLA parameters

You control the output of the CICS DLA using parameters that you include in the SYSIN DD card of the EYUJXDD0 JCL file. The DLA SET parameters specify general options such as the organization name and debug options. DLA BOOK TYPE parameters control which discovery library books are written.

The DLA parameters are as follows:

BOOK TYPE CICSPLEX.*cplexname* {YES | NO}

Determines whether the DLA creates a CICSPLEX discovery library book and controls which CICSplexes to include in the discovery. Specify one of the following values:

- YES to include the selected CICSplexes in the discovery.
- NO to suppress the selected CICSplexes from the discovery.

The default is YES.

cplexname is an optional character string containing the name of a CICSplex. You can use partial names or a trailing asterisk (*) as a wildcard character. You can use *cplexname* with either the YES or NO option to restrict the discovery to specific CICSplexes. If you omit *cplexname*, all the CICSplexes associated with the CMAS are included in or excluded from the discovery.

You can use multiple BOOK TYPE CICSPLEX parameters. The DLA processes multiple parameters in the order in which you include them in the input file.

BOOK TYPE CICSREGION.*cics_name*{YES | NO}
Determines whether the DLA creates a CICSREGION discovery library book and controls which CICS regions to include in the discovery. Specify one of the following values:

- YES to include the selected CICS regions in the discovery.
- NO to suppress the selected CICS regions from the discovery.

The default is YES.

cics_name is an optional character string containing the name of a CICS region. You can use partial names or a trailing asterisk (*) as a wildcard character. You use *cics_name* with either the YES or NO options to restrict the discovery to specific CICS regions. If you omit *cics_name*, all of the CICS regions associated with the CMAS are included in or excluded from the discovery.

You can use multiple BOOK TYPE CICSREGION parameters. The DLA processes multiple parameters in the order in which you include them in the input file.

BOOK TYPE CTSPLEX {YES | NO}
Determines whether the DLA creates a CTSPLEX discovery library book containing a summary of the discovered CICSplexes. Specify one of the following values:

- YES to produce a CTSPLEX discovery library book with a summary of all CICSplexes discovered by the DLA
- NO to suppress the output discovery library book for the CTSPLEX CICSplex summary.

The default is YES. You can include no more than one instance of this parameter.

SET CMAS *CMAS_name*
The name of a CMAS. The CMAS must be running at the CICS TS 4.1 release level. The DLA discovers information about the CICSplexes connected directly to this CMAS, and about CICSplexes connected to other CMASs associated with this CMAS.

SET CONSOLE_MESSAGES {YES | NO}
Use this parameter only under the supervision of IBM support staff.

Specify one of the following values:

- YES to copy messages to the MVS console.
- NO to bypass copying messages to the MVS console.

The default is NO.

Console messages are always displayed in English because the console does not support the double-byte character sets necessary to display the alternative languages.

SET FEEDBACK {QUIET | VERBOSE}
FEEDBACK specifies how the DLA handles exception condition reporting if an error is returned from the CICSPlex SM API. The options are as follows:

- QUIET: the DLA writes only progress messages and exception conditions. QUIET is the default FEEDBACK option.
- VERBOSE: in addition to the standard message reporting response and reason codes, the DLA writes any associated CICSPlex SM feedback data.

All feedback information is sent to the SYSPRINT DD destination and the @DIALOG file.

SET FTP {YES | NO}
Specify one of the following values:

- YES to transfer discovered data to the discovery library file store (DLFS) as part of the DLA run.
- NO to suppress the transfer.

The FTP transfer takes place only if the DLA discovery operation completed successfully with a return code of zero. If you specify NO, or if the DLA run does not complete successfully, you can transfer the data to the DLFS as a separate operation by running the EYUJXDD1 module.

During operation the DLA generates FTP PUT and RENAME in the following PDSE data set members:

- @FTPALLP: contains FTP statements to PUT and RENAME all discovery library books.
- @FTPCHGP: contains FTP statements to PUT and RENAME all changed discovery library books.

The contents of either @FTPALLP or @FTPCHGP are copied to the @FTPRUN data set member depending on the settings of the SET IGNORE_CHECKSUMS and SET REFRESH parameters.

SET HOSTNAME *host_name*
Specify the z/OS IP host name.

SET IGNORE_CHECKSUMS {YES | NO}
Specify one of the following values:

- YES, to bypass checksum processing for the discovery library books.
- NO, to calculate checksums for the discovery library books.

The default is NO.

Checksum processing determines whether each discovery library book has changed since the last DLA run. The DLA calculates a checksum for each discovery library book that it creates. The @FTPCHGP member contains a list of the discovery library books that the DLA has changed. You can then transfer only the changed discovery library books to the DLFS.

The advantage of checksum processing is that it reduces the amount of data transferred to the DLFS. The disadvantage is that it increases the DLA run time. Because the checksum processing increases DLA processing, you might want to bypass it by setting SET IGNORE_CHECKSUMS YES.

SET LIMIT {1 - 9999999}
An integer between 1 and 9999999 specifying a limit to the number of resources to be discovered. The default is 10000.

The DLA issues warning messages if the limit is exceeded. Processing continues, but a non-zero DLA return code is set so that the FTP step, to transfer the discovery library books to the DLFS, will not run.

SET MESSAGE_LANGUAGE {|CHN | ENU | JPN}
This parameter determines the language used for the messages written to the destination specified on the SYSOUT option of the SYSPRINT file. Specify CHN for simplified Chinese, ENU for English, and JPN for Japanese Kanji. The default language is English. The Chinese and Japanese options use double-byte character sets.

SET ORGNAME *organization_name*
A single word without imbedded blanks denoting the name of your organization. This parameter can contain alphanumeric and national characters, with XML escape characters being used for other characters (for example: `<` for < and `>` for >).

The z/OS SMFID and SYSPLEX names are typically unique in an enterprise. In some cases, for example in the case of a company acquisition, duplicates can exist: for example, two independent z/OS systems with SMFID called MVS1. In order to maintain separate instances with a CMDB, set different ORGNAME values.

The default is `SET ORGNAME <defaultOrg>`. This default is a special value that informs CCMDB that the CICS resources are related to the CCMDB defined default organization. Use this default setting unless your site has duplicate z/OS SMFIDs and SYSPLEXes that you want to have loaded into the same CCMDB.

SET REFRESH {YES | NO}
Specify one of the following values:

- YES to produce refresh-type discovery library books
- NO to produce create-type discovery library books.

The default is NO.

Specifying SET REFRESH YES causes the output XML files to be refresh-type discovery library books. This setting indicates the discovery library books contain everything known about the environment. The readers of the discovery library books (such as CCMDB and TBSM) delete data loaded from corresponding discovery library books provided by the CICS DLA. Specify SET REFRESH YES only after a major configuration change.

Specifying SET REFRESH NO causes the output XML files to be create-type discovery library books. This setting indicates that the generated discovery library books contain information only about resources that have changed since the last DLA run.

DLA output

Each time you run the CICS TS DLA, it creates or reuses a partitioned data set. The DLA writes the discovery library books, control files, and debug information to this data set. You can control which discovery library books the DLA generates by setting the appropriate input parameters.

The default name of the partitioned (PDS or PDSE) data set is: *hlq*.*cmas*.CICSTS.DLA410.IDML, where *hlq* is a high-level qualifier that you supply and *cmas* is the name of the CMAS as specified on the SET CMAS parameter.

The DLA writes, or rewrites the following data set members:

- IdML member for the CTSPLEX discovery library book. This member contains a summary of the CICSplexes discovered by the DLA.
- IdML members for each CICSPLEX discovery library book that you request. The member name is the CICSplex name.
- IdML members for each CICSREGION discovery library book that you request. The member name is assigned by the DLA. The @CICSNAM member translates these names to the CICS region name and CICSplex associated with the CICS region.
- @CHCKSUM containing an entry for each of the discovery library book members on the data set.
- The @DLALOG message log from the latest DLA run.
- @FTPALLP containing FTP PUT and RENAME statements for all discovery library book members from the latest DLA run.
- @FTPCHGP containing FTP PUT and RENAME statements for some or all discovery library book members depending on the DLA run.

  If you set the **IGNORE_CHECKSUMS** and **SET REFRESH** parameters to NO, this member contains FTP PUT and RENAME statements for any changed discovery library book members from the previous DLA run that used the same data set. If there are no changes, this member is empty. In all other circumstances, this member contains FTP statements for all the discovery library book members from the latest DLA run, and it is therefore identical in content to @FTPALLP.
- @FTPRUN containing FTP statements or a **QUIT** statement depending on the following conditions:
  - If you have set the **SET FTP** parameter to NO, this member contains only the statement **QUIT**.
  - If you have set the **SET FTP** parameter to YES and the **SET REFRESH** parameter to YES, this member contains the FTP statements copied from @FTPALLP.
  - If you have set the **SET FTP** parameter to YES and the **SET REFRESH** parameter to NO, this member contains the FTP statements copied from @FTPCHGP.

  The DLA uses the contents of @FTPRUN to make the FTP transfer if you set the **SET FTP** parameter to YES and the DLA runs successfully with a return code of zero. You can also run the FTP step independently. To do this you use the EYUJXDD1 module in which you specify either @FTPRUN, @FTPALLP or @FTPCHGP.

IdML file naming conventions

Discovery library books are stored in plain text XML files that must follow a consistent file naming convention. The file name includes information to uniquely identify the discovery library book in the DLFS and to help developers and administrators quickly identify the source and creation date of the discovery data.

The names of discovery library books generated by the CICS DLA consist of the following segments:

- The CICS application code CICSTS*nnnbooktype.application.*, where:
  - *nnn* is the CICS version identifier, for example “410”.
  - *booktype* identifies the type of discovery library book, for example “CTSPLEX”.
  - *application* is the name of the CICSplex or CICS region from which the data is derived, which is the CMAS name for the CTSPLEX summary discovery library book.
- The host name, for example: @mvs2c.example.com.

- An ISO 8601 time stamp UTC (Coordinated Universal Time), with colons (:) replaced by dots (.), for example: `2008-03-08T12.05.31Z`.
- The text string "`.refresh`" when the discovery library book contains a refresh operation.
- A file name extension of "`.xml`".

A slightly different naming convention applies to discovery library books when they are being written or copied to the DLFS. In this case, the file name of the discovery library book must contain the suffix "`.partial`" following `.xml`. The "`.partial`" suffix is removed from the file name when the operation of writing the file to the DLFS has been successfully completed.

Sample file names

The following file name example is for a discovery library book that is in the DLFS:

```
CICSTS410CICSPLEX.plex1@mvs2c.example.com.2008-11-07T14.32.31Z.xml
```

The following file name example is for a discovery library book that is in the DLFS that contains a refresh operation:

```
CICSTS410CTSPLEX.cmasa@mvs2c.example.com.2008-11-07T14.32.31Z.refresh.xml
```

The following file name example is for a discovery library book that is being copied to the DLFS:

```
CICSTS410CICSREGION.plex1.cicsa@mvs2c.example.com.2008-11-08T14.32.31Z.xml.partial
```

Classes and relationships in CICSPLEX discovery library books

CICSPLEX discovery library books contain information about CICSPlex SM resources associated with a specific CICSplex. These discovery library books have names starting `CICSTS410CICSPLEX`.*cicsplex_name*, where *cicsplex_name* is the name of a CICSplex as supplied in the CPLEXDEF attribute CPLEXDEF_CICSPLEX.

The DLA populates all attributes discovered about the following classes:

ManagementSoftwareSystem
: The product that discovered the resources in the discovery library book. It includes these attributes:
  - ProductName: IBM CICS TS Discovery Library Adapter
  - ProductVersion: The current version of CICS TS; for example, 410

Organization
: A global name to preserve uniqueness in the CCMDB. This name is needed because you might have multiple z/OS systems with the same identifiers; for example, a copy of a production z/OS running on different hardware for testing purposes. You set the global name from the ORGNAME input parameter at DLA run time or from the default value when the discovery library book is loaded into the CCMDB.

CICSplex
: Information about CICSplexes.

CICSRegionGroup
: Information about CICS region groups.

CICSManagingAddressSpace
: Information about CICSPlex SM CMASs.

CICSWUIEndPoint
Information about CICSPlex SM Web User Interface (WUI) servers. This class includes the WUI URL as an attribute. You can use this URL to launch the WUI. The CICSWUIEndPoint instances in a given CICSPLEX discovery library book might be for WUI servers that are running in different CICSplexes. Each CICSPLEX discovery library book must contain a CICSWUIEndPoint instance with a relationship type of Accesses for each WUI server associated with the CMAS.

Application
Data for business applications that you have defined using BAS logical scopes. You obtain the application names from logical scope names; that is, from the RESDESC_LSCOPE attribute specified in the BAS resource description (RESDESC) resource table.

The following classes exist as stub instances in the discovery library book. The only attributes produced are those attributes needed to satisfy the naming rules for relationships to these classes.

CICSRegion
CICS region resources

CICSFile
File resources

CICSLIBRARY
LIBRARY resources

CICSDocumentTemplate
Document template resources

CICSLSRPool
VSAM LSR pool resources

CICSTDQueue
Transient data queue resources

CICSTransaction
Transaction resources

CICSProgram
Program resources

CICSProfile
Transaction profile resources

CICSDb2Entry
DB2 entry resources

CICSDb2EntryTransaction
DB2 entry associated transaction resources

The relationships in Table 16 on page 271 apply to a CICSplex. The Manages relationship between CICSManagingAddressSpace (CMAS) and CICSplex identifies which CMASs participate in managing the CICSplex. The Controls relationship identifies the maintenance point CMAS. A maintenance point CMAS is responsible for notifying the other CMASs about changes of topology in the CICSplex. Each CICSplex has one maintenance point CMAS but a CMAS can act as a maintenance point for several CICSplexes.

Table 16. Relationships for CICSplex

Relationship type	Source	Target
Accesses	CICSWUIEndPoint	CICSplex
Controls	CICSManagingAddressSpace	CICSplex
Federates	CICSplex	Application
Federates	CICSplex	CICSRegionGroup
Federates	CICSplex	CICSRegion
Manages	CICSManagingAddressSpace	CICSplex
Owns	Organization	CICSplex

The relationships in Table 17 apply to CICS region groups. A CICS region group can include multiple CICS regions and other CICS region groups.

Table 17. Relationships for CICS region groups

Relationship type	Source	Target
Federates	CICSplex	CICSRegionGroup
Federates	CICSRegionGroup	CICSRegion
Federates	CICSRegionGroup	CICSRegionGroup
Owns	Organization	CICSRegionGroup

The relationships in Table 18 apply to the technology providing the DLA data to the CICSManagingAddressSpace, CICSWUIEndPoint classes, and CICSRegion classes.

Table 18. Relationships for CICSManagingAddressSpace, CICSWUIEndPoint and CICSRegion classes

Relationship type	Source	Target
Contains	MSSInstance	CICSManagingAddressSpace
Contains	MSSInstance	CICSWUIEndPoint
Relates	MSSObjectLink	CICSRegion

The relationships in Table 19 associate an application with a CICSplex and with installed resource instances in CICS regions.

Table 19. Relationships that associate an application with a CICSplex and with installed resources

Relationship type	Source	Target
Contains	CICSRegion	CICSFile
Contains	CICSRegion	CICSDb2Entry
Contains	CICSRegion	CICSDb2EntryTransaction
Contains	CICSRegion	CICSProfile
Contains	CICSRegion	CICSDocumentTemplate
Contains	CICSRegion	CICSLibrary
Contains	CICSRegion	CICSLSRPool
Contains	CICSRegion	CICSProgram

Table 19. Relationships that associate an application with a CICSplex and with installed resources (continued)

Relationship type	Source	Target
Contains	CICSRegion	CICSTDQueue
Contains	CICSRegion	CICSTransaction
Federates	CICSplex	Application
Uses	Application	CICSDb2Entry
Uses	Application	CICSDb2EntryTransaction
Uses	Application	CICSDocumentTemplate
Uses	Application	CICSFile
Uses	Application	CICSLibrary
Uses	Application	CICSLSRPool
Uses	Application	CICSProfile
Uses	Application	CICSProgram
Uses	Application	CICSTDQueue
Uses	Application	CICSTransaction

Classes and relationships in CICSREGION discovery library books

CICSREGION discovery library books contain information about CICS resources associated with a specific CICS region. These discovery library books have names starting `CICSTS410CICSREGION.`*cicsplex_name.cics_name*, where *cicsplex_name* is the name of a CICSplex associated with the CICS region and *cics_name* is the name with which the CICS region is defined to CICSplex SM (as defined by the CSYSDEF attribute CSYSDEF_NAME).

The DLA populates all attributes discovered about the following classes:

ManagementSoftwareSystem
The product that discovered the resources in the discovery library book. It includes these two attributes:
- ProductName: IBM CICS TS Discovery Library Adapter
- ProductVersion: The current version of CICS TS; for example, 410

CICSRegion
CICS regions

CICSProgram
Program resources

CICSFile
File resources

CICSTransaction
Transaction resources

CICSLIBRARY
LIBRARY resources

CICSDocumentTemplate
Document template resources

CICSLSRPool
VSAM LSR pool resources

CICSProfile
Transaction profile resources

CICSPipeline
CICS pipeline resources

CICSWebService
Web services resources

CICSURIMap
URI map resources

CICSTCPIPService
TCP/IP services

CICSIPICConnection
IPIC connection resources

CICSISCMROConnection
ISC and MRO connection resources

CICSDb2Connection
DB2 connection resources

CICSDb2Entry
DB2 entry resources

CICSDb2EntryTransaction
DB2 entry associated transaction resources

CICSTDQueue
Transient data queue resources

The relationships in Table 20 associate CICS regions with various resources that are installed on them.

Table 20. Relationships for CICS region

Relationship type	Source	Target
Contains	CICSRegion	CICSDb2Connection
Contains	CICSRegion	CICSDb2Entry
Contains	CICSRegion	CICSDb2EntryTransaction
Contains	CICSRegion	CICSDocumentTemplate
Contains	CICSRegion	CICSFile
Contains	CICSRegion	CICSIPICConnection
Contains	CICSRegion	CICSLibrary
Contains	CICSRegion	CICSLSRPool
Contains	CICSRegion	CICSISCMROConnection
Contains	CICSRegion	CICSPipeline
Contains	CICSRegion	CICSProfile
Contains	CICSRegion	CICSProgram
Contains	CICSRegion	CICSTCPIPService
Contains	CICSRegion	CICSTDQueue
Contains	CICSRegion	CICSTransaction
Contains	CICSRegion	CICSURIMap
Contains	CICSRegion	CICSWebService

The following relationships associate a transaction with a transaction profile and with a program.

Table 21. Relationship for transaction and transaction profile

Relationship type	Source	Target
Uses	CICSTransaction	CICSProfile
Uses	CICSTransaction	CICSProgram

The following relationship associates a program with the LIBRARY from which it was loaded by CICS.

Table 22. Relationship for program and LIBRARY

Relationship type	Source	Target
Resolvesfrom	CICSProgram	CICSLIBRARY

The following relationship relates the technology providing the DLA data to the CICSRegion class:

Table 23. Relationship for CICS region

Relationship type	Source	Target
Relates	MSSObjectLink	CICSRegion

Classes and relationships in CTSPLEX discovery library books

CTSPLEX discovery library books contain summary information about CICSplex class instances for all CICSplexes that are managed by the CMAS specified by the DLA SET CMAS parameter. The DLA can create only one CTSPLEX discovery library book each time it is run.

The name of all discovery library books start CICSTS410CTSPLEX.*cmas_name*, where *cmas_name* is the name of the CMAS.

The DLA populates attributes discovered about the following class:

CICSManagingAddressSpace
: Identifies which CMASs participate in managing the CICSplex. The DLA creates one instance of this class for each CMAS that is assigned to managing one or more CICSplexes. Only those attributes needed to satisfy the naming rules for relationships to these classes are produced as output.

CICSplex
: Information about CICSplexes.

The relationships in Table 24 associate a CMAS with a CICSplex.

Table 24. Relationships CICSManagingAddressSpace

Relationship type	Source	Target
Contains	MSSInstance	CICSManagingAddressSpace
Controls	CICSManagingAddressSpace	CICSplex
Manages	CICSManagingAddressSpace	CICSplex
Owns	Organization	CICSplex

The Controls relationship identifies the maintenance point CMAS. The Manages relationship between CICSManagingAddressSpace (CMAS) and CICSplex identifies which CMASs participate in managing the CICSplex.

DLA security

The DLA runs as a CICSPlex SM API program and is therefore subject to CICSPlex SM security for accessing the CICS TS data.

You need update access to the PDSE data set used for the IdML output when running the DLA. When using FTP to transfer the PDSE data set members to the Discovery Library File Store, you need read access to the PDS and both write access and rename ability to the Discovery Library File Store.

DLA problem determination

The CICS DLA issues messages with identifiers in the range EYUXD1000 through EYUXD1031.

If a CICSPlex API request returns an error response, messages identify the request made and the responses received.

You control the destination and level of detail returned for any errors using the CONSOLE_MESSAGES and FEEDBACK input parameters.

If a run of the CICS DLA stalls, perform the following steps before cancelling the job.

- Take an SDUMP to include the DLA address space, the CMAS to which the utility is connected, and the associated DMDS, DAT, TOP, COM, and QUE data spaces.
- Save the DLA job log, the CMAS job log, and the output partitioned data set.

Chapter 2. Creating resources with BAS

You can use the CICS Explorer or Web User Interface to create BAS resource objects to model and install the required CICS resources.

About this task

Creating resource objects is a three stage process.

Procedure

1. Access the appropriate resource definition view.
2. Create the definition.
3. Install the definition.

What to do next

After you install the resource object, you can use the CICS Explorer or Web User Interface to inquire on the resulting resources.

ATOMSERVICE resource definitions

ATOMSERVICE resource definitions specify the resources that CICS uses to produce an Atom service, feed, collection, or category document.

Viewing BAS ATOMSERVICE definitions

You can view information about your existing ATOMSERVICE resource definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents an ATOMSERVICE resource is called ATOMDEF. The **Atomservice definitions** view in the Web User Interface displays the list of ATOMDEF definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the Administration views menu, click either **Basic CICS resource administration views** or **Fully functional Business Administration Services (BAS) administration views**.
3. Click **Resource definitions** to display the **CICS resource definitions menu**.
4. Click **Atomservice definitions**.

Results

The Web User Interface displays the list of ATOMDEF definitions for the current context.

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What to do next

From this view you can create, update, remove, or install ATOMSERVICE resource definitions.

Defining ATOMSERVICE resources using BAS

You define a resource definition for an Atom service, feed, collection, or category document by creating a BAS resource object, ATOMDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Atomservice definitions** to view the list of ATOMDEF resource definitions.
2. Click the **Create...** button. To use an existing definition as the basis for the new definition, click the check box before clicking the **Create...** button. The **Atomservice definitions** view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Atomservice definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS ATOMSERVICE definitions

Install the BAS resource object for the ATOMSERVICE resource to make the resource available to the CICS region.

Before you begin

You must have created the required ATOMDEF resource object in the data repository to install the ATOMSERVICE resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Atomservice definitions** to view the list of ATOMDEF resource definitions.
2. Click the Record check box to select an ATOMDEF definition and click the **Install...** button. Alternatively, click an ATOMDEF definition name and click the **Install...** button on the **ATOMDEF definitions** detailed view.

Results

The ATOMSERVICE resource is installed in the specified CICS region.

What to do next

After the resource definition installs successfully, you can inquire about the resource from the main menu by clicking **CICS operations views** > **TCP/IP service operations views** > **Atomservice definitions**.

BUNDLE resource definitions

BUNDLE resource definitions describe bundles, the unit of deployment for an application. The BUNDLE resource defines where the bundle is deployed on z/OS UNIX and its status.

Viewing BUNDLE definitions

You can view information about your existing BUNDLE definitions using the IBM CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a BUNDLE is called BUNDDEF. The **Bundle definitions** view in the Web User Interface displays the list of BUNDDEF definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the Administration views menu, click either **Basic CICS resource administration views** or **Fully functional resource administration views**.
3. Click **Resource definitions** > **BUNDLE definitions**.

Results

The Web User Interface displays the list of BUNDDEF definitions for the current context.

What to do next

From this view you can create, remove, or install BUNDLE resource definitions.

Defining a bundle using BAS

You define a resource definition for an application bundle by creating a BAS resource object, BUNDDEF.

About this task

You can define the resource object using the IBM CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Bundle definitions** to view the list of BUNDDEF resource definitions.

2. Click the **Create...** button. To use an existing definition as the basis for the new definition, click the check box before clicking the **Create...** button. The Bundle definitions create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The Bundle definitions view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS bundle definitions

Install the BAS resource object for the bundle to make it available to the CICS region.

Before you begin

You must have created the required BUNDDEF resource object in the data repository to install the bundle in the CICS region.

About this task

You can install the BAS resource object using the IBM CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Bundle definitions** to view the list of BUNDDEF resource definitions.
2. Click the Record check box to select a definition and click the **Install...** button. Alternatively, click on a bundle definition name and click the **Install...** button on the Bundle definitions detailed view.

Results

The application bundle installs in the specified CICS region. CICS dynamically creates any additional resources that are defined in the bundle manifest.

What to do next

After the resource definition installs successfully, you can inquire about enabled application bundles from the WUI main menu by selecting **CICS operations views** > **Applications**. You can view the status of all the resources that are installed as part of the bundle using the IBM CICS Explorer.

DB2 connection resource definitions

A DB2 connection definition establishes the global characteristics of connections between CICS regions and a DB2 subsystem that use the DB2 attachment facility.

Viewing BAS DB2 connection definitions

You can view information about your existing DB2 connection definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a DB2 connection is called DB2CDEF. The **DB2 connection definitions** view in the Web User Interface displays the list of DB2CDEF definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the Administration views menu, click either **Basic CICS resource administration views** or **Fully functional Business Administration Services (BAS) administration views**.
3. Click **Resource definitions** to display the **CICS resource definitions menu**.
4. Click **DB2 connection definitions**.

Results

The Web User Interface displays the list of DB2 connection definitions for the current context.

What to do next

From this view you can also create, update, remove, or install DB2 connection definitions.

Defining DB2 connections using BAS

You define a resource definition for a DB2 connection by creating a BAS resource object, DB2CDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **DB2 connection definitions** to view the list of DB2CDEF resource definitions.
2. Click the **Create...** button. To use an existing definition as the basis for the new definition, click the check box before clicking the **Create...** button. The **DB2 connection definitions** view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **DB2 connection definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS DB2 connection definitions

Install the BAS resource object for the DB2 connection to make the connection available to the CICS region.

Before you begin

You must have created the required DB2CDEF resource object in the data repository to install the DB2 connection in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **DB2 connection definitions** to view the list of DB2CDEF resource definitions.
2. Click the Record check box to select a DB2 connection definition and click the **Install...** button. Alternatively, click a DB2 connection definition name and click the **Install...** button on the **DB2 connection definitions** detailed view.

Results

The DB2 connection is installed in the specified CICS region.

What to do next

After the resource definition installs successfully, you can inquire about the resource from the main menu by clicking **CICS operations views** > **DB2, DBCTL and IBM MQ operations views** > **Connections**.

DB2 entry resource definitions

A DB2 entry definition specifies the resources required by CICS transactions that use the DB2 attachment facility to access a DB2 subsystem.

Viewing DB2 entry definitions

You can view information about your existing DB2 entry definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a DB2 entry is called DB2EDEF. The **DB2 entry definitions** view in the Web User Interface displays the list of DB2EDEF definitions.

Procedure

1. From the main menu, click **Administration views**.

2. From the **Administration views** menu, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views**.
3. Click **Resource definitions** to display the **CICS resource definitions** view.
4. Click **DB2 entry definitions**.

Results

The Web User Interface displays the list of DB2 entry definitions for the current context.

What to do next

From this view you can also create, update, remove, or install DB2 entry definitions.

Defining DB2 entries using BAS

You define a resource definition for a CICS-deployed JAR file by creating a BAS resource object, DB2EDEF.

Before you begin

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **DB2 entry definitions**
2. From the **DB2 entry definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **DB2 entry definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **DB2 entry definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS DB2 entry definitions

Install the BAS resource object for the DB2 entry to make the definition available to the CICS region.

Before you begin

You must have created the required DB2EDEF resource object in the data repository to install the DB2 entry in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **DB2 entry definitions** to view the list of DB2EDEF resource definitions.
2. Click the Record check box to select a JAR file definition and click the **Install...** button. Alternatively, click a DB2 entry definition name and click the **Install...** button on the **DB2 entry definitions** detailed view.

Results

The DB2 entry resource is installed in the specified CICS region.

What to do next

After the resource definition installs successfully, you can inquire about the resource from the main menu by clicking **CICS operations views** > **DB2, DBCTL and IBM MQ operations views** > **DB2 operations views** > **Entries**.

DB2 transaction resource definitions

A DB2 transaction definition identifies transactions that use the resources specified in a DB2 entry definition.

Viewing DB2 transaction definitions

You can view information about your existing DB2 transaction definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a DB2 transaction is called DB2TDEF. The **DB2 transaction definitions** view in the Web User Interface displays the list of DB2TDEF definitions.

Procedure

1. From the main menu, click **Administration views.**
2. From the **Administration views** menu, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **DB2 transaction definitions**.

Results

The Web User Interface displays the list of DB2 transaction definitions for the current context.

What to do next

From this view you can also create, update, remove, or install DB2 transaction definitions.

Defining DB2 transactions using BAS

You define a resource definition for a DB2 transaction by creating a BAS resource object, DB2TDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **DB2 transaction definitions**
2. From the **DB2 transaction definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **DB2 transaction definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **DB2 transaction definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS DB2 transaction definitions

Install the BAS resource object for the DB2 transaction to make the definition available in the CICS region.

Before you begin

You must have created the required DB2TDEF resource object in the data repository to install the DB2 transaction definition in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **DB2 transaction definitions** to view the list of DB2TDEF resource definitions.
2. Click the Record check box to select a DB2 transaction definition and click the **Install...** button. Alternatively, click a DB2 connection definition name and click the **Install...** button on the **DB2 transaction definitions** detailed view.

Results

The DB2 transaction installs in the specified CICS region.

What to do next

After the resource definition installs successfully, you can inquire about the resource by clicking **CICS operations views** > **DB2, DBCTL and IBM MQ operations views** > **DB2 operations views**.

Document template resource definitions

Document template definitions define document templates for use in managed CICSregions.

Viewing document template definitions

You can view information about your existing document template definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a document template is called DOCDEF. The **Document template definitions** view in the Web User Interface displays the list of DOCDEF definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Document template definitions**.

Results

The Web User Interface displays the list of document template definitions for the current context.

What to do next

From this view you can also create, update, remove, or install document template definitions.

Defining document templates using BAS

You define a resource definition for a document template by creating a BAS resource object, DOCDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration viewsBasic CICS resource administration viewsResource definitionsDocument definitions**.
2. From the **Document definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Document template definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Document definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS document template definitions

Install the BAS resource object for the document template to make the definition available in the CICS region.

Before you begin

You must have created the required DOCDEF resource object in the data repository to install the document template in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Document template definitions** to view the list of DOCDEF resource definitions.
2. Click the Record check box to select a document template definition and click the **Install...** button. Alternatively, click a document template definition name and click the **Install...** button on the **Document template definitions** detailed view.

Results

The document template resource installs in the specified CICS region.

What to do next

After the resource definition installs successfully, you can inquire about the resource by clicking **CICS operations views** > **Document template operations views** > **Document template**.

FEPI node list resource definitions

FEPI node list definitions describe the physical and operational characteristics of FEPI nodes.

Viewing FEPI node list definitions

You can view information about your existing FEPI node list definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a FEPI node list is called FENODDEF. The FEPI node list definitions view in the Web User Interface displays information about existing FEPI node definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **FEPI node list definitions**.

Results

The Web User Interface displays the list of FEPI node definitions.

What to do next

From this view you can also create, update, remove, or install FEPI node list definitions.

Defining FEPI node lists using BAS

You define a resource definition for a FEPI node list by creating a BAS resource object, FENODDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration viewsBasic CICS resource administration viewsResource definitionsFEPI node list definitions**.
2. From the **FEPI node list definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **FEPI node list definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **FEPI node list definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS FEPI node list definitions

Install the BAS resource object for the FEPI node list to make the definition available in the CICS region.

Before you begin

You must have created the required FENODDEF resource object in the data repository to install the FEPI node list in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **FEPI node list definitions** to view the list of FENODDEF resource definitions.
2. Click the Record check box to select a FEPI node list definition and click the **Install...** button. Alternatively, click a FEPI node list definition name and click the **Install...** button on the **FEPI node list definitions** detailed view.

Results

The FEPI node list resource installs in the specified CICS region.

What to do next

After the resource definition installs successfully, you can inquire about the resource by clicking **CICS operations views** > **FEPI operations views** > **Nodes**.

FEPI pool resource definitions

FEPI pool definitions describe the physical and operational characteristics of FEPI pools.

Viewing FEPI pool definitions

You can view information about your existing FEPI pool definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a FEPI pool is called FEPOODEF. The FEPI pool definitions view in the Web User Interface displays information about existing FEPI pool definitions.

Procedure

1. From the main menu, click **Administration views**.

2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **FEPI pool definitions**.

Results

The Web User Interface displays the list of FEPI pool definitions.

What to do next

From this view you can also create, update, remove, or install FEPI pool definitions.

Defining FEPI pools using BAS

You define a resource definition for a FEPI pool by creating a BAS resource object, FEPOODEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration viewsBasic CICS resource administration viewsResource definitionsFEPI pool definitions**.
2. From the **FEPI pool definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **FEPI pool definitions** create view is displayed.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **FEPI pool definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS FEPI pool definitions

Install the BAS resource object for the FEPI pool to make the definition available in the CICS region.

Before you begin

You must have created the required FEPOODEF resource object in the data repository to install the FEPI pool in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration viewsBasic CICS resource administration viewsResource definitionsFEPI pool definitions** to view the list of FEPOODEF resource definitions.
2. Click the Record check box to select a FEPI pool definition and click the **Install...** button. Alternatively, click a FEPI pool definition name and click the **Install...** button on the **FEPI pool definitions** detailed view.

Results

The FEPI pool resource installs in the specified CICS region.

What to do next

After the resource definition installs successfully, you can inquire about the resource by clicking **CICS operations views** > **FEPI operations views** > **Pools**.

FEPI property set resource definitions

FEPI property set definitions describe the physical and operational characteristics of FEPI property sets.

Viewing FEPI property set definitions

You can view information about your existing FEPI property set definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a FEPI property set is called FEPRODEF. The **FEPI property set definitions** view in the Web User Interface displays information about existing FEPI property set definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **FEPI property set definitions**.

Results

The Web User Interface displays the list of FEPI property set definitions.

What to do next

From this view you can also create, update, remove, or install FEPI property set definitions.

Defining FEPI property sets using BAS

You define a resource definition for FEPI property set by creating a BAS resource object, FEPRODEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration viewsBasic CICS resource administration viewsResource definitionsFEPI property set definitions**.
2. From the **FEPI property set definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **FEPI property set definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **DB2 entry definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS FEPI property set definitions

Install the BAS resource object for the FEPI property set to make the definition available in the CICS region.

Before you begin

You must have created the required FEPRODEF resource object in the data repository to install the FEPI property set in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **FEPI property set definitions** to view the list of FEPRODEF resource definitions.
2. Click the Record check box to select a FEPI node list definition and click the **Install...** button. Alternatively, click a property set definition name and click the **Install...** button on the **FEPI property set definitions** detailed view.

Results

The FEPI property set resource installs in the specified CICS region.

What to do next

After the resource definition installs successfully, you can inquire about the resource by clicking **CICS operations views** > **FEPI operations views** > **Property sets**.

FEPI target list resource definitions

FEPI target list definitions describe the physical and operational characteristics of FEPI targets.

Viewing FEPI target list definitions

You can view information about your existing FEPI property set definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a FEPI target list is called FETRGDEF. The **FEPI target list definitions** view in the Web User Interface displays information about existing FEPI target list definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **FEPI target list definitions**.

Results

The Web User Interface displays the list of FEPI target list definitions.

What to do next

From this view you can also create, update, remove, or install FEPI target list definitions.

Defining FEPI target lists using BAS

You define a resource definition for FEPI target list by creating a BAS resource object, FETRGDEF.

About this task

You can define the resource object using the Web User Interface. These instructions explain this procedure.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **FEPI target list definitions**.

2. From the **FEPI target list definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **FEPI target list definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **FEPI target list definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS FEPI target list definitions

Install the BAS resource object for the FEPI target list to make the definition available in the CICS region.

Before you begin

You must have created the required FETRGDEF resource object in the data repository to install the FEPI target list in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **FEPI target list definitions** to view the list of FETRGDEF resource definitions.
2. Click the Record check box to select a FEPI target list definition and click the **Install...** button. Alternatively, click a FEPI target list definition name and click the **Install...** button on the **FEPI target list definitions** detailed view.

Results

The FEPI target list resource installs in the specified CICS region.

What to do next

After installation of a FEPI target list resource definition, you can enquire about the resultant object using: **CICS operations views** > **FEPI operations views** > **Targets**

FILE resource definitions

FILE resource definitions describe the physical and operational characteristics of files.

Viewing BAS file definitions

You can view information about your existing FILE definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a FILE resource is called FILEDEF. The **File definitions** view in the Web User Interface displays information about existing FILE definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **File definitions**.

Results

The Web User Interface displays the list of FILE definitions.

What to do next

From this view you can also create, update, remove, or install FILE definitions.

Defining files using BAS

You define a resource definition for a file by creating a BAS resource object, FILEDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration viewsBasic CICS resource administration viewsResource definitionsFile definitions**
2. From the **File definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **File definitions** create view is displayed.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **File definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS file definitions

Install the BAS resource object for the FILE definition to make the file available in the CICS region.

Before you begin

You must have created the required FILEDEF resource object in the data repository to install the FILE resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **File definitions**
2. Click the Record check box to select a file definition and click the **Install...** button. Alternatively, click a file definition name and click the **Install...** button on the **File definitions** detailed view.

Results

The FILE resource installs in the specified CICS region.

What to do next

After the resource definition installs successfully, you can inquire about the resource by clicking **CICS operations views** > **File operations views**. Select the file type that you are interested in from the menu.

File key segment resource definitions

File key segment definitions describe the parts of a Windows file record that are to be used as the record key.

Key segments are valid only for:

- Entry-sequenced files (type E)
- Key-sequenced files (type K)

Key segments are not valid for:

- Alternate index files (type A)
- Relative-record files (type R)
- Remote files

You cannot install file key segment definitions.

Viewing file segment definitions

You can view information about your existing file segment definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a file segment resource is called FSEGDEF. The **File segment definitions** view in the Web User Interface displays information about existing file segment definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **File segment definitions**.

Results

The Web User Interface displays the list of file segment definitions.

What to do next

From this view you can also create, update, or remove file segment definitions.

Defining file key segments using BAS

You define a resource definition for a file key segment by creating a BAS resource object, FSEGDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **File key segment definitions**.
2. From the **File key segment definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **File key segment definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **File key segment definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing file key segment definitions

About this task

You cannot install file key segment definitions.

Enqueue model definitions

Enqueue model definitions describe how enqueue models are to run in a CICS region.

Viewing global enqueue model definitions

You can view information about your existing global enqueue model definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a global enqueue model resource is called ENQMDEF. The **Global enqueue model definitions** view in the Web User Interface displays information about existing global enqueue model definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Global enqueue model definitions**.

Results

The Web User Interface displays the list of global enqueue model definitions.

What to do next

From this view you can also create, update, install, or remove global enqueue model definitions.

Defining global enqueue models using BAS

You define a resource definition for a global enqueue model by creating a BAS resource object, ENQMDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Global enqueue model definitions**.
2. From the **Global enqueue model definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Global enqueue model definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Global enqueue models definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS global enqueue model definitions

Install the BAS resource object for the global enqueue model definition to make it available in the CICS region.

Before you begin

You must have created the required ENQMDEF resource object in the data repository to install the global enqueue model definition in the CICS region.

About this task

Enqueue models forming nested generic enqueue names must be installed either in the disabled state or in order, from the most specific (for example, ABCD) to the least specific (for example, AB*). If another enqueue model with the same or a less specific nested enqueue name is already installed and enabled, the installation fails. You can install disabled enqueue models in any order, but you must enable them in order from most specific to least specific.

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Global enqueue model definitions**
2. Click the Record check box to select a enqueue model definition and click the **Install...** button. Alternatively, click a enqueue model definition name and click the **Install...** button on the **Global enqeue** detailed view.

Results

The global enqueue model definition installs in the specified CICS region.

What to do next

After the resource definition installs successfully, you can inquire about the resource by clicking **CICS operations views** > **Global enqueue model operations views** > **Global enqueue model**.

IPCONN resource definitions

IPCONN resource definitions define the outbound attributes of an IP interconnectivity (IPIC) connection from a local CICS region to a remote CICS region or system.

Viewing BAS IPIC connection definitions

You can view information about your existing IPIC connection definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents an IPCONN resource is called IPCONDEF. The **IPIC connection definitions** view in the Web User Interface displays the list of IPCONDEF definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views** menu, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **Resource definitions** to display the **CICS resource definitions** view.
4. Click **IPIC connection definitions** to display a list of the IPIC connections that are defined.

Results

The Web User Interface displays the list of IPIC connection definitions.

What to do next

From this view you can also create, update, install, or remove IPIC connection definitions.

Defining IPIC connections using BAS

You can define IPIC connections by creating a BAS resource object, IPCONDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. The steps in this task use the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **IPIC connection definitions** to view the list of IPCONDEF resource definitions.
2. Click **Create...**. To use an existing definition as the basis for the new definition, click the check box before clicking **Create...**. The **IPIC connection definitions** create view is displayed.
3. Complete the relevant fields:
   a. The name of the IPCONDEF must be the same as the SYSID of the partner CICS region. You can view this information in the **CICS system definitions** view.
   b. The APPLID of the IPCONDEF must be the APPLID of the partner CICS region. You can view this information in the **CICS system definitions** view.
   c. Optional: The host, network ID, and port number of the IPCONDEF are populated from the partner CICS region if defined in the system definition. If the values are not populated, you can specify a host name and network ID if the partner CICS region is in a different network. The combination of APPLID and the network ID ensures that the remote CICS region is referred to by a unique name. You can also specify a port number for the partner CICS region. If you specify different values from the definitions in the partner region, your values are overridden when the definition is created.

d. Specify the name of the TCPDEF resource object on the local CICS region that define the inbound attributes of the IPIC connection.
e. Click **Yes** to create the definition.

Results

The **IPIC connection definitions** view displays the new definition.

What to do next

To add the definition to a resource group, click **Add to resource group...**. You must also create an IPCONDEF resource object for the partner CICS region and ensure there are suitable TCPDEF resource objects for each region.

Related tasks:

"Defining connections between CICS regions" on page 75
You can use CICSPlex SM to define and manage the connections between CICS regions. Instead of identifying each CICS region in a communication network to each of its partners as RDO requires, you can specify general connectivity information to be used by all the CICS regions in a CICSplex.

Installing BAS IPIC connection definitions

Install the BAS resource object for the IPCONN resource definition to make the resource available in the CICS region.

Before you begin

You must have created the required IPCONDEF resource object in the data repository to install the IPCONN resource in the CICS region.

About this task

You can either install IPIC connection definitions into each CICS region manually, using the CICS Explorer or the Web User Interface, or use the SYSLINK resource object to install the required definitions automatically into target CICS regions. The steps in this task use the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **IPIC connection definitions** to view the list of IPCONDEF resource definitions.
2. Click the **Record** check box to select a CICS system and click **Install...**. Alternatively, click a CICS system name and click **Install...** on the **IPIC connection definitions** detailed view.
3. Install the TCPDEF resource object to create a TCPIPSERVCE resource that references the IPCONN resource. You must have both IPCONN and TCPIPSERVICE resources installed in the local and remote CICS regions to establish an IPIC connection.

Results

The IPIC connection is installed in the specified CICS region.

What to do next

After the IPIC connection definition installs successfully, you can inquire about the connection from the main menu by clicking **CICS operations views** > **Connection operations views**.

ISC/MRO connection resource definitions

ISC/MRO connection definitions identify remote regions or systems that a CICS region communicates with using intersystem communication (ISC) or multiple region operation (MRO).

Viewing BAS ISC and MRO connection definitions

You can view information about your existing ISC and MRO connection definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents an ISC or MRO CONNECTION resource is called CONNDEF. The **ISO/MRO connection definitions** view in the Web User Interface displays the list of CONNDEF definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views** menu, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views**.
3. Click **Resource definitions** to display the **CICS resource definitions** view.
4. Click **ISC/MRO connection definitions** to display a list of the ISC and MRO connections that are defined.

Results

The Web User Interface displays the list of ISC and MRO connection definitions.

What to do next

From this view you can also create, update, install, or remove ISC and MRO connection definitions.

Defining ISC and MRO connections using BAS

You define a resource definition for an ISC or MRO connection by creating a BAS resource object, CONNDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **ISC/MRO connection definitions**.

2. From the **ISC/MRO connection definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **ISO/MRO connection definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **ISC/MRO connection definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Related tasks:

"Defining connections between CICS regions" on page 75
You can use CICSPlex SM to define and manage the connections between CICS regions. Instead of identifying each CICS region in a communication network to each of its partners as RDO requires, you can specify general connectivity information to be used by all the CICS regions in a CICSplex.

Installing BAS ISC and MRO connection definitions

Install the BAS resource object for the CONNECTION resource definition to make the resource available in the CICS region.

Before you begin

You must have created the required CONNDEF resource object in the data repository to install the CONNECTION resource in the CICS region.

About this task

You can either install the connections into each CICS region manually, using the CICS Explorer or the Web User Interface, or use the SYSLINK resource object to install the required definitions automatically into target CICS regions. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **ISC/MRO connection definitions**.
2. Click the Record check box to select a CICS system and click the **Install...** button. Alternatively, click a CICS system name and click the **Install...** button on the **ISO/MRO connection definitions** detailed view.

Results

The ISC or MRO connection is installed in the specified CICS region.

What to do next

After the connection installs successfully, you can inquire about the connection from the main menu by clicking **CICS operations views** > **Connection operations views**.

Journal model resource definitions

Journal model definitions describe the association between a CICS journal name and the MVS system log streams or the SMF log.

Viewing journal model definitions

You can view information about your existing journal model definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a journal model resource is called JRNMDEF. The **Journal model definitions** view in the Web User Interface displays the list of JRNMDEF definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **Resource definitions** to display the **CICS resource definitions** view.
4. Click **Journal model definitions**.

Results

The Web User Interface displays the list of journal model definitions.

What to do next

From this view you can also create, update, install, or remove journal model definitions.

Defining journal models using BAS

You define a resource definition for journal model by creating a BAS resource object, JRNMDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Journal model definitions**.
2. From the **Journal model definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Journal model definitions** create view is displayed.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Journal model definitions** view is displayed showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS journal model definitions

Install the BAS resource object for the journal model to make the resource available in the CICS region.

Before you begin

You must have created the required JRNMDEF resource object in the data repository to install the journal model resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Journal model definitions**.
2. Click the Record check box to select a journal model definition and click the **Install...** button. Alternatively, click a journal model definition name and click the **Install...** button on the **Journal model definitions** detailed view.

Results

The journal model definition installs in the specified CICS region.

What to do next

After the journal model installs successfully, you can inquire about the resource by clicking **CICS operations views** > **Journal operations views** > **Models**.

JVMSERVER resource definitions

A JVMSERVER resource definition defines the runtime environment for a JVM server. The JVMSERVER resource defines the location of the JVM profile, the Language Environment enclave options, and other configuration information to control the initialization of the JVM.

Viewing JVMSERVER definitions

You can view information about your existing JVMSERVER definitions using the IBM CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a JVMSERVER resource is called JVMSVDEF. The **JVMSERVER definitions** view in the Web User Interface displays the list of JVMSVDEF definitions.

Procedure

1. From the main menu, click **Administration views**.

2. From the Administration views menu, click either **Basic CICS resource administration views** or **Fully functional resource administration views**.
3. Click **Resource definitions** > **JVMSERVER definitions**.

Results

The Web User Interface displays the list of JVMSVDEF definitions for the current context.

What to do next

From this view you can create, remove, or install JVMSERVER resource definitions.

Defining JVMSERVER resources using BAS

You define a resource definition for a JVM server by creating a BAS resource object, JVMSVDEF.

About this task

You can define the resource object using the IBM CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Bundle definitions** to view the list of JVMSVDEF resource definitions.
2. Click the **Create...** button. To use an existing definition as the basis for the new definition, click the check box before clicking the **Create...** button. The Bundle definitions create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The JVM server definitions view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS JVMSERVER definitions

Install the BAS resource object for the JVM server to make it available to the CICS region.

Before you begin

You must have created the required JVMSVDEF resource object in the data repository to install the JVM server in the CICS region.

About this task

You can install the BAS resource object using the IBM CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **JVM server definitions** to view the list of JVMSVDEF resource definitions.
2. Click the Record check box to select a definition and click the **Install...** button. Alternatively, click on a JVM server definition name and click the **Install...** button on the JVM server definitions detailed view.

Results

The JVM server installs in the specified CICS region.

What to do next

After the resource definition installs successfully, you can inquire about enabled JVM servers from the WUI main menu by selecting **CICS operations views** > **Enterprise Java operations views** > **JVM servers**.

LIBRARY resource definitions

LIBRARY definitions describe the attributes for dynamic program LIBRARY resources.

Viewing LIBRARY definitions

You can view information about your existing LIBRARY definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a LIBRARY resource is called LIBDEF. The **LIBRARY definitions** view in the Web User Interface displays information about existing LIBRARY definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **Resource definitions** to display the **CICS resource definitions** view.
4. Click **LIBRARY definitions**.

Results

The Web User Interface displays the list of LIBRARY definitions.

What to do next

From this view you can also create, update, install, or remove LIBRARY definitions.

Defining LIBRARY resources using BAS

You define a LIBRARY resource definition by creating a BAS resource object, LIBDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **LIBRARY definitions**.
2. From the **LIBRARY definitions** view, click the **Create...** button. To use an existing definition as the basis of the new definition, click the check box before clicking the **Create...** button. The **LIBRARY definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **LIBRARY definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS LIBRARY definitions

Install the BAS resource object for the LIBRARY resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the LIBRARY resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **LIBRARY definitions**.
2. Click the Record check box to select a program definition and click the **Install...** button. Alternatively, click a LIBRARY definition name and click the **Install...** button on the **LIBRARY definitions** detailed view.

Results

The LIBRARY resource installs in the CICS region.

What to do next

After the LIBRARY resource installs successfully, you can inquire about the resource by clicking **CICS operations views** > **Program operations views** > **LIBRARYs, including DFHRPL**.

LSR pool resource definitions

LSR pool definitions describe the size and characteristics of local shared resource pools that VSAM uses for certain files.

Viewing LSR pool definitions

You can view information about your existing LSR pool definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents an LSR pool is called LSRDEF. The **LSR pool definitions** view in the Web User Interface displays information about existing LSR pool definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **LSR pool definitions**.

Results

The Web User Interface displays the list of LSR pool definitions.

What to do next

From this view you can also create, update, install, or remove LSR pool definitions.

Defining LSR pools using BAS

You define an LSR pool resource by creating a BAS resource object, LSRDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **LSR pool definitions**.
2. From the **LSR pool definitions** view, click the **Create...** button. To use an existing definition as the basis of the new definition, click the check box before clicking the **Create...** button. The **LSR pool definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **LSR pool definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS LSR pool definitions

Install the BAS resource object for the LSR pool resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the LSR pool resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **LSR pool definitions**.
2. Click the Record check box to select a LSR pool definition and click the **Install...** button. Alternatively, click a LSR pool definition name and click the **Install...** button on the **LSR pool definitions** detailed view.

Results

The LSR pool resource installs in the CICS region.

What to do next

After the LSR pool resource definition installs successfully, you can inquire about the resource by clicking **CICS operations views** > **File operations views**. From the **File operations views** menu, select either **VSAM LSR pool buffers** or **VSAM LSR pools**.

Map set resource definitions

Map set definitions describe the characteristics of a group of related screen layouts, or maps.

Viewing map set definitions

You can view information about your existing map set definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a map set is called MAPDEF. The **Map set definitions** view in the Web User Interface displays information about existing map set definitions.

Procedure

1. From the main menu, click **Administration views**.

2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Map set definitions**.

Results

The Web User Interface displays the list of map set definitions.

What to do next

From this view you can also create, update, install, or remove map set definitions.

Defining map sets using BAS

You define a map set resource by creating a BAS resource object, MAPDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Map set definitions**.
2. From the **Map set definitions** view, click the **Create...** button. To use an existing definition as the basis of the new definition, click the check box before clicking the **Create...** button. The **Map set definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Map set definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS map set definitions

Install the BAS resource object for the map set resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the map set resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Map set definitions**.
2. Click the Record check box to select a map set definition and click the **Install...** button. Alternatively, click a map set definition name and click the **Install...** button on the **Map set definitions** detailed view.

Results

The map set resource installs in the specified CICS region.

MQCONN resource definitions

The MQCONN resource definition for the CICS region defines the attributes of the connection between CICS and IBM MQ.

Viewing BAS MQCONN definitions

You can view information about your existing MQCONN resource definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents an MQCONN resource is called MQCONDEF. The **IBM MQ connection definitions** view in the Web User Interface displays the list of MQCONDEF definitions. Only one MQCONN resource definition can be installed and used at a time in a CICS region.

Procedure

1. From the main menu, click **Administration views**.
2. From the Administration views menu, click either **Basic CICS resource administration views** or **Fully functional Business Administration Services (BAS) administration views**.
3. Click **Resource definitions** to display the **CICS resource definitions menu**.
4. Click **IBM MQ connection definitions**.

Results

The Web User Interface displays the list of MQCONDEF definitions for the current context.

What to do next

From this view you can create, update, remove, or install MQCONN resource definitions.

Defining MQCONN resources using BAS

You define a resource definition for the connection between CICS and IBM MQ by creating a BAS resource object, MQCONDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **IBM MQ connection definitions** to view the list of MQCONDEF resource definitions.
2. Click the **Create...** button. To use an existing definition as the basis for the new definition, click the check box before clicking the **Create...** button. The **IBM MQ connection definitions** view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **IBM MQ connection definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS MQCONN definitions

Install the BAS resource object for the MQCONN resource to replace the existing IBM MQ connection definition for the CICS region with your new definition.

Before you begin

You must have created the required MQCONDEF resource object in the data repository to install the MQCONN resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface. Only one MQCONN resource definition can be installed at a time in a CICS region, so when you install a second MQCONN resource definition, CICS implicitly discards the existing MQCONN definition before proceeding with the installation, unless you are reinstalling an MQCONN resource definition with the same name.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **IBM MQ connection definitions** to view the list of MQCONDEF resource definitions.
2. Click the Record check box to select an MQCONDEF definition and click the **Install...** button. Alternatively, click an MQCONDEF definition name and click the **Install...** button on the **MQCONDEF definitions** detailed view.

Results

The MQCONN resource is installed in the specified CICS region.

What to do next

After the resource definition installs successfully, you can inquire about the resource from the main menu by clicking **CICS operations views** > **DB2, DBCTL and IBM MQ operations views** > **IBM MQ connection definitions**.

MQMONITOR resource definitions

MQMONITOR resource definitions define attributes for WebSphere MQ message consumers, such as the trigger monitor transaction CKTI.

Viewing BAS MQMONITOR definitions

You can view information about your existing MQMONITOR resource definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents an MQMONITOR resource is called MQMONDEF. The **WebSphere MQ monitor definitions** view in the Web User Interface displays the list of MQMONDEF definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the Administration views menu, click either **Basic CICS resource administration views** or **Fully functional Business Administration Services (BAS) administration views**.
3. Click **Resource definitions** to display the **CICS resource definitions menu**.
4. Click **WebSphere MQ monitor definitions**.

Results

The Web User Interface displays the list of MQMONDEF definitions for the current context.

What to do next

From this view you can create, update, remove, or install MQMONITOR resource definitions.

Defining MQMONITOR resources using BAS

You define a resource definition for an MQ monitor, which can be a trigger monitor, an MQ bridge monitor, or a user-written monitor, by creating a BAS resource object, MQMONDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views** > **Resource definitions** > **WebSphere MQ monitor definitions** to view the list of MQMONDEF resource definitions.
2. Click the **Create** button. To use an existing definition as the basis for the new definition, click the check box before clicking the **Create** button. The **WebSphere MQ monitor definition** view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **WebSphere MQ monitor definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group** button.

Installing BAS MQMONITOR definitions

Install the BAS resource object for the MQMONITOR resource to make the definition available in the CICS region.

Before you begin

You must have created the MQMONDEF resource object in the data repository to install the MQMONITOR resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **WebSphere MQ monitor definitions** to view the list of MQMONDEF resource definitions.
2. Click the Record check box to select an MQMONDEF definition and click the **Install** button. Alternatively, click an MQMONDEF definition name and click the **Install** button on the **WebSphere MQ monitor definitions** detailed view.

Results

The MQMONITOR resource is installed in the CICS region.

What to do next

After the resource definition installs successfully, you can inquire about the resource from the main menu by clicking **CICS operations views** > **DB2, DBCTL and WebSphere MQ operations views** > **WebSphere MQ operations views** > **WebSphere MQ monitors**.

Partition set resource definitions

Partition set definitions describe the characteristics of a display partition configuration.

Viewing partition set definitions

You can view information about your existing partition set definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a partition set is called PRTNDEF. The **Partition set definitions** view in the Web User Interface displays information about existing partition set definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Partition set definitions**.

Results

The Web User Interface displays the list of partition set definitions.

What to do next

From this view you can also create, update, install, or remove partition set definitions.

Defining partition sets using BAS

You define a partition set resource by creating a BAS resource object, PRTNDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Partition set definitions**.
2. From the **Partition set definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Partition set definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Partition set definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS partition set definitions

Install the BAS resource object for the partition set resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the partition set resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Partition set definitions**.
2. Click the Record check box to select a partition set definition and click the **Install...** button. Alternatively, click a partition set definition name and click the **Install...** button on the **Partition set definitions** detailed view.

Results

The partition set resource installs in the specified CICS region.

Partner resource definitions

Partner definitions enable CICS application programs to communicate with a partner application program running on a remote region using APPC protocols.

Viewing partner definitions

You can view information about your existing partner definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a partner definition is called PARTDEF. The **Partition definitions** view in the Web User Interface displays information about existing partner definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Partner definitions**.

Results

The Web User Interface displays the list of partner definitions.

What to do next

From this view you can also create, update, install, or remove partner definitions.

Defining partner definitions using BAS

You define a partner resource by creating a BAS resource object, PARTDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Partner definitions**.
2. From the **Partner definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Partner definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Partner definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS partner definitions

Install the BAS resource object for the partner resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the partner resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Partner definitions**.
2. Click the Record check box to select a partner definition and click the **Install...** button. Alternatively, click a partner definition name and click the **Install...** button on the **Partner definitions** detailed view.

Results

The partner definition installs in the specified CICS region.

Pipeline resource definitions

A PIPELINE resource definition is used when a CICS application is acting as a web service provider or requester. It provides information about the message handler programs that act on a web service request and on the response.

Viewing pipeline definitions

You can view information about your existing pipeline definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a pipeline definition is called PIPEDEF. The **Pipeline definitions** view in the Web User Interface displays information about existing pipeline definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Pipeline definitions**.

Results

The Web User Interface displays the list of pipeline definitions.

What to do next

From this view you can also create, update, install, or remove pipeline definitions.

Defining pipeline definitions using BAS

You define a PIPELINE resource by creating a BAS resource object, PIPEDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Pipeline definitions**.
2. From the **Pipeline definitions** view, click the **Create...** button. To use an existing definition as the basis of the new definition, click the check box before clicking the **Create...** button. The **Pipeline definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Pipeline definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS pipeline definitions

Install the BAS resource object for the pipeline resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the PIPELINE resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Pipeline definitions**.
2. Click the Record check box to select a pipeline definition and click the **Install...** button. Alternatively, click a pipeline definition name and click the **Install...** button on the **Pipeline definitions** detailed view.

Results

The PIPELINE resource installs in the specified CICS region.

PROCESSTYPE definitions

PROCESSTYPE resource definitions describe the physical and operational characteristics of CICS business transaction services (BTS) process types.

Viewing process type definitions

You can view information about your existing process type definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a pipeline definition is called PROCDEF. The **Process type definitions** view in the Web User Interface displays information about existing process type definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Process type definitions**.

Results

The Web User Interface displays the list of process type definitions.

What to do next

From this view you can also create, update, install, or remove process type definitions.

Defining process types using BAS

You define a PROCESSTYPE resource by creating a BAS resource object, PROCDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Process type definitions**.
2. From the **Process types definitions** view, click the **Create...** button. To use an existing definition as the basis of the new definition, click the check box before clicking the **Create...** button. The **Process types definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Process types definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS process type definitions

Install the BAS resource object for the PROCESSTYPE resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the PROCESSTYPE resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Process type definitions**.

2. Click the Record check box to select a process type definition and click the **Install...** button. Alternatively, click a process type definition name and click the **Install...** button on the **Process type definitions** detailed view.

Results

The PROCESSTYPE resource installs successfully in the specified CICS region.

Profile resource definitions

Profile definitions control the interactions between transactions and terminals or logical units.

Viewing profile resource definitions

You can view information about your existing profile definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a profile definition is called PROFDEF. The **Profile definitions** view in the Web User Interface displays information about existing profile definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Profile definitions**.

Results

The Web User Interface displays the list of profile definitions.

What to do next

From this view you can also create, update, install, or remove profile definitions.

Defining profiles using BAS

You define a PROFILE resource by creating a BAS resource object, PROFDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Profile definitions**.
2. From the **Profile definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Profile definitions** create view displays.

3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Profile definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS profile definitions

Install the BAS resource object for the PROFILE resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the PROFILE resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Profile definitions**.
2. Click the Record check box to select a profile definition and click the **Install...** button. Alternatively, click a profile definition name and click the **Install...** button on the **Profile definitions** detailed view.

Results

The PROFILE resource installs successfully in the specified CICS region.

PROGRAM resource definitions

PROGRAM resource definitions describe the control information for a program that is stored in the program library and used to process a transaction.

Viewing program definitions

You can view your existing program definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource definition that represents a program definition is called PROGDEF. The **Program definitions** view in the Web User Interface displays information about existing program definitions.

Procedure

1. From the main menu, click **Administration views**.

2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Program definitions**.

Results

The Web User Interface displays the list of program definitions.

What to do next

From this view you can also create, update, install, or remove program definitions.

Defining programs using BAS

You define a PROGRAM resource by creating a BAS resource object, PROGDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Program definitions**.
2. From the **Program definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Program definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Program definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS program definitions

Install the BAS resource object for the PROGRAM resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the PROGRAM resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Program definitions**.
2. Click the Record check box to select a program definition and click the **Install...** button. Alternatively, click a program definition name and click the **Install...** button on the **Program definitions** detailed view.

Results

The PROGRAM resource installs successfully in the specified CICS region.

What to do next

After the resource installs, you can inquire on the resource by clicking **CICS operations views** > **Program operations views**.

Session resource definitions

Session definitions describe the nature of logical links between regions or systems that communicate using intersystem communication (ISC) or multiple region operation (MRO).

Viewing session definitions

You can view your existing session definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource object that represents a session definition is called SESSDEF. The **Session definitions** view in the Web User Interface displays information about existing session definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Session definitions**.

Results

The Web User Interface displays the list of session definitions.

What to do next

From this view you can also create, update, or remove session definitions.

Defining sessions using BAS

You define a SESSION resource by creating a BAS resource object, SESSDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Session definitions**.
2. From the **Session definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Session definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Session definitions** view is displayed showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

TCPIPSERVICE resource definitions

TCPIPSERVICE resource definitions define which TCP/IP services are to use internal sockets support.

Viewing TCP/IP service definitions

You can view your existing TCPIPSERVICE resource definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource object that represents a TCPIPSERVICE definition is called TCPDEF. The **TCP/IP service definitions** view in the Web User Interface displays information about existing TCPIPSERVICE definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **TCP/IP service definitions**.

Results

The Web User Interface displays the list of TCPIPSERVICE definitions.

What to do next

From this view you can also create, update, install, or remove TCPIPSERVICE definitions.

Defining TCP/IP services using BAS

You define a TCPIPSERVICE resource by creating a BAS resource object, TCPDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **TCP/IP service definitions**.
2. From the **TCP/IP service definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **TCP/IP service definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **TCP/IP service definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing a BAS TCP/IP service definition

Install the BAS resource object for the TCPIPSERVICE resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the TCPIPSERVICE resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. The following procedure uses the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **TCP/IP service definitions**.
2. Click the Record check box to select a TCP/IP service definition and click the **Install...** button. Alternatively, click a TCP/IP service definition name and click the **Install...** button on the **TCP/IP service definitions** detailed view.

Results

The TCPIPSERVICE installs in the specified CICS region.

What to do next

After the resource installs successfully, you can inquire on the resource by clicking **CICS operations views** > **TCP/IP service operations views**

Transient data queue resource definitions

Transient data queue definitions describe intrapartition, extrapartition, indirect, and remote transient data destinations.

Viewing transient data queue definitions

You can view information about your existing TDQUEUE resource definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource object that represents a TDQUEUE definition is called TDQDEF. The **Transient data queue definitions** view in the Web User Interface displays information about existing TDQUEUE definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Transient data queue definitions**.

Results

The Web User Interface displays the list of TDQUEUE definitions.

What to do next

From this view you can also create, update, install, or remove TDQUEUE definitions.

Defining transient data queues using BAS

You define a TDQUEUE resource by creating a BAS resource object, TDQDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Transient data queue definitions**.
2. From the **Transient data queue definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Transient data queue definitions** create view is displays.

3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Transient data queue definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS transient data queue definitions

Install the BAS resource object for the TDQUEUE resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the TDQUEUE resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Transient data queue definitions**.
2. Click the Record check box to select a transient data queue definition and click the **Install...** button. Alternatively, click a transient data queue definition name and click the **Install...** button on the **Transient data queue definitions** detailed view.

Results

The TDQUEUE resource installs in the specified CICS region.

What to do next

After the resource installs successfully, you can inquire about the resource by clicking **CICS operations views** > **Transient data queue (TDQ) operations views**.

Terminal resource definitions

Terminal resource definitions describe the unique characteristics of the terminal devices, including visual display units, printers, and operating system consoles, with which CICS communicates.

Viewing terminal definitions

You can view information about your existing TERMINAL resource definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource object that represents a TERMINAL definition is called TERMDEF. The **Terminal definitions** view in the Web User Interface displays information about existing TERMINAL definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Terminal definitions**.

Results

The Web User Interface displays the list of TERMINAL definitions.

What to do next

From this view you can also create, update, install, or remove TERMINAL definitions.

Defining terminals using BAS

You define a TERMINAL resource by creating a BAS resource object, TERMDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Terminal definitions**.
2. From the **Terminal definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Terminal definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Terminal definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS terminal definitions

Install the BAS resource object for the TERMINAL resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the TERMINAL resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Terminal definitions**.
2. Click the Record check box to select a terminal definition and click the **Install...** button. Alternatively, click a terminal definition name and click the **Install...** button on the **Terminal definitions** detailed view.

Results

The TERMINAL resource installs in the specified CICS region.

What to do next

After the TERMINAL resource installs successfully, you can inquire on the resource by clicking **CICS operations views** > **Terminal operations views**.

Transaction resource definitions

Transaction definitions describe how transactions are to run in a CICS region.

Viewing transaction definitions

You can view information about your existing transaction resource definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource object that represents a transaction definition is called TRANDEF. The **Transaction definitions** view in the Web User Interface displays information about existing transaction definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Transaction definitions**.

Results

The Web User Interface displays the list of transaction definitions.

What to do next

From this view you can also create, update, install, or remove transaction definitions.

Defining transactions using BAS

You define a transaction resource by creating a BAS resource object, TRANDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Transaction definitions**.
2. From the **Transaction definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Transaction definitions** create view is displayed.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Transaction definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS transaction definitions

Install the BAS resource object for the transaction resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the transaction resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Transaction definitions**.
2. Click the Record check box to select a transaction definition and click the **Install...** button. Alternatively, click a transaction definition name and click the **Install...** button on the **Transaction definitions** detailed view.

Results

The TRANSACTION resource installs in the specified CICS region.

What to do next

After the resource installs successfully, you can inquire on the resource by clicking **CICS operations views** > **Transaction operations views** .

Transaction class definitions

Transaction class definitions describe the operational characteristics for transactions belonging to the class.

Viewing transaction class definitions

You can view existing information about your transaction class definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource object that represents a transaction class definition is called TRNCLDEF. The **Transaction definitions** view in the Web User Interface displays information about existing transaction class definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Transaction definitions**.

Results

The Web User Interface displays the list of transaction class definitions.

What to do next

From this view you can also create, update, install, or remove transaction class definitions.

Defining transaction classes using BAS

You define a transaction class resource by creating a BAS resource object, TRNCLDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Transaction class definitions**.

2. From the **Transaction class definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Transaction class definitions** create view is displayed.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Transaction class definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS transaction class definitions

Install the BAS resource object for the transaction class resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the transaction class resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Transaction class definitions**.
2. Click the Record check box to select a transaction class definition and click the **Install...** button. Alternatively, click a transaction class definition name and click the **Install...** button on the **Transaction class definitions** detailed view.

Results

The resource installs into the specified CICS region.

Temporary storage model definitions

Temporary storage definitions describe the attributes that govern the characteristics of CICS temporary storage queues.

Viewing temporary storage model definitions

You can view existing information about your temporary storage model definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource object that represents a transaction class definition is called TSMDEF. The **Temporary storage model definitions** view in the Web User Interface displays information about existing transaction class definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Temporary storage model definitions**.

Results

The Web User Interface displays the list of temporary storage model definitions.

What to do next

From this view you can also create, update, install, or remove temporary storage model definitions.

Defining temporary storage models using BAS

You define a temporary storage queue by creating a BAS resource object, TSMDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Temporary storage model definitions**.
2. From the **Temporary storage model definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Temporary storage model definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Temporary storage model definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS temporary storage model definitions

Install the BAS resource object for the TSMODEL resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the TSMODEL resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Temporary storage model definitions**.
2. Click the Record check box to select a temporary storage model definition and click the **Install...** button. Alternatively, click a temporary storage model definition name and click the **Install...** button on the **Temporary storage model definitions** detailed view.

Results

The temporary storage model resource installs in the specified CICS region.

What to do next

After the temporary storage definition installs, you can inquire about the resource by clicking **CICS operations views** > **Temporary storage queue (TSQ) operations views**

Typeterm resource definitions

Typeterm definitions are partial terminal definitions that describe a set of common attributes for a group of terminals.

Viewing typeterm definitions

You can view existing information about your typeterm definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource object that represents a typeterm definition is called TYPTMDEF. The **Typeterm definitions** view in the Web User Interface displays information about existing typeterm definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **Typeterm definitions**.

Results

The Web User Interface displays the list of typeterm definitions.

What to do next

From this view you can also create, update, install, or remove typeterm definitions.

Defining typeterms using BAS

You define a typeterm resource by creating a BAS resource object, TYPTMDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Typeterm definitions**.
2. From the **Typeterm definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Typeterm definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Typeterm definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS typeterm definitions

Install the BAS resource object for the TYPETERM resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the TYPETERM resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Typeterm definitions**.
2. Click the Record check box to select a typeterm definition and click the **Install...** button. Alternatively, click a typeterm definition name and click the **Install...** button on the **Typeterm definitions** detailed view.

Results

The TYPETERM resource installs in the specified CICS region.

What to do next

After the resource installs successfully, you can inquire on the resource by clicking **CICS operations views** > **Terminal operations views**

URIMAP resource definitions

A URIMAP resource definition matches the URIs of HTTP or web service requests.

Viewing URI mapping definitions

You can view information about your existing URIMAP resource definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource object that represents a URIMAP resource definition is called URIMPDEF. The **URI mapping definitions** view in the Web User Interface displays information about existing typeterm definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.
4. Click **URI mapping definitions**.

Results

The Web User Interface displays the list of URIMAP definitions.

What to do next

From this view you can also create, update, install, or remove URIMAP definitions.

Defining URIMAP definitions using BAS

You define a URIMAP resource by creating a BAS resource object, URIMPDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **URI mapping definitions**.
2. From the **URI mapping definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **URI mapping definitions** create view is displayed.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **URI mapping definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS URI mapping definitions

Install the BAS resource object for the URIMAP resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the URIMAP resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **URI mapping definitions**.
2. Click the Record check box to select a URI map definition and click the **Install...** button. Alternatively, click a URI map definition name and click the **Install...** button on the **URI mapping definitions** detailed view.

Results

The URIMAP resource installs in the specified CICS region.

Web service resource definitions

A web service resource definition defines aspects of the runtime environment for a CICS application program deployed as a web service, where mapping between application data structure and SOAP messages has been generated using the CICS web services assistant.

Viewing web service definitions

You can view information about your existing WEBSERVICE resource definitions using the CICS Explorer or the Web User Interface.

About this task

The BAS resource object that represents a WEBSERVICE resource definition is called WEBSVDEF. The **Web service definitions** view in the Web User Interface displays information about existing web service definitions.

Procedure

1. From the main menu, click **Administration views**.
2. From the **Administration views menu**, click either **Basic CICS resource administration views** or **Fully functional Business Application Services (BAS) administration views.**
3. Click **CICS resource definitions** to display the **CICS resource definitions** view.

4. Click **Web service definitions**.

Results

The Web User Interface displays the list of WEBSERVICE definitions.

What to do next

From this view you can also create, update, install, or remove WEBSERVICE definitions.

Defining web service definitions using BAS

You define a URIMAP resource by creating a BAS resource object, WEBSVDEF.

About this task

You can define the resource object using the CICS Explorer or the Web User Interface. This procedure uses the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Web service definitions**.
2. From the **Web service definitions** view, click the **Create...** button. To use an existing definition as the basis of the new one, click the check box before clicking the **Create...** button. The **Web service definitions** create view displays.
3. Complete the relevant fields and click **Yes** to create the definition.

Results

The **Web service definitions** view displays showing the new definition.

What to do next

To add the definition to a resource group, click the **Add to resource group...** button.

Installing BAS web service definitions

Install the BAS resource object for the WEBSERVICE resource to make the definition available in the CICS region.

Before you begin

You must have created the required resource object in the data repository to install the WEBSERVICE resource in the CICS region.

About this task

You can install the BAS resource object using the CICS Explorer or the Web User Interface. These instructions explain the procedure for the Web User Interface.

Procedure

1. From the main menu, click **Administration views** > **Basic CICS resource administration views** > **Resource definitions** > **Web service definitions**.

2. Click the Record check box to select a web service definition and click the **Install...** button. Alternatively, click a web service definition name and click the **Install...** button on the **Web service definitions** detailed view.

Results

The WEBSERVICE resource installs in the specified CICS region.

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Programming interface information

CICS supplies some documentation that can be considered to be Programming Interfaces, and some documentation that cannot be considered to be a Programming Interface.

Programming Interfaces that allow the customer to write programs to obtain the services of CICS Transaction Server for z/OS, Version 5 Release 4 are included in the following sections of the online product documentation:

- Developing applications
- Developing system programs
- RACF security overview
- Developing for external interfaces
- Reference: application developmenth
- Reference: system programming
- Reference: connectivity

Information that is NOT intended to be used as a Programming Interface of CICS Transaction Server for z/OS, Version 5 Release 4 , but that might be misconstrued as Programming Interfaces, is included in the following sections of the online product documentation:

- Troubleshooting and support
- Reference: diagnostics

If you access the CICS documentation in manuals in PDF format, Programming Interfaces that allow the customer to write programs to obtain the services of CICS Transaction Server for z/OS, Version 5 Release 4 are included in the following manuals:

- Application Programming Guide and Application Programming Reference
- Business Transaction Services
- Customization Guide
- C++ OO Class Libraries
- Debugging Tools Interfaces Reference
- Distributed Transaction Programming Guide
- External Interfaces Guide
- Front End Programming Interface Guide
- IMS Database Control Guide
- Installation Guide
- Security Guide
- Supplied Transactions
- CICSPlex SM Managing Workloads
- CICSPlex SM Managing Resource Usage
- CICSPlex SM Application Programming Guide and Application Programming Reference
- Java Applications in CICS

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- Data Areas
- Diagnosis Reference
- Problem Determination Guide
- CICSPlex SM Problem Determination Guide

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