



**Tivoli Business Systems Manager**  
*Operation Planning and Control Release Notes*  
*Version 1.5*





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## Tivoli Business Systems Manager Operation Planning and Control Release Notes

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## Preface

Tivoli Business Systems Manager provides a robust, system management functionality. In support of the operational perspectives of that functionality, Tivoli Business Systems Manager installs components on both the OS/390 and NT platforms.

## Accessing Publications Online

The following sections describe how to access publications online, order publications, provide feedback about publications and contact customer support.

The Tivoli Customer Support Web site (<http://www.tivoli.com/support/>) offers a guide to support services (the *Customer Support Handbook*); frequently asked questions (FAQs); and technical information, including release notes, user's guides, redbooks, and white papers. You can access Tivoli publications online at <http://www.tivoli.com/support/documents/>. The documentation for some products is available in PDF and HTML formats. Translated documents are also available for some products.

To access most of the documentation, you need an ID and a password. To obtain an ID for use on the support Web site, go to <http://www.tivoli.com/support/getting/>.

Resellers should refer to <http://www.tivoli.com/support/smb/index.html> for more information about obtaining Tivoli technical documentation and support.

Business Partners should refer to "Ordering Publications" for more information about obtaining Tivoli technical documentation.

**Attention:** The following note is an example of exceptional information. If your documentation requires similar, exceptional information, add it in the appropriate section (however, it is likely that your documentation does not require any additional notes or addenda). In all instances, remove this Attention element.

**Note:** For NetView OS/390 customers, additional support is also available on the NETVIEW CFORUM (Customer Forum) through the IBMLink system. This forum is monitored by NetView developers who answer questions and provide guidance. When a problem with the code is found, you are asked to open an official problem management record (PMR) to get resolution.

## Ordering Publications

Order Tivoli publications online at [http://www.tivoli.com/support/Prodman/html/pub\\_order.html](http://www.tivoli.com/support/Prodman/html/pub_order.html) or by calling one of the following telephone numbers:

- U.S. customers: (800) 879-2755
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- Send e-mail to [pubs@tivoli.com](mailto:pubs@tivoli.com).

- 
- Fill out our customer feedback survey at <http://www.tivoli.com/support/survey/>.

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- Submit a PMR electronically through the IBMLink™ system. For information about IBMLink registration and access, refer to the IBM Web page at <http://www.ibm.link.ibm.com>.
- Send e-mail to [support@tivoli.com](mailto:support@tivoli.com).
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When you contact Tivoli Customer Support, be prepared to provide the customer number for your company so that support personnel can assist you more readily.



## 1

# Release Notes

## Overview

Tivoli Systems Operation Planning and Control (OPC) is a robust production work load scheduling system for the OS/390 platform. Through the creation of plans, long term and current (daily), applications, calendars, and special resources, production work loads can be scheduled to run automatically, taking into consideration dependencies, calendar issues (weekends, holidays), and special processing requirements. Tivoli OPC consists of one *controller*, where automatic planning and control takes place, and one or more *trackers*. The tracker submits the job and tracks the events. In the event report OPC uses SMF and JES exits. Abend conditions, run times, and several other pieces of information are gathered and used for reporting status.

Tivoli OPC describes an *application* as a unit of production work. An application consists of a list of operations, which may refer to batch jobs, started tasks, or other functions. Tivoli OPC administrators maintain the definitions of these applications and operations, and can produce a variety of reports describing the configuration, state, and projected work flow of the applications. When you create or extend a new current plan, you produce a *Daily Plan Report*. The Daily Plan Report contains the *Daily Operating Plan* report including the currently planned applications and operations, expected run times, and operation dependencies.

The following figure is an example of a Daily Operating Plan report.

ABCD COMPANY						PAGE0002	
OPC/ESA VIR3M1 REPORTS FOR SUBSYS EDA						06 MAY 95	
						12:33	
DAILY OPERATING PLAN (95/05/06 09.06 - 95/05/06 24.00)							
=====							
-----							
APPLICATION ID		INP ARRIVAL		DEFINED		SPEC	EXT
OP ID	JOBNAME	P	S	START	DUR	RES	MON
-----		-----		-----		-----	-----
PAYBACKP		5	W	12.00	09 06 00		
SAMPLE							
CPU1_015 PAYBACKP				12.09	00.05	+	Y
CPU1_012 PAYBACKP				12.12	00.05	+	
WT01_030 PAYBACKP				12.14	00.01		Y
-----							

Use of Tivoli Business Systems Manager with Tivoli OPC enables you to manage strategic applications from a unique business systems perspective. Tivoli OPC identifies batch jobs that you need to monitor within Tivoli Business Systems Manager. Tivoli Business Systems

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Manager receives events **directly** from the Tivoli OPC application regarding job status changes as well as alert conditions. Tivoli OPC also sends events that signal job additions.

The previous release used the USER EXIT 7 (EQQUX007) and WTOs to generate events. Currently, this work is done by the Tivoli OPC code itself using an External Monitor field for automatic operation options to indicate whether events are sent or not to Tivoli Business Systems Manager. The new parameter, External Monitor, appears as EXT MON in the last field of the Daily Operating Plan Report.

Typical Tivoli OPC environments include thousands of applications and hundreds of thousands of operations. Managing this level of volume requires grouping the applications into sets by functions and management responsibilities within the organization. Using pattern-matching rules established by the administrator, the applications are grouped into sets that reflect both the physical location of the applications (for example, where the applications run in the host environment) and the logical location or locations, which are determined by the business practices of your organization. These logical locations are reflected in a Line of Business view within Tivoli Business Systems Manager.

Tivoli Business Systems Manager represents each distinct application in the Current Plan as a *Batch Schedule* object within the object hierarchy. Each operation within an application is visible within the Batch Management Summary window.

The following sections of this document explain the various components of Tivoli Business Systems Manager interface with Tivoli OPC.

## Software Requirements

- Multiple Virtual Storage (MVS) OS/390 1.3 or higher.
- Transmission Control Protocol/Internet Protocol (TCP/IP) Version 3.2 or higher.
- Tivoli Business Systems Manager Version 1.5 plus patches.
- Tivoli OPC 2.2 (plus program temporary fix (PTF)), Tivoli OPC 2.3 (plus PTF), Tivoli OPC future Release

## Discovery

Tivoli Business Systems Manager discovers all batch objects reading the Daily Operating Plan Report. In order to integrate the Tivoli OPC applications and operations into Tivoli Business Systems Manager, the administrator must accomplish several tasks during the discovery session. These tasks are divided into the following categories: operation and configuration.

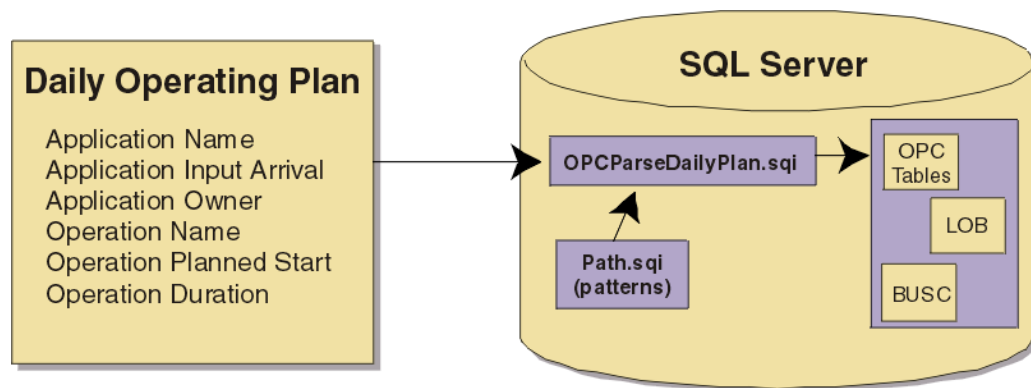
**Note:** The Daily Operating Plan Report contains the External Monitor field (EXT MON). Tivoli Business Systems Manager only loads information for jobs (operations) with the EXT MON set to **Y**: for Tivoli Business Systems Manager key jobs.

The operational tasks begin with the collection of the Daily Operating Plan Report from Tivoli OPC and must be done at least on a daily basis or whenever there are significant intra-day changes to the plan. The collection process can be initiated either from an automation task on the OS/390 image where Tivoli OPC is running, which copies the plan report to the Tivoli Business Systems Manager central database server. Either way, the plans reports end up as files that reside on the central database server.

The configuration tasks are concerned with specifying how the Tivoli OPC Daily Operating Plan Reports are to be collected on a daily basis, which plans are used as input to Tivoli Business Systems Manager, and how the applications and operations within the plans are to be organized and monitored. These tasks are done before any monitoring can be implemented, and are then revisited only when changes are to be made in the set of plans to input or in how the data is to be organized.

Each Daily Operating Plan Report you load should be copied into the DATA\OPC subdirectory of the installation directory for Tivoli Business Systems Manager on the central database server. Each plan must have a unique name, and this name should correspond to the system where the plan was generated. For example, if a particular Tivoli OPC plan that runs in a Complex known as “Northern” contains payroll applications, an appropriate name for the file would be “NORTHERN PAYROLL.”

The following illustration depicts the discovery work flow.



## Discovery Workflow

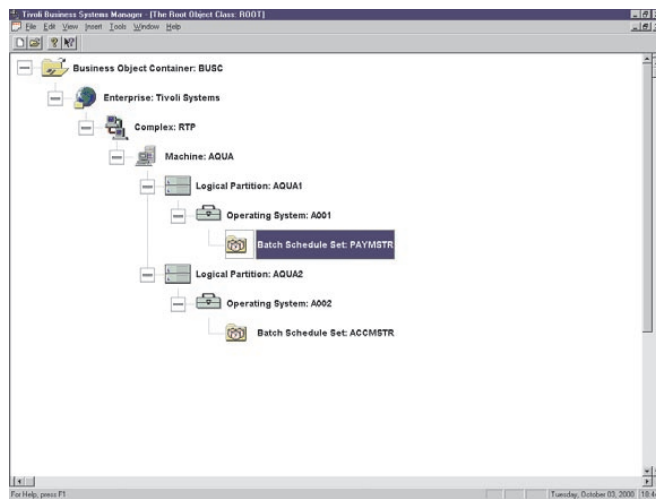
- **Create Daily Operating Plan Report** - Run JCL to extend the OPC Current Plan choosing the option to produce the Daily Operating Report, on the mainframe. The file contains data for discovery. All scheduled objects (Start time, Duration, Application IDs and Application Owner IDs) Check the information extracted from the report.
- **Transfer Daily Operating Plan** - Run the FTP client to get records from the mainframe. This places the Daily Operating Plan file onto the Tivoli Business Systems Manager system for processing.  
 From: `//<TBSM_Database_Host>/c$/TivoliManager/Data/OPCdirectory -ftp <hostname> -cd <directory> -text -get <daily operating plan filename> <daily operating plan filename>.raw`
- **Convert Daily Operating Plan** - Run the conversion utility in order to translate from extended binary-coded decimal interchange code (EBCDIC) to ANSI code page. This translates the file into an easy to read file for NT level processing.  
`-convertcodepage -f<EBCDIC codepage> -t<ANSIcodepage> -I<daily operating plan filename>.raw -o<daily operating plan filename>`
- **Parse Daily Operating Plan** – Run the *OPC Parse Daily Plan* utility to create to Parse, Map and Load.  
`-l<language string> (EN_UK, EN_US, ES, DEU) -d<date string> (DD/MM/YY)  
 -v(verbose) -nl(no load) -nm(no mapping) -S<server> -U<username> -P<password>  
 -C<ANSI Codepage> <daily operating plan>`

- 
- The applications are monitored as schedules and Lines of Business following the standard management practices of Tivoli Business Systems Manager.

## Mapping Applications and Operations in Tivoli Business Systems Manager

You must examine the applications and operations in a Current Plan to determine how the applications are to be grouped into sets and Lines of Business. Configuring both of these processes involves identifying the *patterns* in the data that articulate the naming and organizational conventions of the business.

As mentioned before, applications in Tivoli OPC are represented as objects of the *Batch Schedule* class within Tivoli Business Systems Manager. These schedules must be placed in the physical hierarchy in *Batch Schedule Set* objects under the *Complex* in which the Tivoli OPC applications run in order for proper monitoring to be established in the Complex. The following illustration depicts the physical hierarchy.



In order to create this hierarchy automatically as the Daily Operating Plan Report is loaded, the Tivoli Business Systems Manager administrator must define both the hierarchy to receive the applications and the data to look for in the application definitions of the Current Plan, which identifies their locations.

Creating and applying a dynamic object hierarchy definition file accomplishes the definition of the hierarchy. This is a plain text file that uses a set of macros to define hierarchies by specifying the beginning of a distinct hierarchy (BEGIN\_DYNA\_OBJ\_PATH), each distinct level of the hierarchy (DYNA\_OBJ\_PATH), and the end of the hierarchy (END\_DYNA\_OBJ\_PATH). The following Dynamic Object Hierarchy Definition file example depicts a dynamic object hierarchy definition file.

```
include (BusinessObject.sqi)
BEGIN_DYNA_OBJ_PATH(NORTHERN PAYROLL, Group all payroll applications)
  DYNA_OBJ_PATH (BUSC, BUSC)
    DYNA_OBJ_PATH (ENT, ABC Insurance Corporation)
      DYNA_OBJ_PATH (COMP, Northern)
        DYNA_OBJ_PATH (BCYS, PAYROLL, OPC applications owned by PAYMSTR)
      END_DYNA_OBJ_PATH (NORTHERN PAYROLL)
    BEGIN_DYNA_OBJ_PATH (Batch Print Jobs, Groups all batch print jobs)
      DYNA_OBJ_PATH (LOBC, LOBC)
```

```

        DYNA_OBJ_PATH (LOB, System Support)
        DYNA_OBJ_PATH (LOB, Printers)
        DYNA_OBJ_PATH (LOB, Batch Jobs)
END_DYNA_OBJ_PATH (Batch Print Jobs)

```

The general form of the BEGIN\_DYNA\_OBJ\_PATH macro is the following:

```
BEGIN_DYNA_OBJ_PATH(name, description)
```

The *name* uniquely identifies the path, and the *description* is strictly for documentation. In the previous dynamic object hierarchy definition file example the first path is named “NORTHERN PAYROLL” and its *description* is “Group all payroll applications.” The second path is named “Batch Print Jobs” and its *description* is “Group all batch print jobs”.

The general form of the DYNA\_OBJ\_PATH macro is the following:

```
DYNA_OBJ_PATH(classid, name, description)
```

The *classid* is a valid identifier for an object class within the Tivoli Business Systems Manager data model. A list of these classes for aggregation of schedules is provided in the following table. The *name* parameter is the name of the object that is created at this point in the hierarchy. Every subsequent line that has a DYNA\_OBJ\_PATH macro defines an object that is a child of the object defined on the previous line. The *description* parameter is used to populate the object description field.

**Note:** For the physical aggregation of schedules, the hierarchy must be BUSC, ENT, COMP, and BCYS. Also, please note that in the previous example the indentation is only for visual clarity.

The general form of the END\_DYNA\_OBJ\_PATH macro is the following:

```
END_DYNA_OBJ_PATH(name)
```

This macro is called to finish the definition of the dynamic object path. The *name* parameter should match that specified by the preceding BEGIN\_DYNA\_OBJ\_PATH.

The sample batch hierarchy illustration previously mentioned shows a dynamic object path that defines a Line of Business hierarchy. Note that for Lines of Business, the top level object is always the class “LOBC”, and each subsequent level of the hierarchy is the class “LOB”, which is the *classid* for the Line of Business class.

The following table describes the Batch Schedule Class Hierarchy.

CLASS ID	CLASS NAME	DESCRIPTION
BUSC	BusinessObjectContainer	The overall container for all Enterprises.
ENT	Enterprise	The aggregation of all of an organization’s data center complexes. This is the top-level customer object in a Tivoli Business Systems Manager object model.
COMP	Complex	The aggregate set of defined OS/390 hosts and resources that span hosts (such as OPC) within an organization.
BCYS	BatchScheduleSet	Aggregate object containing Batch Schedules that have been grouped by the OPC dynamic load or manually by the customer.

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CLASS ID	CLASS NAME	DESCRIPTION
BTCY	BatchSchedule	A collection of batch jobs managed by a scheduling system, such as Tivoli OPC.

Once the dynamic object hierarchies have been defined, the mapping of the Tivoli OPC applications to these hierarchies has to be defined. In this process the administrator must identify the patterns in the OPC Current Plans that are used to aggregate the applications. Each of these patterns is called an Pattern, “*OPC Application Pattern*,” and consists of the following fields:

**OPC\_PATH\_NAME**

Name of the dynamic object path to aggregate matching applications to.

**OPC\_PLAN\_PATTERN**

Wildcard expression matched to the names of the defining daily plan file.

**OPC\_APP\_PATTERN**

Wildcard expression matched to the application ids.

**OPC\_OWNER\_PATTERN**

Wildcard expression matched to the application owner fields.

**OPC\_DESC\_PATTERN**

Wildcard expression matched to the application description fields.

The patterns are defined similarly to the dynamic object paths, via the OPC\_APP\_PATTERN macro. In fact, the pattern entries can be in the same file as the dynamic object path definitions.

The wildcard expressions support the following notation:

- % Multiple character wildcard. Matches any number of characters (including zero).  
Single character wildcard.
- [..] Any single character that matches the characters between the brackets. Also supports ranges of characters, for example "[0-9]" specifies any digit between 0 and 9. Can also be used to specify any character *not* matching the set or range if the first character after the "[" is a "^" (caret). Use "[%]" and "[\_]" to match a single literal "%" or "\_" character.

You can see sample OPC\_APP\_PATTERN macros in the following example of a Tivoli OPC Application Pattern.

```
OPC_APP_PATTERN (NORTHERN PAYROLL, NORTHERN.PAYROLL)
OPC_APP_PATTERN (Batch Print Jobs, %, %PRINT%, %, %PRINT%)
OPC_APP_PATTERN (NORTHERN PAYROLL, NORTHERN.PAYROLL, %, %, %)
```

The general form of the **OPC\_APP\_PATTERN** macro is the following:

```
OPC_APP_PATTERN(PATH_NAME, PLAN_PAT, APP_PAT, OWNER_PAT, DESC_PAT)
```

Once the dynamic object paths and OPC Application Patterns have been defined, they are compiled and loaded into the central database using the command line utilities: *clsq* and *ISQL*.

## Mapping Plans to Schedules and Jobs

Once the plan files reside on the central database server, they are loaded into the database using the *OPCParseDailyPlan* utility. Typically, this is the last step of the task that copies the plan files from OS/390 to the central server, but this can be done separately.

The command line for this utility is the following:

```
OPCParseDailyPlan options... daily-plan-file
```

The options are the following:

**-language**

Optional parameter that specifies an alternate language to use for keyword parsing. The default is EN\_US (US English). The other currently supported languages are:

- DEU (German)
- EN\_UK (UK English)
- ES (Spanish)

**-np** Skip the parsing of the data. This can be done if the daily plan file was parsed by a previous run of the utility, but there was a problem with the load to the database.

**-nl** No load of the parsed data is performed. This can be done for diagnostic purposes to examine the output of the parsing phase prior to loading.

**-nm** No mapping of the loaded data to objects is performed. As with -nl, this is mostly a diagnostic option that allows examination of the loaded data prior to mapping it to schedules and jobs within the object repository.

**-v** Run in verbose mode. Normally, only errors are reported on the command line.

**-E** Use a trusted database connection. This is typically used when running the utility as a scheduled task on the central database server in order to avoid having user names and passwords displayed in ways that could inadvertently be exposed to unauthorized users.

**-User**

User name for the database login.

**-Ppassword**

Password for the database login.

**-Sserver**

The database server.

**-CAmerican National Standards Institute (ANSI) Code page**

Code page that is used on the client.

The *daily-plan-file* is the name of file that contains a Tivoli OPC Daily Operating Plan report to be processed.

After the plan has been successfully loaded, it is processed for mapping the applications and operations to the schedules and jobs within the object repository. The applications are monitored as schedules and Lines of Business following the standard management practices of Tivoli Business Systems Manager.



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## Event Processing

Tivoli Business Systems Manager receives Tivoli OPC-related events through the External Data Interface (EDI) directly via the TBSM Source/390 Object Pump. Formerly, USER EXIT 7 and WTOs were used to generate events, however, currently Tivoli OPC itself provides the events using the monitored job indicator as a filter.

OPC uses the Tivoli Business Systems Manager module AOPEDI to call the EDI to deliver the message for the NT Servers.

OPC sends events to signal job status changes and alert conditions to Tivoli Business Systems Manager, but only for jobs that have the External Monitor job option set to **YES (Y)**. Tivoli Business Systems Manager is always notified for all job error situations, such as job abended: when a non-monitored job abends, the EXTERNAL MONITOR job option is automatically set to YES in Current Plan, and Tivoli Business Systems Manager begins to monitor it. Tivoli Business Systems Manager receives abend events for non -key jobs. Once an abend is received, the job is dynamically added to the appropriate Batch Schedule Set as a key job. Therefore, any future events for this job are forwarded to Tivoli Business Systems Manager. The value of the EXTERNAL MONITOR job option remains unchanged in the database and this value is used when a new current plan is produced.

The following events are passed from Tivoli OPC to Tivoli Business Systems Manager:

### ■ Operation status changes

- Operation added - The operation that has been added to the Current Plan (Daily Operating Plan).
- Operation started - The operation has been started in the Current Plan.
- Operation ended - The operation has ended in the Current Plan.

### ■ Operation alerts

- Operation in error - Error condition indicated by an operation in the current plan that has completed with a 'ended-in-error' status (for example, abend and JCL error). When this event happens, the EXTERNAL MONITOR job option is automatically set to YES (Y) (if it was NO) in the Current Plan.
- Late operation - – An operation in the Current Plan reaches the latest start time without having a status of 'started', 'completed', or 'deleted' (latest start times are calculated during Current Plan creation).
- Long duration - This error condition is met when an operation in the current plan is active for an unexpectedly long time.
- Long duration - This error condition is met when an operation in the current plan is active for an unexpectedly long time.
- Operation waiting on input queue - The alert for this error condition is also generated when an operation has been submitted, but has not started within 10-minutes.
- Operation waiting for resource - Operation has been waiting on a resource queue for the length of time specified on the RESOPTS parm keyword value CONTENTIONTIME.

The alert threshold is based on the following formula:

$$\text{estimated duration} * \text{feedback limit} / 100 = \text{length of run time that generates the alert}$$



*estimated duration = duration field from the operation definition or from workstation definition if non specified on operation*

*feedback limit = LIMFDBK value on the JTOPTS initialization statement*

#### ■ OPC alerts

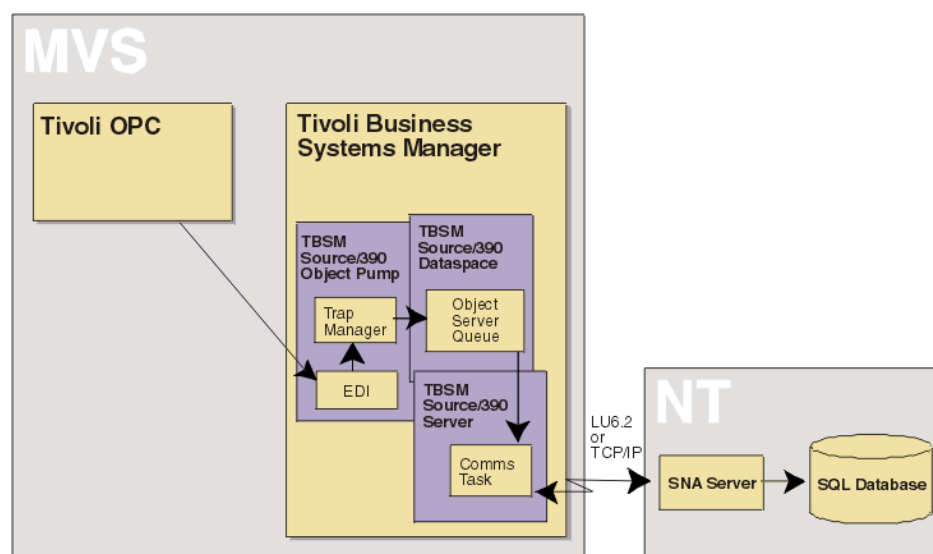
- OPC error - Indication of a TIVOLI OPC subtask or subsystem ending unexpectedly (applicable both to a tracker and to a controller).
- Queue limit exceed - OPC/ESA subtask queue exceeds a threshold value (applicable both to a tracker and to a controller).

Once the message (one of the operation status changes or operation alerts) is on the NT platform, specific information (such as job name, application name, input arrival, event and operation alert) is extracted so that the alert is posted against the appropriate job object. You view the status of all jobs from the Batch Schedule Set object within the Batch Management Summary window.

Tivoli Business Systems Manager associates the OPC alerts to the appropriate Operating System (OS) object.

## Architecture

The following diagram and event flow explains the processing data flow of events as they move through the various architectures of Tivoli Business Systems Manager.



## Event Flow

- Tivoli OPC identifies jobs to be actively monitored in Tivoli Business Systems Manager. Tivoli OPC then sends for these jobs as events to the Tivoli Business Systems Manager EDI; in particular OPC communicates with EDI calling the AOPEDI module.
- The EDI formats the data and passes it onto the TBSM Source/390 Object Pump.
- The TBSM Source/390 Object Pump stores the events in the TBSM Source/390 Dataspace.
- The TBSM Source/390 Object Server retrieves the events from the TBSM Source/390 Dataspace and forwards it to Tivoli Business Systems Manager on Windows NT; either

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via a logical unit (LU) 6.2 session to the Tivoli Business Systems Manager SNA Server or a TCP/IP session directly to the Tivoli Business Systems Manager Event Server.

- The SNA Server forwards the events to the Structured Query Language (SQL) database.
- The Tivoli Business Systems Manager Application Server forwards the events to the graphical user interface (GUI).

## Installing the Tivoli Business Systems Manager – Tivoli OPC Interface

This chapter explains the necessary steps for enabling the event flow from Tivoli OPC to Tivoli Business Systems Manager.

### Enablement of Tivoli Business Systems Manager Mainframe Components

To enable the Tivoli Business Systems Manager mainframe components you must configure the following:

1. Install appropriate Tivoli Business Systems Manager maintenance by using SMP/E.
2. Add the following parameters to the TBSM Source/390 Object Pump Startup parameters to activate the interface. For the entire contents of the Startup parameters refer to section “TBSM Source/390 Object Pump Startup Parameters” in the *Tivoli Business Systems Manager Installation and Configuration Guide*.

*EDI\_BUFFER\_SIZE=2048* Specifies the EDI buffer size.

*OPC\_JOBNAME=OC0F* The STC name.

**Note:** If you are using the ACC1Idxx card, add this card to your OPC Controller started task.

## Automation of Daily Operating Plan

You must perform the following functions to automate the Daily Operating Plan:

- **Scheduled operation on the mainframe** – You create a scheduled job that performs:
  - Creation of Daily Operating Plan
  - Transfers Daily Operating Plan file by File Transfer Protocol (FTP) in TEXT mode. You schedule job to run once per day.
- **Create *opc\_autoload.ksh*** - Run  
*//tbsm\_database\_host/c\$TivoliManager/Bin/opc\_autoload.ksh* containing Change Current Directory (CD) *c:/tivolimanager/data/opc*
  - *Check\_opc\_plan.ksh -fcheck\_opc\_plan.cfg -l<language string>(EN\_UK, EN\_US, ES, DEU) -v(verbose) -S<server> -U<username> -P<password> -C<ANSI Codepage>*
- **Create *check\_opc\_plan.cfg*** – Run  
*//tbsm\_database\_host/c\$TivoliManager/Data/OPC/check\_opc\_plan.cfg*
  - Containing one record for each Daily Operating Plan: *<Daily Operational Plan>|<data string>*

- **Scheduled operation on Tivoli Business Systems Manager** – Run SQL Server Enterprise Manager on *//TBSM Database Host*  
 Path: Console Root, Microsoft SQL Servers, SQL Server Group, <hostname> (Windows NT), Management, SQL Server Agent, Jobs, OPC Check for new Daily Plan
  - Change command to: **sh opc\_autoload.ksh**
  - Check that the job has an enabled schedule of “once per minute.”
  - Check that the job is enabled

## Customizing Tivoli OPC

### Disablement of USER EXIT 7 (EQQUX007) and WTO Alerts

To implement the current interface, the following steps are necessary to disable USER EXIT 7 (EQQUX007) and the WTO processing that was needed for the Tivoli OPC/ Tivoli Business Systems Manager Version 1 Release 1.

1. Remove WTO alerts from ALERTS initialization OPC statement.
2. Remove Tivoli Business Systems Manager version of EQQUX007 from the customer dataset.
3. Update OPC EXITS init statement to **EXITS CALL07(NO)**

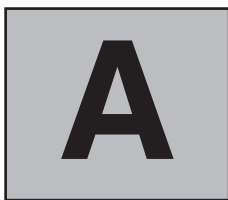
## Configuring Tivoli OPC for Tivoli Business Systems Manager Monitoring

The following steps are necessary to enable Tivoli OPC for monitoring by Tivoli Business Systems Manager.

**Note:** You do not have to use Tivoli Business Systems Manager USER EXIT 7 and activate the WTO options in the ALERT initialization statement for this current interface.

1. You must specify the EXTMON (YES) parameter on the OPCOPTS initialization statement. This statement defines the runtime options to Tivoli OPC and the tracker, controller or the standby controller that uses this statement. Refer to *Customization and Tuning OPC* manual, for OPCOPTS statement information
2. At initialization, if the EXTMON start option is set to YES (Y), Tivoli OPC loads the Tivoli Business Systems Manager module AOPEDI. This module must be present in a library and visible to the tracker or controller.  
 If the load fails, the EXTMON start option value is automatically set to NO (N) and message EQQZ232 appears in the Tivoli OPC message log.
3. In order to monitor jobs using Tivoli Business Systems Manager, the External Monitor job option of an operation must be set to YES (Y). This option is changed in the application description database and in the Current Plan. You can use the ISPF panels, the Tivoli OPC programming interface, or the Job Scheduling Console to set the option or browse it. Tivoli Business Systems Manager does not monitor jobs by default. For more information refer to the *Controlling an Monitoring the Workload OPC* Manual.





## OPC Error Codes and Messages

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This section provides information on the message layout and provides some examples (using real data). It is important to note that the following examples are standard “out of the box” message formats. Clients do have the ability to modify the message layout, which is necessary information that is needed prior to implementation. The following messages apply to the Tivoli OPC error codes and accompanying messages.

### DURATION:

#### EQQE038I

LONG DURATION FOR JOB *JOBNAME(JNUM)*, IN APPLICATION *APPL*,  
WORK STATION = *WSID*, IA = *ARRTIME*

Example:

- **EQQE038I** LONG DURATION FOR JOB TESTBRL2(JOB04039), 149 N  
APPLICATION SAMAPP, WORK STATION = CPU2, I IA = 0005091240

#### EQQE039I

LONG TIME ON INPUT QUEUE FOR JOB *JOBNAME(JNUM)*, APPL = *APPLID*,  
WORKSTATION = *WSID*, IA = *ARRTIME*

Example:

- **EQQE039I** LONG TIME ON INPUT QUEUE FOR JOB  
TESTBRL1(JOB07220), APPL = BRIAN3, WORKSTATION = CPU2, IA =  
0005301455

### ERROROPER:

#### EQQE036I

JOB *JOBNAME(JNUM)* ENDED IN ERROR *EC*. PRTY=*PRI*, APPL = *APPL*,  
WORK STATION = *WSID*, IA = *IA*

Examples:

- **EQQE036I** JOB XPC01K01(JOB07839) ENDED IN ERROR S522. PRTY=5,  
APPL = OPC01K01P, WORK STATION = CPU1, IA = 9909070600
- **EQQE036I** JOB XPCPLCK (JOB06996) ENDED IN ERROR JCL . PRTY=5, 0  
APPL = OPCPLK01P, WORK STATION = CPU1, IA = 990907060

### LATEOPER:

#### EQQE037I

JOB *JOBNAME(JNUM)*, IN APPLICATION *APPL*, IS LATE, WORK STATION =  
*WSID*, IA = *ARRTIME*

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Example:

- **EQQE037I** JOB DKDREI91( ), IN APPLICATION DKDREI91ZPA, IS LATE,  
WORK STATION = CPEA, IA = 9912191800

**OPCERROR:**

**EQQZ045W**

OPC/ESA SUBTASK SUBTASK ENDED UNEXPECTEDLY

Examples:

- **EQQZ045W** OPC SUBTASK EVENT MANAGER ENDED UNEXPECTEDLY  
C OPCC
- **EQQZ045W** OPC SUBTASK EVENT MANAGER ENDED UNEXPECTEDLY

**QLIMEXCEED:**

**EQQZ106W**

PERCENT % OF QUEUE QNAME IN USE PERCENT % OF QUEUE QNAME IN  
USE

Example:

- **EQQZ106W** 100 % OF QUEUE WTRQ IN USE

**RESCONT:**

**EQQQ515W**

OPERATION *ADID OPID*, *JOB* IA *IADATE IATIME* HAS WAITED

Examples:

- **EQQQ515W** OPERATION DKDREI56ZPA CPEA\_005, DKDREI56 IA 991220  
1800 HAS WA RESOURCE EREORG FOR 0 MINUTES.
- **EQQQ515W** OPERATION BED99000ZPAZZ050 CPEA\_025, BEDICP02 IA  
991220 1800 H RESOURCE ETAPE FOR 14 MINUTES.





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