



WebSphere Studio Application Monitor Installation and Customization Guide

3.1





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3.1

Note:

Before using this information and the product it supports, read the information in Appendix F. "Notices" on page 185.

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This edition applies to WebSphere Studio Application Monitor (product number 5697-J18) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Preface

About this book

This book is the Installation and Customization Guide for WebSphere® Studio Application Monitor (Application Monitor). It contains instructions on installing user's exits and customizing the Application Monitor.

Who should read this book

Administrators or advanced users wanting to install or modify the configuration of the Data Collector. For the z/OS system, anyone wanting to install or modify the OS/390® or z/OS® Data Collector or the Managing Server. For the Data Collectors, knowledge of the operating system (AIX, Solaris, Windows, Linux, or HP/UX) and WebSphere is expected. For the z/OS Data Collector, knowledge of WebSphere, MVS™ Systems programming and RACF® is expected. For the managing server, a working knowledge on deploying WebSphere applications in a UNIX® environment with DB2® and/or Oracle experience is expected.

Where to find more information

The following list shows the books in the Application Monitor library:

- *WebSphere Studio Application Monitor User's Guide* contains instructions and user information for the Application Monitor.
- *WebSphere Studio Application Monitor Operator's Guide* contains information about the operation of Application Monitor and the common services address space.
- *WebSphere Studio Application Monitor Installation and Customization Guide* contains instructions on installing user's exits and customizing the Application Monitor.
- *WebSphere Studio Application Monitor for CICS® Data Collector Product Guide* contains information about the installation, configuration and use of the Application Monitor CICS Data Collector.
- *WebSphere Studio Application Monitor for IMS Data Collector Product Guide* contains information about the installation, configuration and use of the Application Monitor IMS Data Collector.
- *WebSphere Studio Application Monitor Messages and Codes* contains information about messages and codes generated by the Application Monitor.
- *WebSphere Studio Application Monitor Program Directory* contains complete installation instructions for the Application Monitor Engine.
- *WebSphere Studio Application Monitor Program Directory for the CICS Data Collector* contains complete installation instructions for the Application Monitor CICS Data Collector Engine.
- *WebSphere Studio Application Monitor Program Directory for the IMS Data Collector* contains complete installation instructions for the Application Monitor IMS Data Collector Engine.
- *WebSphere Studio Application Monitor* has an online help system that describes all of the commands and dialogs available from its graphical user interface.

Documentation Conventions

The following table describes the conventions used throughout this book.

Table 1. Documentation Conventions

Convention	Item
Ctrl+Tab	Indicates that you must press two or more keys simultaneously.
<installation directory>	Indicates that you should insert the directory appropriate for your environment.
monospace text	Indicates code samples.

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Part 1. Introduction

Chapter 1. Product Overview

The Application Monitor provides immediate Problem Determination, Availability Monitoring and Performance Management for enterprise J2EE and CICS applications running on Windows 2000 Server, Solaris, HP-UX, AIX, z/OS and OS 390 environments. The Application Monitor monitors heterogeneous environments consisting of both mainframes and distributed systems. From development and testing to staging and productions, the Application Monitor helps to identify problems and resolve them in real-time, as well as understand application performance, and assess resource consumption patterns for planning future growth.

In today's e-business applications, J2EE transactions often link up with Legacy back-end systems. The Application Monitor, along with the optional Data Collector for CICS, provides visibility into transactions that span across Application Server and CICS platforms. Composite transactions between J2EE servers and CICS can be traced and correlated, giving developers and analysts insight into the health and performance of both mid-tier business logic and Legacy back-end components.

Architecture

The Application Monitor is composed of two main parts: the Data Collector and the Managing Server. A Data Collector agent runs on each monitored J2EE application server or CICS transaction server, and communicates essential operational data to the Application Monitor managing server. Unique sampling algorithms maintain low CPU and network overhead while providing application specific performance information. The Application Monitor managing server is composed of a Kernel, which controls the environment, a Publish Server to publish and collect data, a Relational Database to store and retrieve that data, and a Visualization Engine which users interact within a browser-based graphical environment.

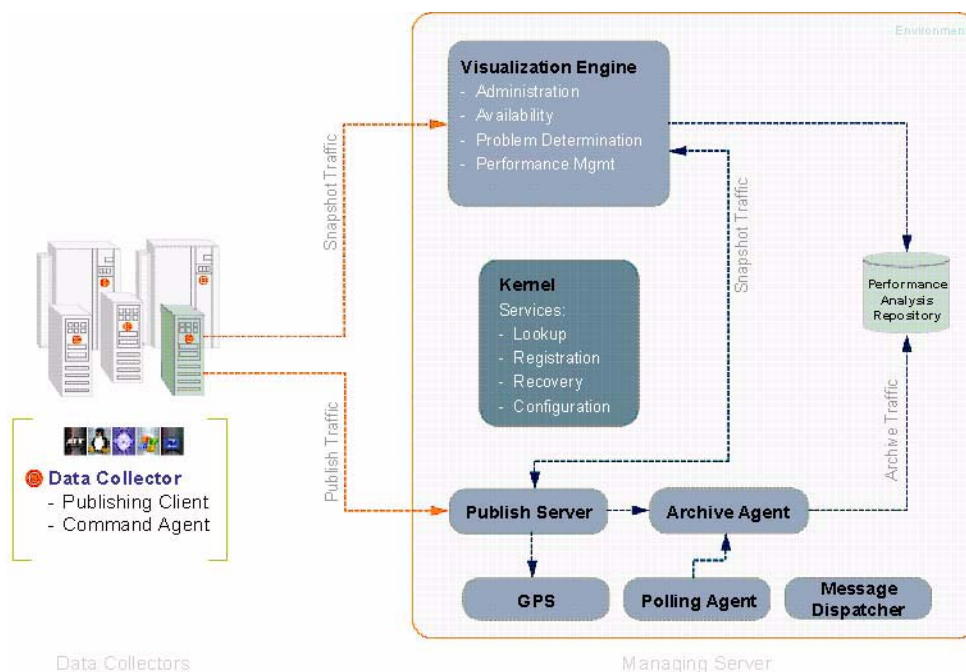


Figure 1. Application Monitor Architecture

The Managing Server

The Managing Server is comprised of several Java components, and also relies on an application server and a database, which must be installed prior to installing the Managing Server itself.

Requirements

You can choose among several supported operating system platforms on which to install the Managing Server. Likewise, you can choose among two application servers and versions, and two databases and versions. These requirements are described in detail in “Software Requirements” on page 9.

Supported Installations

The Managing Server is designed for scalability and load-balancing, and there are many ways to architect an installation across one or more servers. Likewise, the database used by the Managing Server can be located on a different server than the Managing Server itself. It is recommended that you consult with Professional Services when making these decisions, and that you do so before attempting to install the Managing Server.

The instructions in this document describe installing a Managing Server on a single server, with support for using a remote database. The procedure for doing so uses a graphical installer. This document does not describe how to install the Managing Server manually, or how to install the Managing Server with a more complicated architecture.

Complete installation and configuration instructions are included in Part 2, “The Managing Server Installation,” on page 7.

Data Collectors

Once you have installed the Managing Server (or once you have determined its configuration properties,) you can install Data Collectors.

In order for the Application Monitor to monitor a server, you must first install a Data Collector on that server.

Many Data Collectors can work with a single Managing Server. The communication between Data Collectors and the Managing Server is independent of platform.

Requirements

Data Collectors are specific to operating system platform, application server type and version. For non-z/OS and non-OS/390 servers, the supported combinations are listed on “Requirements for Installing the Data Collector” on page 95. For z/OS go to “Platform Pre-requisites” on page 41.

Supported Installations

The installation procedures you need to follow conform to one of two formats, based on whether or not the operating system of the monitored server is z/OS or OS/390.

- Installation of Data Collectors on the z/OS and OS/390 platforms are covered in Part 3, “The Data Collector for z/OS,” on page 39.

- Installation of Data Collectors on all other platforms are covered in Part 4, “The Data Collector for Multiplatforms,” on page 93.

In addition, for non-z/OS and non-OS/390 Data Collectors, you can run a graphical installer, or install the Data Collector manually. These installation options are described in Chapter 13, “Installation and Configuration,” on page 97.

Part 2. The Managing Server Installation

Chapter 2. Preparing to Install

This section describes how to install the Managing Server.

Planning Your Installation

The following information will help you plan your installation of the Managing Server.

Software Requirements

The Managing Server is a standalone server (or in some cases, a collection of servers.) It consists of the following elements:

- Database – to store performance data and configuration information.
- J2EE Application Server – to run the monitoring console.
- Java Components – The Managing Server consists of several components, each of which runs as a Java process, including the following: Kernel, Publish Server, Archive Agent, Message Dispatcher, Polling Agent, Global Publish Server and the Port Consolidator.

You must have a supported combination of operating system platform, database and application server in order to use the Managing Server. Table 2 describes the supported combinations.

Table 2. Managing Server Requirements

Operating System	Database	Application Server	JDK
AIX 5.1	DB2 UDB v8.1 Fixpack 5	WebSphere 5.1.1	Supplied by Application Server
AIX 5.2	DB2 UDB v8.1 Fixpack 5	WebSphere 5.1.1	Supplied by Application Server
Intel/Linux: RHEL 2.1AS	DB2 UDB v8.1 Fixpack 5	WebSphere 5.1.1	Supplied by Application Server
Solaris 8	DB2 UDBv8.1 Fixpack 5	WebSphere 5.1.1	Supplied by Application Server
Solaris 9	Oracle v10g	WebSphere 5.1.1	Supplied by Application Server
z/Linux : SuSe Linux 8.1	DB2 UDB v8.1 Fixpack 5	WebSphere 5.1.1	Supplied by Application Server

Hardware Requirements

The memory requirements for the server running the Managing Server are a function of your workload. However, we recommend 4GB of memory for most installations.

The disk space requirements are a function of the amount of performance data you choose to store in the database.

Table 3. Recommended Hardware Configuration

	CPU	DISK	MEMORY
AIX 5L	4 Way	3 x 36 GB	4 GB
Intel/Linux: RHEL 2.1AS	4 Way	3 x 36 GB	4 GB
Solaris 8	4 Way	3 x 36 GB	4 GB

Database Considerations

For more information on database considerations, see Chapter 3, “Installation and Configuration,” on page 13 specifically the “Database Installation” on page 14.

Networking Considerations

The server(s) on which the the Managing Server is installed must have a real hostname and IP address (rather than just using localhost or 127.0.0.1.)

Data Collectors use eight ports to communicate with the Managing Server: six ports for TCP/IP sockets, and two ports for RMI. In addition, the two unique ports are needed for each Data Collector, in order for the Managing Server to contact the Data Collectors via RMI. See the Operator’s Guide, Appendix C. Port Consolidator.

If a firewall sits between your Managing Server and your Data Collectors, you must configure your firewall to allow these connections. See “Configuring Your Firewall” on page 28 for details.

Installation Overview

Here is a summary of the instructions in this chapter which describe how to install or upgrade the Managing Server.

Preparing to Install

You must perform several tasks before you can install the Managing Server:

- Install and configure DB2 or Oracle.
- Install WebSphere.
- Install Virtual Frame Buffer.

Installing and Configuring

- Create users and setup environment.
- Gather configuration.
- Run installer.
- Start server.

Performing Post-Installation Tasks

See Chapter 4, “Customization,” on page 27 for more information about what to do once you have finished installing the Managing Server.

Upgrading Considerations

Follow the normal installation steps and then see “Upgrading Considerations” on page 23

Preparing your Environment for Installation

Install J2EE Application Server

In order to install the Managing Server, you must first install a supported combination of a database and an application server. The supported combinations are described in Table 2 on page 9.

To install WebSphere:

1. Install the application server according to manufacturers instructions.

Optional: Install Web Server

If you want to have the WSAM Web console run on port 80, you will need to install and configure an HTTP server to serve those requests. You can find the instructions at Appendix E.

Install Virtual Frame Buffer

To ensure the graphics environment for the Application Monitor is properly setup, an X11 environment is necessary. Typically, on the Managing Server server, X is not started. Instead, a virtual X11 environment is used.

For Redhat Linux: Install the XFree86-Xvfb package. You can find this on your Redhat Linux CD or via redhat.com.

For AIX: Install the Virtual Frame Buffer (xvfb). This package can be found on the AIX® installation CD X11.vfb package (“Virtual Frame Buffer Software for AIX Windows®”) from the AIX CD.

For Solaris: Install from the x11 distribution.

For z/Linux: Install from the x11 distribution.

Chapter 3. Installation and Configuration

The following provide instructions for how to install and configure the Managing Server. Please review Chapter 2, Preparing to Install for information on Software Requirements, Hardware Requirements, Database Considerations and Network Considerations.

Create Users and Setup User Environment

The Application Monitor uses UNIX user names and passwords for authentication. The Application Monitor associates its users with UNIX accounts on the server that hosts the Managing Server.

You must create two user accounts used exclusively by and for the Application Monitor:

- Create the user named "cyanea", who owns all Managing Server programs.
Note: If you are using a remote database, the same user must be created on the remote machine.
- Create the user named "admin", who is the Application Monitor administrator.

Create Users

The following instructions show you how to create users and the directory structures.

To create users and directory structures :

1. Log in as root.

2. Create the username "cyanea" and assign a password using the following commands:

Note: If you are using a remote database, the same user must be created on the remote machine.

Note: The command, useradd, is typically located at /usr/sbin.

```
useradd cyanea
```

```
passwd cyanea
```

```
mkdir /home/cyanea
```

3. Create the username "admin" if it does not exist and assign a password using the following commands:

```
useradd admin
```

```
passwd admin
```

```
mkdir /home/admin
```

4. [optional] Create the group "cyanea" using the following commands:

Note: You can create a group called "cyanea" to organize your system; however, Application Monitor does not need this group to operate properly.

For AIX:

```
mkgroup cyanea
```

For Solaris and Linux:

```
groupadd cyanea
```

5. Change ownership rights of the newly created home directories to the users they belong to. For example:

```
chown cyanea:cyanea /home/cyanea
```
6. Login to the server using the “cyanea” and “admin” usernames and passwords.
The security set up on many systems requires the user to physically login for the first time. On some UNIX systems, you receive a prompt the first time you login, this prompt will cause the Application Monitor scripts to fail.

Database Installation

The following instructions include all the information you need to set up your database for WSAM. You will probably need a DBA to perform these steps.

Install Database

In order to install the Managing Server, you must first install a supported combination of a database and an application server. The supported combinations are described in Table 2 on page 9.

Note: This task may require a DBA skill set.

Note: The installer will create a UTF-8 database instance. If you are manually creating a database instance, you will need to create a UTF-8 database instance.

To install and configure DB2:

1. Install DB2 according to manufacturers instructions.
2. Install the necessary fixpacks to bring DB2 up to Fixpack 5.
3. Create a DB2 server instance according to the DB2 installation documentation, (unless you are using the default user and instance.)

To install and configure Oracle:

1. Install Oracle according to manufacturers instructions.
2. Install the necessary patches.

Setting up the Database

The following are instructions for preparing your database for installation.

To prepare a DB2 database for installation:

If the Managing Server is AIX-based and it uses a local database, proceed as follows:

Note: You do not need to perform steps 1-3 if a remote database is used or if a loop node has been created for using TCP/IP communication instead of shared memory communication.

1. Edit the file <db2_instance_home>/sqllib/db2profile

to include the following lines:

```
EXTSHM=ON
```

```
export EXTSHM
```

The default location for the file is /home/db2inst1/sqllib/db2profile.

2. Log in as the instance owner (e.g. db2inst1):

```
su - db2inst1
```
3. As the instance owner, issue the commands:

```
db2stop force
db2set DB2ENVLIST=EXTSHM
db2start
```

To prepare an Oracle database for installation:

Create an Oracle database with a SID name octigate, using utility:

```
dbassist
```

Using a Remote Database

The following instructions describe how to prepare the database used by the Managing Server, in cases where your database is installed on a different server than the Archive Agent (a component of the Managing Server.)

Within this section, we refer to the servers as follows:

- The server on which the Visualization Engine and Archive Agent are installed is the local server.
- The server on which the database is installed is the remote server.

Note: In this scenario, you must install the database client (DB2) or JDBC libraries (Oracle) on the local machine.

Using Remote DB2

Create a consistent user on the local and remote database. The database server needs to have the same username and password as the Managing Server.

To install the DB2 client on the the local server:

1. Install the DB2 client on the local machine.

After you prepare DB2 on the remote machine, and install the DB2 client on the local machine, you can proceed with the installation of the Managing Server, as described in "Run Installer" on page 21.

To prepare remote DB2 for use with the Managing Server:

1. Install DB2 on the remote machine.

Note: On the remote machine, a unix account for example, "cyanea" should be created (the same as on the Managing Server.)

The following steps should be performed on a local machine.

2. Log in as a user with dba privileges, for example: db2inst1.

Note: For convenience purposes, you may want to log in as root. In the following steps, you will be executing a script that prompts for the password multiple times. This can be avoided if you run it as root.

3. Catalog TCP/IP node pointing to remote node. For example:

```
db2 catalog tcpip node <db2node> remote <Remote Server> server <db2 listening port>
```

4. Catalog database on the node just created. For example:

```
db2 catalog db octigate at node <db2node>
```

5. Create a temporary directory on remote machine in which to place the database installation scripts. In this example we use /tmp.
6. ftp the file db2-remote-scripts.tar to the temporary directory. (Located in the Installer-MS/scripts directory.)

Note: The db2-remote-scripts.tar file is provided with the Managing Server distribution (in /Installer-MS/scripts/).

7. Untar the db2-remote-scripts.tar file.
8. Run the db2install.sh script, specifying the database user name and installation directory. For example:

```
cd /tmp/db2/bin
sh db2install.sh <db username (db2inst1)> <db_user (cyanea)> <absolute path
installation dir>
```

Note: The db username must have dba privileges, e.g. db2inst1.

Note: When you get prompted for password, enter the password for the db2inst1 user.

Note: The absolute path installation dir is a db2 directory in the temporary directory containing the installation scripts, e.g. /tmp/db2.

Note: The db2install.sh script invokes the scripts db2configuration.sh and db2createschema.sh. The db2configuration.sh script invokes the script dbsettings.sql, and the db2createschema.sh script invokes the cyaneaone-db2.sql script.

Using Remote Oracle

To use a remote Oracle database with the Managing Server, you must prepare the Oracle database on the remote machine, and install JDBC drivers on the local machine.

To prepare to use remote Oracle with the Managing Server:

1. Install Oracle on the remote machine.
2. Create the SID for use by the Managing Server. For example: octigate.
3. Create a temporary directory on the remote machine. In this example we use /tmp.

4. ftp the file oracle-remote-scripts.tar to the temporary directory.

Note: The oracle-remote-scripts.tar file is provided with the Managing Server distribution (in /Installer-MS/scripts/).

5. Log in as a user with dba privileges. For example: oracle.
6. Untar the oracle-remote-scripts.tar file. (Located in the Installer-MS/scripts directory.)
7. Export the ORACLE_SID used by the Managing Server. For example:

```
export ORACLE_SID=octigate
```

8. Run the oracleinstall.sh script, which has the following format:

```
cd /tmp/oracle
sh bin/oracleinstall.sh <dba user> <dba password> <tablespace> <schema user>
<schema password>
```

Note: The <dba user> must be the owner of the Oracle database hierarchy. For example: system.

Note: The <tablespace> is the name of the tablespace that will be created when you run the oracleinstall.sh script. This is the tablespace the Managing Server will use.

Note: The <schema user> and <schema password> are the login and password of the user that the Managing Server uses to connect with the database, using JDBC. This same login and password must be used during the Managing Server installation.

To install JDBC libraries on the the local server:

Install the thin JDBC drivers on the local machine.

After you prepare Oracle on the remote machine, and install the JDBC drivers on the local machine, you can proceed with the installation of the Managing Server, as described in “Run Installer” on page 21.

Setting the Environment

In order to set up the proper environment for the Managing Server, it may be helpful to set up a profile for the “cyanea” user that is appropriate for your application server and database. In addition, if your security policies allow, it may be helpful for these environment variables to be added to the ‘root’ user as well.

The examples in this section assume that the “cyanea” user uses the bash or bourne shell, which means you can add the appropriate lines to the .bash_profile or .profile in the home directory of the “cyanea” user. If you are using another shell, you must use the appropriate syntax in the appropriate startup script for your environment.

WebSphere

Include in the profile of the “cyanea” user (likely found under /home/cyanea/.profile) the following:

- Point WAS_HOME to the location of the local WebSphere application server installation directory, which is typically one of the following:

For AIX (example):

`/usr/WebSphere/AppServer`

For Intel/Linux, z/Linux and Solaris (example):

`/opt/WebSphere/AppServer`

- Point JAVA_HOME to the location of the JDK, which is typically the following:
`${WAS_HOME}/java`
- Modify PATH to include `${JAVA_HOME}`

The following lines are an example of the code to insert into the profile:

For AIX:

```
WAS_HOME=/usr/WebSphere/AppServer; export WAS_HOME
```

```
JAVA_HOME=${WAS_HOME}/java; export JAVA_HOME
```

```
PATH=${JAVA_HOME}/bin:${PATH}; export PATH
```

For Intel/Linux, z/Linux and Solaris:

```
WAS_HOME=/opt/WebSphere/AppServer; export WAS_HOME
```

```
JAVA_HOME=${WAS_HOME}/java; export JAVA_HOME
```

```
PATH=${JAVA_HOME}/bin:${PATH}; export PATH
```

DB2

Based upon your decision to use either a remote or a local database, perform these instructions on that machine. Include in the profile of the “cyanea” (likely found

under /home/cyanea/.profile, may be at different location for your environment) user the following:

- Source the files db2profile, which is located in the sqllib subdirectory of the DB2 home directory respectively.
- Source the files db2profile, which are located in the sqllib directories under the DB2 home directory respectively.

The following lines are an example of the code to insert into the profile, if it already exists you don't have to do this:

```
if [ -f /home/db2inst1/sqllib/db2profile ]; then
    . /home/db2inst1/sqllib/db2profile
fi
```

Note: All references to db2inst1 should be replaced with the appropriate DB2 instance name.

Oracle

No updates required.

Example Configurations

The following is an example of a profile for WebSphere and DB2 on Linux:

EXAMPLE profile for user "cyanea" for WebSphere and DB2 on Linux
<pre>WAS_HOME=/opt/WebSphere/AppServer; export WAS_HOME JAVA_HOME=\${WAS_HOME}/java; export JAVA_HOME PATH=\${JAVA_HOME}/bin:\${PATH} if [-f /home/db2inst1/sqllib/db2profile]; then . /home/db2inst1/sqllib/db2profile fi</pre>

Gather Configuration Information

The graphical installer will prompt you to enter configuration information about your application server, database, logins and filesystem. Gather this information before you run the graphical installer, since you will need it to complete the installation.

In all cases, you need the information about the Managing Server. However, the specific information you need to gather about the application server and database depends on which ones you use.

Note: If you are using a remote database, make sure the settings you use for the database match those of the remote database.

DB2

If you are using a database installed on the same machine as the Managing Server, and it is DB2, gather the following information before you run the graphical installer:

- DB2 Installation directory (/home/db2inst1)
- DB2 instance (db2inst1)
- Fully qualified JDBC Driver jar file (/home/db2inst1/sqllib/java12/db2java.zip)

Oracle

If you use Oracle, gather the following information before you run the graphical installer:

- Oracle host name
- Oracle port (1521)
- Oracle SID (octigate)
- JDBC User (cyanea)
- JDBC User password (cyanea)
- Fully qualified JDBC Driver classes jar file (/opt/oracle/jdbc/lib/classes12.zip)
- Fully qualified JDBC Driver charset jar file (/opt/oracle/product/8.1.7/jdbc/lib/nls_charset12.zip)

In addition, if you are using an Oracle database installed on the same machine as the Managing Server, then you must gather the following information before you run the graphical installer. (If you are using Oracle remotely, you will need this information for setting up the remote database:)

- UNIX username that can run sqlplus (oracle)
- Tablespace name (for use with the Managing Server) (cyanea_ts)
- DBA User name (system)
- DBA User password (manager)

Setting up the Graphical Environments

In order to display graphs, the Managing Server needs a connection to an X Window display. To accomplish this, start a virtual frame buffer X server, and set your environment appropriately.

To set up the graphical environment for the Managing Server installer:

1. Log in as root or whatever user you will be using to install the application server.
2. Start the Virtual X environment:

Linux

```
Xvfb :1 &
```

(Typically located in /usr/X11R6/bin.)

AIX

```
X -vfb -force :1 &
```

(Typically located in /usr/bin/X11/X.)

Solaris

```
Xvfb :1 &
```

(Typically located in /usr/X/bin.)

z/Linux

```
Xvfb :1 &
```

(Typically located in /usr/bin/X11.)

You may verify this by using the following command:

```
ps -ef | grep xvfb
```

This command may vary according to the shell you are using.

Gather Configuration Information

The graphical installer will prompt you to enter configuration information about your application server, database, logins and filesystem. Gather this information before you run the graphical installer, since you will need it to complete the installation.

In all cases, you need the information about the Managing Server. However, the specific information you need to gather about the application server and database depends on which ones you use.

Note: If you are using a remote database, make sure the settings you use for the database match those of the remote database.

Managing Server

Determine the values you will use for the following names, directories, files and ports (defaults listed in parentheses):

- "cyanea" user UNIX password (cyanea)
- Managing Server installation directory (/opt/cyaneaone)
- Primary Kernel server name (<Hostname for Managing Server>)
- Primary Kernel Codebase server port (9122)
- Primary Kernel RFS server port (9120)
- Primary Kernel RMI server port (9118)
- Secondary Kernel server name (<Hostname for Managing Server>)
- Secondary Kernel Codebase server port (9123)
- Secondary Kernel RFS server port (9121)
- Secondary Kernel RMI server port (9119)
- Archive Agent 1 Port (9129)
- Archive Agent 2 Port (9130)
- Publishing Server 1 Port (9103)
- Publishing Server 2 Port (9104)
- Message Dispatcher Port (9106)
- Polling Agent Port (9111)
- Global Publish Server 1 Port (9126)
- Global Publish Server 2 Port (9127)

WebSphere

If you are using WebSphere as your application server, gather the following information before you run the graphical installer:

- WebSphere instance host name and SOAP port (8880)
 - If using ND, provide the hostname and SOAP port of the Deployment Manager instead.
- WebSphere application server name (cyanea)

If Global Security is turned on, provide the WebSphere Username and Password of a WebSphere user with administrative rights.:

- WebSphere Username
- WebSphere Password

DB2

If you are using a database installed on the same machine as the Managing Server, and it is DB2, gather the following information before you run the graphical installer:

- DB2 Installation directory (/home/db2inst1)
- DB2 instance (db2inst1)
- Fully qualified JDBC Driver jar file (/home/db2inst1/sqllib/java12/db2java.zip)

Oracle

If you use Oracle, gather the following information before you run the graphical installer:

- Oracle host name
- Oracle port (1521)
- Oracle SID (octigate)
- JDBC User (cyanea)
- JDBC User password (cyanea)
- Fully qualified JDBC Driver classes jar file (/opt/oracle/jdbc/lib/classes12.zip)
- Fully qualified JDBC Driver charset jar file (/opt/oracle/product/8.1.7/jdbc/lib/nls_charset12.zip)

In addition, if you are using an Oracle database installed on the same machine as the Managing Server, then you must gather the following information before you run the graphical installer. (If you are using Oracle remotely, you will need this information for setting up the remote database:)

- UNIX username that can run sqlplus (oracle)
- Tablespace name (for use with the Managing Server) (cyanea_ts)
- DBA User name (system)
- DBA User password (manager)

Run Installer

Before you install the Managing Server, make sure you follow the procedures for upgrading, if appropriate (“Upgrading Considerations” on page 23,) and for preparing to install (“Preparing to Install” on page 10) and follow the instructions found earlier in this chapter.

Note: When upgrading Managing Server if you want to migrate data, **make certain your input is ‘No’ when entering the value for re-initializing the database by the installer.**

Note: If you are using a remote database, make sure that you have followed the instructions on “Using a Remote Database” on page 15 before you install the Managing Server.

Note: Make sure the Application Server type and version, and the operating system type and version you are using are supported. (If the installation environment does

not meet the pre-requisites, the installer pre-requisite check will fail and you will be unable to continue the installation. If you wish to proceed with the installation, you can bypass the pre-requisite check by passing the parameter "-force" to install-MS.sh.

Note: The installer will create log files in /tmp/cyanea_installer_ms/ during the installation. After installation is complete, you can find a copy of the logs in the <cyanea_home>/logs directory.

Note: If the pre-installation steps for users "cyanea" and "admin" were not correctly performed, the installer will not open, and will display errors in the console.

Note: If running the installation from a remote machine, enter: **xhost +** on the machine on which you are installing the Managing Server.

To install the Managing Server:

1. Start your J2EE server.

Note: If you are in an ND environment then you must start the following.

- Deployment Manager
- Node Agent
- WebSphere instances to be monitored

2. Log in as the root user.

3. Source the profile for the "cyanea" user described in "Setting the Environment" on page 17. Or if you wish, set the environment variables appropriate to your environment manually.

```
source ~cyanea/.profile
```

This command may vary according to the shell you are using.

4. Refer to "Setting the Environment" on page 17 to verify this has completed correctly, by issuing the following commands:

For WebSphere:

```
echo $WAS_HOME  
echo $JAVA_HOME  
echo $PATH
```

Make sure that the output from the echo command matches your inputs.

5. Locate the file MSInstall.tar in the installation media. Go to the directory where you downloaded MSInstall.tar and extract the contents to a temporary directory:

```
mkdir /tmp/cyainst  
cp MSInstall.tar /tmp/cyainst  
cd /tmp/cyainst  
tar xf MSInstall.tar
```

6. If you want to perform an Interactive (GUI) install go to Step 6a. If you want to perform a non-Interactive (silent) install go to step 6b.

- a. If running the installation on a remote server, export the display to your local workstation using the following command:

```
DISPLAY=<workstation>:0; export DISPLAY
```

Run installer (You must be in this directory of the installer to work properly.):

```
cd /tmp/cyainst/Installer-MS/bin/  
sh install-MS.sh
```

- b. Create a copy of the sample response file.

```
cd /tmp/cyainst/Installer-MS/etc  
cp msInputs_Sample.txt msInputs.txt
```

Edit the response file msInputs.txt. The parameters required are documented within the text file.

Run the installer in silent mode.

```
cd /tmp/cyainst/Installer-MS/bin/  
sh install-MS.sh -silent ../etc/msInputs.txt
```

Upgrading Considerations

Migrating Data

To complete an upgrade of the Managing Server to v3.1 from any earlier version, you must migrate the data in the database.

Performing a Migration

These instructions describe how to migrate your data from v2.1.3 so that they are compatible with the Application Monitor v3.1.

Note: First BACKUP the existing octigate database so you preserve all your data under the previous schema.

To migrate the data of the Application Monitor database to v3.1 from v2.1.3:

1. Make sure your Managing Server components are not running.
2. Update the setenv.sh file in the \$CYANEA_HOME/bin directory with the following variable definitions:
 - For DB2

```
{JDBC_DRIVER_NAME}=COM.ibm.db2.jdbc.app.DB2Driver  
{JDBC_DRIVER_JAR}=<directory of DB2v8 INSTANCE  
HOME>/sql1lib/java12/db2java.zip  
{JDBC_DRIVER_URL}=jdbc:db2:octigate  
{JDBC_USER}=cyanea  
{JDBC_PASSWORD}=<cyanea's password>
```
 - For Oracle

```
{JDBC_DRIVER_NAME}=oracle.jdbc.pool.OracleConnectionPoolDataSource  
{JDBC_DRIVER_JAR}=<directory which has classes12.zip>/classes12.zip  
{JDBC_DRIVER_URL}= jdbc:oracle:thin:@<oracle database  
server>:<port>:octigate  
{JDBC_USER}=<cyanea database user name>  
{JDBC_PASSWORD}=<cyanea database user password>
```
3. For Oracle database users, backup data from v2.1.3 if needed. Otherwise, go to step 7 directly.
4. Execute data migration scripts: You should be logged in as user "cyanea".
 - Excute SQL script:
 - For DB2 database, do db2 connect to octigate:

```
db2 -tf $CYANEA_HOME/etc/migratetables-db2.sql >  
$CYANEA_HOME/logs/migratedb.log
```
 - For Oracle database, go to Oracle database server, do sqlplus:

```
<cyanea database user name>/<cyanea database user password>@<cyanea  
ORACLE_SID> @$CYANEA_HOME/etc/migratetables-oracle.sql >  
$CYANEA_HOME/logs/migratedb.log
```

Note: All \$CYANEA_HOME should be replaced with real directory name.

- Execute the following shell scripts in \$CYANEA_HOME /bin:
./migration.sh

5. Bring up all servers.

Note: Log files during migration are located in \$CYANEA_HOME/logs.

Starting the Application Monitor

Note: Verify that your application server, database, virtual frame buffer and optionally HTTP server are running.

For most UNIX platforms you can verify it as follows:

1. To verify the application server, go to admin console to make sure your server is up.
2. To verify database is up, establish a database connection.
3. To verify Virtual Frame Buffer:

```
ps -ef | grep Xvfb
```
4. To verify HTTP server:

```
ps -ef | grep httpd
```

To start the Application Monitor, follow these steps:

1. Switch to user "cyanea".

```
su - cyanea
```
2. Go to the bin directory where the Application Monitor is installed and run the cyanea-start.sh script.

```
cd /opt/cyaneaone/bin  
sh cyanea-start.sh
```
3. Using the terminal window, start the application server by typing the commands appropriate for your application server:

WebSphere

Note: Login as the user who is authorized to start WebSphere. If you are using a user other than "cyanea", make sure you have a db2 profile set. If not, run /home/db2inst1/sqllib/db2profile.

```
cd /<WebSphere Install directory>/bin  
DISPLAY=<hostname>:1; export DISPLAY  
sh startServer.sh Cyanea &
```

Note: Substitute the name of the application server you are using for the Visualization Engine in place of Cyanea.

4. If your Web environment requires an HTTP server, and the HTTP server is not running, change directory to your HTTP Server and start it as root as follows:

Linux:

```
cd /opt/IBMHTTPServer/bin  
./apachectl start
```

AIX:

```
cd /usr/HTTPServer/bin/  
./apachectl start
```

The exact path depends on the convention used at your site.

5. To log into the monitoring console, open a browser and type in:

`http://<hostname>/cyanea_one/home`

You can use the user name “admin” and UNIX password for UNIX user “admin” to log in.

Note: If your J2EE application server is not setup to be served on port 80, and you have not setup an HTTP server to do so, you have to include the port number in the URL. For example, the default port that WebSphere 5.1.1 listens on port 9080.

`http://<hostname>:<port>/cyanea_one/home`

Chapter 4. Customization

Follow the instructions below to complete the customization of your environment. For information on setting up cron jobs for maintenance, see the Operator's Guide.

Setup Email Host

The Application Monitor includes a "traps" feature that allows the user to have email messages sent when certain thresholds are reached. To have this feature work correctly, the SMTP host needs to be specified.

Note: The Performance Analysis & Reporting (PAR) section and the Traps section will not email reports without this step.

To do this, edit the file:

```
/opt/cyaneaone/etc/md.properties
```

and specify the correct IP address of the SMTP host or hostname (A valid email server is required; contact your Email Administrator for this information) for property as:

```
smtp.host=aa.bb.cc.dd
```

where aa.bb.cc.dd should be substituted with the IP address of the SMTP host.

Setup init.d

You may skip this section if you do not want the Application Monitor to start automatically upon reboot.

Activate appropriate scripts that can start the following components automatically upon reboot in the following sequence:

1. Virtual Frame Buffer
2. DB2 or Oracle (DB2 installation may have already created this.)
3. HTTP Server
4. WebSphere
5. cyanea

To set up the Application Monitor scripts to restart automatically, do the following:

The installation program will install a script for starting the Managing Server back end components automatically at boot time. To enable the startup script, please follow the instructions below for each platform. You must login as root to run any of the commands.

Linux: The installation program will install /etc/rc.d/init.d/cyanea. To enable automated startup at boot time, add cyanea service with chkconfig command as follows:

```
/sbin/chkconfig --add cyanea
```

AIX: The installation program will install /etc/rc.cyanea. To enable startup by process init, add the following line to the /etc/inittab file:

```
msbackend:234:once:/etc/rc.cyanea start
```

Solaris: The installation program will install `/etc/init.d/cyanea`. To enable automated startup at boot time, you must create the links below. You may want to modify the sequence numbers (S91, K36) according to local conventions.

```
ln -s /etc/init.d/cyanea /etc/rc2.d/S91cyanea
ln -s /etc/init.d/cyanea /etc/rc1.d/K36cyanea
ln -s /etc/init.d/cyanea /etc/rc0.d/K36cyanea
ln -s /etc/init.d/cyanea /etc/rcS.d/K36cyanea
```

If you are upgrading, be sure to remove the old startup entry

```
cyna:234:once:/etc/rc.cyanea start
from /etc/inittab in Solaris.
```

Setup SNMP

If you want to setup SNMP, see the following instructions:

- Appendix A, “Tivoli TEC Integration,” on page 115.
- Appendix B, “BMC Patrol Integration,” on page 137.

Setup Regular Database Tuning

To keep the Application Monitor performing well you may wish to tune the database periodically via a regularly scheduled Cron job. For details, refer to the Operator’s Guide.

Increase Linux Kernel Setting

RedHat Intel/Linux Managing Server: If you are using a Linux Managing Server, you should change the `MSGMNI` kernel variable. This is an IBM recommendation for DB2 performance tuning.

You can issue (as root), the following command to set it to 1024.

```
sysctl -w kernel.msgmni =1024
```

To check the current setting, use:

```
ipcs -l
```

Configuring Your Firewall

Follow the instructions below to configure the firewall between the managing server and the Data Collector.

Note: If you do not have a firewall between your Managing Server and your Data Collector, please ignore these instructions.

To configure your firewall:

1. Open the following ports on the firewall from both directions: 9102-9104 9111 9118-9123 9126 9127 8300 8200. (Assuming you used the default settings.)
2. Update the `datacollector.properties` file (on the machine running the Data Collector). This is typically located at `/opt/cyaneaone/etc` (the installation directory):

```
probe.rmi.port=8300
probe.controller.rmi.port=8200
```

3. If there is more than one Data Collector installed on a node, you must open a port for each Data Collector in both ranges starting from 8200 and 8300. Then assign unique values for each in the respective `datacollector.properties` files.

Note: You can use the optional component, Port Consolidator, to minimize the number of ports required.

Parameters Specified with Multiple Network Cards

To install multiple network cards: Make sure that the IP specified for the Managing Server are IPs that can be used to talk to each other (i.e if there is a network config where one of the IPs does not have a path to the other box, don't use that IP).

1. On the Managing Server, in `setenv.sh` (in `$CYANEA_HOME/bin`), set the `KERNEL_HOST01` and `KERNEL_HOST02` to the IP address of the managing server.
2. On the Managing Server, in `$CYANEA_HOME/bin/klctl.sh`, add a Java system property to the java command line in the "start" section of the script and set it to the IP address of the Managing Server:

```
java.rmi.server.hostname=<hostname>
```
3. On the Managing Server, repeat step 2 for `$CYANEA_HOME/bin/psctl.sh`.

In addition, if the Managing Server was installed on multiple boxes, make the changes above on all the boxes where the Managing Server was installed.

Chapter 5. Troubleshooting

The following information will help you in troubleshooting problems with your installation.

Test Database Connection

If the installation appears to succeed, you should test the database connection.

WebSphere (DB2 or Oracle)

The installation program creates a data source. The following procedure tests if the installation was successful.

Note: In the case of an Oracle database, you have to perform the following steps:

1. In the WebSphere administrative console, expand the tree Security > JAAS Configuration > J2C Authentication Data.
2. Click on Cyanea J2C Authentication data entry.
3. Click Apply.

To test the database connection:

1. In the WebSphere administrative console, expand the tree Resources > JDBC Providers.
2. Select the name of the JDBC provider.
3. At the bottom of the page, select Data Sources.
4. Place a checkmark in the box next to the correct data source.

[JDBC Providers > DB2 Legacy CLI-based Type 2 JDBC Driver >](#)

Data Sources

Data Source is used by the application to access the data from the database. A data source is created under a JDBC provider which provides the specific JDBC driver implementation class. [\[i\]](#)

<input checked="" type="checkbox"/>	Name	JNDI Name	Description	Category
<input checked="" type="checkbox"/>	Cyanea Data Source	jdbc/CyaneaDataSource	Cyanea/One DB2 JDBC Data Source	

Figure 2. Data Sources

5. Click **Test Connection** to verify that WAS can connect successfully to the octigate database. If connected successfully, a message will display at the top of the screen.

If the test fails, try verifying the following:

- Try to connect to the octigate database manually using the DB2/Oracle command line processor.
- Verify the user name, password, and database name. If using Oracle, check to make sure the URL has the following format:

```
jdbc:oracle:thin:@<db host>:<port>:<SID>
```

For example:

```
jdbc:oracle:thin:@perfdb-sun-so1.cyanea.com:1521:octigate
```

- Verify that the user which is used to start the WebSphere console has a DB2 profile as part of its profile.

Authentication

If your passwords have expired or you have changed the passwords, you need to modify your password in <cyanea_home>/bin/setenv.sh and in the WebSphere data source.

Database Problems

If the managing server uses an Oracle database and you see SQL syntax errors, check ve.properties file and make sure com.cyanea.octigate.database.ORACLE_8I is set to Y. If not set the property to Y, and restart the VE. For example:

```
com.cyanea.octigate.database.ORACLE_8I=Y
```

Viewing the Error Logs

The following is a list of additional error logs created by the Application Monitor.

Visualization Engine (VE) - cyaneaone_ve_stderr.txt (VE standard error), cyaneaone_ve_stdout.txt (VE standard output), cyaneaone_system.log (All log messages from the VE.)

Note: You may see the following exception for WebSphere 4.X on z/OS (which does not have PMI support.) This exception can be safely ignored.

```
ERROR [publish.smf.SmfTask] (SmfTask.java:254    ) -  
Error !!! {0}  
java.lang.NullPointerException  
    at com.cyanea.publish.smf.SmfTask.sendThreadPoolToTrap(SmfTask.java:317)  
    at com.cyanea.publish.smf.SmfTask.pollPerfSummary(SmfTask.java:246)  
    at com.cyanea.publish.smf.SmfTask.poll(SmfTask.java:195)  
    at com.cyanea.publish.smf.SmfTask$SmfTimerTask.run(SmfTask.java:527)  
    at java.util.TimerThread.mainLoop(Timer.java:Compiled Code)  
    at java.util.TimerThread.run(Timer.java:395)
```

Kernel Log - cyaneaone_kl1.log (1st instance) and cyaneaone_kl2.log (2nd instance)

Publish Server Log - cyaneaone_ps.log (1st instance), cyaneaone_ps2.log (2nd instance), cyaneaone_ps_audit.log (This file logs the trap related messages from the Publish Server.)

Global Publish Server Log - cyaneaone_sam.log

Archive Agent Log - cyaneaone_aa1.log (1st instance) and cyaneaone_aa2.log (2nd instance)

Polling Agent Log - cyaneaone_pa.log

Audit Messages - cyaneaone_audit.log

Message Dispatcher Log - cyaneaone_md.log

To Change Username/Password for WSAM Application Monitor

To change username/password for admin user:

1. Create a local UNIX account associated with the new user, <newusername>.
2. Update USERS table in WSAM database by doing:

For DB2:

```
db2 connect to <wsam database>
```

```
db2 "update users set username = <newusername>, ext_user = <newusername> where  
username = 'admin' and ext_user = 'admin'"
```

For Oracle:

```
export ORACLE_SID=<wsam sid>
```

```
sqlplus <wsam username>/<wsam password>
```

```
update users set username = <newusername>, ext_user = <newusername> where  
username = 'admin' and ext_user = 'admin'
```

To change "cyanea" user to a new username in WebSphere:

1. Login to the WebSphere admin console where VE is installed.
2. Expand Resources ==> JDBC Providers ==> Choose the JDBC Provider for WSAM ==> Data Sources ==> Choose WSAM DataSource (CyaneaDataSource) ==> J2C Authentication Data Entries ==> Choose WSAM J2C Authentication Data Entries ==> In User ID field, type in the new user, in password field, type in the password corresponding to the new user. ==> Click on OK ==> Save the change ==> restart the AppServer.

Chapter 6. Uninstalling the Managing Server

The following instructions describe how to uninstall the Managing Server.

Note: Prior to uninstalling the Managing Server, make sure you do the following:

- Disable all Data Collectors. See Chapter E, “Setting up an HTTP Server with your Managing Server,” on page 183 and Chapter 11, “Uninstalling the z/OS Data Collector,” on page 87 for instructions on disabling Data Collectors.
- Stop the Managing Server.

Remove the Application Monitor Database

DB2

1. Login as the DB2 admin user.
2. Check the databases on the box using,
`db2 list db directory`
3. Drop the database by issuing the command:
`db2 drop db octigate`

Oracle

To remove the database, use the command line tool:

```
dbassist
```

Uninstall the J2EE Application Server

WebSphere

1. Launch WebSphere Admin Console.
2. Expand Applications.
3. Click Enterprise Applications.
4. To stop the Enterprise Application, select the Octigate application.
5. Click Stop.
6. To uninstall the Enterprise Application, select the Octigate application.
7. Click Uninstall.
8. To uninstall the Data Source, expand Resources.
9. Select JDBC Providers.
10. Select DB2 Legacy CLI-Based Type 2 JDBC Driver.
11. Select Data Sources.
12. Select Cyanea Data Source.
13. Click Delete.
14. Go to the /<Websphere_home>/bin directory.

15. Issue the command:
`stopServer.sh <cyanea>`

Shutting Down the Managing Server

WebSphere

In order to shut down the Managing Server you need to shut down the cyanea components, including the Application Monitor, WebSphere, HTTP server, and DB2.

To shut down the Application Monitor:

1. Login as the cyanea user:
`su -cyanea`
2. Go to the Cyanea Home directory:
`cd /<cyanea_home>/bin`
3. Stop the Application Monitor:
`./cyanea -stop.sh`

To stop WebSphere:

1. To stop WebSphere, go to the /<Websphere_home>/bin directory.
2. Issue the command:
`stopServer.sh <cyanea>`
or issue the command:
`killall java`
3. To check for Java processes, issue the command:
`ps -ef | grep java`

To stop the HTTP server:

1. Go to the HTTP server home directory:
`cd /<http server home>/bin`
2. Issue the command:
`./apachectl stop`
3. To check if the server is down, issue the command:
`ps -ef | grep http`

To stop DB2:

1. Login as the DB2 admin user.
2. Issue the command:
`db2stop`
3. To check if DB2 is down, issue the command:
`ps -ef | grep db2`

Note: You must take the DB2 server down last. When restarting, you must bring the DB2 server up first in the process.

Uninstall the Application Monitor Files

The following instructions describe how to uninstall the Application Monitor files.

To uninstall the Application Monitor files:

1. Login as root, and remove <managing server installation directory>.
2. If you added the line `kernel.msgmni=1024` in `/etc/sysctl.conf`, remove it.
3. For Linux:* If you copied the "cyanea" script to `/etc/rc.d/init.d`, remove it.
For AIX: * If you copied the "cyanea" script to `/etc`, remove it.

Part 3. The Data Collector for z/OS

Chapter 7. Preparing to Install

Planning Your Installation

The following information will help you plan the installation of the z/OS Data Collector.

Platform Pre-requisites

Table 4. z/OS Data Collector Pre-requisites

Operating System	Application Server	JDK	Optional Software
z/OS 1.2 - 1.4	WebSphere 5.0.2.012, 5.1.0.003	JDK 1.3 (cm131s-20040117) for WebSphere 5.0.2 JDK 1.4 (cm1411sr2a-20040515) for WebSphere 5.1	MQ5.3.1, DB2 7.1(0311),DB2 7.0 Universal Driver

Warning: We do not recommend installing the Data Collector into the Admin Console server (non-ND environment), Node Agent, or Deployment Manager (ND environment). In addition, all UNIX command references here are based on the bash shell.

MVS Component Considerations

- If you want SMF or WLM data, install CYN1PROC address space. See “Installing MVS Components” on page 46.
- For SMF, turn on SMF option in WebSphere. See Chapter 9, “Customization,” on page 75.

Space Management

The installation process and documentation use the /<installation directory>/wsam/<server>/ as the installation directory reference of the USS components of the Data Collector. When the Data Collector starts for the first time, it generates three files in the /<installation directory>/wsam/<server>/etc directory.

- <sysplex>.<server instance name>.datacollector.properties
- <sysplex>.<server instance name>.id
- cyanea.mod

The generated files in the /<installation directory>/wsam/<server>/etc directory should not be deleted except under direction from Level 1 and Level 2 Product Support team. Also see “General” on page 58 for the usage, customization, and maintenance of these generated files. Each time the Data Collector starts, it will generate a new log file in the /<installation directory>/wsam/<server>/logs

directory. The generated log files should be cleaned up (deleted) as available space dictates.

As files initially are generated to the /<installation directory>/wsam/<server>/etc directory and ongoing to the /<installation directory>/wsam/<server>/logs directory, these directories must be READ-WRITE. This may be accomplished by mounting a unique HFS file over the /<installation directory>/wsam/<server>/<installation directory>/wsam/<server>/logs and /<installation directory>/wsam/<server>/etc directories to another set of directories that are READ-WRITE.

Network Considerations

If your LPAR has more than one IP address, make sure your system and/or network (DNS) are configured such that the primary IP is used for all connections between the Data Collector and Managing Server. You can use the netstat- command to check the IP's being used. Alternatively you may specify the IP to be used by Application Monitor in the WebSphere configuration via the java.rmi.server.hostname parameter in WAS_JAVA_OPTIONS for z/OS WebSphere 4 and in JVM Servant property in z/OS WebSphere 5. See Chapter 10, "Troubleshooting," on page 85 for more detailed information.

Installation Overview

Pre-requisites

- Must have the Managing Server installed and configured. See Part 2, "The Managing Server Installation," on page 7 for more detail reference.
- Review section Chapter 7, "Preparing to Install," on page 41 to ensure all necessary software and resources are in place prior to installing the Data Collector.

Overview

1. Data Collector Installation and Configuration. See Chapter 17, "WBI JDBC Adapter Data Collector," on page 111 for more detail. It includes:
 - a. Download the software (SMP/E or non-SMP/E format).
 - b. Un-package/Un-tar the distributed software to the proper mainframe environment.
 - c. Install MVS components.
 - d. Install USS component.
 - e. Verify the files from the distributed package are indeed all there.
 - f. Configure Data Collector on USS side.
 - g. Update/Configure WebSphere variables.
 - h. Quick start/test of the Application Monitor.
 - i. Configure distinct Application Server instances.
2. Customize the Application Monitor with optional support, e.g., PMI, SMF, JDBC, and MQI. See Chapter 9, "Customization," on page 75.

System Access and Levels of Authority

In some environments a systems support staff person may have responsibility and access to many areas of the system such as WebSphere, MVS and Security (RACF). In other Installations the areas of responsibility will be spread across groups; in fact, these areas of responsibility may reside in distinctly different reporting structures of the business. To facilitate installation of the Application Monitor z/OS Data Collector it is important to understand there will be an update of the WebSphere Administration Console, the MVS Parmlib, Linklib and Proclib and possibly the security system (RACF) to permit definition of an authorized library. Thus, the appropriate support staff should be included in the planning and implementation process for the Application Monitor.

Chapter 8. Installation and Configuration

Unpackaging Data Collector Software

The packaging of the Data Collector can be in either SMP/E or non-SMP/E install format.

SMP/E Install

SMP/E format can be downloaded from the IBM website. Simply follow IBM instructions for unpackaging the software.

Non-SMP/E Install

Download Distribution Files from the Website to Windows PC

1. Create a directory C:\zos.
Download the Data Collector software to the newly created PC directory. The following files should be copied to the PC.

Table 5. Files Copied to the PC

File Name	Function
installation_guide.zip	Compressed (zip) file containing installation instructions.
operators_guide.zip	Compressed (zip) file containing operational guide.
msg_code.zip	Compressed (zip) file containing message code information.
user_guide.zip	Compressed (zip) file containing user guide.
zWAS_DC_<version> ¹ _MVS.tar	Tar file for the z/OS TSO library.
zWAS502_DC_<version> ¹ _USS.tar	Tar file of the mvs/uss segment for zWAS5.0.2 z/OS DataCollector.
zWAS510_DC_<version> ¹ _USS.tar	Tar file of the mvs/uss segment for zWAS5.1 z/OS Data Collector.

¹<version> is the Application Monitor version information, for example, 31 refers to the Application Monitor 3.1.

Unpacking the Product Documentation

Use an available “unzip” program such as PKZIP or WINZIP to unpack the documentation (document.zip). This contains the following manuals in PDF format:

- Installation and Customization Guide (SC31-6312-02).
- Operator's Guide (SC31-6313-02).
- Messages and Codes (SC31-6315-02).
- User's Guide (SC31-6314-02).

Information as well as a download of the WINZIP program may be found on the internet at www.winzip.com.

Installing the Data Collector

Once you have unpackaged the Data Collector files from either SMP/E or non-SMP/E format, continue with the following instructions.

Installing MVS Components

This MVS installation is optional support for SMF and WLM. If you choose not to install the MVS component, SMF and WLM data will not be shown in the Managing Server VE.

The following instructions describe how to install the MVS components:

- “Pre-allocating Files on MVS”
- “Extract z/OS TSO Tar File”
- “Transferring Files from the PC to MVS” on page 47
- “Installing the MVS files” on page 47
- “Defining Subsystem CYN1” on page 47
- “Authorizing Data Sets and Updating the Linklist” on page 48
- “Installing the IEFU83 Exit” on page 48
- “Initializing MVS” on page 49
- “Verifying the MVS Components” on page 52

Pre-allocating Files on MVS

Pre-allocate datasets on the MVS system using the following JCL:

```
//S1JOB JOB ....installation dependent job card parameters
//S1 EXEC PGM=IEFBR14
//DD1 DD DISP=(NEW,CATLG),UNIT=3390,VOL=SER=volumename,
//          DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB,DSORG=PS),
//          SPACE=(CYL,(2,1)),DSN= CYN.CINSTALL.ACYNAUTH
//DD2 DD DISP=(NEW,CATLG),UNIT=3390,VOL=SER=volumename,
//          DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB,DSORG=PS),
//          SPACE=(CYL,(2,1)),DSN=CYN.CINSTALL.ACYNPROC
```

Where volumename is the volser for these temporary files. These files may be deleted and un-cataloged at the end of the installation process after the TSO RECEIVE process has completed.

Extract z/OS TSO Tar File

1. Go to c:\zos directory in PC Window environment and double click on the tar file zWAS_DC_<version>_MVS.tar.
2. You now should see the following files in C:\zos:
cyn.cinstall.acynauth
cyn.cinstall.acynproc

Transferring Files from the PC to MVS

1. FTP files from the PC C:\zos directory to the MVS systems.
2. From the PC connect to the MVS system and log onto TSO to “receive” the files.

To transfer (ftp) pre-install files from your PC to the MVS system: At the PC Command Prompt issue the commands:

```
ftp ipname
```

(where IPNAME is the IP address of the MVS system. When prompted for userid/password provide the appropriate userid and password.)

```
lcd c:\zos
```

```
bin
```

```
cd 'cyn.cinstall.acynauth'
```

```
put 'cyn.cinstall.acynauth'
```

```
cd 'cyn.cinstall.acynproc'
```

```
put 'cyn.cinstall.acynproc'
```

```
quit
```

Installing the MVS files

Log onto TSO and at the TSO READY prompt issue the commands:

```
receive indata('cyn.cinstall.acynauth')
```

You will receive system messages:

```
INMR901I Dataset.....
```

```
INMR906A Enter Restore Parameters ~ 'Delete' or 'End' +
```

```
da('cyn.scynauth') volume(volser)
```

(Where volser is the volume serial number of the disk to install the file.)

```
receive indata('cyn.cinstall.acynproc')
```

You will receive system messages:

```
INMR901I Dataset.....
```

```
INMR906A Enter Restore Parameters ~ 'Delete' or 'End' +
```

```
da('cyn.scynproc') volume(volser)
```

(Where volser is the volume serial number of the disk to install the file.)

Defining Subsystem CYN1

DYNAMIC SUBSYSTEM DEFINITION: The above Parmlib Update will take effect with the next IPL of the system and is permanent. An IPL of the system is not required to dynamically add a subsystem. The following command will define the CYN1 subsystem without an IPL and will remain in place until the next IPL:

Note: For MVS Dataset update, perform a whole new replacement of both libraries scynauth and the linklist.

```
SETSSI ADD,SUBNAME=CYN1
```

PARMLIB UPDATE: Update the SYS1.PARMLIB(IEFSSNxx) used in your installation to include the statement:

```
SUBSYS SUBNAME(CYN1)
```

RACF UPDATE: Installations have a significant number of options they can choose to enable started tasks and authorize them with RACF. Usually a started task must have an RACF association with either a user or a group as well as an entry in the Started Class Table. This must be done in accordance with your installations specifications to permit functioning of the CYN1 subsystem and SNTP started task. A possible solution to this would be to issue the RACF commands:

```
RDEF STARTED (CYN1*) OWNER(STCRACF) STDATA(USER(STCRACF) TRACE(YES))
```

```
SETROPTS REFRESH RACLIST(STARTED)
```

The Userid associated with the started tasks must have RACF access to the MVS libraries installed in the subsequent steps.

PROCLIB UPDATE: In previous steps you have created and populated CYN.SCYNPROC. Either concatenate this file to the JES2 procedure PROC00 statement or copy the members from CYN.SCYNPROC into a dataset that is already part of the JES2/PROC00 DD statement.

Authorizing Data Sets and Updating the Linklist

Update SYS1.PARMLIB(LNKLSTxx) to include CYN.SCYNAUTH in the LNKLST concatenation or via the LNKLST statement in the appropriate PROGxx member of SYS1.PARMLIB. Update SYS1.PARMLIB to define CYN.SCYNAUTH as an authorized library either via the IEAAPFxx or PROGxx members.

Note: If you use the IEAAPFxx option, simply add a line that contains:

```
CYN.SCYNAUTH volser
```

where volser is the volume name the library was installed on.

If you use PROGxx, simply add lines that contain

```
APF ADD DSNAME(CYN.SCYNAUTH) VOLUME(volser)
```

```
LNKLST ADD NAME(LNKLST00) DSN(CYN.SCYNAUTH) VOLUME(volser)
```

where volser is the volume name the library was installed on.

Installing the IEFU83 Exit

Update SYS1.PARMLIB(SMFPRMxx) to enable the SMF exit IEFU83 and recording of SMF type 120 records. An example of an entry to enable an IEFU83 exit and recording of SMF type 120s is:

```
SYS(NOTYPE(14:19,62:69),EXITS(IEFU83,IEFU84,IEFACTRT,IEFUS1,IEFUJ1,IEFU29),NOINTERVAL,NODETAIL)
```

```
SUBSYS(STC,EXITS(IEFU29,IEFU83,IEFU84,IEFUJP,IEFUS0,IEFACTRT))
```

If you currently do not have a SYS and/or SUBSYS statement you must include at a minimum:

```
SYS(TYPE(120),EXITS(IEFU83))
```

```
SUBSYS(STC,EXITS(IEFU83))
```

If your installation already has an IEFU83 exit, the MVS command SETPPROG may be used to create a “cascade effect” of calls to multiple yet distinct modules that will receive control, sequentially, to view/process the SMF records.

If your installation uses dynamic Exits, update SYS1.PARMLIB(PROGxx) with the following commands:

```
EXIT ADD EXITNAME(SYS.IEFU83) MODNAME(CYN1FU83) DSNAME(CYN.SCYNAUTH) FIRST
```

```
EXIT ADD EXITNAME(SYSSTC.IEFU83) MODNAME(CYN1FU83) DSNAME(CYN.SCYNAUTH) FIRST
```

If your installation does not use dynamic Exits, update SYS1.PARMLIB(COMMNDxx) with the following commands:

```
SETPROG EXIT,ADD,EX=SYS.IEFU83,MOD=CYN1FU83,DSN=CYN.SCYNAUTH,FIRST
```

```
SETPROG EXIT,ADD,EX=SYSSTC.IEFU83,MOD=CYN1FU83,DSN=CYN.SCYNAUTH,FIRST
```

Initializing MVS

Depending upon the options you selected when installing the CYN1 subsystem, installing the IEFU83 exit, authorizing the cyn.scynauth library and adding cyn.scynauth to the active Linklist, an IPL may be required.

Customizing the CYN1 Subsystem for SMF Collection (Optional)

In order to collect SMF information for all the zWAS server instances on an LPAR, it may be necessary to customize parameters that control the building of in-core repository tables in CYN1PROC's address space. These parameters indicate the maximum number of zWAS server instances, the sizes of the bean section, the bean method section, the web application section, and the servlet section pools. So, for example, if you're running more zWAS server instances than the maximum allowed, then CYN1PROC's maximum zWAS server instances allowed parameter must be changed, and the other CYN1PROC parameters may require tuning too.

The CYN1 subsystem uses address space storage to store SMF information collected from the various WebSphere for z/OS application server instances running in the same LPAR. SMF statistics comprise server and container data, bean data, bean method data, web application data, and servlet data. These data are collected from SMF records 120 and reside in the CYN1 address space according to a hierarchical structure with the server instance as the top level. Memory for such a structure is pre-allocated by the CYN1 address space when it comes up according to a pre-defined parameter template, which specifies the maximum number of server instances, the sizes of the bean section, bean method section, web application section, and servlet section pools.

The parameter template is assembled and linked in the SCYNAUTH library and its name is of the form CYNPxxxx. By default, CYN1 will load the CYNPTEST parameter template which is provided with the SCYNAUTH library. CYNPTEST is specified as a default parameter in the CYN1 cataloged procedure (PARMS=), as follows:

```
//CYN1 PROC SMFWRITE='ON',PARMS='TEST'
```

```
//STEP1 EXEC PGM=CYN1DRVR,REGION=0K,TIME=NOLIMIT,
```

```
// PARM='&PARMS,&SMFWRITE'
```

```

//*****/
//*
//* PROPRIETARY-STATEMENT:
//* LICENSED MATERIAL - PROPERTY OF IBM
//*
//* 5655-L42 (C) COPYRIGHT CYANEA SYSTEMS CORP. 2002-2004
//* ALL RIGHTS RESERVED.
//*
//*
//* WEBSHERE STUDIO APPLICATION MONITOR
//* VERSION 3.1.0
//*
//* -----
//STEPLIB DD DISP=SHR,DSN=CYN.SCYNAUTH
//SYSLOG DD SYSOUT=*,FREE=CLOSE,SPIN=UNALLOC
//*SYSUDUMP DD SYSOUT=*,FREE=CLOSE,SPIN=UNALLOC
//*SYSABEND DD SYSOUT=*,FREE=CLOSE,SPIN=UNALLOC
//*SYSMDUMP DD SYSOUT=*,FREE=CLOSE,SPIN=UNALLOC
//*

```

Configuring the parameters statically: The source code for a generic CYNPxxxx parameter template can be found in the CYNPXXXX member of the distribution library CYN.SCYNPROC, encapsulated by sample JCL to assemble and link it into the CYN.SCYNAUTH library. You can customize the values in that member and rename it with any arbitrary suffix of at most 4 characters. Then you can either edit the CYN1 catalog procedure to reference that member as the default parameter template, or override the default when you start the CYN1 address space. For example the JES command:

“START CYN1PROC,PARMS=ABCD” specifies that the CYN1 address space will load the member CYNPABCD from the library CYN.SCYNAUTH when coming up and it will use the values specified in that member to allocate its in memory SMF structures.

You can only modify the following lines in that member:

```

...
PEQUSENN EQU 10 # OF SERVER ENTRIES
...
PEQUBSNN EQU PEQUSENN*2*10 NUMBER OF BEAN SECTION ENTRIES
...
PEQUBMNN EQU PEQUBSNN*10 # OF BEAN METHOD ENTRIES
...
PEQUWSNN EQU PEQUSENN*2*10 # OF WEBAPP SECTION ENTRIES
...
PEQUSVNN EQU PEQUWSNN*10 # OF SERVLET SECTION ENTRIES
...

```


Furthermore, only the number '10' can be changed; in the above example, the 10. Do not change the 2. For each server entry there are two sets of pools, a current pool containing the currently accumulated SMF statistics and an in-progress pool containing the latest SMF statistics. The SMF statistics in the two pools are then aggregated into the currently accumulated SMF statistics. Hence the factor of 2 which is specified in the PEQUBSNN and PEQUWSNN constants, and which should not be changed.

The constant PEQUSENN specifies the maximum number of server instances running in the LPAR for which CYN1 will keep SMF statistics for. Once a server entry is allocated, it remains so until the CYN1 region is brought down. Specify a number big enough to accommodate your needs, but keep in mind that the size of the bean section, bean method, web application, and servlet section pools will be multiplied by that number.

The constant PEQUBSNN specifies the average number of bean section entries per pool and per server instance. Some server instances may have more, some other less. That number is the size of the common pool. Specify the appropriate number here.

The constant PEQUBMNN specifies the average number of bean method entries per bean section. Some beans may have more, some other less. That number is the size of the common pool. Again specify the appropriate number.

The constant PEQUWSNN specifies the average number of web application section entries per pool and per server instance. Some server instances may have more, some other less. That number is the size of the common pool. Specify the appropriate number here.

The constant PEQUSVNN specifies the average number of servlet entries per web application section. Some web applications may have more, some other less. That number is the size of the common pool. Again specify the appropriate number.

Keep in mind that because of the multiplication factors, the number that you specify at the higher levels (server, bean sections, web application sections) are propagated at the lower levels. Be aware of that rather than specifying the biggest numbers just to be safe. The parameter template may not assemble correctly if the size of the SMF structure is too big.

Configuring the parameters dynamically: Another way to specify the size of the parameter values above is to override the PARMs parameter in the start command with those values explicitly. The values are included between two slashes ("/"), separated with spaces or commas, and they must all be present. For example, specifying:

```
START CYN1PROC,PARMS='/ 10,20,5,7,8/'
```

will cause CYN1PROC to dynamically compute its memory requirements with:

Number of server instances:10(PEQUSENN)

Average number of bean sections per server instance: 20(PEQUBSNN)

Average number of bean methods per bean section: 5(PEQUBMNN)

Average number of web applications per server instance: 7(PEQUWSNN)

Average number of servlets per web application: 8(PEQUSVNN)

All 5 values must be specified. CYN1PROC will not create a parameter member.

For example:

```
START CYN1PROC
```

will start CYN1PROC using the default specification in the PARMs value of the cataloged procedure (either explicit values, or a parameter member, e.g.,CYNPTST).

```
START CYN1PROC,PARMS='PROD'
```

will start CYN1PROC using the values defined in the parameter member CYNPPROD.

```
START CYN1PROC,PARMS='/ 10, 30, 30, 10, 10/'
```

will start CYN1PROC using the specified values instead of the values specified in a parameter member.

Verifying the MVS Components

The following MVS commands may be used to help ensure the installation was successful.

To verify the definition of the CYN1FU83 exit, use the command:

```
D PROG,EXIT,MODNAME=CYN1FU83
```

This should produce messages similar to the following:

```
CSV462I 16.46.00 PROG,EXIT DISPLAY 978
MODULE CYN1FU83
EXIT(S) SYS.IEFU83      SYSSTC.IEFU83
```

To verify the installation of the SYSSTC.IEFU83 exit, use the command:

```
D PROG,EXIT,EX=SYSSTC.IEFU83,DIAG
```

This should produce messages similar to the following:

```
CSV464I 10.09.39 PROG,EXIT DISPLAY 136
EXIT SYSSTC.IEFU83
MODULE   STATE EPADDR   LOADPT   LENGTH   JOBNAME
CYN1FU83  A    8A0241A0 0A0241A0 000001E0 *
```

(verify the Loadpoint and Length are not zero)

To verify the installation of the SYS.IEFU83 exit, use the command:

```
D PROG,EXIT,EX=SYS.IEFU83,DIAG
```

This should produce messages similar to the following:

```
CSV464I 10.12.26 PROG,EXIT DISPLAY 291
EXIT SYS.IEFU83
MODULE   STATE EPADDR   LOADPT   LENGTH   JOBNAME
CYN1FU83  A    932FB5C8 132FB5C8 000001E0 *
```

(verify the Loadpoint and Length are not zero)

To verify that CYN.SCYNAUTH is APF authorized, use the command:

```
D PROG,APF,DSNAME=CYN.SCYNAUTH
```

This should produce a message similar to the following:

```
CSV450I 17.04.49 PROG,APF DISPLAY 386
FORMAT=DYNAMIC
ENTRY    VOLUME    DSNAME
1                STCE03    CYN.SCYNAUTH
```

To verify that CYN.SCYNAUTH is in the active Linklist, use the command:

```
D PROG,LNKLST
```

This should produce a message similar to the following:

```
RESPONSE=STLABCE
CSV470I 14.28.30 LNKLST DISPLAY 539
LNKLST SET LINK00 LNKAUTH=LNKLST
ENTRY APF VOLUMEDSNAME
1A IPL12BSYS1.LINKLIB
2A RES20FCYN.SCYNAUTH
3 .....
```

To verify that CYN1 Subsystem is defined, use the command:

```
D SSI,SUB=CYN1
```

This should produce a message similar to the following:

```
IEFJ100I 10.32.59 SSI DISPLAY 349
SUBSYS=CYN1
DYNAMIC=YES    STATUS=INACTIVE    COMMANDS=REJECT
```

Verify the system is recording SMF type 120 records and the CYN1 subsystem is capturing data in conjunction with the IEFU83 exits. This test must be done after all previous tests and when the WebSphere changes (see the following section) have been implemented, the conversation activated and WebSphere is up and running. At that point, use the following commands:

```
S CYN1PROC
```

Wait for x minutes to execute the next command where x=SMF interval length. See Chapter 9, "Customization," on page 75.

```
F CYN1PROC,DUMP,AS,$CYNSETB,192
```

This should produce output similar to the following:

```
CYNS0004I: DUMP,AS,$CYNSETB,192

CYN50013I:13803000 00000000 00000000 00000000 00000000 |
CYN50013I:13803010 00000000 00000000 00000000 00000000 |
CYN50013I:13803020 00000000 00000000 00000000 00000000 |
CYN50013I:13803030 00000000 00000000 00000000 00000000 |
CYN50013I:13803040 00000000 00000000 00000000 00000000 |
CYN50013I:13803050 00000000 00000000 00000000 00000000 |
CYN50013I:13803060 13803514 00000037 C1C4C3C4 D7D30000 | ADCDPL
CYN50013I:13803070 00000000 00000000 00000000 00000000 |
CYN50013I:13803080 00000000 00000000 00000000 00000000 |
CYN50013I:13803090 00000000 00000000 00000000 00000000 |
CYN50013I:138030A0 00000000 00000000 C2C2D6C1 E2D9F200 | BBOASR2
CYN50013I:138030B0 C2C2D6C1 E2D9F2C3 13803444 13803478 | BBOASR2C
```

where:

ADCDPL

is your Sysplex

BBOASR2

is your J2EE Server

BBOASR2C

is your J2EE Server Instance

To look for version of the CYN1PROC, use the following command:

```
F CYN1PROC,VER
CYNS0004I: VER
CYNS0045I: CYN1 ID: CYN1DRVR 03.01.00 09/14/04 18.09
```

Installing USS Component

This involves the following tasks:

- “Pre-Allocating a Directory Structure on USS”
- “Transferring Files from the PC to USS” on page 55
- “Extract the Data Collector Files from a Tar File in USS Environment” on page 55
- “Copy Data Collector Files to the Installation Directory” on page 56

Pre-Allocating a Directory Structure on USS

1. Log onto the z/OS USS environment.
2. Change directory to /usr/lpp.

3. Check to see if a directory /usr/lpp/tmp exists. If one does not exist, create a directory with the commands: mkdir /usr/lpp/tmp. This is a tmp directory for untarring the packaging.
4. Log off the z/OS USS environment.

Transferring Files from the PC to USS

FTP files from the PC C:\zos directory to the z/OS USS system.

1. Log onto PC environment and open a PC DOS Command window.
2. At the PC DOS Command prompt, issue the commands¹.

```
ftp ipname
```

(Where ipname is the IP address of the MVS system.)

When prompted for userid/password, provide the appropriate userid and password.

```
cd /usr/lpp/tmp
```

Note: Make sure the /usr/lpp/tmp directory exists at the z/OS USS System.

```
lcd c:\zos
```

```
bin
```

```
put <zDataCollector>.tar
```

Note: <zDataCollector>.tar where <zDataCollector> can either be zWS502_DC_<version>¹_USS or zWS510_DC_<version>¹_USS.

```
quit
```

Log off from the PC environment.

¹<version> is the Application Monitor version information, for example, 31 refers to the Application Monitor 3.1.

Extract the Data Collector Files from a Tar File in USS Environment

1. Telnet into the z/OS USS environment and logon. Generally a Userid with root access will be required to update the /usr/lpp files.
2. Issue the commands:

```
cd /usr/lpp/tmp
```

```
tar -xvf <zDataCollector>.tar
```

```
cd cyanea
```

```
chmod -R 755 *
```

Note: Depending upon the access level of the person performing this install and the authorization of the Userid associated with the WebSphere Server Instance the above command may need to be changed to "chmod -R 775 *" to permit dynamic updates of some of the files.

```
chown -R CBASRU2 /usr/lpp/tmp/cyanea/wsam/cyanea_one
```

Note: The chown command above indicates use of userid CBASRU2; this should be changed to the RACF userid associated with your servant region address space (look in SDSF).

Executing the tar command creates the following directory structure:

```
/usr/lpp/tmp/cyanea/wsam/cyanea_one/lib
```

```
/usr/lpp/tmp/cyanea/wsam/cyanea_one/logs
```

```
/usr/lpp/tmp/cyanea/wsam/cyanea_one/etc
```

Copy Data Collector Files to the Installation Directory

The following convention is suggested for choosing the <installation directory> for the Data Collector:

- Choose a high level qualifier. For example, `mkdir /usr/lpp/cyanea` if it does not exist already.
- The subdirectory "wsam" is fixed, e.g., `mkdir /usr/lpp/cyanea/wsam` if it does not exist already.
- It is recommended that the last subdirectory be the server/instance name that is created via the WebSphere Admin console for the Application Monitor. For example, `mkdir /usr/lpp/cyanea/wsam/serverA` if it does not exist already.

Note: For Data Collector upgrade, we recommend you archive or remove the old Data Collector files:

To archive the old Data Collector files, for example:

```
mkdir /<high level qualifier>/wsam/<server>/backup
mv /<high level qualifier>/wsam/<server>/lib /<high level
qualifier>/wsam/<server>/backup
mv /<high level qualifier>/wsam/<server>/etc /<high level
qualifier>/wsam/<server>/backup
mv /<high level qualifier>/wsam/<server>/logs /<high level
qualifier>/wsam/<server>/backup
```

To remove the old Data Collector files, for example:

```
rm -rf /<high level qualifier>/wsam/<server>/lib
rm -rf /<high level qualifier>/wsam/<server>/etc
rm -rf /<high level qualifier>/wsam/<server>/logs
```

- For Data Collector upgrade, remove the old files, for example:

```
rm -rf /<high level qualifier>/wsam/<server>/lib
rm -rf /<high level qualifier>/wsam/<server>/etc
rm -rf /<high level qualifier>/wsam/<server>/logs
```

- Copy from `/usr/lpp/tmp` to installation directory.

```
cp -R /usr/lpp/tmp/cyanea/wsam/cyanea_one/* /<high level
qualifier>/wsam/<server>/
```

Note: In this example, `/<high level qualifier>/wsam/<server>` refers to `/usr/lpp/cyanea/wsam/serverA`

Verifying Installation of the Data Collector

After installing the Data Collector on z/OS or OS/390, you should verify that the installed directories and files match those listed in this chapter. <installation directory> and <server> represent whatever directory name that you use.

Verifying WebSphere 5

The following table describes the location and permissions of directories and files included in the installation of Application Monitor Data Collector for WebSphere 5.

Table 6. Installed Directories and Files for WebSphere 5

System	File	Permissions
USS	<code>/<installation directory>/wsam</code>	<code>rwxr-xr-x</code>

Table 6. Installed Directories and Files for WebSphere 5

System	File	Permissions
USS	/<installation directory>/wsam/<server>	rwXR-XR-X
USS	/<installation directory>/wsam/<server>/etc /<installation directory>/wsam/<server>/etc/LogMessages /<installation directory>/wsam/<server>/etc/jndi.properties /<installation directory>/wsam/<server>/etc/datacollector.properties /<installation directory>/wsam/<server>/etc/datacollector.env /<installation directory>/wsam/<server>/etc/datacollectorservice.xml /<installation directory>/wsam/<server>/etc/request_jdbc.xml /<installation directory>/wsam/<server>/etc/request_ctg.xml /<installation directory>/wsam/<server>/etc/request_imsconnect.xml /<installation directory>/wsam/<server>/etc/request_jmsqueue.xml /<installation directory>/wsam/<server>/etc/request_jmstopic.xml /<installation directory>/wsam/<server>/etc/request_mqi.xml /<installation directory>/wsam/<server>/etc/bcm.properties /<installation directory>/wsam/<server>/etc/version.properties	rwXR-XR-X
USS	For z/OS WebSphere 5.0.2 /<installation directory>/wsam/<server>/lib /<installation directory>/wsam/<server>/lib/libcyanea.so /<installation directory>/wsam/<server>/lib/common.jar /<installation directory>/wsam/<server>/lib/cdn.jar /<installation directory>/wsam/<server>/lib/cyaneaaux.jar /<installation directory>/wsam/<server>/lib/kernel.common.jar /<installation directory>/wsam/<server>/lib/model.jar /<installation directory>/wsam/<server>/lib/ppe.probe-intf.jar /<installation directory>/wsam/<server>/lib/ppe.zprobe.jar /<installation directory>/wsam/<server>/lib/ppe.zws502.jar /<installation directory>/wsam/<server>/lib/ppe.zcdn_impl.jar /<installation directory>/wsam/<server>/lib/ext/	rwXR-XR-X
USS	For z/OS WebSphere 5.1 /<installation directory>/wsam/<server>/lib /<installation directory>/wsam/<server>/lib/libcyanea.so /<installation directory>/wsam/<server>/lib/libcyaneaDLL.so /<installation directory>/wsam/<server>/lib/common.jar /<installation directory>/wsam/<server>/lib/cdn.jar /<installation directory>/wsam/<server>/lib/cyaneaaux.jar /<installation directory>/wsam/<server>/lib/kernel.common.jar /<installation directory>/wsam/<server>/lib/model.jar /<installation directory>/wsam/<server>/lib/ppe.probe-intf.jar /<installation directory>/wsam/<server>/lib/ppe.zprobe.jar /<installation directory>/wsam/<server>/lib/ppe.zws510.jar /<installation directory>/wsam/<server>/lib/ppe.zcdn_impl.jar /<installation directory>/wsam/<server>/lib/ext/	rwXR-XR-X
USS	/<installation directory>/wsam/<server>/logs	rwXR-XR-X

Table 6. Installed Directories and Files for WebSphere 5

System	File	Permissions
MVS	CYN.SCYNAUTH(CYN1\$WTO)	AC=00
	CYN.SCYNAUTH(CYN1CALL)	AC=00
	CYN.SCYNAUTH(CYN1DRVR)	AC=01
	CYN.SCYNAUTH(CYN1DUMP)	AC=00
	CYN.SCYNAUTH(CYN1FU83)	AC=00
	CYN.SCYNAUTH(CYN1KCRR)	AC=00
	CYN.SCYNAUTH(CYN1KCR8)	AC=00
	CYN.SCYNAUTH(CYN1KFOP)	AC=00
	CYN.SCYNAUTH(CYN1KGBM)	AC=00
	CYN.SCYNAUTH(CYN1KGBS)	AC=00
	CYN.SCYNAUTH(CYN1KGHS)	AC=00
	CYN.SCYNAUTH(CYN1KGS)	AC=00
	CYN.SCYNAUTH(CYN1KGSV)	AC=00
	CYN.SCYNAUTH(CYN1KGWS)	AC=00
	CYN.SCYNAUTH(CYN1KRSS)	AC=00
	CYN.SCYNAUTH(CYN1KWEN)	AC=00
	CYN.SCYNAUTH(CYN1KWSC)	AC=00
	CYN.SCYNAUTH(CYN1KWSP)	AC=00
	CYN.SCYNAUTH(CYN1MSG)	AC=00
	CYN.SCYNAUTH(CYN1OPER)	AC=00
	CYN.SCYNAUTH(CYN1SLOG)	AC=00
	CYN.SCYNAUTH(CYN1TIME)	AC=00
	CYN.SCYNAUTH(CYN1UTIL)	AC=01
	CYN.SCYNAUTH(CYN1WLM)	AC=00
	CYN.SCYNAUTH(CYN1XCOM)	AC=00
	CYN.SCYNAUTH(CYN1XINT)	AC=00
	CYN.SCYNAUTH(CYN1XMPC)	AC=00
	CYN.SCYNAUTH(CYN1XOP)	AC=00
	CYN.SCYNAUTH(CYN1XTRM)	AC=00
	CYN.SCYNAUTH(CYN1XZAP)	AC=00
CYN.SCYNAUTH(CYNMENGL)	AC=00	
CYN.SCYNAUTH(CYNMFRCH)	AC=00	
CYN.SCYNAUTH(CYNPTEST)	AC=00	
CYN.SCYNAUTH(CYNPBIG)	AC=00	
CYN.SCYNAUTH(CYNPRAIF)	AC=00	
MVS	CYN.SCYNPROC(CYN1ELOG)	AC=00
	CYN.SCYNPROC(CYN1PROC)	AC=00

Configuring the Data Collector

The Data Collector must point to the Managing Server and the WebSphere Control Region. This is done by setting parameters that identify the IP address of the Managing Server and the WebSphere Control Region. These changes must be implemented prior to starting the Data Collector.

From here on, we refer to the <installation directory> as the high level qualifier of your Data Collector directory path.<server> as the last subdirectory of your Data Collector directory path (i.e., this may be your server/instance name). <WebSphere directory> as your z/OS WebSphere directory path.

General

The following are general instructions for configuring the Data Collector.

To configure the Data Collector:

Once you have installed a Data Collector, you must configure it so that it communicates with the Managing Server. This is accomplished by setting the properties in the following two files:

- `<installation directory>/wsam/<server>/etc/datacollector.properties`
 - `<installation directory>/wsam/<server>/etc/datacollector.env`
1. Edit the file `<installation directory>/wsam/<server>/etc/datacollector.properties`. For property references, see “Data Collector Property References” on page 68.
 - Change all occurrences in this file (global change) of the default IP Address in `kernel.codebase` and `kernel.rfs.address` properties for example, 9.30.134.134 to the IP Address of your Managing Server.
 - Save your changes and close the file.
 2. Edit the file: `<installation directory>/etc/datacollector.env`. For property references, see “Data Collector Property References” on page 68.
 - Change the default directory path in `cyanea_modfile` property:

From	To
<code>/usr/lpp/cyanea/wsam/cyanea_one</code>	<code><installation directory>/wsam/<server>/</code>

- Save your changes and close the file.

Once you have installed, configured, and brought up the Data Collector, the following system-generated files are created and used for subsequent startups in `<installation directory>/wsam/<server>/etc`:

- `<sysplex>.<machine name>.<LPAR name>.<server instance name>.datacollector.properties`
- `<sysplex>.<machine name>.<LPAR name>.<server instance name>.id`
- `<sysplex>.<machine name>.<LPAR name>.<server instance name>.gpsCounter.txt`
- `cyanea.mod`

Therefore, if you need to change a value defined in `datacollector.properties` (such as Managing Server IP address), you must delete this system-generated `datacollector.properties` file, as described in the following instructions:

To update the `datacollector.properties` file:

1. Update the `datacollector.properties` file with your changes.
2. Remove the following system-generated files which are located in the `<installation directory>/wsam/<server>/etc` directory:
 - `<sysplex>.<machine name>.<LPAR name>.<server instance name>.datacollector.properties`
 - `<sysplex>.<machine name>.<LPAR name>.<server instance name>.gpsCounter.txt`
3. Restart the server.

Configuring the Application Servers

The following instructions describe how to install the application servers on WebSphere 5 on z/OS.

Configuring WebSphere 5 on z/OS

Configuring WebSphere 5 on z/OS involves the following tasks:

- “Configuring Probe Services”.
- “Configuring the z/OS Data Collector Home Runtime” on page 61.
- “Configuring Protocol Timeout Properties” on page 62
- “Configuring Administrative Services” on page 63.
- “Configuring the Servant Region Libpath” on page 63.
- “Supporting Global and Java Security” on page 65.

Updating WebSphere Proclib

The WebSphere Servant Region proclib must be updated to accommodate the Application Monitor Heap Analysis function. Else, the Heap Analysis function may cause WebSphere to abend. Update the Servant Region procedure to include HEAP(,,,FREE). For Data Collector upgrade, simply comply with the following configuration. The updated version of the proclib looks like the following:

```
//BB05ASR PROC ENV = ADCDPL.P390.SERVER1,Z=BB05ASRZ
// SET ROOT='WebSphere/V5R0M1'
//BBOSR EXEC PGM=BBOSR,REGION=OM,TIME=NOLIMIT,
//PARAM='TRAP(ON,NOSPIE),HEAP(,,,FREE),ENVAR("_EDC_UMASK_DFLT=007")/'
//BBOENV DD PATH='&ROOT/&ENV/was.env'
// INCLUDE MEMBER=&Z
```

Configuring Probe Services

You must configure probe services in WebSphere in order to use the Application Monitor. This defines the Data Collector custom services to run within the server.

1. Login to the WebSphere Administration Console.
2. Navigate as follows:
 - a. Select the Servers > Application Servers option and select the <ServerName>.
 - b. Navigate to the Additional Properties: Custom Services.
3. Select <New> for new creation or select '-' of the probe service for update.
4. In the configuration window enter or update the following (For Data Collector upgrade, delete the contents of the classpath and re-enter the new configuration.):

Startup: checked

External Configuration URL: <blank>

Classname: com.cyanea.websphere.ProbeService

Display Name: Probe Service

Description: <blank>

Classpath:

```

/<installation directory>/wsam/<server>/lib/ppe.zprobe.jar:
/<installation directory>/wsam/<server>/lib/ppe.zws502.jar:1
/<installation directory>/wsam/<server>/lib/ppe.probe-intf.jar:
/<installation directory>/wsam/<server>/lib/model.jar:
/<installation directory>/wsam/<server>/lib/kernel.common.jar:
/<installation directory>/wsam/<server>/lib/common.jar:
/<installation directory>/wsam/<server>/lib/cyaneaaux.jar:
/<installation directory>/wsam/<server>/lib/ppe.zcdn_impl.jar:
/<installation directory>/wsam/<server>/lib/cdn.jar

```

¹For z/OS WebSphere 5.1, use ppe.zws510.jar instead of ppe.zws502.jar.

5. Select <Apply>.
6. In the Messages dialog box, select 'Save'.
7. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
8. You may re-verify your configuration data in /<WebSphere directory>/<server>/server.xml by searching the keyword 'Probe Service'.

Note: This file is ASCII encoded. To view it, you need to either use an editor which support ASCII encoding (e.g. viascii) or export it to a computer (UNIX or Windows) which supports the ASCII character set by default.

Configuring the z/OS Data Collector Home Runtime

You must configure Home Runtime in WebSphere in order to use the Application Monitor. This defines the Application Monitor start command.

1. Login to the WebSphere Administration Console.
2. Select the Server > Application Servers option and select the <ServerName>.
3. Navigate to the Additional Properties: Process Definition > Servant > Additional Properties: Java Virtual Machine.
4. Add "-Xruncyanea" to the Generic JVM arguments if it exists.
5. Change Initial Heap Size to 256 and Maximum Heap Size to 256 or above.
6. Select 'Apply'.
7. Navigate as follows:
 - a. In the Java Virtual Machine Panel, navigate to the Additional Properties: Custom Properties.
 - b. For new Data Collector installation:
 - 1) Select <New>.
 - 2) In the configuration panel, enter the following name/value pair. Select <OK> after each add operation:

<i>Name</i>	<i>Value</i>
cyanea.home	/<installation directory>/wsam/<server>
appserver.platform ³	ws502

java.rmi.server.codebase ⁴	'file:///opt/cyaneaone/<libversion> ¹ /ppe.zprobe.jar file:///opt/cyaneaone/lib/ppe.probe-intf.jar file:///opt/cyaneaone/<libversion> ¹ /ppe.zws502.jar ² '
---------------------------------------	--

- c. For Data Collector upgrade:
- 1) Update cyanea.home property to reference the current Application Monitor Data Collector server path.
 - 2) Select <New> to create the new properties if they don't already exist.
 - 3) In the configuration panel, enter the following name/value pair. Select <OK> after each add operation:

<i>Name</i>	<i>Value</i>
appserver.platform ³	ws502
java.rmi.server.codebase ⁴	'file:///opt/cyaneaone/<libversion> ¹ /ppe.zprobe.jar file:///opt/cyaneaone/lib/ppe.probe-intf.jar file:///opt/cyaneaone/<libversion> ¹ /ppe.zws502.jar ² '

¹<libversion> is the Application Monitor version information, for example, lib3.1 refers to lib directory of the Application Monitor 3.1.

²For z/OS WebSphere 5.1, use ppe.zws51.jar instead of ppe.zws502.jar.

³For z/OS WebSphere 5.1, enter value as 'ws51'.

⁴Two single quotes are used to wrap the entire string. There is a space between every two 'file' URLs. Since there are 3 file URLs in the string, there are 2 spaces inside the single-quoted strings. If this string has incorrect syntax, the JVM will not be attached by WebSphere correctly and will result in a CEE DUMP.

8. In the Messages dialog box, select 'Save'.
9. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
10. You may re-verify your configuration data in /<WebSphere directory>/<server>/servant.jvm.options by searching the property name (e.g., runcyanea, cyanea.home).

Configuring Protocol Timeout Properties

If you have a transaction that is hung or too slow, you need to do this to avoid an abend. This option is required only for new Data Collector installations.

1. Login to the WebSphere Administration Console.
2. Navigate as follows:
 - a. Select the Server > Application Servers option and select the <ServerName>.
 - b. Navigate to the Additional Properties: Process Definition > Control > Additional Properties: Environment Entries.
 - c. Add the following properties, as name/value pairs. Select <OK> after each add operation:

<i>Name</i>	<i>Suggested Minimum Value</i>
protocol_http_timeout_input	3600
protocol_http_timeout_output	3600
protocol_http_timeout_output_recovery	3600
protocol_http_timeout_persistentSession	3600

3. In the Messages dialog box, select 'Save'.
4. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
5. You may re-verify your configuration data in /<WebSphere directory>/<server>/was.env.

Configuring Administrative Services

If your WebSphere Configuration Services is not enabled, you must configure administrative services in WebSphere in order to use the Application Monitor Data Collector.

1. Login to the WebSphere Administration Console.
2. Navigate as follows:
 - a. Select the Server > Application Servers option and select the <ServerName>.
 - b. Navigate to the Additional Properties: Administration Services
 - c. Select 'Custom Properties'.
3. Make sure the following property is set to "true", or create it if it does not yet exist:

<i>Name</i>	<i>Value</i>
com.ibm.websphere.management.enableConfigMBean	true

4. Select 'Apply'.
5. In the Messages dialog box, select 'Save'.
6. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.

Configuring the Servant Region Libpath

You must configure the servant region libpath in order to run the Application Monitor Data Collector. This adds the Data Collector libpath information to the LIBPATH property of WebSphere Servant Environment so that the Data Collector native library can be invoked at the server startup time.

1. Login to the WebSphere Administration Console.

2. Navigate as follows:
 - a. Select the Servers > Application Servers option, select the <ServerName>.
 - b. Navigate to Additional Properties: Process Definition > Servant > Additional Properties: Environment Entries.
 - c. Select New button for creating new entry LIBPATH or select the LIBPATH entry for an update.
 - d. Insert the following properties as name/value pair to the beginning (for Data Collector upgrade update the following LIBPATH value just to be compliant):

<i>Name</i>	<i>Value</i>
LIBPATH	<installation directory>/wsam/<server>/lib

- e. Select <Apply>.

Note: A colon ':' must be used to separate two property values.
3. In the Messages dialog box, select 'Save'.
4. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
5. You may confirm your changes in was.env and server.xml under /<WebSphere directory>/servers/<ServerName> directory via key word 'server_region_libpath' and 'LIBPATH', respectively.

Note: The server.xml is ASCII encoded. To view it, you need to either use an editor which support ASCII encoding (e.g. viascii) or export it to a computer (UNIX or Windows) which supports the ASCII character set by default.
6. If you are upgrading z/OS Data Collector from release 2.1.4 or earlier, you may already have an existing server with the old configuration. If so, we recommend removing the old configuration.
 - a. Go to the mainframe USS window.
 - b. Go to the WebSphere Server directory. For example, /WebSphere/.../servers/<ServerName>.
 - c. Open the file "variables.xml" and remove the following values under variable 'WAS_SERVER_ONLY_server_region_libpath' if they exist:


```

          /<installation directory>/wsam/<server>/lib
          /usr/lpp/cicsts/gateway/ctg/deployable
          
```
 - d. If you are under ND (Network Deployment) environment, go to the <WebSphere Deployment Manager Directory>/.../servers/<ServerName>. For example,


```

          cd
          /WebSphere/V5R1M0/DeploymentManager/config/cells/ADCPLNetwork/nodes/nodeA/servers/server1
          
```
 - e. Perform the same operation as step 3 above (delete the 'WAS_SERVER_ONLY_server_region_libpath' property from 'variable.xml').

Supporting Global and Java Security

- Whether Global security is enabled or not, no change is required by the Application Monitor Data Collector in `/<WebSphere>/AppServer/properties/server.policy`.
- If Java 2 security is enabled, the following properties are required by the Application Monitor Data Collector to be added to `/<WebSphere>/AppServer/properties/server.policy`.

```
// Added the following for the Application Monitor Data Collector
grant codeBase "file:<installation directory>/wsam/-" {
    permission java.security.AllPermission;
};
```

```
grant codeBase "file:<db2 install path>/db2710/classes/-" {
    permission java.security.AllPermission;
};
```

For example, add the following for the Application Monitor Data Collector

```
grant codeBase "file:/usr/lpp/cyanea/wsam/-" {
    permission java.security.AllPermission;
};
```

```
grant codeBase "file:/usr/lpp/db2/db2710/classes/-" {
    permission java.security.AllPermission;
};
```

- If Java 2 security is disabled, the following properties, if they exist, can be removed from the `/<WebSphere>/AppServer/properties/server.policy`.

```
grant codeBase "file:<installation directory>/wsam/-" {
    permission java.security.AllPermission;
};
grant codeBase "file:<db2 install path>/db2710/classes/-" {
    permission java.security.AllPermission;
};
```

Note: Although the install is complete, you need to continue with customization in Chapter 9.

Starting the Data Collector (Quick Start Guide)

Here is a quick start guide for the Data Collector. We recommend you review the Custom options in Chapter 9, “Customization,” on page 75 and continue the Data Collector installation process if the options apply to you. In addition, it is strongly recommended that you read the Operator’s Guide and the User’s Guide for more detailed information on using this product.

Note: Suggest verifying the application server without the Application Monitor configuration is functional before continuing the following instructions.

Start the Managing Server (see “Starting the Application Monitor” on page 24 in Chapter 5, “Troubleshooting,” on page 31.)

1. Start the CYN1PROC procedure.
2. Start WebSphere with the Application Monitor Data Collector configuration.
3. Using TSO and SDSF (or another suitable program),

- Check the WebSphere JESMSGLG job log for the configured Server Region. You are looking for the “open for e-business” message that indicates the Server Instance has completed initialization.
- Check the WebSphere SYSPRINT job log for the configured Server Region. You are looking for the following messages:

```
CYNK0001I <PPECONTROLLER, ... Successfully joined Kernel <IP-of-managing-server>
CYNK0002I <PPEPROBE, ... Successfully joined Kernel <IP-of-managing-server>
+Server "<your-server-name>" open for business
```

The CYNK0001I message indicates the Data Collector has successfully connected to the Managing Server.

The CYNK0002I message indicates the Data Collector has been configured by the Managing Server.

Configuring Distinct WebSphere Application Server Instances

You may have multiple distinct server instances under a common Control Region. In this case, you may want to monitor all server instances concurrently. To monitor two or more distinct WebSphere instances, you will need to create an additional USS directory structure for each WebSphere instance.

General

The following are general instructions for configuring a distinct WebSphere application server instance.

Setting up the Data Collector Directories

Duplicate the /<installation directory>/wsam/<server> structure for each additional distinct server instance. Follow and repeat the instructions below increasing the directory name structure for each duplicate (i.e. create <server2> for the second distinct server instance, <server3> for the third and so on).

Log onto the z/OS uss environment, create a copy of the /<installation directory>/wsam/<server> directory structure and files with the following commands:

```
cd /<installation directory>/
mkdir wsam/<server2>
```

To use share library files approach:

- Duplicate the Application Monitor Data Collector configuration file structures (e.g., <etc directory>).

```
cp -pR /<installation directory>/wsam/<server>/etc /<installation
directory>/wsam/<server2>
```

- Make <logs> directory for <server2>.

```
mkdir /<installation directory>/wsam/<server2>/logs
```

- Make a <shared> directory for other Application server instances to share the same version of libraries.

```
mkdir /<installation directory>/wsam/shared
```

- Copy the Data Collector libraries from the 1st server instance library directory to the <shared> directory.


```
cp -R/<installation directory>/wsam/<server>/lib/* /<installation
directory>/wsam/shared
```

- Change the file permission for the <shared> directory and files beneath it.

```
chmod -R 755 /<installation directory>/wsam/shared
```
- Reference the other server instance <lib> directory to the <shared> directory

```
cd /<installation directory>/wsam/<server2>/
```

```
ln -s /<installation directory>/wsam/shared lib
```

Note: This approach can be used if the distinct application server instances are of the same version. For example, you can not use this shared libraries approach for different versions (2.1.4 and 3.1) of the Application Monitor Data Collector .

To use the copied library files approach:

- Simply copy ALL the Application Monitor Data Collector files structures.

```
cp -pR /<installation directory>/wsam/<server>/* /<installation
directory>/wsam/<server2>
```

- Remove the log files that were created by the originating server instance.

```
rm /<installation directory>/wsam/<server2>/logs/*
```
- Change files/directories permission.

```
cd /<installation directory>/wsam/<server2>
```

```
chmod -R 777 etc
```

```
chmod -R 777 logs
```

```
chmod -R 755 lib
```

z/OS WebSphere 5

Update Data Collector Control Files

You will need to update the files containing specific pointers to the /<installation directory>/wsam/<server> directory and any of its subdirectories.

Edit the following file and replace all occurrences of the “old string” with the “new string”.

FILE	OLD STRING	NEW STRING
/<installation directory>/wsam/<server2>/etc/datacollector.env	<server>	<server2>

Follow and repeat the instructions, increase the directory name structure created in the step above (i.e. update <server2> for the second server instance, <server3> for the third and so on).

Cloning a WebSphere Server with the Application Monitor Data Collector Configuration

The cloning mechanism is a quick way to create another WebSphere Server. If the WebSphere Server that was cloned from consists of the Application Monitor Data Collector configuration, all of the Data Collector configurations will be propagated to the new cloned WebSphere Server. However, you need to tailor the new server to be in compliance with your own Application Monitor Data Collector configuration in order to work well (e.g., the classpath, libpath, jdbc provider, etc.).

Note: Recommend to review and perform (only if you choose to) the optional support configuration on the Application Monitor server before cloning it. This will allow the optional support configuration to be cloned as well. See Chapter 9, “Customization,” on page 75.

To clone a server in WebSphere 5:

1. Login to the WebSphere Administration Console.
2. Navigate to the Server > Application Servers option and select the server 'New':
3. Enter the server name.
4. In "select template," select the "Existing application server" button and the server you want to clone.
5. Click 'Next'.
6. Click 'Finish'.

Follow the instructions from the following references to replace <server> with <server2>:

- “Configuring Probe Services” on page 60.
- “Configuring the z/OS Data Collector Home Runtime” on page 61.
- “Configuring the Servant Region Libpath” on page 63.
- Chapter 9, “Customization,” on page 75.

Data Collector Property References

z/OS WebSphere 5

The following examples show the default datacollector.properties and datacollector.env file settings.

datacollector.properties (for z/OS WebSphere 5)

DEFAULT datacollector.properties
kernel.codebase ¹ =http://9.30.134.134:9122/kernel.core.jar http://9.30.134.134:9123/kernel.core.jar kernel.rfs.address ¹ =9.30.134.134:9120 9.30.134.134:9121 probe.rmi.port=8200-8299 probe.controller.rmi.port=8300-8399 cyanea.usecustomrmi=true cyanea.rmsocket.timeout=360000 appmonitor.url.limit=1000 appmonitor.sql.limit=5000

[†]The property value should be entered as one continuous line in the `datacollector.properties` file.

appmonitor.sql.limit

This property specifies the maximum length for the SQL strings. The default value is 5000 characters. If the SQL strings exceed this defined length, the data collector will truncate it and thus only the SQL string up to the defined length will be displayed in the Managing Server VE.

Value

Length, in integer.

Example

```
appmonitor.sql.limit=5000
```

appmonitor.url.limit

This property specifies the maximum length for the URL strings. The URL strings may consist of `requestName`, `applicationName`, and `URL`. The default value is 1000 characters. If the URL strings exceed this defined length, the data collector will truncate it and thus only the URL string up to the defined length will be displayed in the Managing Server VE.

Value

Length, in integer.

Example

```
appmonitor.url.limit=1000
```

cyanea.installedapps.dir

For a Network Deployment environment, this property is optional and is used by the Software Consistency Check function. This allows you to specify additional application directories for comparison purpose should they do not reside in the directories of standard cell/naming convention.

Value

Sub-strings of directory names where application code resides.

Example

```
cyanea.installedapps.dir=/WebSphere/V5R0M1/AppServer/installedApps/cellA:/WebSphere/V5R0M1/AppServer/installedApps/cellB:/WebSphere/V5R0M1/AppServer/installedApps/cellC
```

cyanea.jmx.host

To be used when `localhost` is not resolved correctly in a non-ND environment. In order for the Application Monitor data collector to work, `localhost` should be resolved to the host name of the TCP/IP stack that WebSphere binds to.

Note: When this property is needed, recommend to specify as an IP address to eliminate further resolution.

Value

IP Address

Example

```
cyanea.jmx.host=9.30.134.134
```

cyanea.rmsocket.timeout

If the cyanea.usecustomrmi property is set to true, this property specifies the duration of the timeout used for rmi calls.

Value

A duration, in milliseconds.

Example

```
cyanea.rmsocket.timeout=360000
```

cyanea.usecustomrmi

Enables use of custom RMI socket factories that enforce timeout, which prevents hanging the Kernel. Set to false to use standard RMI.

Value

true or false

Example

```
cyanea.usecustomrmi=true
```

gpsCushion

Specifies how frequently the counter, which is used to create unique tokens used to correlate Composite Requests, is written to a file. The default value is 200. Increase this value if there is too much I/O as a result of monitoring systems that process many Composite Requests.

Value

an integer

Example

```
gpsCushion=200
```

java.rmi.server.codebase

This parameter provides the locations of Data Collector code/library which can be downloaded from the Kernel.

Note: The java.rmi.server.codebase property is optional in datacollector.properties, if it has already been defined in the Process Definition of the Servant process. However, if it has not been able to define this property in the Process Definition of the Servant process for whatever reason, you ***MUST*** specify this property in the datacollector.properties.

Value

z/OS WebSphere 5.0.2:

```
file:///opt/cyaneaone/<libversion>1/ppe.zprobe.jar  
file:///opt/cyaneaone/<libversion>1/ppe.probe-intf.jar  
file:///opt/cyaneaone/<libversion>1/ppe.zws502.jar
```

z/OS WebSphere 5.1:

```
file:///opt/cyaneaone/<libversion>1/ppe.zprobe.jar  
file:///opt/cyaneaone/<libversion>1/ppe.probe-intf.jar  
file:///opt/cyaneaone/<libversion>1/ppe.zws510.jar
```

¹<libversion> is the Application Monitor version information, for example, lib3.1 refers to libs of the Application Monitor 3.1.

Example

```
z/OS WebSphere 5.0.2:
```

```
java.rmi.server.codebase=file:///opt/cyaneaone/lib3.1/ppe.zprobe.jar
file:///opt/cyaneaone/lib/ppe.probe-intf.jar
file:///opt/cyaneaone/lib3.1/ppe.zws502.jar
```

z/OS WebSphere 5.1:

```
java.rmi.server.codebase=file:///opt/cyaneaone/lib3.1/ppe.zprobe.jar
file:///opt/cyaneaone/lib/ppe.probe-intf.jar
file:///opt/cyaneaone/lib3.1/ppe.zws510.jar
```

kernel.codebase

This parameter provides the locations of the code/library which can be downloaded from the Kernel of the Application Monitor.

Value

There are always two copies of the Kernel running. The hostname (or IP address) of the Kernel and the port number of its HTTP server must be provided. The two values are separated by a space.

```
http://hostname:port number/kernel.core.jar http://hostname:port
number/kernel.core.jar
```

Example

Assuming both copies of the Kernel run on the same IP:

```
kernel.codebase=http://204.146.177.123:9122/kernel.core.jar
http://204.146.177.123:9123/kernel.core.jar
```

kernel.rfs.address

This parameter provides the locations where the stub code can be downloaded from the Kernel of the Application Monitor.

Value

There are always two copies of the Kernel running. The hostname (or IP address) of the Kernel and the port number of its RFS (Request for Stub) server must be provided. The two values are separated by a space.

```
hostname:port number hostname:port number
```

Example

Assuming both copies of the Kernel run on the same IP:

```
kernel.rfs.address=204.146.177.123:9120 204.146.177.123:9121
```

probe.controller.rmi.port

This parameter specifies a range of port numbers available for the controller of the data collector to communicate to the Visualization Engine. The range should be at least equal to the number of possible server regions that can be started on a single z/OS or OS/390 image and preferably not overlap with that of probe.rmi.port.

Value

```
nnnn-nnnn
```

Example

```
probe.controller.rmi.port=8300-8399
```

probe.rmi.port

This parameter specifies a range of port numbers available for the Command Agent of the Data Collector to communicate with the Visualization Engine of the Application Monitor. The range should be at least equal to the number of possible server regions that can be started on a single z/OS or OS/390 image.

Value

nnnn-nnnn

Example

```
probe.rmi.port=8200-8299
```

probe.send.thread.dump

The value 'yes' means that Thread Dumps are sent back to the Application Monitor when one is requested. The default value is 'yes.'

The value 'no' means that the dump is stored locally, and instead of sending the dump contents, the Data Collector sends the fully-qualified path of the file where the dump is stored.

Value

yes or no.

Example

```
probe.send.thread.dump=yes
```

datacollector.env

DEFAULT datacollector.env

```
cyanea_modfile=/usr/lpp/cyanea/wsam/cyanea_one/etc/cyanea.mod
wsam_intent_trace=yes
classes_not_to_trace1=java/*;javax/*;sun/*;oracle/*;org/apache/*;org/omg/*;org/w3c/*;org/xml/*;com/ibm/*;com/cyanea/*;com/sun/*;COM/rsa/*;utils/version/*;com/adobe/*
classes_to_trace1=
```

¹The property value above should be entered as one continuous line in the datacollector.properties file.

cyanea_modfile

This parameter points to a file that contains information on the monitoring level of the Application Monitor.

Value

```
<installation directory>/wsam/<server>/etc/cyanea.mod
```

Example

```
cyanea_modfile=/usr/lpp/cyanea/wsam/serverA/etc/cyanea.mod
```

classes_not_to_trace

This environment variable specifies a list of classes which are not to be method traced. The environment variable only applies:

- if `wsam_intent_trace=yes`, method tracing will take place at level 3 regardless of the initial monitoring level.
- if `wsam_intent_trace=no`, method tracing will take place only if the initial monitoring level is 3.

Note: `classes_not_to_trace` is not related to the "Exclude(classname)" in the Data Collector configuration in the Visualization Engine.

Value

A class list consists of class specifiers and uses “;” as separators between the class specifiers. A class specifier consists of the package name plus its class name and allows use of * as wildcard to describe matching packages or classes.

Example

```
classes_not_to_trace=java/*;javax/*;sun/*;oracle/*;org/apache/*;org/omg/*;org/w3c/*;org/xml/*;com/cyanea/*;com/sun/*;COM/rsa/*;com/ibm/*;utils/version/*;com/adobe/*
```

classes_to_trace

This parameter specifies an additional list of classes to be method traced. These classes are in addition to those in the user’s application set. This variable only applies:

- if `wsam_intent_trace=yes`, method tracing will take place at level 3 regardless of the initial monitoring level.
- if `wsam_intent_trace=no`, method tracing will take place only if the initial monitoring level is 3.

Note: `classes_to_trace` is not related to the “Exclude Overwrite(classname)” in the Data Collector configuration of Managing Server Visualization Engine.

Value

A class list consists of class specifiers and uses “;” as separators between the class specifiers. A class specifier consists of the package name plus its class name and allows use of * as wildcard to describe matching packages or classes.

Example

```
classes_to_trace=trade/*;simplejspervlet/*
```

wsam_intent_trace

This parameter when set to yes will facilitate dynamic changing of the monitoring level from level 1 to level 3. See more information on this parameter and its impact in the WebSphere Studio Application Monitoring User’s Guide. The default value is yes.

Value

<yes> or <no>

Example

```
wsam_intent_trace=yes
```

Chapter 9. Customization

Optional z/OS WebSphere 5 Support

Optional support includes capturing and reporting data such as, PMI, J2EE APIs (JDBC, JNDI/JMS, MQI), CICS L2 Trace and SMF. If you are not sure whether you need to configure these options, consult with your WebSphere Admin and/or the Application Support person who knows about the applications that will be used with the Application Monitor product.

PMI = Performance Monitoring Services

JDBC = Java Database Connectivity

JNDI = Java and Naming Directory Interface

JMS = Java Message Service

Adding SMF Support

You must add SMF support if you want SMF data in the Application Monitor. This step is required for new Data Collector installations or for first time using SMF feature from a Data Collector upgrade.

1. Login to the WebSphere Administration Console.
2. Navigate as follows:
 - a. Select the Server > Application Servers option and select the <ServerName>.
 - b. Navigate to the Additional Properties: Process Definition > Control > Additional Properties: Environment Entries.
 - c. Add the following properties, as name/value pairs. Select <OK> after each add operation:

<i>Name</i>	<i>Suggested Value</i>
server_SMF_container_interval_enabled	1
server_SMF_interval_length ¹	120
server_SMF_server_interval_enabled	1
server_SMF_web_container_interval_enabled	1

3. In the Messages dialog box, select 'Save'.
4. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
5. You may re-verify your configuration data in /<WebSphere directory>/<server>/was.env.

¹The `server_SMF_interval_length` property is the time interval length (in seconds) for getting SMF data. For example, if `value=120`, SMF data will be retrieved every 120 seconds.

Adding PMI Support

1. Login to the WebSphere Administration Console.
2. Select the Server > Application Servers option and select the <ServerName>.
3. Navigate to the Additional Properties: Performance Monitoring Service.
4. For the new installation:
 - a. Select the options 'startup'.
 - b. To fully utilize the Application Monitor features, we recommend the 'custom' options.
 - c. Select the 'custom' checkbox with the following configuration:
 - `beanModule=X`
 - `cacheModule=H`
 - `connectionPoolModule=X`
 - `j2cModule=H`
 - `jvmRuntimeModule=H`
 - `orbPerfModule=H`
 - `servletSessionsModule=H`
 - `systemModule=H`
 - `threadPoolModule=H`
 - `transactionModule=H`
 - `webAppModule=H`
 - `webServicesModule=H`
 - `wlmModule=H`
 - `wsgwModule=H`
 - d. Select 'Apply'.
 - e. In the messages Dialog box, select 'Save'.
 - f. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
5. For Data Collector upgrade, simply verify:
 - a. The 'startup' checkbox is checked.
 - b. All PMI modules are compliant with what are listed under new installation section.

Adding JDBC Support

You must configure WSAM JDBC provider in WebSphere in order to monitor SQL and EJB/Entity Bean with DB2 requests. This involves defining a JDBC provider and data source.

Enabling the JDBC support configuration:

1. Login to the mainframe USS system.
2. update the property 'jdbc.enable' to 'yes' value in /<installation directory>/wsam/<server>/etc/bcm.properties file. For example:

```
jdbc.enable=yes
```
3. Save the updated bcm.properties file.

Configuring JDBC driver path in Probe Services:

1. Login to z/OS WebSphere Admin console.
2. Select the Servers > Application Servers option and select the <ServerName>.
3. Navigate to the Additional Properties: Custom Services.
4. Select '-' of the probe service for an update.
5. Insert the following class path exactly as written to the beginning of the classpath field:

```
${DB2390_JDBC_DRIVER_PATH}/classes/db2j2classes.zip
```

Note: The ':' is required to separate between 2 classpath values.

6. Click <Apply>.
7. In the messages dialog box, select 'Save'.
8. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
9. You may re-verify your configuration data in /<WebSphere directory>/<server>/server.xml via a search of word 'j2cIntf'.
Note: This file is ASCII encoded. To view it, you need to either use an editor which support ASCII encoding (e.g. viascii) or export it to a computer (UNIX or Windows) which supports the ASCII character set by default.
10. Need to ensure the existence of db2j2classes.zip file under \${DB390_JDBC_DRIVER_PATH} directory path. To do so, navigate as follows:
 - a. In the z/OS WebSphere Admin Console, select the Environment > Manage WebSphere Variables.
 - b. Select the node with server option as blank and click <Apply> button.
 - c. Look for \${DB390_JDBC_DRIVER_PATH} and its real value (e.g., /usr/lpp/db2/db2710).
 - d. Then, go to the mainframe USS system and look for the existing of db2j2classes.zip file under the directory \${DB390_JDBC_DRIVER_PATH}/classes. For example,

```
cd /usr/lpp/db2/db2710/classes  
ls -l db2j2classes.zip
```
 - e. If you don't see it, you need to locate these db2j2classes.zip file (via your WebSphere or DB2 administrator(s)) and update the variable \${DB390_JDBC_DRIVER_PATH} to reference the correct directory path.

Defining the JDBC provider

This configuration is to support DB2 JDBC Driver.

1. Login to the WebSphere Administration Console.
2. Select the Resources > JDBC Providers.

3. Select the <NodeName>.
4. Select the <ServerName> and click <Apply>.
5. For new Data Collector installation:
 - a. Click <New>.
 - b. On the configuration tab, select JDBC Providers and set it to "DB2 for zOS JDBC Providers (RRS)".
 - c. Select 'Apply'
 - d. Change the Name field to a uniquely identified name. For example:
<server> DB2 zOS Local JDBC Provider (RRS)
 - e. Select <Apply>.
 - f. In Additional Properties table, select 'DataSources (Version 4)' or 'DataSources' option.

Note: "DataSource (Version 4)" is for WebSphere V4. "DataSource" is for WebSphere V5. You may select either or both; this should be determined by the applications you run on this server and the datasource level they use. If you are not sure about the data source configuration, contact your Application Support person.

- g. Click <New>.
- h. Fill in the appropriate fields that define your DataSource, which is installation-specific. The following are examples:

For the "DataSources (Version 4)":

Name: DataSourceSample

JNDI Name: jdbc/DataSourceSample

Database Name: YOUR_DB_LOCATION_NAME (for example, S390LOC)

Default User ID: ccc (Your database User ID.)

Default User Password: *** (Your database user password.)

For the "DataSource":

Name: DataSourceSampleV5

JNDI Name: jdbc/DataSourceSampleV5

DataSource Helper Classname:

com.ibm.websphere.rsadapter.DB2390LocalDataStoreHelper

- i. Select the appropriate database in the Component-managed Authentication Alias for database authentication in runtime for resource authentication setting to Application.
- j. Select the appropriate database in the Container-managed Authentication Alias for database authentication in runtime for resource authentication setting to Container.
- k. Select 'DefaultPrincipalMapping' option in Mapping-Configuration Alias field.
- l. Select <Apply>.
- m. Navigate to Additional Property: Custom Properties and add the name value pair.

Name: databaseName

Value: YOUR_DB_LOCATION_NAME (for example, S390LOC)
- n. Click <Apply>.

6. For Data Collector upgrade, we recommend that you
 - a. Backup the datasource information from your existing Application Monitor JDBC provider
 - b. Delete the old/existing Application Monitor JDBC Provider
 - c. Follow the instructions from the new Data Collector installation to create a new JDBC provider.
7. (Optional) You may choose to allocate more Database Connection Pool by increasing the pool size under Additional Properties > Connection Pools link, and click <Apply> to save your changes.
8. In the messages dialog box, select 'Save'.
9. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
10. You may re-verify your configuration data in /<WebSphere directory>/<server>/resources.xml via a search of db2 provider name, for example, <server> DB2 zOS Local JDBC Provider (RRS).

Note: This file is ASCII encoded. To view it, you need to either use an editor which support ASCII encoding (e.g. viascii) or export it to a computer (UNIX or Windows) which supports the ASCII character set by default.

Defining the Universal JDBC Provider

This configuration is to support Universal JDBC Driver.

1. Login to Admin console.
2. Navigate to Resources > JDBC Provider.
3. Select the <nodeName>.
4. Then select the <ServerName> and click <Apply>.
5. Click the <New> button for a new creation or select the Universal JDBC Provider name for an update.
6. For new Data Collector installation:
 - a. Click <New>.
 - b. On the configuration tab, select Universal JDBC Providers and set it to 'DB2 Universal JDBC Driver Provider'.
 - c. Select 'Apply'
 - d. Change the Name field to a uniquely identified name. For example:
<server> DB2 zOS Local JDBC Provider (RRS)
 - e. Select <Apply>.
 - f. In Additional Properties table, select 'DataSources (Version 4)' or 'DataSources' option.

Note: "DataSource (Version 4)" is for WebSphere V4. "DataSource" is for WebSphere V5. You may select either or both; this should be determined by the applications you run on this server and the datasource level they use. If you are not sure about the data source configuration, contact your Application Support person.
 - g. Click <New>.
 - h. Fill in the appropriate fields that define your DataSource, which is installation-specific. The following are examples:

For the "DataSources (Version 4)":

Name: DataSourceSample

JNDI Name: jdbc/DataSourceSample

Database Name: YOUR_DB_LOCATION_NAME (for example, S390LOC)

Default User ID: ccc (Your database User ID.)

Default User Password: *** (Your database user password.)

For the "DataSource":

Name: DataSourceSampleV5

JNDI Name: jdbc/DataSourceSampleV5

- i. If your datasource will be used for CMP EJB (container managed persistence), mark the checkbox for the Container managed persistence field.
 - j. Select the appropriate database in the Component-managed Authentication Alias for database authentication in runtime for resource authentication setting to Application.
 - k. Select the appropriate database in the Container-managed Authentication Alias for database authentication in runtime for resource authentication setting to Container.
 - l. Select 'DefaultPrincipalMapping' option in Mapping-Configuration Alias field.
 - m. Select <Apply>.
 - n. Navigate to Additional Property: Custom Properties and add the name value pair.
Name: databaseName
Value: YOUR_DB_LOCATION_NAME (for example, S390LOC)
 - o. Click <Apply>.
7. For Data Collector upgrade, we recommend that you
- a. Backup the datasource information from your existing Application Monitor Universal JDBC provider
 - b. Delete the old/existing Application Monitor Universal JDBC Provider
 - c. Follow the instructions from the new Data Collector installation to create a new Universal JDBC provider.

Adding JNDI Support

To enable JNDI event capture: (If you are not sure of this option, contact your Application Support person.)

1. The default initial context factory property is provided in the file located at /<installation directory>/wsam/<server>/etc/jndi.properties. We recommend not to delete this initial property. However, users may update jndi.properties with additional context class factory as an option.
2. Login to the WebSphere Admin Console.
3. Navigate to Servers > Application Servers option, select the <ServerName>.
4. In the Process Definition > Servant > Additional Properties:Java Virtual Machine link.
5. Insert the following value to the beginning of the Classpath field if it doesn't already exist.

- /<installation directory>/wsam/<server>/etc
6. Select <Apply>.
 7. In the messages Dialog box, select 'Save'.
 8. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
 9. You may re-verify your configuration data in /<WebSphere directory>/<server>/was.env by searching the keyword server_region_classpath.

Adding JMS Support

To enable JMS event capture: (If you are not sure of this option, contact your Application Support person.)

1. Enable the JMS support configuration:
 - a. Login to mainframe USS system.
 - b. Edit the following properties in the /<installation directory>/wsam/<server>/etc/bcm.properties file.

For JMS Interface Queue, update the property 'jmsqueue.enable' to 'yes' value. For example:

```
jmsqueue.enable=yes
```

For JMS Interface Topic, update the property 'jmstopic.enable' to 'yes' value. For example:

```
jmstopic.enable=yes
```
 - c. Save the updated bcm.properties file.
2. Login to the WebSphere Admin Console and navigate to Servers > Application Servers option, and select the <ServerName>.
3. Navigate to the Additional Properties: Custom Services.
 - a. Select '-' of the probe service for an update.
 - b. Insert the following value exactly as written to the beginning of the Classpath field:


```
#{WAS_LIBS_DIR}/messagingImpl.jar:
```

Note: The ':' is required to separate between 2 classpath values.
 - c. Click <Apply>.
4. In the messages Dialog box, select 'Save'.
5. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
6. You may re-verify your configuration data in /<WebSphere directory>/<server>/server.xml by searching the keyword 'messagingImpl'.
7. Need to ensure the existence of messagingImpl.jar file under #{WAS_LIBS_DIR} directory path. To do so, navigate as follows:
 - a. At your z/OS WebSphere Admin console, select the Environment > Manage WebSphere Variables.

- b. Select the <NodeName> and leave the server option blank and click <Apply> button.
- c. Look for `#{WAS_LIBS_DIR}` and its real value (e.g., `#{WAS_INSTALL_ROOT}/lib`). Use <next> or <previous> link to scroll to the next or previous page, respectively, until you find it.
- d. Need to look further for `#{WAS_INSTALL_ROOT}` and its real value from the previous search. (e.g., `/WebSphere/V5R0M1/AppServer`).
- e. Then, go to the mainframe USS system and look for the existing of `messagingImpl.jar` file under the directory of `#{WAS_LIBS_DIR}`. For example,


```
cd /WebSphere/V5R0M1/AppServer/lib
ls -l messagingImpl.jar
```

If you don't see it, you need to locate this `messagingImpl.jar` file (via your WebSphere administrator) and update the classpath in Custom Services option.

Adding MQI Capturing Support

Assumption/Pre-requisites:

- MQ version 5.3.1 must be installed already.
- WebSphere MQ Queue Connection and Queue Destinations must be configured under WebSphere MQ JMS Provider option via WebSphere Admin Console.

To enable MQI event capture: (If you are not sure about this option, contact your Application Support person.)

1. Enable the MQI support configuration:
 - a. Login to the mainframe USS system.
 - b. Update the property 'mqi.enable' to 'yes' in `/<installation directory>/wsam/<server>/etc/bcm.properties` file. For example:


```
mqi.enable=yes
```
 - c. Save the updated `bcm.properties` file.
2. Login to the WebSphere Admin Console and navigate to Servers > Application Servers option, and select the <ServerName>.
3. Select the Additional Properties: Message Listener Service > Additional Properties: Listener Ports.
4. Click <New> for creating a new listener port or select the port name for updating.
5. Fill in the appropriate fields:

Name: <Listener Port Name> (e.g., TestwareMQListener)

Initial State: Started

Connection factory JNDI name: <JNDI Name for the JMS connection factory> (e.g., jms/TestwareQCF)

Destination JNDI name: <JNDI Name for the destination to be used by listener port> (e.g., queue/mbdQueue)
6. Click <Apply> and then <OK>.
7. Navigate back to your <ServerName> page.
8. Navigate to the Additional Properties: Custom Services. .
 - a. Select '-' of the probe service for an update.

- b. Insert the following value exactly as written to the beginning of the Classpath field:
`${MQJMS_LIB_ROOT}/com.ibm.mq.jar:`
Note: The ':' is required to separate between 2 classpath values.
 - c. Click <Apply>.
9. In the messages Dialog box, select 'Save'.
 10. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
 11. You may re-verify your configuration data in /<WebSphere directory>/<server>/server.xml by searching the keyword 'com.ibm.mq'.
 12. Need to ensure the existence of com.ibm.mq.jar file under \${MQJMS_LIB_ROOT} directory path. To do so, navigate as follows:
 - a. At your z/OS WebSphere Admin console, select the Environment > Manage WebSphere Variables.
 - b. Select the <NodeName> and leave the server option blank and click <Apply> button.
 - c. Look for \${MQJMS_LIB_ROOT} and its real value (e.g., \${MQ_INSTALL_ROOT}/java/lib). Use <next> or <previous> link to scroll to the next or previous page, respectively, until you find it.
 - d. Need to look further for \${MQ_INSTALL_ROOT} and its real value from the previous search. (e.g., /usr/lpp/mqm/V5R3M1).
 - e. Then, go to the mainframe USS system and look for the existing of com.ibm.mq.jar under the directory \${MQJMS_LIB_ROOT}. For example,


```
cd /usr/lpp/mqm/V5R3M1/java/lib
ls -l com.ibm.mq.jar
```

 If you don't see it, you need to locate this messagingImpl.jar file (via your WebSphere administrator) and update the classpath in Custom Services.

Adding Multiple Host Support

java.rmi.server.hostname property is optional and it is to be used if there are multiple IP stacks on the same system/LPAR. HOST_NAME is the name of your IP Address/host of your LPAR that you want the Data Collector to use for communication with the Managing Server.

1. Login to the WebSphere Administration Console.
2. Navigate as follows:
 - a. Select the Server > Application Servers option and select the <ServerName>.
 - b. Navigate to the Additional Properties: Process Definition > Servant > Additional Properties: Java Virtual Machine > Additional Properties: Custom Properties.
 - c. For new Data Collector installation, select <New>.
 - d. In the configuration panel, enter the following name/value pair. Select <OK> after each add operation:

Name	Suggested Value
java.rmi.server.hostname ¹	HOST_NAME

¹java.rmi.server.hostname property is optional and it is to be used if there are multiple IP stacks on the LPAR. HOST_NAME is the name of your IP Address/host of your LPAR that you want the Data Collector to use for communication with the Managing Server.

- e. For Data Collector upgrade, verify whether the existing host name value is still valid.
3. In the Messages dialog box, select 'Save'.
4. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
5. You may re-verify your configuration data in /<WebSphere directory>/<server>/servant.jvm options by searching the variable name (e.g., java.rmi.server.hostname).

Adding Support for Composite Requests using CTG

See CICS document for reference.

Adding Support for Composite Requests using IMS Connect

See IMS document for reference.

Chapter 10. Troubleshooting

The following information will help you in troubleshooting problems with your installation.

Log Files

The following log files may provide some useful data for troubleshooting, with or without the assistance of the IBM® Support team. Most logs are not owned by Application Monitor but are used as a destination to receive diagnostic messages from its code.

WAS Error Logs

Application Monitor does not use this log. This is the standard WebSphere Error Log. See Appendix A, “Tivoli TEC Integration,” on page 115 for more information on viewing this log.

Data Collector Log

Application Monitor uses this log.

The managed system uses this log file to record major events. Some of these events pertain to the connections between the managing appliance and the managed system as well as other anomalies that might be encountered. The Data Collector log is located in the directory `/<installation directory>/wsam/<server>/logs/filename` where the filename is constructed as:

```
sysplex.machine_name.lpar_name.server_instance_name.yyyymmddhhmmss.address-space-id-number.datacollector.log
```

where yyyy=year, mm=month, dd=day, hh=hour, mm=minutes, ss=seconds, address-space-id-number is a decimal.

CYN1 Log

Application Monitor uses this log.

The managed system, Common Services Subsystem, uses this log (pointed to by the CYN1 proc for the CYN1 subsystem) to print information regarding the SMF records received and processed by the subsystem. It will display both informational and diagnostic messages as well. For more details on the messages, check the following manual: WebSphere® Studio Application Monitor Messages and Codes (SC31-6315-02).

Viewing the WebSphere error log:

While we have supplied a Rexx Exec in CYN.SCYNPROC, this is not a supported function and is provided on a “use as-is” basis. To view the error log, issue the TSO command:

```
EX 'CYN.SCYNPROC(CYN1ELOG)' 'WAS.ERROR.LOG'
```

If your systems use a log name other than “was.error.log”, simply substitute the log name used in your installation. If you are unsure of the log name or are running

multiple servant regions, check the JESMSG LG file for the servant region. The log file name will be identified on the BBOU0025I informational message.

Protocol Timeout

If you have a transaction that is hung or too slow, you need to do this to avoid an abend.

1. Login to the WebSphere Administration Console.
2. Navigate as follows:
 - a. Select the Server > Application Servers option and select the server you want to configure for use with the Application Monitor.
 - b. Navigate to the Additional Properties: Process Definition > Control > Additional Properties section.
 - c. Select 'Environment Entries'.
 - d. Add the following properties, as name/value pairs. Select <OK> after each add operation:

<i>Name</i>	<i>Suggested Minimum Value</i>
protocol_http_timeout_input	3600
protocol_http_timeout_output	3600
protocol_http_timeout_output_recovery	3600
protocol_http_timeout_persistentSession	3600

3. In the Messages dialog box, select 'Save'.
4. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
5. You may re-verify your configuration data in /<WebSphere directory>/<server>/was.env.

Chapter 11. Uninstalling the z/OS Data Collector

The following information will help you to disable, re-enable, or uninstall the z/OS Data Collector.

Disable the Application Monitor

z/OS Websphere 5

1. Login to the WebSphere Admin Console.
2. Select the Servers > Application Servers option > select the <NodeName> and select the <ServerName>.
3. Navigate to the Additional Properties: Custom Services section.
4. Click the "-" of the Probe Service property, and uncheck the "startup" checkbox.
5. Click <Apply>.
6. To disable the Data Collector Home Runtime, go back to your <ServerName> link page and navigate to Additional Properties:Process Definition > Servant> Additional Properties :JVM.
7. Remove the "-Xruncyanea" argument from the Generic JVM arguments.
8. Click <Apply>.
9. To disable the JNDI, remove the following value in the classpath if it exists.
`/<installation directory>/wsam/<server>/etc`
10. Click <Apply>.
11. In the messages Dialog box, select 'Save'.
12. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
13. To disable the Application Monitor JDBC driver:
 - Login to USS mainframe system.
 - Open the `/<installation directory>/wsam/<server>/etc/bcm.properties` file, and update the property 'jdbc.enable' to 'no' value. For example,
`jdbc.enable = no`
14. To disable JMS feature:
 - Login to USS mainframe system.
 - Open the `/<installation directory>/wsam/<server>/etc/bcm.properties` file,
 - For JMS Interface Queue, update the property 'jmsqueue.enable' to 'no' value. For example,
`jmsqueue.enable = no`
 - For JMS Interface Topic, update the property 'jmstopic.enable' to 'no' value. For example,
`jmstopic.enable=no`
15. To disable MQI feature:

- Login to USS mainframe system.
 - Open the `<installation directory>/wsam/<server>/etc/bcm.properties` file, and update the property 'mqi.enable' to 'no' value. For example,


```
mqi.enable = no
```
16. To disable SAM/IMS feature: Please refers to the IMS document for detail references.
 17. To disable SAM/CICS feature: Please refers to the CICS document for detail references.
 18. Restart your server.

Re-enable the Application Monitor

The following instructions describe the process for re-enabling the z/OS Data Collector.

z/OS WebSphere 5

1. Login to the WebSphere Admin Console.
2. Select the Servers > Application Servers option >and the <ServerName>.
3. Navigate to the Additional Properties: Custom Services.
4. Click the "-" of the Probe Service property, and check the "startup" checkbox.
5. Click <Apply>.
6. To re-enable the Data Collector Home Runtime, go back to your <ServerName> link page and navigate to Additional Properties:Process Definition> Servant> Additional Properties: JVM.
7. Add "-Xruncyanea" in the Generic JVM arguments section.
8. Click <Apply>.
9. To re-enable JNDI, add the following value in the Classpath field if necessary. See JNDI under "Optional z/OS WebSphere 5 Support" on page 75.


```
<installation directory>/wsam/<server>/etc
```
10. Click <Apply>.
11. In the messages Dialog box, select 'Save'.
12. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
13. To re-enable the Application Monitor JDBC provider:
 - Login to USS mainframe system.
 - Open the `<installation directory>/wsam/<server>/etc/bcm.properties` file, and update the property 'jdbc.enable' to 'yes' value. For example,


```
jdbc.enable = yes
```
14. To re-enable JMS feature:
 - Login to USS mainframe system.
 - Open the `<installation directory>/wsam/<server>/etc/bcm.properties` file,
 - For JMS Interface Queue, update the property 'jmsqueue.enable' to 'yes' value. For example,

jmsqueue.enable = yes

- For JMS Interface Topic, update the property 'jmstopic.enable' to 'yes' value. For example,

jmstopic.enable=yes

15. To re-enable MQI feature:
 - Login to USS mainframe system.
 - Open the /<installation directory>/wsam/<server>/etc/bcm.properties file, and update the property 'mqi.enable' to 'yes' value. For example,
mqi.enable = yes
16. To re-enable SAM/IMS feature: Please refers to the IMS document for detail references.
17. To re-enable SAM/CICS feature: Please refers to the CICS document for detail references.
18. Restart your server.

Uninstalling the z/OS Data Collector

The following directions describe the uninstall process for z/OS WebSphere 5.

z/OS WebSphere 5

1. Login to the WebSphere Admin Console.
2. Select Servers > Application Servers option > and the <ServerName> and select the server you want to unconfigure.
3. Uninstall Probe Services:
Navigate to Additional Properties:Custom Services. Click on the checkbox of com.cyanea.websphere.ProbeService classname and select <Delete>.
4. In the Messages dialog box, select 'Save'.
5. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
6. Uninstall the Data Collector Home runtime properties as follows:
 - a. Go to your <ServerName> link page and navigate to Additional Properties:Process Definition > Servant > Additional Properties: Java Virtual Machine
 - b. Remove the following value from the Classpath field if it exists.
/<installation directory>/wsam/<server>/etc
 - c. Remove Generic JVM arguments that reference -Xruncyanea
 - d. Click <Apply>.
 - e. Go to Additional Properties:Custom Properties.
 - f. Click on the checkbox of cyanea.home and click <Delete>.
 - g. Click on the checkbox of java.rmi.server.codebase and click <Delete>.
 - h. Click on the checkbox of appserver.platform if it exists and click <Delete>.
 - i. Click on the checkbox of java.rmi.server.hostname if it exists and click <Delete>.

- j. Click on the checkbox of sam.codepage if it exists, and click <Delete>.
7. In the Messages dialog box, select 'Save'.
8. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
9. Uninstall SMF support and protocol HTTP Timeout option as follows:
 - a. Go to your <ServerName link> page and navigate to Additional Properties:Process Definition > Control > Additional Properties:Environment Entries.
 - b. Remove the following properties if they exist, for example:


```
server_SMF_container_interval_enabled = 1
server_SMF_interval_length = 120
server_SMF_server_interval_enabled = 1
server_SMF_web_container_interval_enabled=1
```
 - c. Remove the following properties if they exist, for example:


```
protocol_http_timeout_input=3600
protocol_http_timeout_output=3600
protocol_http_timeout_output_recovery=3600
protocol_http_timeout_persistentSession=3600
```
10. In the Messages dialog box, select 'Save'.
11. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
12. Uninstall PMI support: Go to your <ServerName> link page and navigate to Additional Properties: Performance Monitoring Service. Deselect "Startup" checkbox and select "none" in the "initial specification level" option.
13. In the Messages dialog box, select 'Save'.
14. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
15. Uninstall the server region libpath as follows:
 - a. Login to Admin console and navigate as follows:
 - 1) Select the Servers > Application Servers option > select the <NodeName> and select the <ServerName>.
 - 2) Navigate to Additional Properties: Process Definition > Servant > Additional Properties: Environment Entries.
 - 3) Select the LIBPATH property entry.
 - 4) Remove the following values if they exist:


```
<installation
directory>/wsam/<server>/lib:/usr/lpp/cicists/gateway/ctg/deployable
```

Note: If LIBPATH property only contains above Data Collector property, you can simply do the following:

- a) Select the checkbox of LIBPATH property.
- b) Select the <Delete> button.
- 5) In the Message dialog box, select 'Save'.
- 6) In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select 'Save'.
 - If you are NOT under ND environment, simply select 'Save'.

16. Uninstall JDBC Providers

- a. Login to WebSphere Admin Console.
- b. Go to Resources > JDBC Providers.
- c. Select the <nodeName> and the <serverName> and click <Apply>.
- d. Select the checkbox of the Application Monitor JDBC provider and/or Application Monitor Universal JDBC provider and click <Delete>. For example, the provider names can be:


```
"<server>DB2 390 Local JDBC Driver"
"<server>DB2 Universal JDBC Driver"
```
- e. In the Messages dialog box, select 'Save'.
- f. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
- g. To unconfigure the Application Monitor JDBC option:
 - Login to USS mainframe system.
 - Open the /<installation directory>/wsam/<server>/etc/bcm.properties file, and update the property 'jdbc.enable' to 'no' value. For example,


```
jdbc.enable = no
```

17. Unconfigure JNDI support

If previous "Uninstall Probe Services" step is not executed, do the following:

- a. Login to the WebSphere Admin Console and navigate to Servers > Application Servers option and select your <ServerName>.
- b. In the Process Definition > Server > Additional Properties:Java Virtual Machine link, remove the following value from the Classpath field and select <Apply>.


```
/<installation directory>/wsam/<server>/etc
```
- c. In the messages Dialog box, select 'Save'.
- d. In the Save to Master Configuration dialog box,
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select <Save>.
 - If you are NOT under ND environment, simply select <Save>.
- e. You may re-verify your configuration data in /<WebSphere directory>/<server>/was.env by searching the keyword server_region_classpath.

18. To unconfigure JMS feature:

- Login to USS mainframe system.
- Open the /<installation directory>/wsam/<server>/etc/bcm.properties file,

- For JMS Interface Queue, update the property 'jmsqueue.enable' to 'no' value. For example,
jmsqueue.enable = no
 - For JMS Interface Topic, update the property 'jmstopic.enable' to 'no' value. For example,
jmstopic.enable=no
19. To unconfigure MQI feature:
- Login to USS mainframe system.
 - In the /<installation directory>/wsam/<server>/etc/bcm.properties file, set the property 'mqi.enable' to 'no' value. For example,
mqi.enable = no
 - Navigate to Servers > Application Server Options > Select the <ServerName>.
 - Select the Additional Properties: Message Listener Service link.
 - Select the Additional Properties: Listener Ports link.
 - Select the checkbox of the Application Monitor Listener Port and click <Delete>. For example, listener port name can be 'TestwareMQListener'. Click <Apply> or <OK>.
 - In the messages Dialog box, select 'Save'.
 - In the Save to Master Configuration dialog box:
 - If you are under ND environment, be sure the checkbox 'Synchronize changes with Nodes' is selected and then select 'Save'.
 - If you are NOT under ND environment, simply select 'Save'.
20. To unconfigure SAM/IMS feature: Please refers to the IMS document for detail references.
21. To unconfigure SAM/CICS feature: Please refers to the CICS document for detail references.

Part 4. The Data Collector for Multiplatforms

Chapter 12. Preparing to Install

The following are the pre-installation requirements for installing and using the Data Collector.

Requirements for Installing the Data Collector

The following are the requirements for being able to install and use the Data Collector.

Note: For manual installation instructions, see Appendix D.

Table 7. Data Collector Requirements

Platform	Application Server	Additional Requirements
AIX 5.1	WebSphere 5.0.2.6, 5.1.1 WebSphere Portal 5.0.2	Check that the following packages are installed. (The numbers may be these or later file set numbers.) <ul style="list-style-type: none">• bos.perf.diag_tool 5.1.0.25 Performance Diagnostic Tool• bos.perf.libperfstat 5.1.0.35 Performance Statistics Library• bos.perf.perfstat 5.1.0.36 Performance Statistics Interface• bos.perf.tools 5.1.0.35 Base Performance Tools
AIX 5.2	WebSphere 5.0.2.6, 5.1.1	Check that the following packages are installed. (The numbers may be these or later file set numbers.) <ul style="list-style-type: none">• bos.perf.diag_tool 5.2.012 Performance Diagnostic Tool• bos.perf.libperfstat 5.2.0.10 Performance Statistics Library• bos.perf.perfstat 5.2.0.14 Performance Statistics Interface• bos.perf.tools 5.2.0.17 Base Performance Tools
Solaris 8	WebSphere 5.0.2.6, 5.1.1	
Solaris 9	WebSphere 5.0.2.6, 5.1.1	
HP-UX 11.iv1	WebSphere 5.0.2.6, 5.1.1	In order to generate a Java heap dump, you must rebuild the kernel. See "Rebuild the HP-UX Kernel" on page 103.
Windows 2000 sp4	WebSphere 5.0.2.6, 5.1.1	
Windows 2003	WebSphere 5.0.2.6, 5.1.1	
RHEL 2.1(Intel)	WebSphere 5.0.2.6, 5.1.1	

Table 7. Data Collector Requirements

Platform	Application Server	Additional Requirements
z/Linux SuSe 8.1	WebSphere 5.0.2.6, 5.1.1	

Increase the Heap Size

We recommend you increase the heap size configuration by 64 MB above the current configuration.

Cluster Considerations

To install on a cluster, run the installer on each node that you wish to install upon. It is recommended that you create a response file and use the silent installer mode if you have to install across multiple nodes in a cluster.

Chapter 13. Installation and Configuration

This chapter describes how to install the Data Collector for distributed platforms.

The installation procedure uses a graphical installer. Alternately, it is possible to install the Data Collector manually.

If you want to verify the changes that the graphical installer makes to your application server's configuration, you can find them in the section "Manually Installing the J2EE Data Collector" on page 157.

Installing the Data Collector

The following instructions describe how to install the Data Collector onto your system. Follow the instructions appropriate for the platform and application server.

General Information

1. Data Collector installation can be performed on single or multiple application servers in Network Deployment (ND) or Non-network Deployment environments.
2. Data collector installation cannot span over multiple nodes.
3. The installer has an interactive (GUI) mode and a non-interactive (silent) mode.

Installing Data Collectors that Monitor WebSphere

Gather Configuration Information

- WebSphere instance host name and SOAP port (Default value is 8880, may be different for your environment.)
 - If using ND, provide the hostname and SOAP port of the Deployment Manager.

If Global Security is turned on, provide the WebSphere Username and Password of a WebSphere user with administrative rights.:

- WebSphere Username
- WebSphere Password

Installation

This section contains instructions to install a Data Collector that monitors WebSphere on either a UNIX or Windows system. Follow the instructions appropriate to the platform on which you are installing the Data Collector.

To install the Data Collector on UNIX with WebSphere:

1. Start your J2EE server.
 - Note:** If you are in an ND environment then you must start the following.
 - Deployment Manager
 - Node Agent

- WebSphere instances to be monitored
2. Log in as a user who has permissions to create the installation directory, for example: /opt/cyaneone/.
 3. Set up WAS_HOME (should point to your local WebSphere application server home directory), JAVA_HOME, and include the Java bin directory in the PATH:

Solaris, HP-UX, AIX, Intel/Linux and z/Linux

```
WAS_HOME=<WebSphere installation directory>; export WAS_HOME
JAVA_HOME=${WAS_HOME}/java; export JAVA_HOME
PATH=${JAVA_HOME}/bin:${PATH}; export PATH
```

Note: To verify this has completed correctly issue the following commands:

```
echo $WAS_HOME
echo $JAVA_HOME
echo $PATH
```

and verify the output from the echo command to your inputs.

4. Locate the file MPDCInstall.tar in the installation media. Extract the contents to a temporary directory:

```
mkdir /tmp/cyainst
cp MPDCInstall.tar /tmp/cyainst
cd /tmp/cyainst
tar xf MPDCInstall.tar
```

5. If you want to perform an Interactive (GUI) install go to Step 5a. If you want to perform a non-Interactive (silent) install go to step 5b.

Note: Do not re-run installer without restoring your original configuration. The location of the backup of the configuration performed by the installer can be found in the log file.

- a. If running the installation on a remote server, export the display to your local workstation using the following command:

```
DISPLAY=<workstation>:0; export DISPLAY
```

Run installer (You must be in the bin directory of the installer to work properly.):

```
cd /tmp/cyainst/Installer-DC/bin/
sh install-DC.sh
```

- b. Create a copy of the sample response file.

```
cd /tmp/cyainst/Installer-DC/etc
cp dcInputs_Sample.txt dcInputs.txt
```

Edit the response file dcInputs.txt. The parameters required are documented within the text file.

Run the installer in silent mode.

```
cd /tmp/cyainst/installer-DC/bin/
sh install-DC.sh -silent ../etc/dcInputs.txt
```

6. Restart the application server on which you installed the Data Collector.
7. Go to the Application Monitor of the Managing Server and configure the Data Collector you installed.

Note: Make sure the Application Server type and version, and the operating system type and version you are using are supported. (If the installation environment does not meet the pre-requisites, the installer pre-requisite check will fail and you will be

unable to continue the installation. If you wish to proceed with the installation, you can bypass the pre-requisite check by passing the parameter "-force" to install-DC.sh.

Note: The installer will create log files in /tmp/cyanea_installer_dc/. After installation, you can find a copy of the logs in the <cyanea_home>/logs directory.

Note: The installer will save your previous WebSphere configuration before installation. Refer to the log file for the location of the backup.

To install the Data Collector on Windows with WebSphere:

1. Start your J2EE server.

Note: If you are in an ND environment then you must start the following.

- Deployment Manager
- Node Agent
- WebSphere instances to be monitored

2. Log in as a user who has permissions to create the installation directory, for example: c:\opt\cyaneone\.
3. Set up WAS_HOME (should point to your local WebSphere application server home directory), JAVA_HOME, and include the Java bin directory in the PATH, for example:

```
set WAS_HOME=c:\Program Files\WebSphere\Appserver
set JAVA_HOME=%WAS_HOME%\java
set PATH=%JAVA_HOME%\bin; %PATH%
```

4. Locate the file MPDCInstall.tar in the installation media. Extract the contents to a temporary directory:

```
mkdir c:\temp\cyaninst
```

Uncompress MPDCInstall.tar into c:\temp\cyaninst.

5. If you want to perform an Interactive (GUI) install go to Step 5a. If you want to perform a non-Interactive (silent) install go to step 5b.

Note: Do not re-run installer without restoring your original configuration. The location of the backup of the configuration performed by the installer can be found in the log file.

- a. Run installer:

```
cd c:\temp\cyaninst\Installer-DC\bin
Installer-DC\bin\install-DC.bat
```

- b. Create a copy of the sample response file.

```
cd c:\temp\cyaninst\Installer-DC\etc
copy dcInputs_Sample.txt dcInputs.txt
```

Edit the response file dcInputs.txt copy in the installer bin directory. The parameters required are documented within the text file.

Run the installer in silent mode.

```
cd c:\temp\cyaninst\Installer-DC\bin
install-DC.bat -silent ..\etc\dcInputs.txt
```

Note: Make sure the Application Server type and version, and the operating system type and version you are using are supported. (If the installation environment does not meet the pre-requisites, the installer pre-requisite check will fail and you will be unable to continue the installation. If you wish to proceed with the installation, you can bypass the pre-requisite check by passing the parameter "-force" to install-DC.bat.

Note: The installer will create log file in the <TEMP>\cyanea_installer_dc directory, where TEMP is a Windows environment variable. You can locate the value of TEMP by typing:

```
echo %TEMP%
```

After installation, you can find a copy of the logs in the <cyanea_home>\logs directory.

Note: The installer will save your previous WebSphere configuration before installation. Refer to the log file for the location of the backup.

6. Restart the application server on which you installed the Data Collector.
7. Go to the Application Monitor of the Managing Server and configure the Data Collector you installed.

Node Authentication

In Node Authentication related configuration, the Kernel, Data Collectors or Port Consolidator operate in secure mode either individually or in combination. But the configuration changes are common for all the modes except that a particular component can be made to operate in a different mode by changing the property `security.enabled` on that particular component.

Kernel Related Changes

In Kernel properties file (`kl1.properties` and `kl2.properties`) do the following:

Note: All the properties are already documented in the appropriate property file. Just uncommenting the data and giving the right value is recommended.

To enable Kernel to operate in secure mode: `security.enabled=true`

Only when this property is true along with the above property, then the CodeBase server will operate in secure mode: `codebase.security.enabled=true`

Define `CYANEA_HOME` accordingly.

Path of the certificate to use when talking to Data Collector. This is needed only when Data Collector is operating in secure mode.

```
certificate.path=<CYANEAHOME>/etc/mgmttodc.cer:<CYANEAHOME>/etc/mgmttoproxy.cer:<CYANEAHOME>/etc/mgmttomgmt.cer
```

Keystore location of the management server:

```
keystore.location=<CYANEAHOME>/etc/CyaneaMgmtStore
```

Other properties that you need NOT change and are set by default or should be changed when a specific situation arises.

For backward compatibility of old Data Collectors to work with new security enabled Kernel IPaddresses need to be seperated by ':'.

```
cyanea.trustedips=192.168.3.84:127.0.0.1
```

Keystore location of the management server:

```
keystore.location=/<CYANEA_HOME>/etc/CyaneaMgmtStore
```

Keystore password of management server: `keystore.storepass=cyanea94612`

Keystore key password of management server: `keystore.keypass=cyanea94612`

User ID passed to other end for authentication: `nodeauth.userid=cyaneamgmt`

When there are multiple I/O cards, if you want to use specific IP for code base server authentication: `nodeauth.ip=`

Data Collector Related Changes

To enable Data Collector to operate in secure mode: `security.enabled=true`

Define `CYANEA_HOME` accordingly.

Path of the certificate to use when talking to Data Collector. This is needed only when Data Collector is operating in secure mode.

`certificate.path=<CYANEA_HOME>/etc/dctomgmt.cer`

Keystore location of the Data Collector:

`keystore.location=<CYANEA_HOME>/etc/CyaneaDCStore`

Other properties that you need NOT change and are set by default or should be changed when a specific situation arises.

Keystore password of Data Collector server: `keystore.storepass=oakland94612`

Keystore key password of Data Collector server: `keystore.keypass=oakland94612`

User ID passed to other end for authentication: `nodeauth.userid=cyaneadc`

Node Authentication Related Properties in Port Consolidator

To enable portconsolidator to operate in secure mode: `security.enabled=true`

Path of the certificate to use when talking to port consolidator. This is needed only when Data Collector is operating in secure mode.

`certificate.path=<cyanea home>/etc/proxytomgmt.cer:<cyanea home>/etc/proxytodc.cer`

Keystore location of the portconsolidator: `keystore.location=<cyanea home>/etc/CyaneaProxyStore`

Keystore password of portconsolidator server: `keystore.storepass=oakland94612`

Keystore key password of portconsolidator server: `keystore.keypass=oakland94612`

User ID passed to other end for authentication: `nodeauth.userid=cyaneaproxy`

Keystore Managment and Populating Certificates

You do not have to do the following unless you want to integrate the keystore into your own keystore.

For populating management server keystore do the following:

Note: Replace `cyanea94612` with appropriate passwords and `CyaneaMgmtStore` with appropriate storefile.

```
keytool -genkey -alias mgmtmgmt -keyalg RSA -keysize 1024 -sigalg MD5withRSA -validity
```

```
2000 -keypass cyanea94612 -keystore ./CyaneaMgmtStore -storepass cyanea94612 -dname
```

```
"cn=mgmtmgmt, OU=CyaneaComp, O=Cyanea, L=Oakland, ST=CA, C=US"
```

```
keytool -genkey -alias ford -keyalg RSA -keysize 1024 -sigalg MD5withRSA -validity 2000
```

```
-keypass cyanea94612 -keystore ./CyaneaMgmtStore -storepass cyanea94612 -dname
```

```
"cn=cyaneadc, OU=CyaneaComp, O=Cyanea, L=Oakland, ST=CA, C=US"
```

For populating Data Collector keystore do the following:

Note: Replace oakland94612 by appropriate passwords and CyaneaDCStore with appropriate storefile.

```
keytool -genkey -alias formgmt -keyalg RSA -keysize 1024 -sigalg MD5withRSA -
validity 2000
```

```
-keypass oakland94612 -keystore ./CyaneaDCStore -storepass oakland94612 -dname
"cn=cyaneamgmt, OU=CyaneaComp, O=Cyanea, L=Oakland, ST=CA, C=US"
```

To populate certificates do the following for each of the aliases in the KeyStore.

To list all aliases in each store:

```
keytool -list -keystore ./CyaneaMgmtStore -storepass oakland94612 -keypass
oakland94612
```

For each alias, generate the certificate by issuing the following command (select the appropriate password):

```
$(CYANEA_HOME)/bin/keygen.sh ./CyaneaMgmtStore cyanea94612 <alias>
cyanea94612
```

Node Authentication Related Properties for the Visualization Engine

Here <Cyanea Home> is /opt/cyaneaone replace accordingly. All the following properties need to be set as System Properties using AppServer AdminConsole.

Path of the certificate to use when talking to the Data Collector. This is needed only when the Data Collector is operating in secure mode.

```
certificate.path=/<CYANEA_HOME>/etc/mgmttomgmt.cer
```

Keystore location of the management server:

```
keystore.location=/<CYANEA_HOME>/etc/CyaneaMgmtStore
```

Keystore password of management server keystore.storepass=cyanea94612

Keystore key password of management server keystore.keypass=cyanea94612

User ID passed to other end for authentication nodeauth.userid=cyaneamgmt

Adding MQ Support

To enable MQ monitoring on WebSphere, set the following system property:

```
cyanea.ext.dirs=<MQ_INSTALL_ROOT>/java/lib/
```

Chapter 14. Customization

The following provide instructions for customizing your Data Collector.

Rebuild the HP-UX Kernel

The kernel parameters `maxdsiz` and `maxdsiz_64bit` limit the data segment size of a process in HP-UX. In order to generate a Java heap dump, the parameters must be set to at least 1.6 times the size of the Java heap size in the application server.

To configure HP-UX to provide a Java heap dump:

1. Use `kmtune` to set the parameters `maxdsiz` and `maxdsiz_64bit` to at least 1.6 times the size of the Java heap size in the application server.
2. Rebuild the kernel.
3. Reboot the node.

Note: Refer to the HP-UX documentation for details on how to configure the kernel memory parameters.

Configuring Web Servers

In order to monitor Web Servers using the Web Server Overview feature, you must configure your Web Servers appropriately. This feature is available for Apache and IBM HTTP servers.

To configure Web Servers to be monitorable by the Web Servers Overview:

1. Obtain `mod_status_xml` library file from http://httpd.apache.org/docs-2.0/en/mod/mod_status.html.
2. Copy `mod_status_xml` library file to the `libexec` subdirectory of the Web Server installation directory. For example, to `/opt/IBMHTTPServer/libexec`.
3. Edit the `httpd.conf` file, located in the `conf` subdirectory of the Web Server installation directory. For example, in `/opt/IBMHTTPServer/conf`.
 - a. Remove comments (`#`) from the following lines in `httpd.conf`:

```
ExtendedStatus On
LoadModule status_module      libexec/mod_status.so
AddModule mod_status.c
```

- b. Add the following lines to `httpd.conf`. Replace `<Polling Agent IP Address>` with the domain of the Managing Server:

```
# configuration for mod_status
<Location /server-status>
SetHandler server-status
Order deny,allow
Deny from all
Allow from all <Polling Agent IP Address>
</Location>
```

- c. Save your changes.

Parameters Specified with Multiple Network Cards

To install multiple network cards: Make sure that the IP specified for the data collector server are IPs that can be used to talk to each other (i.e if there is a network config where one of the IPs does not have a path to the other box, don't use that IP).

1. On the data collector machines, define an additional Java system property and set it to the IP address of the Data Collector:

```
java.rmi.server.hostname
```

2. On the data collector machine, in the `$CYANEA_HOME/etc/datacollector.properties` file change the `kernel.codebase` and `kernel.rfs.address` to point to the managing server IP. If there are any generated datacollector property files (these have names like `datacollector.properties.<appservername>...` or `<hostname>.<appservername>.datacollector.properties....`), you will need to remove those. They will be regenerated when the data collector starts.

Nested Requests

For WebSphere, we support the following nested requests:

Functions	
Servlet	was<VERSION>_servlet.xml
EJB	was<VERSION>_ejb.xml
JDBC	was<VERSION>_jdbc.xml
JCA	was<VERSION>_jca.xml
JNDI	was<VERSION>_jndi.xml
JMS	was<VERSION>_jmst.xml, was<VERSION>_jmsq.xml
MQI	was<VERSION>_jbsmqi.xml

To disable a nested requests, rename or remove the corresponding xml files from `<CYANEA_HOME>/etc` directory. For example, to disable JMS nested requests for websphere 511, remove `was51_jmst.xml` and `was51_jmsq.xml`

For WebSphere portal, we support the following nested requests:

Functions	
Portal page	wps<VERSION>_page.xml
Portlet	wps<VERSION>_portlet.xml
Authentication	wps<VERSION>_login.xml
Authorization	wps<VERSION>_authorization.xml
Credential Vault	wps<VERSION>_credentialvault.xml
Content Access	wps<VERSION>_contentaccess.xml

To disable a nested requests, rename or remove the corresponding xml files from <CYANEA_HOME>/etc directory.

For JDBC Adapter, we support the following nested requests:

Functions	
JDBC pool resource	wbi_jdbc_pool.xml
JDBC	wbi_jdbc_sql.xml
Requests	wbi_jdbc_requests.xml
MQI	wbi_mqi.xml
Serialization	wbi_serialize.xml

To disable a nested requests, rename or remove the corresponding xml files from <CYANEA_HOME>/etc directory.

Chapter 15. Troubleshooting

Out of Memory Error

If out of memory errors occur while you are using L3 and hotspot JVM, follow the instructions below.

The default NewSize and MaxNewSize might be small for some Applications if the Application is allocating large numbers of short living objects.

Some tuning we recommend for an application that allocates many short living objects:

```
-XX:+DisableExplicitGC -XX:NewSize=128m -XX:MaxNewSize=256m -Xconcurrentio
```

Note: NewSize and MaxNewSize should be changed based on the Maximum and Minimum heap settings of the JVM.

Chapter 16. Uninstalling the Distributed Data Collector

These instructions describe how to disable and uninstall the Data Collector. The instructions vary based on the application server and platform.

Disable

The following instructions describe how to disable the Data Collector.

Disabling Data Collectors for WebSphere

Follow the instructions appropriate for the platform on which you would like to disable the Data Collectors for WebSphere.

To disable the Data Collector for WebSphere on AIX, Solaris, Linux, HP-UX or Windows:

1. Prior to starting the disable process, **stop the data collector**.
2. Open the WebSphere Administrative Console from the
[installation directory]/bin/adminclient.sh [hostname] [port number]
3. Click the + sign until you ungroup the Application Servers directory.
4. Select the server where the Administrator installed the data collector.
5. Select the Custom tab.
6. Highlight WSAM Custom Service.
7. Click **Edit**.
8. Uncheck the Enabled box.
9. Click **OK** and click **Apply**.
10. Select the JVM Settings tab.
11. Click **Advanced JVM Settings**.
12. In the Command Line Arguments field remove:
-Xruncyanea
13. Click **OK** and click **Apply**.

To remove associated files:

1. Go to the WebSphere installation directory:
2. Go JVM Advance properties.
3. Remove -xbootclasspath.
4. Start WebSphere.

Uninstalling the Data Collectors

Perform these instructions to uninstall the Data Collector.

To uninstall the Data Collector:

1. Disable the Data Collector, as described in "Disabling Data Collectors for WebSphere".

2. Remove the installed files.
3. Undo the WebSphere configuration changes as described in Appendix D.

Chapter 17. WBI JDBC Adapter Data Collector

Installing the Data Collector on WBI JDBC Adapter

Installing Data Collector Files

Prerequisites: Follow JDBC Adapter Configuration guide to set up JDBC Adapter.

To copy the Data Collector files for JDBC:

1. Locate the file MPDCInstall.tar in the installation media. Extract the contents to a temporary directory:

```
mkdir /tmp/cyainst
tar xvf MPDCInstall.tar /tmp/cyainst
```

2. Copy the following files to the /<CYANEA_HOME>/lib directory files, as described in the following table:

Destination directory	Files to copy to <CYANEA_HOME>/lib
<cyanea_home>/lib	dc/dc_home/lib/ppe.probe.jar
<cyanea_home>/lib	dc/dc_home/lib/ppe.probe-intf.jar
<cyanea_home>/lib	dc/dc_home/lib/cdn.jar
<cyanea_home>/lib	dc/dc_home/lib/kernel.common.jar
<cyanea_home>/lib	dc/dc_home/lib/model.jar
<cyanea_home>/lib	dc/dc_home/lib/ppe.stalone.jar
<cyanea_home>/lib	dc/dc_home/lib/common.jar

3. Copy the following files to the <CYANEA_HOME>/etc directory files, as described in the following table. Customize datacollector.policy and datacollector.properties based on Managing Server deployment. Customize request.properties based on the Data Collector deployment.

Destination directory	Files to copy to <cyanea_home>/etc
<cyanea_home>/etc	dc/dc_home/etc/datacollector.policy dc/dc_home/etc/datacollector.properties dc/dc_home/etc/version.properties dc/dc_home/etc/LogMessages dc/dc_home/etc/bcm.properties

<cyanea_home>/etc	dc/dc_home/etc/wbi_jdbc_requests.xml
	dc/dc_home/etc/wbi_jdbc_sql.xml
	dc/dc_home/etc/wbi_jdbc_pool.xml
	dc/dc_home/etc/wbi_mqi.xml
	dc/dc_home/etc/wbi_serialize.xml

- Copy the appropriate library file from the dc/dc_home/lib directory to the <CYANEA_HOME>/lib directory, and name it appropriately, as described in the following table:

Platform	Source file, within dc/dc_home/lib	Destination file, within the JDBC installation directory
AIX	libcyanea_wbi_ibm_13_aix.so	<CYANEA_HOME>/lib/libcyanea.so

Configure JDBC Adapter startup script

Follow these instructions to configure the JDBC adapter.

- Stop the adapter.

```
<ADAPTER_HOME>/bin/connector_manager_<CONNECTER_NAME> -kill
```

- Edit the file by taking the steps below.

```
<ADAPTER_HOME>/connectors/<CONNECTOR_NAME>/start_<CONNECTOR_NAME>.sh
```

- Define the CYANEA_HOME variable:

```
CYANEA_HOME=/opt/cyaneaone
```

- Append <CYANEA_HOME>/lib to LIBPATH.

```
LIBPATH=${LIBPATH}:${CYANEA_HOME}/lib
```

- Define CYANEA_CLASSPATH and prepend it to CLASSPATH.

```
CYANEA_CLASSPATH=${CYANEA_HOME}/lib/monitored/${CONNAME}:${CYANEA_HOME}/lib/kernel.common.jar:${CYANEA_HOME}/lib/ppe.probe.jar:${CYANEA_HOME}/lib/common.jar:${CYANEA_HOME}/lib/cdn.jar:${CYANEA_HOME}/lib/model.jar:${CYANEA_HOME}/lib/ppe.probe-intf.jar:${CYANEA_HOME}/lib/ppe.standalone.jar
```

```
CLASSPATH=${CYANEA_CLASSPATH}:${CLASSPATH}
```

- Modify the Java command line arguments.

Original Java command line :

```
exec ${CWJAVA} ${LOCAL_JVM_FLAGS} -Xms64m
-Djava.library.path=${LIBPATH} -Djava.ext.dirs=${JRE_EXT_DIRS} -classpath
${CLASSPATH} AppEndWrapper ${CONNECTOR_TYPE}${CONNECTOR_AGENT}
-n${CONNAME}Connector -s${SERVER} ${CON_START_OPTIONS} $3 $4 $5 $6 $7 $8 $9
```

Modify the Java command line with cyanea installed. (Changes in bold.)

Replace <MS_HOME> and <VERSION> with the appropriate values.

```

exec ${CWJAVA} ${LOCAL_JVM_FLAGS} -XrunCyanea -Xms64m1
-Dcyanea.home=${CYANEA_HOME}
-Djava.rmi.server.codebase="file://<MS_HOME>/lib/ppe.probe-intf.jar
file://<MS_HOME>/lib<VERSION>/ppe.probe.jar
file://<MS_HOME>/lib<VERSION>/ppe.standalone.jar"
-Djava.security.policy=${CYANEA_HOME}/etc/datacollector.policy
-Dconnector.name= ${CONNNAME}
-Dbroker.name=${SERVER}
-Djava.library.path=${LIBPATH} -Djava.ext.dirs=${JRE_EXT_DIRS} -classpath
${CLASSPATH} com.cyanea.standalone.ProbeService AppEndWrapper
${CONNECTOR_TYPE}${CONNECTOR_AGENT} -n${CONNNAME}Connector -s${SERVER}
${CON_START_OPTIONS} $3 $4 $5 $6 $7 $8 $9

```

¹If you specified heap size limits in your WBI environment, you need to increase your heap size by 64 MB.

3. Start the adapter:

```
<ADAPTER_HOME>/bin/connector_manager_<CONNECTER_NAME> -start
```

Part 5. Appendixes

Appendix A. Tivoli TEC Integration

Overview

The Application Monitor for Tivoli Enterprise Console[®] (T/EC) is the integration of the Application Monitor services with Tivoli Enterprise Console 3.8.

Requirements for Integrating with T/EC

The Application Monitor supports the following Tivoli[®] server platforms:

- Microsoft[®] Windows Server
- Sun Solaris
- IBM AIX
- HP-UX

The following Tivoli software is required:

- Tivoli Framework 3.7.1 or greater
- Tivoli Enterprise Console Server 3.8
- Tivoli Enterprise Console UI Server 3.8
- Tivoli Enterprise Console Console 3.8

One of the following Tivoli software components are required:

- Tivoli Enterprise Console 3.8 non-TME[®] SNMP Adapter
- Tivoli Enterprise Console 3.8 Adapter Configuration Facility

You should identify one system as the SNMP Adapter host, which accepts SNMP traps from the Application Monitor, adapts them to T/EC Events and forwards them to a T/EC Server. The supported platforms for the SNMP Adapter host are the same as for the Tivoli server. To avoid interference, it is recommended that the system running the SNMP Adapter not run any other SNMP agent on the same UDP port.

Configuring T/EC

Summary

The Application Monitor for Tivoli Enterprise Console provides configurations for T/EC Server, T/EC Console, and T/EC SNMP Adapter that allow alerts from the Application Monitor to appear in the T/EC console.

The Application Monitor for Tivoli Enterprise Console is available as a CD-ROM under the directory `TivoliIntegration/tec`. Copy the files to location(s) accessible by the T/EC server, one T/EC console and SNMP Adapter host.

Configuring the T/EC Server

The Application Monitor events are described for T/EC in `cyanea.baroc`. To install this file, open a command prompt or shell with Tivoli paths and environment set,

change directories to the Application Monitor for Tivoli Enterprise Console media, and type the following:

```
sh cyanea_setup_tec.sh SourceRuleBaseName NewRuleBaseName NewRuleBasePath
```

SourceRuleBaseName is the name of your current rule base. For new installations of Tivoli Enterprise Console, this is named "Default."

NewRuleBaseName is the name of a new rule base to create. "+-" is recommended.

NewRuleBasePath is the name of a new directory where the rule base will be stored. An example is "/usr/tec/cyanea." Windows users: be sure to use forward slashes in pathnames.

Upon successful completion, the Cyanea rulebase will accept the Application Monitor events.

Configuring the T/EC Console

The Application Monitor for T/EC includes a configuration file that can be imported into the T/EC console to define the Application Monitor event group and filter.

1. Open the T/EC Console, login as required.



Figure 3. Login

2. Select **Windows > Configuration**.

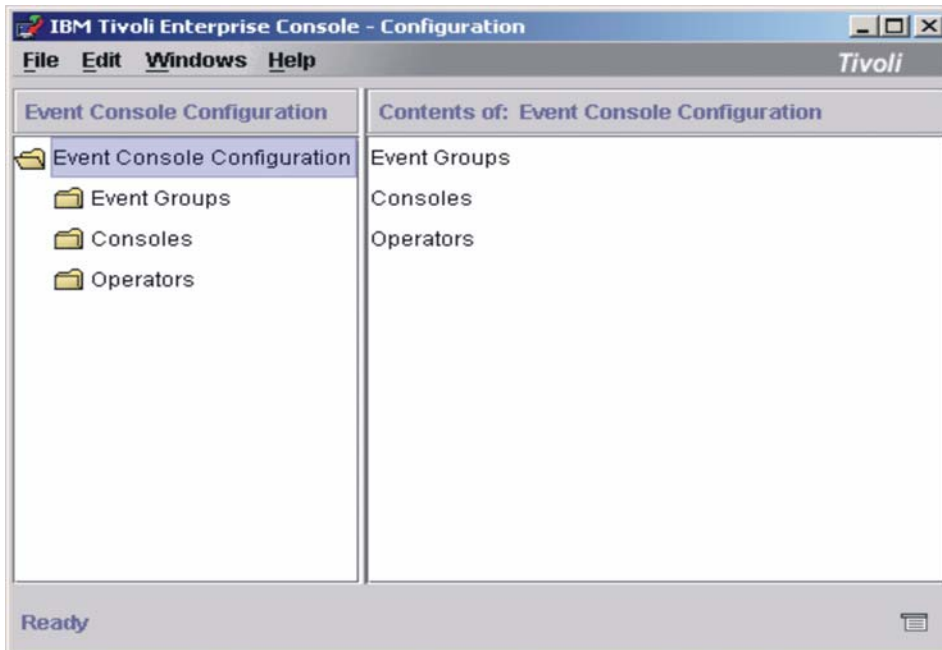


Figure 4. Configuration

3. Select **File > Import**.

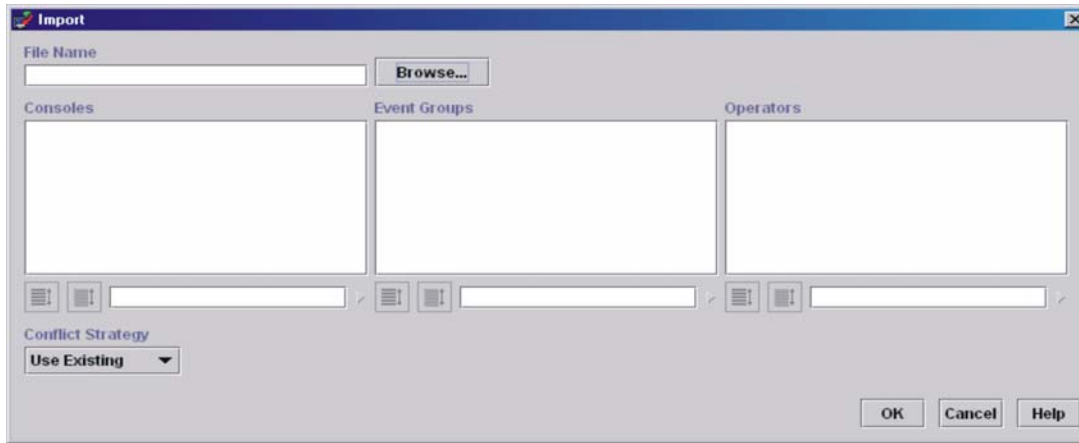


Figure 5. Import

4. Click **Browse** to select the file cyanea_event_group.cfg.

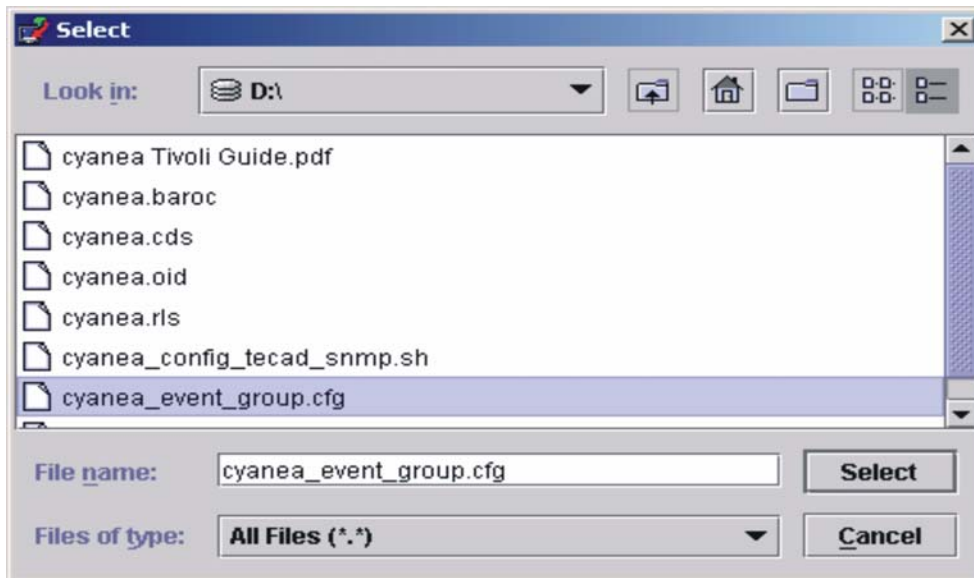


Figure 6. Select

5. Click **Select**.

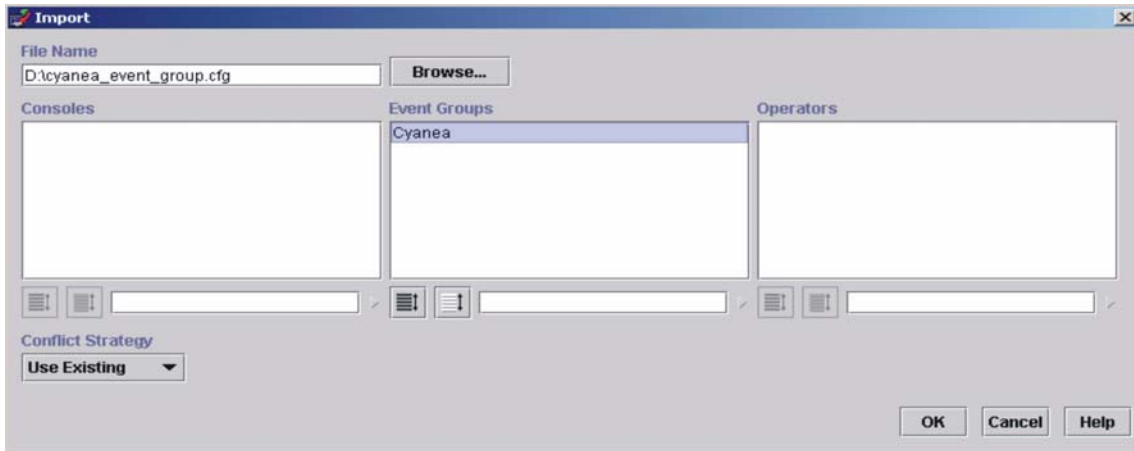


Figure 7. Import

6. Select Cyanea in the center pane and click **OK**.



Figure 8. Notice

7. Click **OK** and restart the T/EC Console.
8. Click on **Event Groups** to see the new Cyanea Event Group.

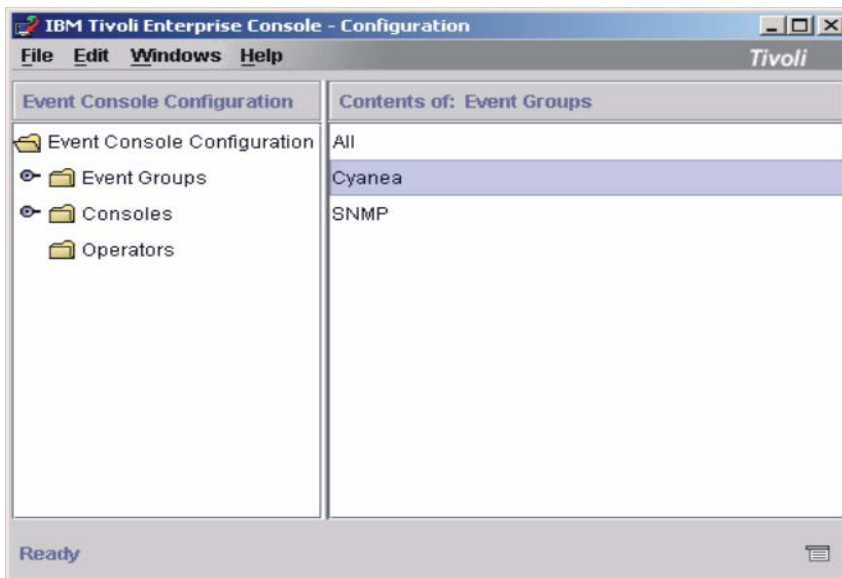


Figure 9. IBM Tivoli Enterprise Console Configuration

9. To use the Cyanea event group, assign it to a console. See T/EC User's Guide for instructions. The operators for that console will now see Cyanea in their summary chart view and event viewer.

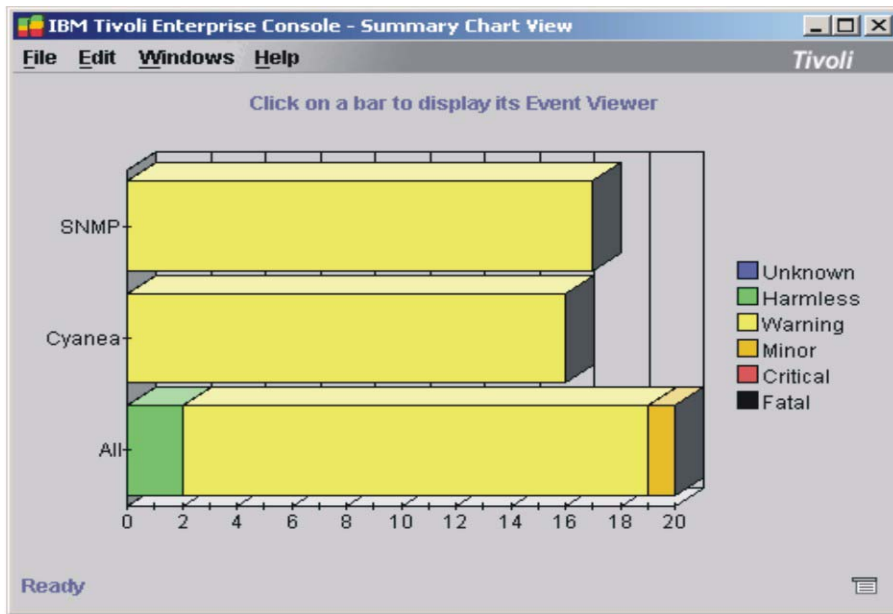


Figure 10. IBM Tivoli Enterprise Console

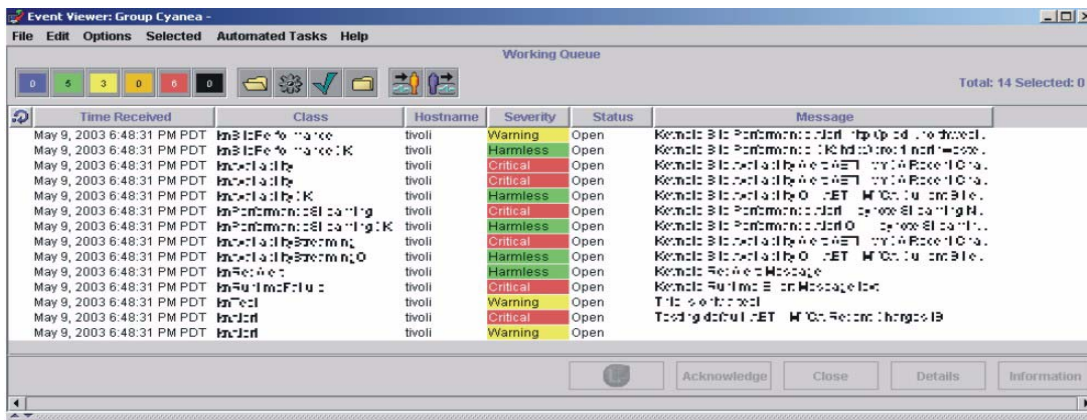


Figure 11. Event Viewer

10. T/EC console is now configured.

Installing and Configuring the T/EC SNMP Adapter

As noted in the Requirements section, there are two choices for T/EC SNMP Adapter: non-TME and Adapter Configuration Facility (ACF) versions. The non-TME version is a standalone installation, and the ACF version can be deployed remotely using the Tivoli Desktop. The following sections describe the steps required for each. Do not install both on the same system, as conflicts can occur.

Installing and Configuring T/EC SNMP Adapter for non-TME

Instructions for installing the non-TME version are found in the Tivoli Enterprise Console Adapters Guide. Follow Tivoli's instructions to install the non-TME SNMP Adapter on any of the supported platforms.

To configure, open a command prompt or shell, change the current directory to the location of the Application Monitor for Tivoli Enterprise Console files, and type the following:

```
sh cyanea_config_tecad_snmp.sh pathname
```

Pathname is optional. It specifies the directory name containing the SNMP Adapter. The script will look in a few default locations, and exit with a warning message if the Adapter files and directory cannot be found.

Note this script will only work on UNIX systems and Windows systems with a Bourne shell prompt (such as Tivoli managed node). If you are configuring a Windows system without access to a Bourne shell, do the following steps from a command prompt:

```
net stop TECSNMPAdapter

copy cyanea.cds c:\tecsnmp\etc

copy cyanea.oid c:\tecsnmp\etc

c:

cd \tecsnmp\etc

copy tecad_snmp.cds+cyanea.cds

copy tecad_snmp.oid+cyanea.oid

net start TECSNMPAdapter
```

Installing and Configuring the T/EC SNMP Adapter for ACF

Screen by screen instructions for deploying and configuring a new ACF adapter are shown. These instructions assume that the adapter will only support the Application Monitor traps and events. Support for other traps requires manually appending the `tecad_snmp.cds` and `tecad_snmp.oid` files (not shown).

How to deploy the Application Monitor SNMP Adapter configuration and Tivoli Enterprise Console SNMP Adapter using T/EC Adapter Configuration Facility.

Dependencies: Framework 3.7.1 or greater, endpoint, T/EC 3.8, T/EC ACF 3.8 installed.

1. Click **Create > Region**.



Figure 12. Create Region

2. Enter a name for the Policy Region, and click **Create & Close**.



Figure 13. TME Desktop for Administrator Root

3. Double-click on the Policy Region to open it.

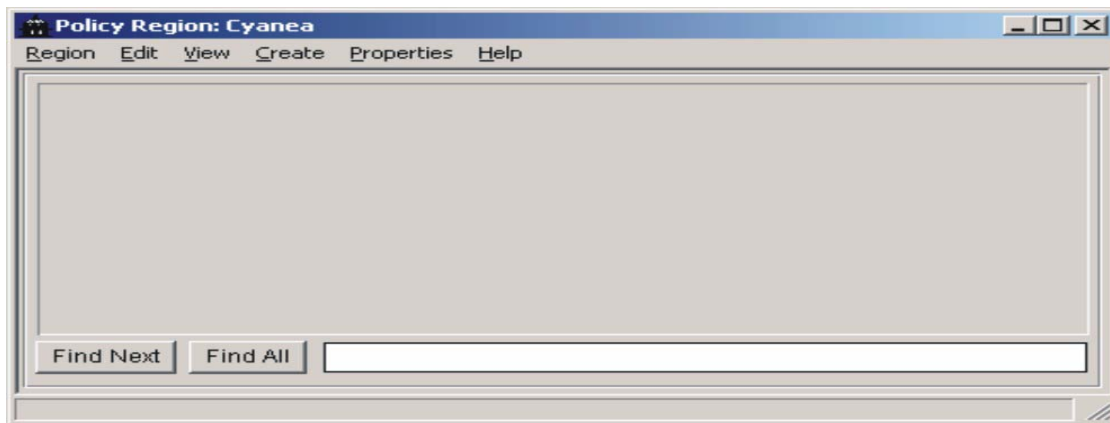


Figure 14. Policy Region Cyanea

4. Select **Properties > Managed Resources**.



Figure 15. Set Managed Resources

5. Move ACP and ProfileManager to the left-hand side and click **Set & Close**.

6. Select **Create > ProfileManager**.

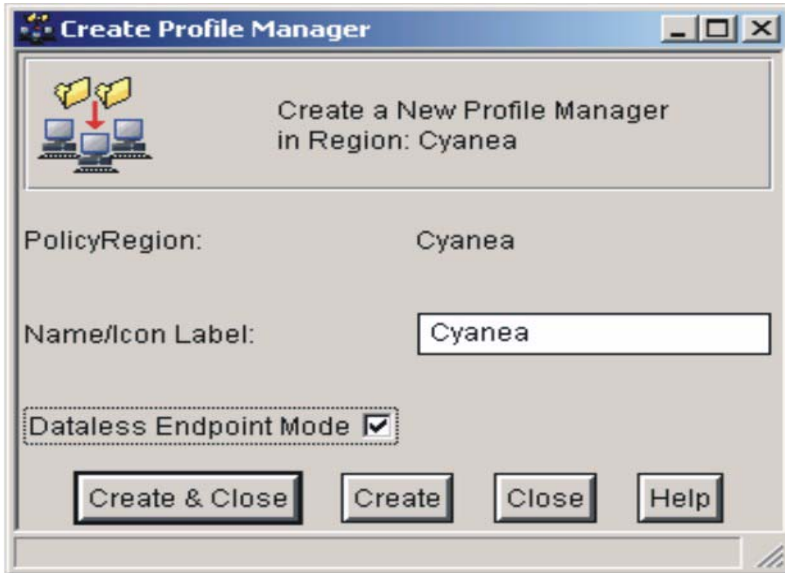


Figure 16. Create Profile Manager

7. Enter a name, and click the Dataless Endpoint Mode checkbox. Click **Create & Close**.

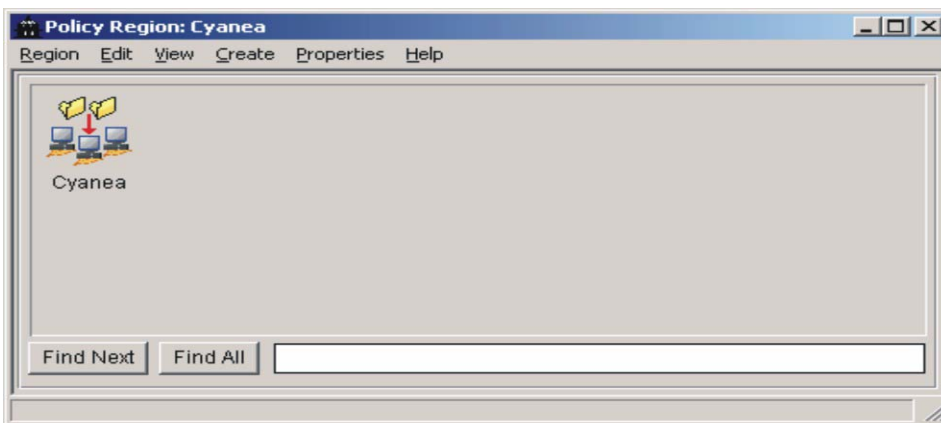


Figure 17. Policy Region Cyanea

8. Double-click to open the Profile.

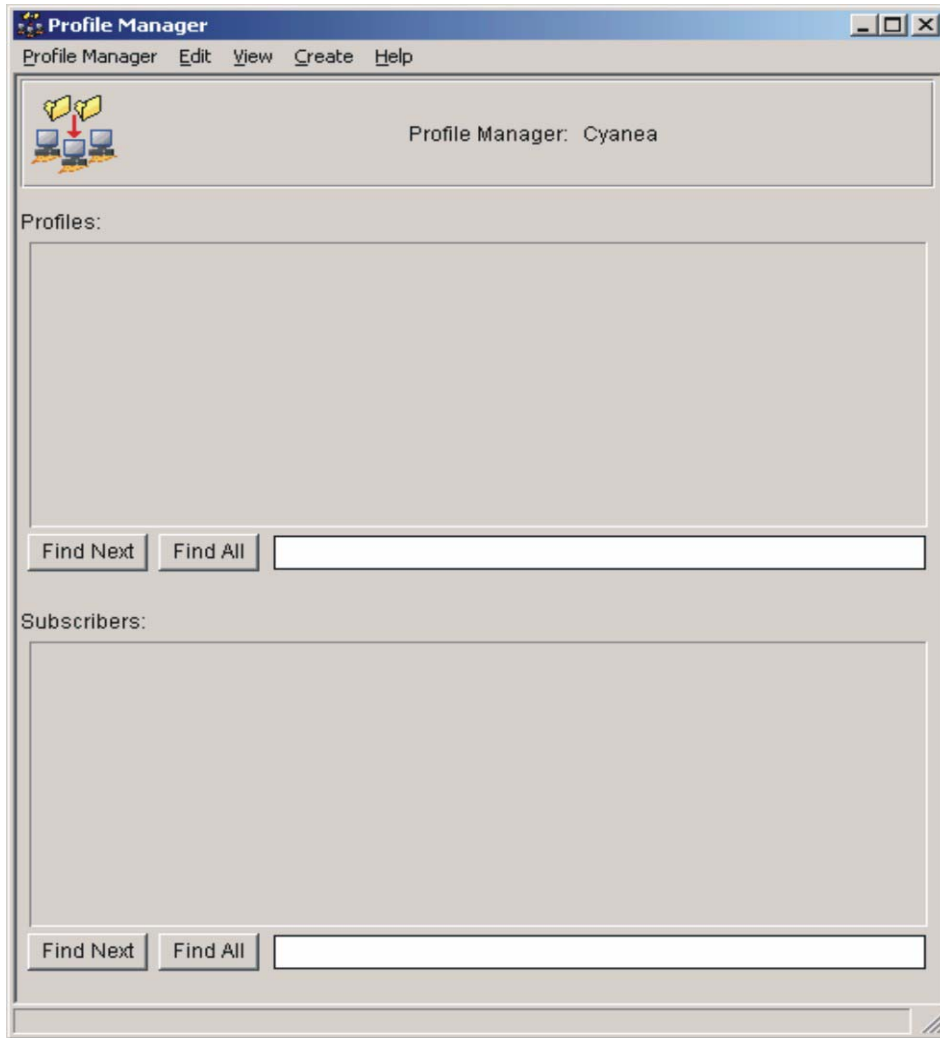


Figure 18. Profile Manager

9. Select **Profiles > Subscribers**.

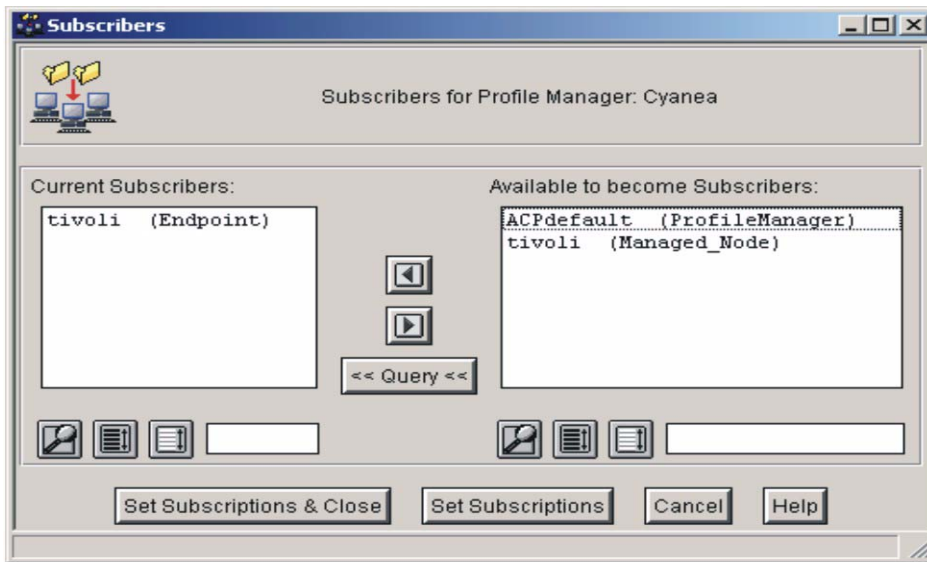


Figure 19. Subscribers

10. Move the desired endpoint (to receive the SNMP adapter) to the left-hand side and click **Set Subscriptions & Close**.



Figure 20. Profile Manager

11. Select **Create > Profile**.

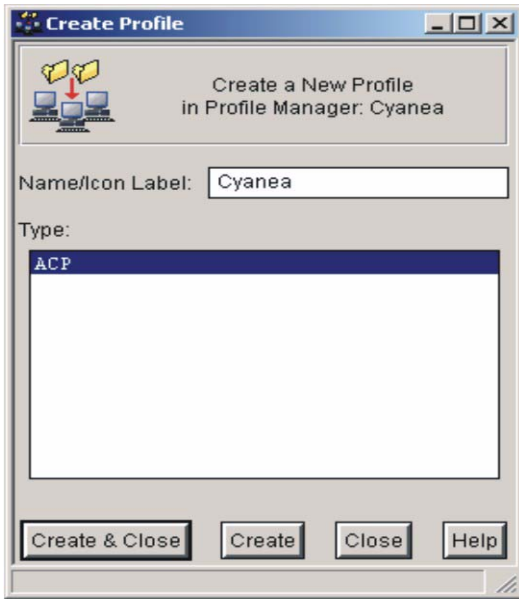


Figure 21. Create Profile

12. Enter a name, select ACP, and click **Create & Close**.



Figure 22. Profile Manager

13. Double-click to open the profile.



Figure 23. Adapter Configuration Profile

14. Click Add Entry.

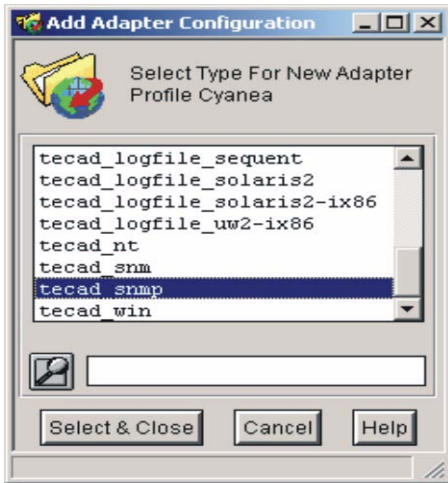


Figure 24. Add Adapter Configuration

15. Scroll down, select **tecad_snmp**, and click **Select & Close**.

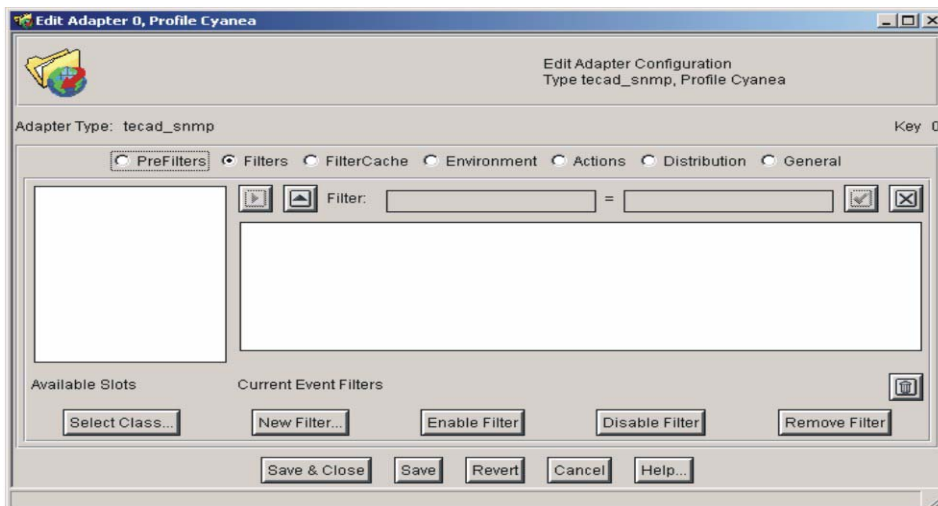


Figure 25. Edit Adapter

16. Select **Environment**.

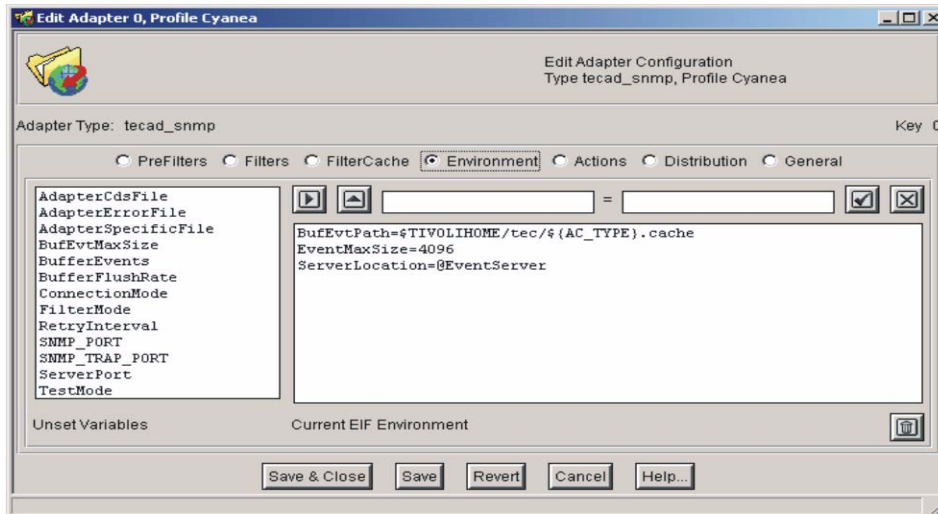


Figure 26. Edit Adapter

17. Double-click on **ServerPort** in the left-hand pane. Enter the desired T/EC port number (usually 5529 for NT T/EC Server, or 0 for a UNIX T/EC Server), and click the checkmark button to accept the change. The entry will display in the right-hand pane.

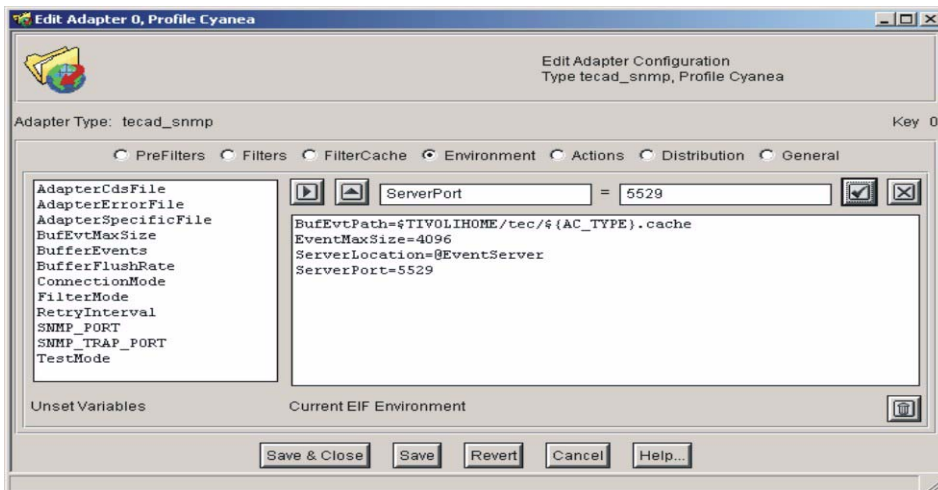


Figure 27. Edit Adapter

18. Select **Distribution**.

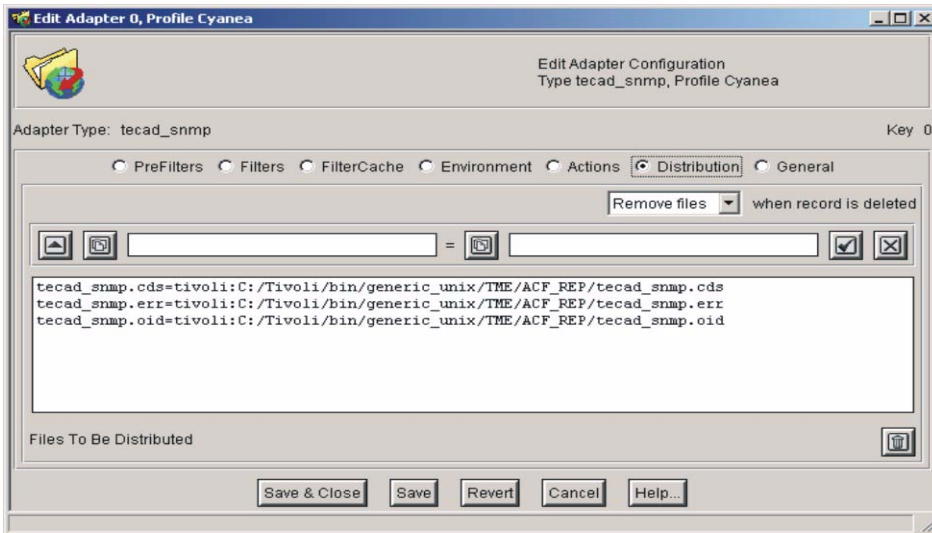


Figure 28. Edit Adapter

19. The .cds file and .oid file should be changed to include the cyanea traps. There are two choices:

- Support both the Application Monitor traps and standard traps. You must manually append the Tivoli supplied files with the Application Monitor files. They are ASCII, so use your favorite editor and/or command line tools. Then follow the directions below.
- Replace with the Application Monitor files, to only support the Application Monitor traps. Follow the directions as listed below.

20. Double-click on the tecad_snmp.cds entry.

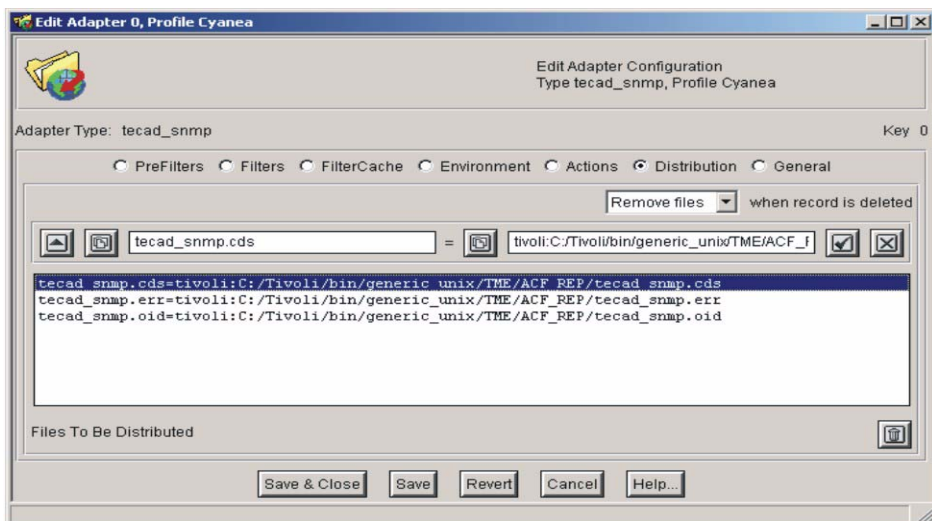


Figure 29. Edit Adapter

21. Click on the **Browse** button associated with the right-hand pathname.

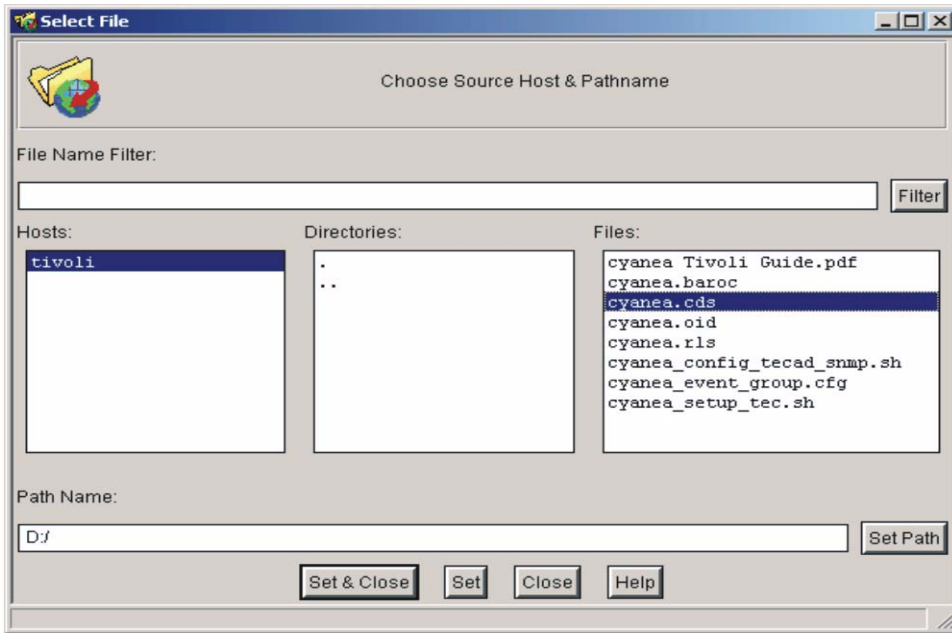


Figure 30. Select File

22. Browse to the location of cyanea.cds. Select the file, and click **Set & Close**.
23. Click the checkmark button to accept the change, as shown in the lower pane.

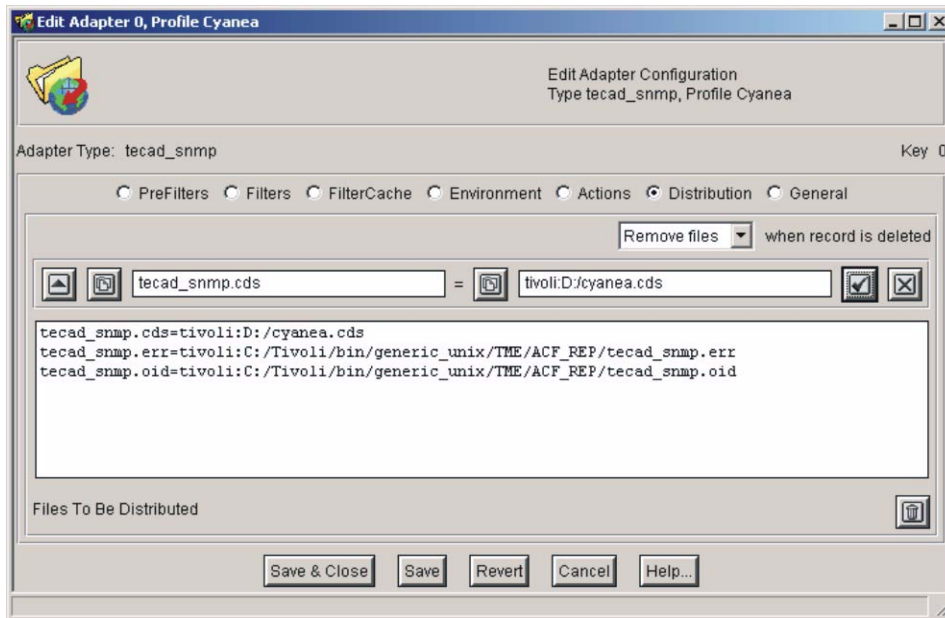


Figure 31. Edit Adapter

24. Repeat the steps to change the right-hand value of tecad_snmp.oid to point to cyanea.oid.

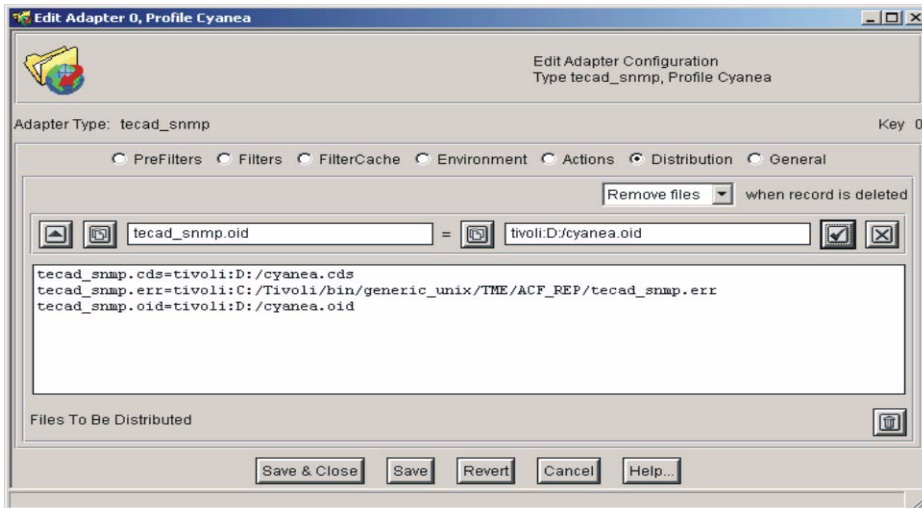


Figure 32. Edit Adapter

25. Click **Save & Close**.

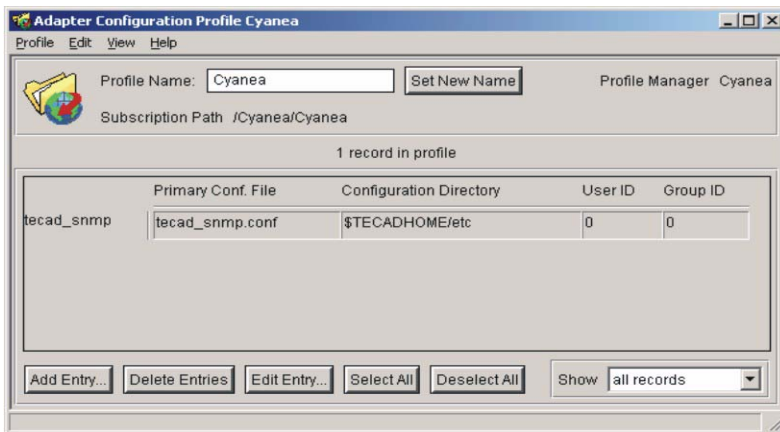


Figure 33. Adapter Configuration Profile

26. Close the profile.

27. Distribute the profile (ex. drag the profile on top of the endpoint.) The main window of the desktop shows a log of actions.

Appendix B. BMC Patrol Integration

Overview

Cyanea for Patrol Enterprise Manager is the integration of the Application Monitor services with BMC's Patrol Enterprise Manager (Patrol EM). Cyanea for Patrol EM consists of two components: a customized Patrol EM filter (CYANEA.afltr) and an application that receives Cyanea SNMP traps (CyaneaSNMPAdapter).

Requirements

The following BMC server platforms are supported by the Application Monitor:

- Sun Solaris
- IBM AIX
- HP-UX

The following BMC Patrol EM software is required:

- Patrol Enterprise Manager 4.2 or later

The following Patrol EM software is required:

- Multi-Listener - PEM TCP/IP multi-listener daemon

One system should be identified as the Cyanea SNMP Adapter host, to accept the Application Monitor SNMP traps, adapt them to Patrol EM Events and forward them to a Patrol EM Server. The supported platforms for this system are:

- Windows 2000
- Sun Solaris
- IBM AIX
- HP-UX

For the recommended configuration, this system should not be running any other SNMP agent on UDP port 162 that would interfere with running the Cyanea SNMP Adapter. This system should also have the Java™ runtime version 1.3 (JRE 1.3) or later installed.

Configuring BMC Patrol

Cyanea for Patrol Enterprise Manager provides a customized filter for Patrol EM and the Cyanea SNMP Adapter to have alerts from Cyanea appear in the Patrol EM Active Alert Display.

Cyanea for Patrol Enterprise Manager is available from Cyanea on CD-ROM, or as cyanea.tar, or cyanea.zip. Cyanea for Patrol EM consists of the following files:

- cyaneafilter.tar
- CyaneaTrapReceiver.jar
- cyanea.conf
- cyaneaSnmpAdapter.sh (for Unix systems)
- cyaneaSnmpAdapter.bat (for Windows systems)

Once these files have been extracted from the CD, tar file, or zip file, copy the files to location(s) accessible by the Patrol EM server and the Cyanea SNMP Adapter host.

Configuring Patrol EM Server

The Cyanea events are described for Patrol EM in the filter file CYANEA.afltr. Installing and configuring this filter consists of the following steps:

- Generating the CYANEA filter engine
- Defining the CYANEA filter path

The Multi-Listener - PEM TCP/IP multi-listener daemon must be installed and configured before executing the following steps. Follow the instructions provided in the Multi-Listener documentation to specify a socket number that the filter path will be monitoring.

Generating the CYANEA Filter Engine

1. Login to the Patrol EM server as user NetCmmnd.
2. Extract the contents of the file cyaneafilter.tar:

```
tar xvf cyaneafilter.tar
```
3. Using the Patrol M Console, generate the CYANEA filter engine.
4. Select **Customization > ALFE**.

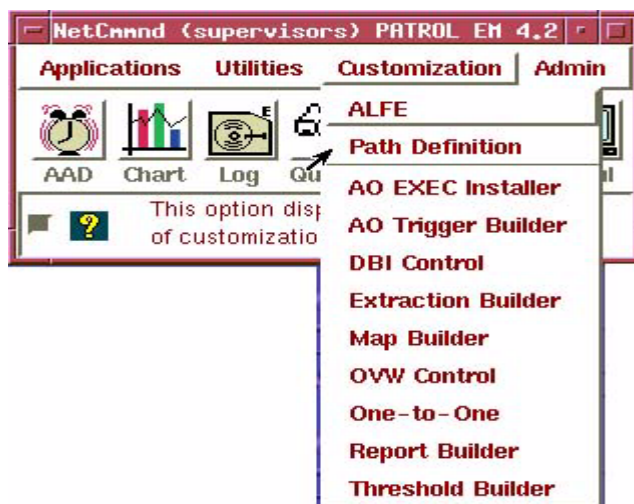


Figure 36. Path Definition

5. Select **NetCmmnd.fltr**.



Figure 37. Select Filter

6. The ALFE dialog window displays with the NetCmmnd filter loaded.

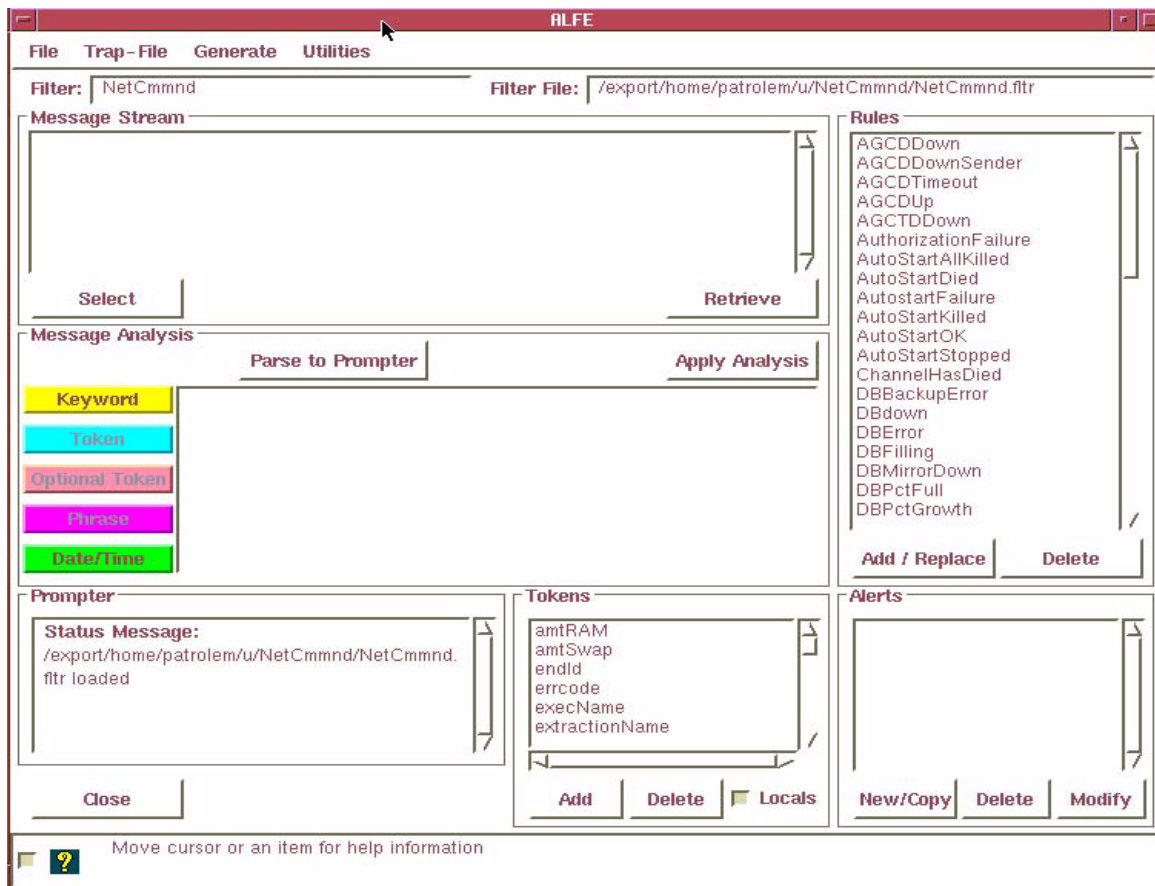


Figure 38. ALFE Netcmmnd

7. Select **File > Load Text Filter**, then select **CYANEA.afltr**.

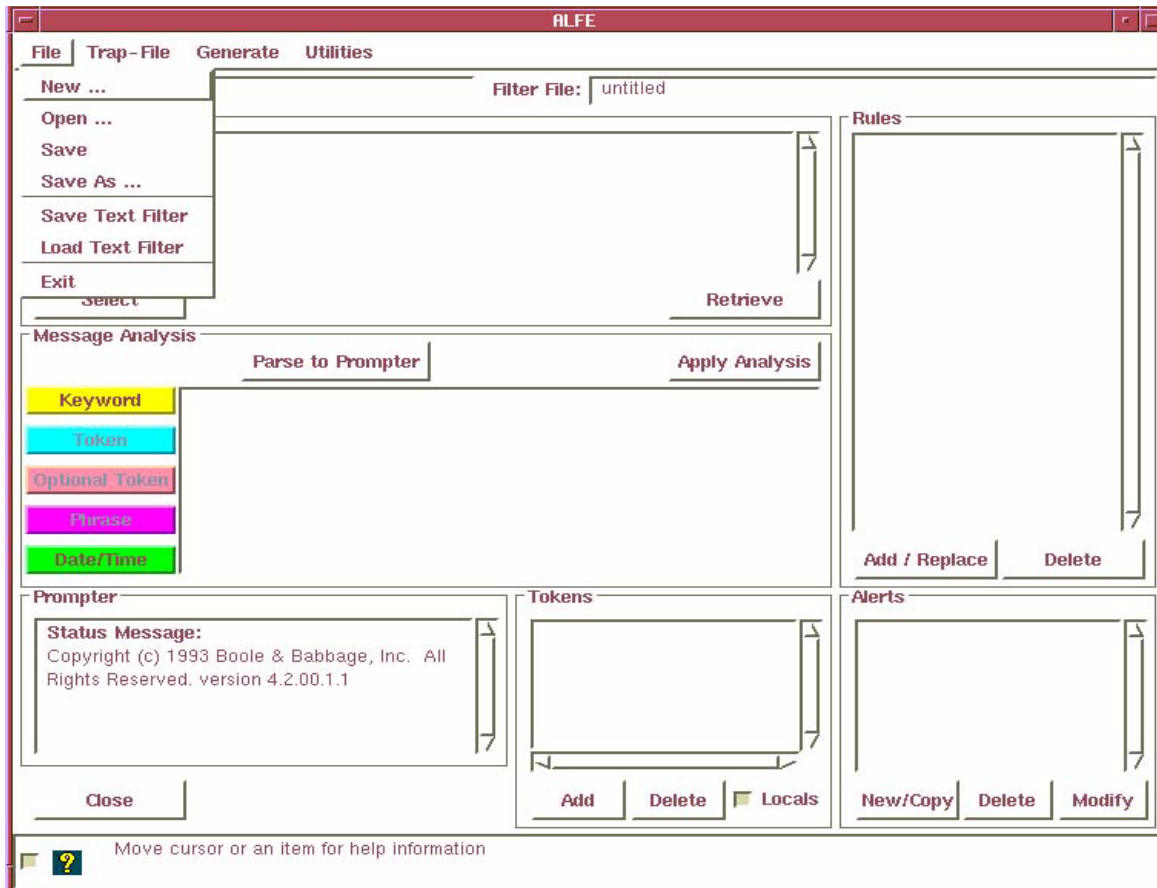


Figure 39. Select Load Text Filter

8. The ALFE dialog window displays with the CYANEA filter loaded.

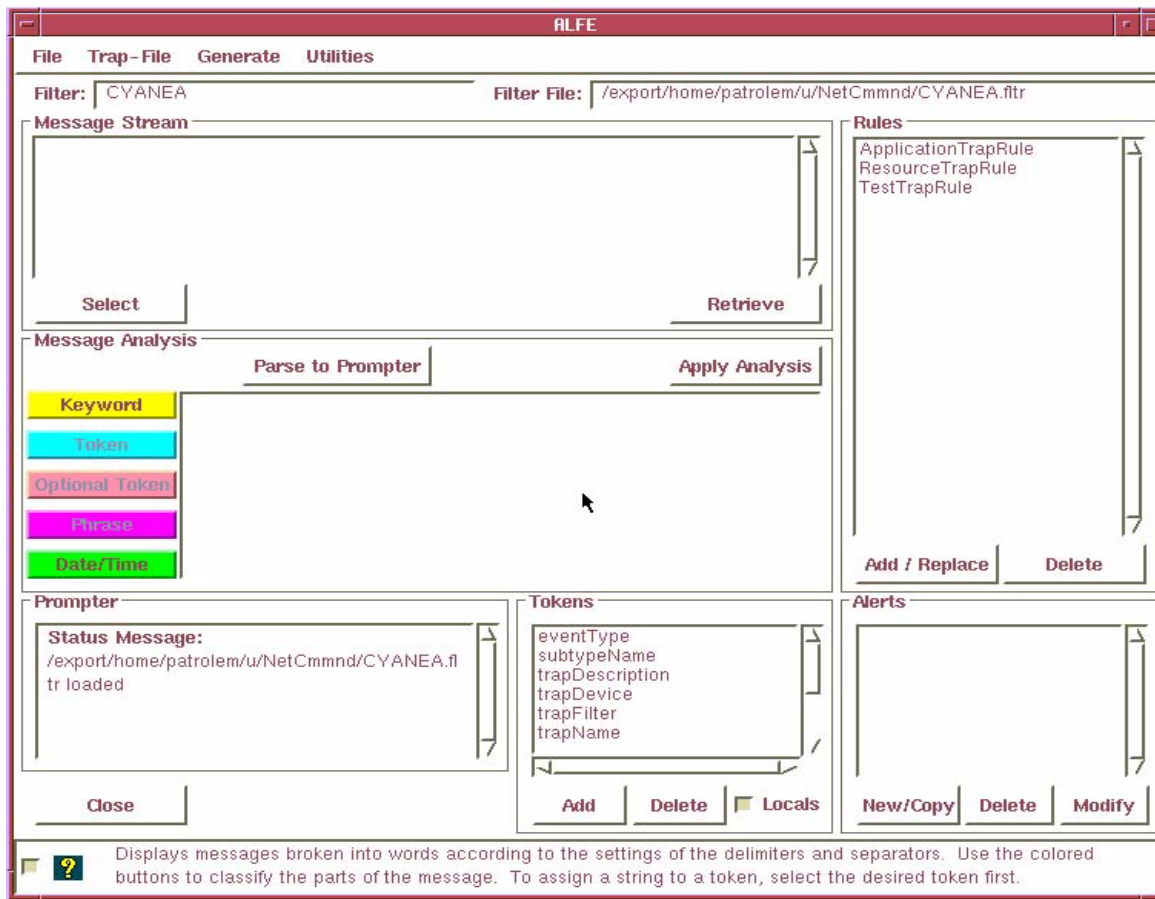


Figure 40. Cyanea Filter

9. Select **Generate > Generate Production Filter**.

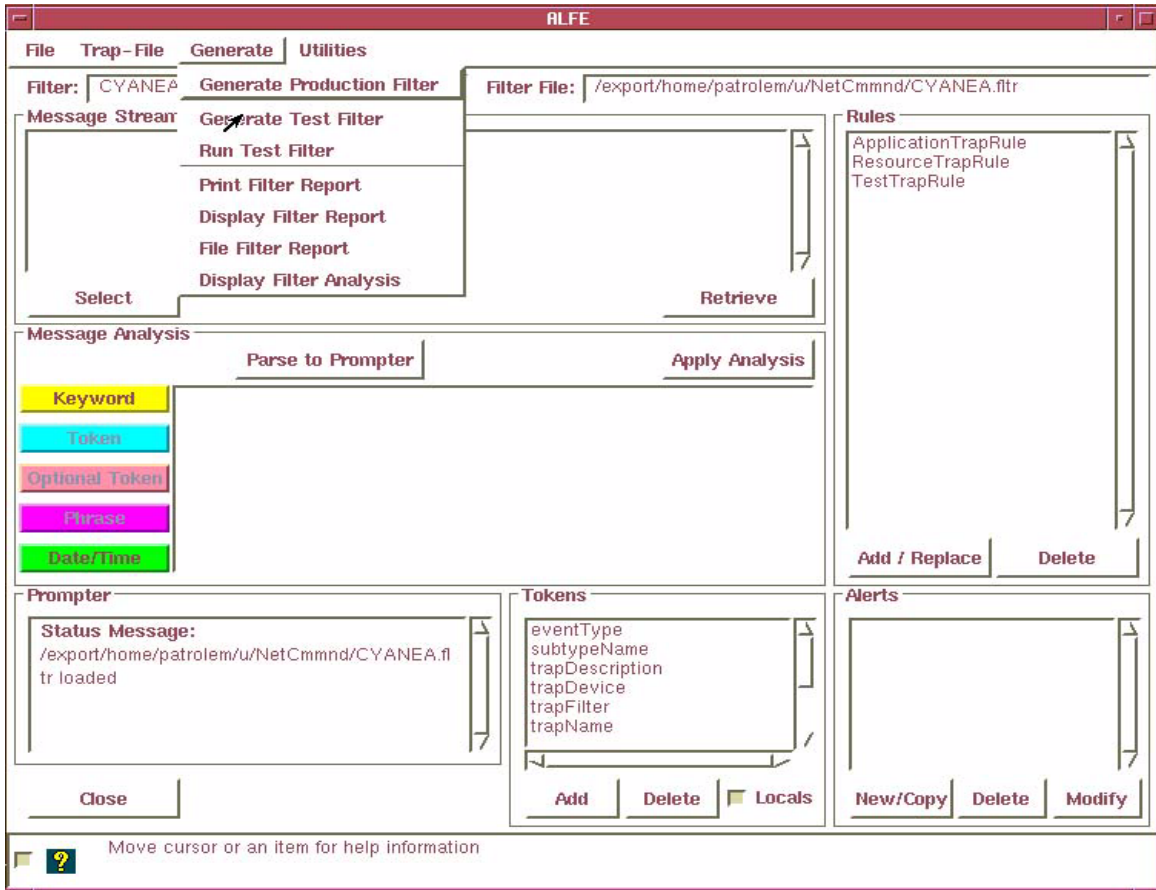


Figure 41. Generate Production Filter

- When the system generates the filter, the message "Filter engine generated" displays in the Prompter box.



Figure 42. Prompter box

- Select **File > Save**.

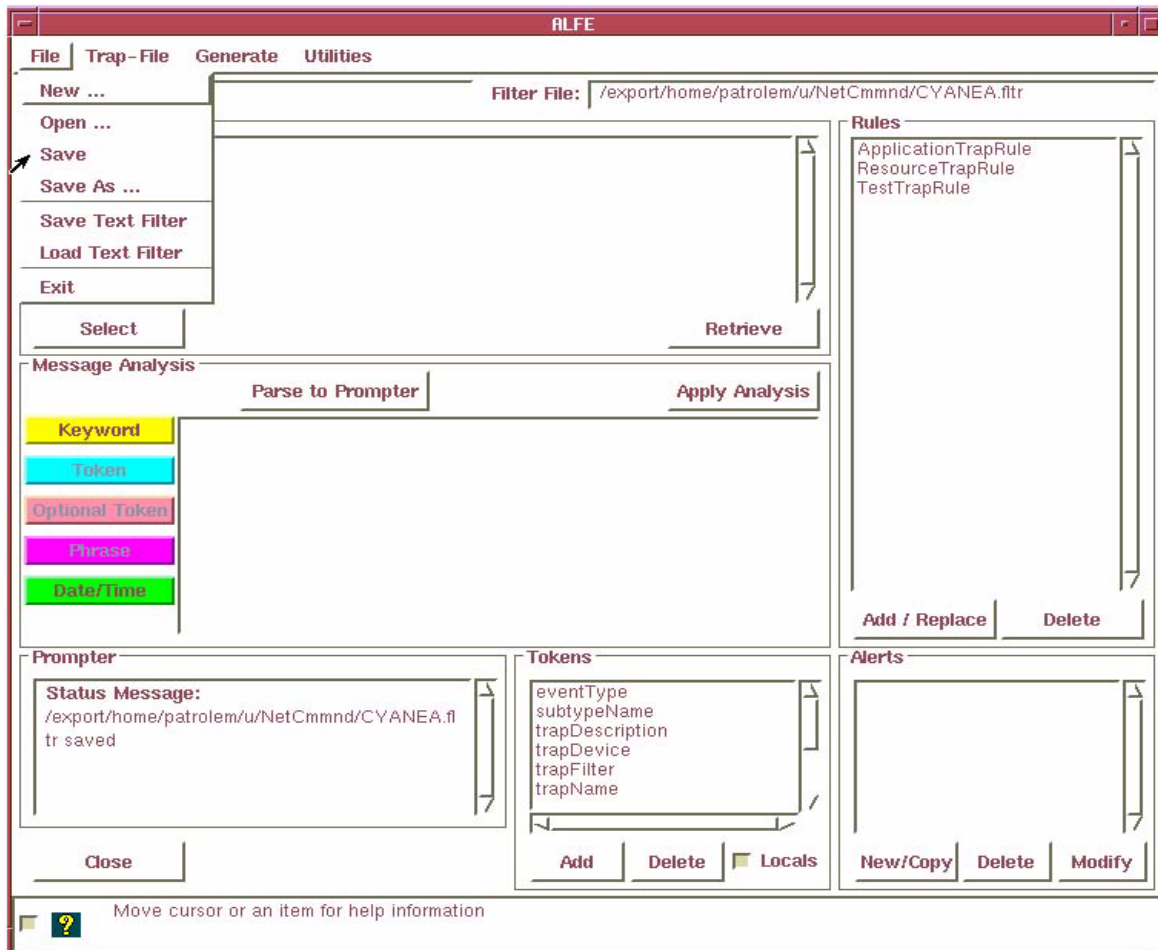


Figure 43. Save Filter

12. After the system saves the filter the message "/home/u/NetCmmnd/CYANEA.fltr saved" displays in the Prompter box. Close the ALFE window.

Defining the CYANEA Filter Path

1. Using the Patrol M Console, define the CYANEA filter path.
2. Select **Customization > Path Definition**.



Figure 44. Path Definition

3. The Path Definition dialog window opens.

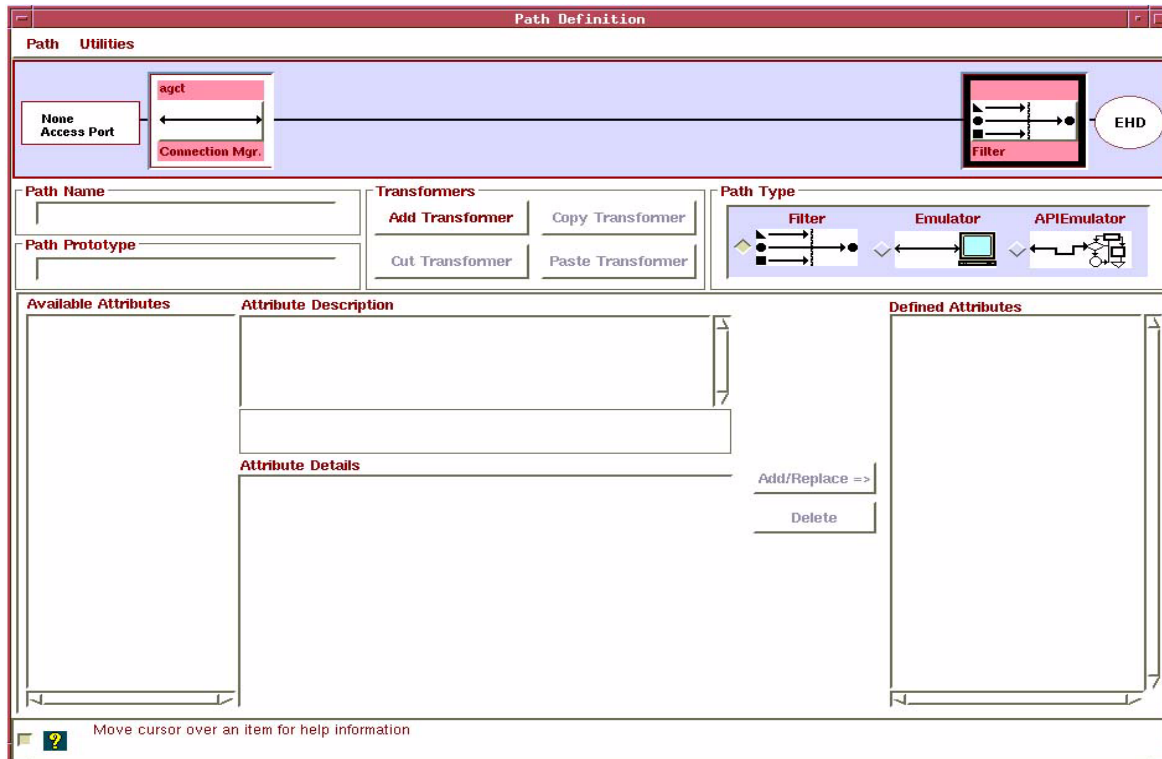


Figure 45. Path Definition Dialog box

4. To create the CYANEA path, select **Path > New**.

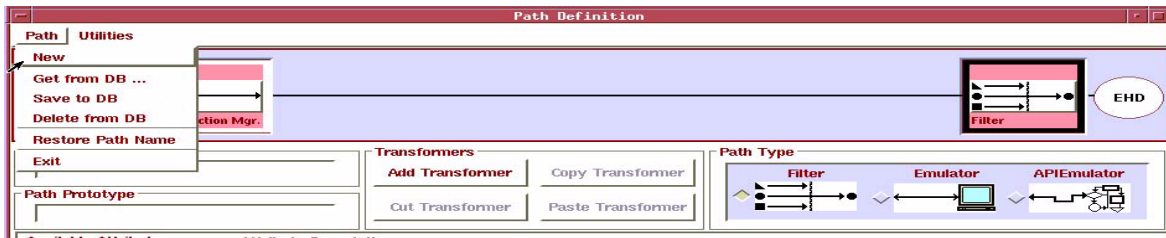


Figure 46. Create Cyanea Path

5. Enter "CYANEA" for the path name.

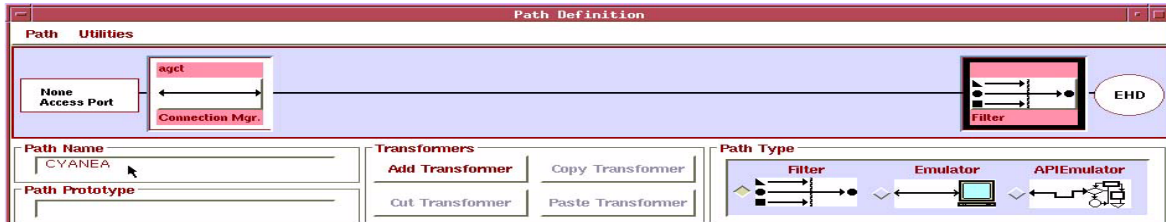


Figure 47. Enter Cyanea Path Name

6. Left-click on the **Filter** icon and select **multi_lstn** for the Path Prototype.

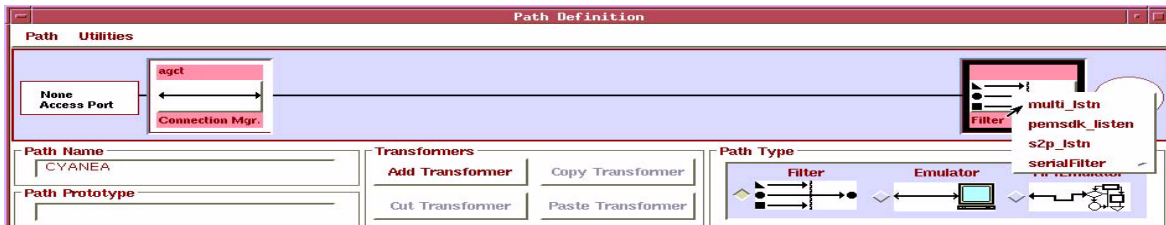


Figure 48. Path Prototype

7. The multi-lstn path prototype defines the path attributes.

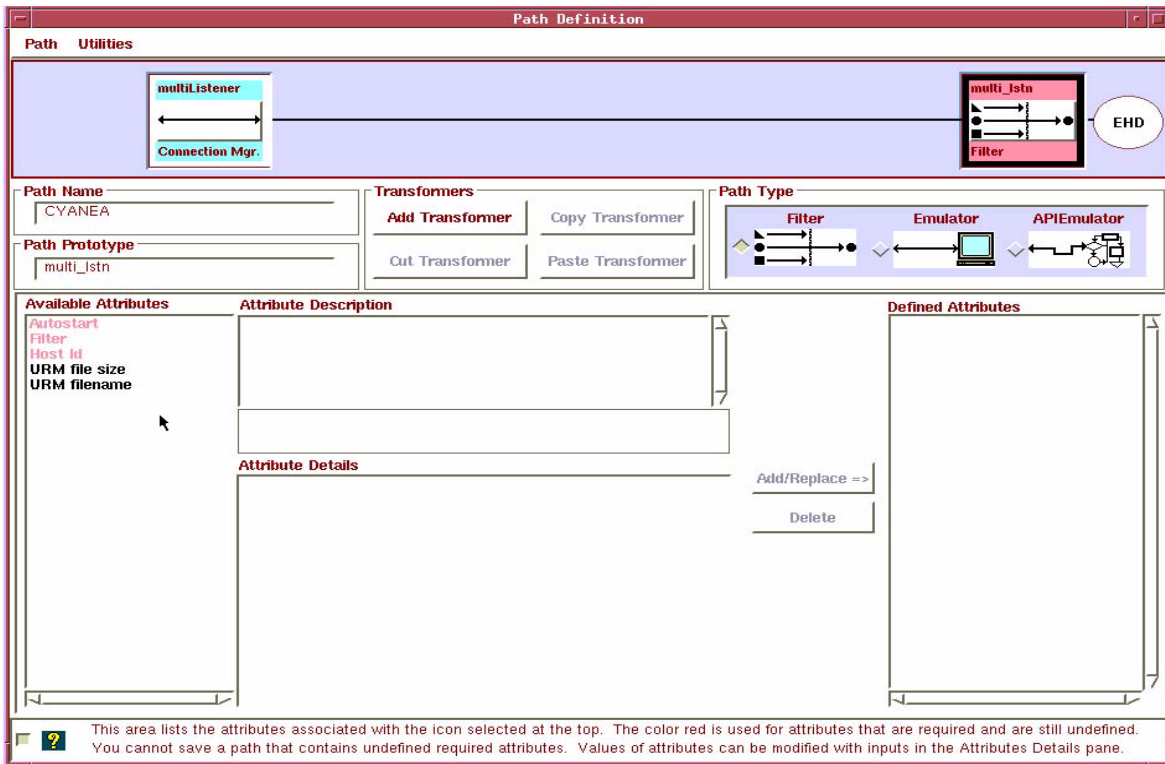


Figure 49. Path Attributes

8. Set the required path attributes to the following values: Autostart = true; Filter = CYANEA; Host ID = name of your Patrol EM server; The attributes "URM files size" and "URM filename" are optional.
9. Attribute values are set by selecting the attribute in the **Available Attributes** box, typing in or selecting the desired value in the **Attribute Details** box, then selecting the **Add/Replace** button. The completed path definition displays in the Path Definition dialog window.

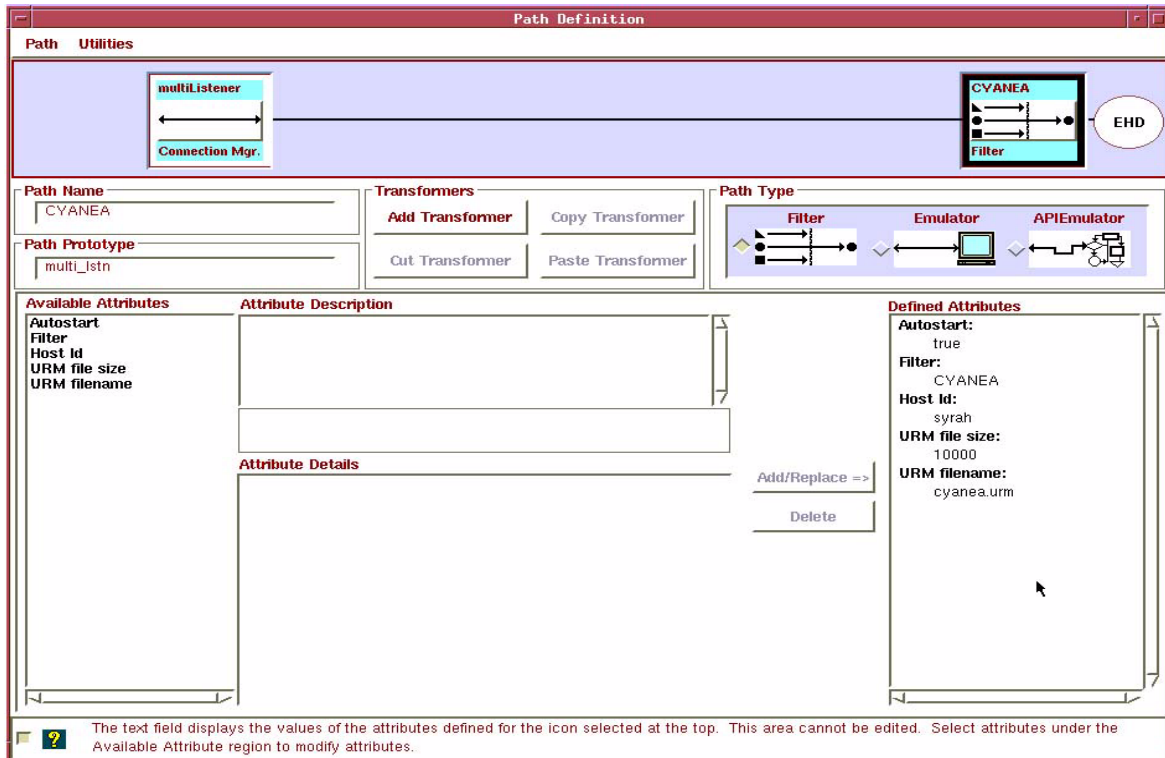


Figure 50. Path Definition

10. Select **Path > Save to DB.**

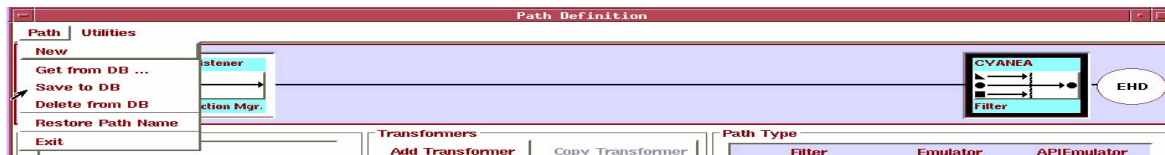


Figure 51. Save to database

11. Select **Yes** to update the configuration.



Figure 52. Update Configuration

12. Exit from the Path Definition dialog window.

13. Using the Patrol EM Console, obtain the configuration: Select **Admin > Obtain Configuration.**

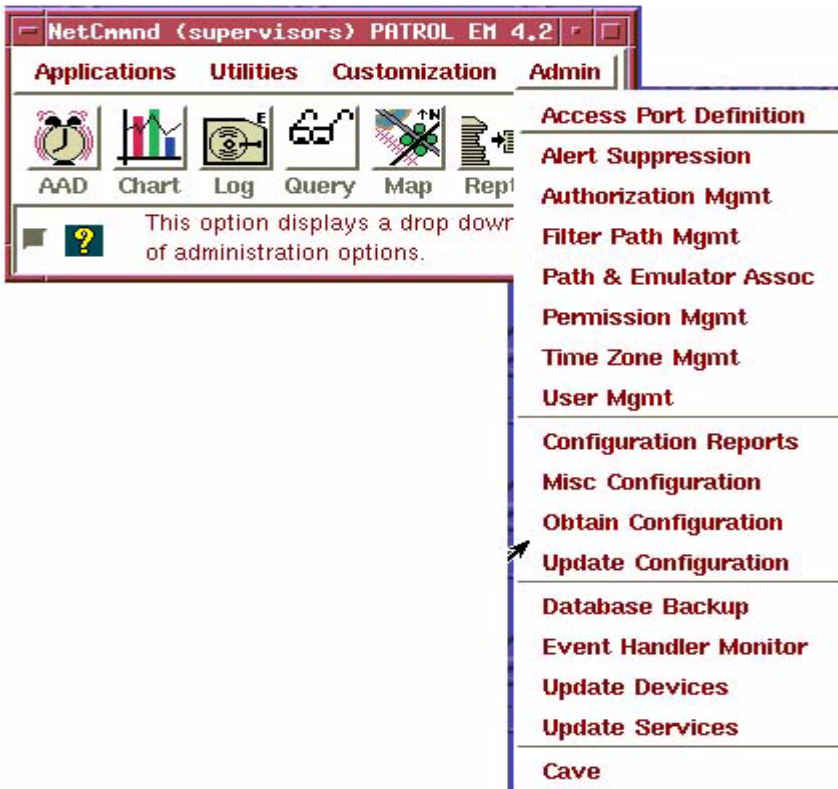


Figure 53. Obtain Configuration

14. Verify that the CYANEA filter path is running by selecting **Filter Path Mgmt** from the Patrol EM Console's **Admin** menu. The Filter Path Management dialog window displays. The CYANEA path should be listed in the **Active Filter Paths** box.

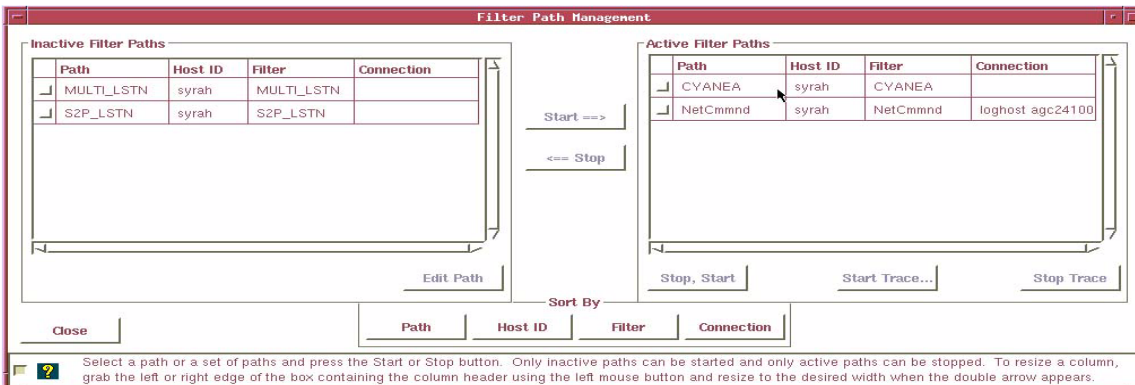


Figure 54. Filter Path Management

Installing and Configuring the Cyanea SNMP Adapter

As noted in the Requirements section, the Cyanea SNMP Adapter can be run on any system that has connectivity to the Application Monitor agent and the Patrol EM server. The Java runtime version 1.3 or later must be installed on the system and be included in the PATH environment variable.

Cyanea SNMP Adapter Installation and Configuration on a Windows platform:

1. Copy the following files to a directory on the Windows platform:

Note: These files need to be in the same directory.

- CyaneaTrapReceiver.jar
- cyanea.conf
- cyaneaSnmpAdapter.bat (for Windows systems)

2. Edit the cyanea.conf file to specify the following items:

- Patrol EM server name
- Socket number that you configured for the CYANEA filter path
- SNMP port number

```
#####  
# cyanea.conf  
#  
# DESCRIPTION: Cyanea BMC Patrol EM Adapter Configuration  
#  
# The configuration entries are as follows:  
#  
# PEM_HOST    >Name of Patrol EM server  
# PEM_SOCKET  >Socket on Patrol EM server to receive Cyanea trap data  
# SNMP_PORT   >Port number to listen for incoming SNMP trap on  
#  
# Copyright (c) 2003 by Cyanea Systems Corp. ALL RIGHTS RESERVED.  
#####
```

3. Navigate to the directory containing the Cyanea SNMP Adapter files.
4. Start the Cyanea SNMP Adapter by entering the following command at a DOS prompt:

```
> cyaneaSnmpAdapter.bat
```

The Cyanea SNMP Adapter will begin listening for SNMP traps on the port specified in the cyanea.conf file. Error messages will be generated and output to standard out if any problems occur in receiving and decoding the Cyanea SNMP traps. The error output can be redirected to a log file if desired by starting the Cyanea SNMP Adapter with the following command:

```
> cyaneaSnmpAdapter.bat > cyanea.log
```

Cyanea SNMP Adapter Installation and Configuration on a Unix platform:

1. On the Unix platform, extract the Cyanea SNMP Adapter files from cyanea.tar:

```
tar xvf cyanea.tar
```

Extract the files to the /home/u/NetCmmnd directory. If desired, you may move the files to another directory, but all of the Cyanea SNMP Adapter files must be in the same directory.

2. Edit the cyanea.conf file as described above.
3. Login as "root", and execute the following command:

```
./cyaneaSnmpAdapter.sh > cyanea.log &
```

This will start the Cyanea SNMP Adapter running in the background. The system will output any error messages to the file cyanea.log.

Using Patrol EM with the Application Monitor

Configure the Cyanea agent to send SNMP traps to the configured Cyanea SNMP Adapter hose, and Cyanea events will show up in the Patrol EM Active Alert Display.

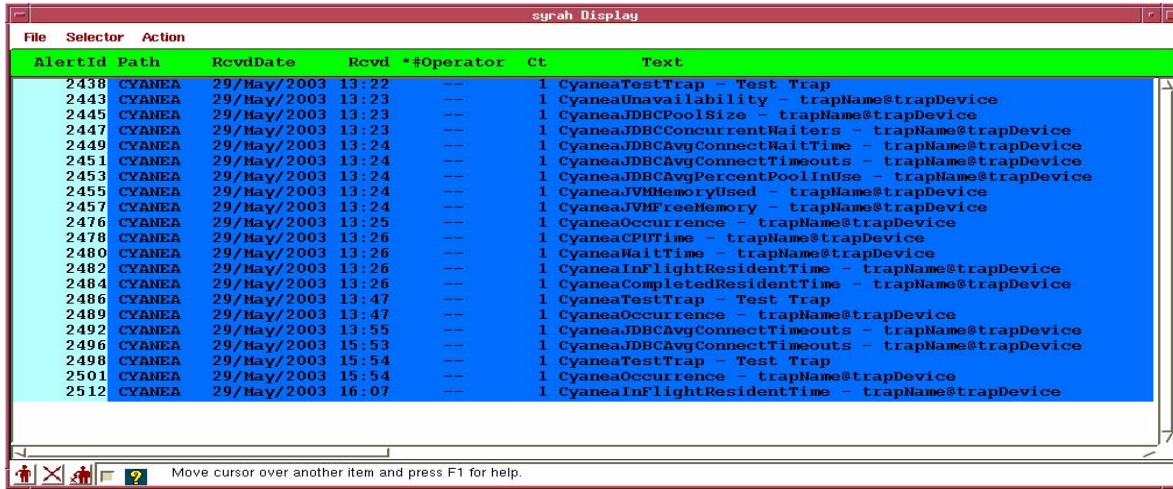


Figure 55. Active Alert Display

Click on an event and select **Actions > About** to view more information about the selected event.

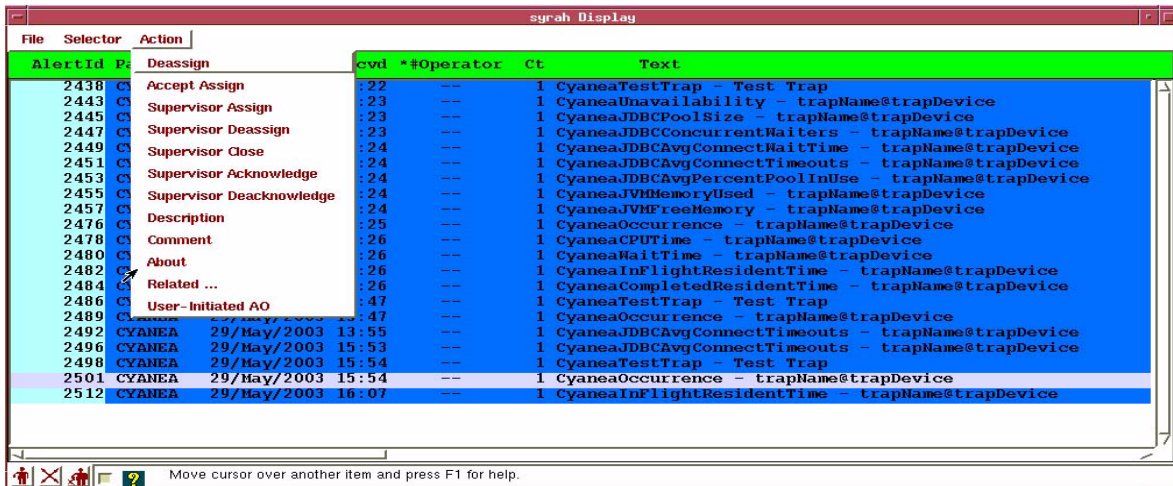


Figure 56. Select About window

The details for the event display in the Stored Token box of the About window.

About Window

AlertId: 2501 Filter: CYANEA

Path: CYANEA AlertType: ApplicationOccurrence

Template: CyaneaOccurrence - [trapName]@[trapDevice]

Text: CyaneaOccurrence - trapName@trapDevice

Dates		
	Date	Time
Received	29/May/2003	15:54
Assigned	--	--
Accepted	--	--
Acknowledged	--	--
Closed	--	--

State: active

Operator: --

Priority: 7

Occurrences: 1

Severity: Warning

Category: Software

Comments: [Add Comment](#)

Description: Alert has no description

Stored Tokens: trapFilter: "Request= *, Method=none, SQL=N/A"
trapNumberOfOccurrences: "1"
trapOffending: "Value=1.0 occurrence, Content=none"

[Close](#)

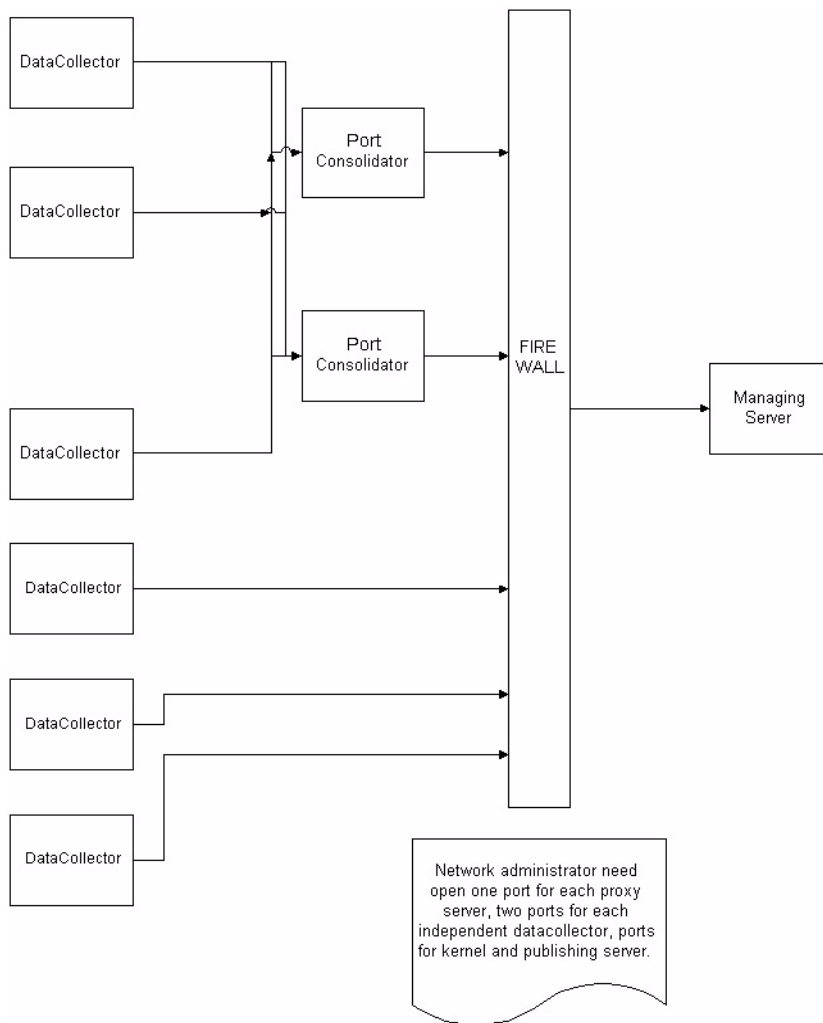
? Stored tokens and associated values for the alert.

Figure 57. About window

Appendix C. Port Consolidator

The port consolidator is used to reduce network resources. Typically, it's used in the firewall environment. The following shows one deployment scenario:

Note: All Data Collectors and port consolidators are installed on the same physical machine.



P

Figure 58. Port Consolidator deployment scenario

Manual Installation

In the normal case, the port consolidator is installed at the same physical machine as the Data Collector.

Here <CYANEA_HOME> is the same as the Data Collector's <CYANEA_HOME>. There are four subdirectories under <CYANEA_HOME>. They are lib, bin, etc, logs.

<CYANEA_HOME/lib contains the required jar files.

WebSphere:

```
<CYANEA_HOME>/lib
common.jar, cyaneaaux.jar,ppe.proxy.jar
<CYANEA_HOME>/lib/ext
ppe.proxy-intf.jar, ppe.probe.jar, ppe.probe-intf.jar, kernel.common.jar, model.jar
```

Configuration

Edit <CYANEA_HOME>/bin/proxyserverctrl_ws.sh (or proxyserverctrl_wl.sh) and set the following variables:

```
JAVA_HOME
CYANEA_HOME
CYANEA_MS_HOME
PROXY_PORT=
KERNEL_HOST01
KERNEL_HOST02
PORT_KERNEL_CODEBASE01
PORT_KERNEL_CODEBASE02
PORT_KERNEL_RFS01
PORT_KERNEL_RFS02
```

Start/Stop Port Consolidator

Usage: ./proxyserverctrl_ws.sh (start | stop | forcestop | killall | ping | list | delete)

start - start port consolidator

stop - stop port consolidator

forcestop - kill -9 all port consolidator processes

ping - ping port consolidator

list - list all registered datacollectors

delete - delete all registered datacollectors

Configuring Data Collector

To enable port consolidator on the Data Collector, add the following properties in datacollector.properties:

```
proxy.host
proxy.port
```

To set java system property java.rmi.server.codebase:

```
<CYANEA_MS_HOME>=/opt/cyaneaone
```

```
<CYANEA_HOME>=/opt/dc
```

WebSphere:

```
java.rmi.server.codebase=file://<CYANEA_MS_HOME>/lib/ppe.probe-intf.jar\
file://<CYANEA_MS_HOME>/lib2.1.3/ppe.probe.jar \
file://<CYANEA_MS_HOME>/lib2.1.3/ppe.ws5.jar \
file://<CYANEA_MS_HOME>/lib/ppe.proxy-intf.jar \
file://<CYANEA_MS_HOME>/lib2.1.3/ppe.proxy.jar \
file://<CYANEA_HOME>/lib/ext/ppe.probe.jar file://<CYANEA_HOME>/lib/ext/ppe.ws5.jar
```

To set CLASSPATH:

Websphere:

copy ppe.proxy-intf.jar to <CYANEA_HOME/lib/ext

Appendix D. Manual Installation of the Data Collector

This section describes how to configure the Data Collector for distributed platforms.

Manually Installing the J2EE Data Collector

This section describes how to manually install the Data Collector for distributed platforms. For instructions on using the graphical installer, see Chapter 14. “Customization” on page 103.

The process includes installing the Data Collector itself, as well as customizing application servers and web servers.

Installing Data Collector Files

Regardless of the application server you are monitoring, there are similar steps for manually installing the Data Collector:

- Unpacking the distribution and creating installation directories
- Copying files to the installation directories
- Configuring the Data Collector

Note: If you are installing Data Collectors to monitor a horizontal application server cluster, you must install a distinct Data Collector for each application server in the cluster.

Installing Data Collector Files for WebSphere

Follow these procedures for manually installing the Data Collector to monitor WebSphere.

To unpack the distribution and create installation directories:

1. Copy the file MPDCInstall.tar into a temporary directory.
2. Untar the file MPDCInstall.tar as follows:

```
tar xf MPDCInstall.tar
```
3. Create an installation directory, for example, /opt/cyaneaone. Throughout this section, the directory you create will be referred to as <CYANEA_HOME>.
4. Create the following subdirectories under <CYANEA_HOME>:

```
mkdir etc
mkdir lib
mkdir bin
mkdir logs
mkdir lib/ext
```

To copy the Data Collector files for WebSphere:

1. Change your working directory to the dc/dc_home subdirectory of the temporary directory in which you untarred the MPDCInstall.tar distribution.
2. Copy the following files to the /<CYANEA_HOME>/lib directory files, as described in the following table.

Note: Where there are choices among files, choose the file whose name matches the version of WebSphere you are monitoring.

Source File within dc/dc_home/	Destination directory
lib/cyanea.bootstrap_was.jar	<CYANEA_HOME>/lib

3. Copy the following files to the /<CYANEA_HOME>/lib/ext directory, as described in the following table:

Note: Where there are choices among files, choose the file whose name matches the version of WebSphere you are monitoring.

Source Files within dc/dc_home/	Destination directory
lib/ppe.probe.jar lib/cdn.jar lib/common.jar lib/ppe.was_5.jar	<CYANEA_HOME>/lib/ext
lib/ppe.probe-intf.jar	<CYANEA_HOME>/lib/ext
lib/kernel.common.jar	<CYANEA_HOME>/lib/ext
lib/model.jar	<CYANEA_HOME>/lib/ext
lib/cyaneaaux.jar	<CYANEA_HOME>/lib/ext

For Portal Only - Source Files	Destination directory
lib/ppe.wps_5.jar	<CYANEA_HOME>/lib

4. Copy the following files to the /<CYANEA_HOME>/etc directory files, as described in the following table:

Source file, within dc/dc_home/etc	Destination directory
------------------------------------	-----------------------

datacollector.policy datacollector.properties version.properties LogMessages bcm.properties For WebSphere 5.1: was51_servlet.xml was51_ejb.xml was51_jndi.xml was51_jdbc.xml was51_jmsq.xml was51_jmst.xml was51_jmsmqi.xml was51_jca.xml For WebSphere 5.0.2 and WebSphere 5.0.2 Portal was502_servlet.xml was502_ejb.xml was502_jndi.xml was502_jdbc.xml was502_jmsq.xml was502_jmst.xml was502_jmsmqi.xml was502_jca.xml For WebSphere 5.0.2 Portal Only wps502_authorization.xml wps502_credentialvault.xml wps502_page.xml wps502_contentaccess.xml wps502_login.xml wps502_portlet.xml	<CYANEA_HOME >/etc
---	-----------------------

5. Copy the appropriate library file from the dc/dc_home/lib directory to the /<CYANEA_HOME>/lib directory, and name it appropriately, as described in the following table. In addition, copy the library for your JDK.

Note: Replace <JDKversion> with the version number you are using, for example, 1.4.x is 14 and 1.3.x is 13.

Platform	Source file, within dc/dc_home/lib	Destination file
AIX	libcyanea_was_5_ibm_<JDKversion>_aix.so	<CYANEA_HOME>/lib/libcyanea.so
Solaris	libcyanea_was_5_hot_<JDKversion>_sunos.so	<CYANEA_HOME>/lib/libcyanea.so
HP-UX	libcyanea_was_5_hot_<JDKversion>_hp-ux.sl	<CYANEA_HOME>/lib/libcyanea.sl
Windows	cyanea_was_5_ibm_<JDKversion>_windows.dll	<CYANEA_HOME>/lib/cyanea.dll
Linux	libcyanea_was_5_ibm_<JDKversion>_linux.so	<CYANEA_HOME>/lib/libcyanea.so

Note: For HP-UX, libcyanea.sl needs execution permission:

```
chmod +x libcyanea.sl
```

To configure the Data Collector:

1. Set the \$<KERNEL_HOST01> variable in the datacollector.policy to be the IP address or node name of the primary kernel server.
2. Modify the values of the properties defined in datacollector.properties file to match those of your Managing Server installation in Chapter 3. The variables \${KERNEL_HOST01} and \${KERNEL_HOST02} must be set to be the IP address or host name of the Managing Server computer, and the ports to whatever values you used at the time of the Managing Server installation. The default values for the ports are:

```

${PORT_KERNEL_CODEBASE01}  9122
${PORT_KERNEL_CODEBASE02}  9123
${PORT_KERNEL_RFS01}       9120
${PORT_KERNEL_RFS02}       9121

```

Configuring Application Servers

The following tables provide the configuration settings for a manual installation.

Configuring WebSphere 5.0.2 Portal on Intel/Linux

These are the recommended application server options for WebSphere 5.0.2 on Linux.

Table 8. Application Server Options for WebSphere 5.0.2 Portal on Linux

Entity	Settings
Generic JVM Arguments	<p>Add the following as arguments to the JVM command line:</p> <p>Note: The order the instructions are performed in is important. Please follow this order.</p> <pre>-Xoss2M -Xss1M - Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar - Xruncyanea</pre>
Environment Entries	<p>Set the following environment variables:</p> <pre>LD_LIBRARY_PATH =<CYANEA_HOME>/lib</pre>

Table 8. Application Server Options for WebSphere 5.0.2 Portal on Linux (continued)

Entity	Settings
Custom Properties (JVM)	<p>Add the following system properties:</p> <ul style="list-style-type: none"> • <code>java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar</code> <p>Where <MS_CYANEA_HOME> is the cyanea home where the Managing Server was installed. For example, /opt/cyaneaone.</p> <ul style="list-style-type: none"> • <code>cyanea.home=<CYANEA_HOME></code> • <code>java.security.policy=<CYANEA_HOME>/etc/datacollector.policy</code> • <code>cyanea.nodename=<node name></code> • <code>cyanea.appserver=<application server name></code> • <code>appserver.platform=wps502</code> • <code>com.ibm.websphere.classloader.plugin=com.cyanea.bcm.websphere.BcmPlugin</code>
Custom Services	<p>Add a custom service as follows:</p> <p>Name: Cyanea Custom Service</p> <p>Classname: com.cyanea.ws5.ProbeService</p> <p>Classpath: null</p> <p>Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.</p>
Shared Library Settings	<p>Modify "WPSlib " Shared Libraries at the node level to include ppe.wps_5.jar in the classpath. This can be done through administrative console or by modifying libraries.xml at the node level.</p> <p>To set it through administrative console go to:</p> <p>Environment-->Shared libraries-->WPSlib</p> <p>Add <CYANEA_HOME>/lib/ppe.wps_5.jar to the classpath.</p>
Performance Monitoring Service	<p>beanModule=X cacheModule=N connectionPoolModule=H j2cModule=H jvmRuntimeModule=H orbPerfModule=H servletSessionsModule=H systemModule=M threadPoolModule=H transactionModule=M webAppModule=H webServicesModule=N wlmModule=M wsgwModule=N</p>

Configuring WebSphere 5.0.2 Portal on AIX

These are the recommended application server options for WebSphere 5.0.2 on AIX.

Table 9. Application Server Options for WebSphere 5.0.2 Portal on AIX

Entity	Settings
Generic JVM Arguments	<p>Add the following as arguments to the JVM command line:</p> <p>Note: The order the instructions are performed in is important. Please follow this order.</p> <pre>-Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar -Xrunicyanea -Xgcthreads1</pre>
Environment Entries	<p>Set the following environment variables:</p> <ul style="list-style-type: none"> • <code>_JVM_THREAD_DUMP_BUFFER_SIZE=25000000</code> • <code>AIXTHREAD_SCOPE=S</code> • <code>AIXTHREAD_MUTEX_DEBUG=OFF</code> • <code>AIXTHREAD_COND_DEBUG=OFF</code> • <code>AIXTHREAD_RWLOCK_DEBUG=OFF</code> • <code>LIBPATH=<CYANEA_HOME>/lib</code> <p>In order to view thread CPU times, set the following environment variable:</p> <ul style="list-style-type: none"> • <code>AIXTHREAD_ENRUSG=ON</code>
Custom Properties (JVM)	<p>Add the following system properties:</p> <ul style="list-style-type: none"> • <code>java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar</code> <p>Where <MS_CYANEA_HOME> is the cyanea home where the Managing Server was installed. For example, /opt/cyaneaone.</p> <ul style="list-style-type: none"> • <code>cyanea.home=<CYANEA_HOME></code> • <code>java.security.policy=<CYANEA_HOME>/etc/datacollector.policy</code> • <code>cyanea.nodename=<node name></code> • <code>cyanea.appserver=<application server name></code> • <code>appserver.platform=wps502</code> • <code>com.ibm.websphere.classloader.plugin=com.cyanea.bcm.websphere.BcmPlugin</code>

Table 9. Application Server Options for WebSphere 5.0.2 Portal on AIX (continued)

Entity	Settings
Custom Services	<p>Add a custom service as follows:</p> <p>Name: Cyanea Custom Service</p> <p>Classname: com.cyanea.ws5.ProbeService</p> <p>Classpath: null</p> <p>Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.</p>
Shared Library Settings	<p>Modify "WPSlib " Shared Libraries at the node level to include ppe.wps_5.jar in the classpath. This can be done through administrative console or by modifying libraries.xml at the node level.</p> <p>To set it through administrative console go to:</p> <p>Environment-->Shared libraries-->WPSlib</p> <p>Add <CYANEA_HOME>/lib/ppp.wps_5.jar to the classpath.</p>
Performance Monitoring Service	<p>beanModule=X cacheModule=N connectionPoolModule=H j2cModule=H jvmRuntimeModule=H orbPerfModule=H servletSessionsModule=H systemModule=M threadPoolModule=H transactionModule=M webAppModule=H webServicesModule=N wlmModule=M wsgwModule=N</p>

Configuring WebSphere 5.0.2 Portal on Solaris

These are the recommended application server options for WebSphere 5.0.2 on Solaris.

Table 10. Application Server Options for WebSphere 5.0.2 Portal on Solaris

Entity	Settings
Generic JVM Arguments	<p>Run the JVM in server mode.</p> <p>Add the following as arguments to the JVM command line:</p> <p>Note: The order the instructions are performed in is important. Please follow this order.</p> <pre>-server - Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar - XrunCyanea</pre> <p>Note: The default NewSize and MaxNewSize might be small for some Applications if the Application is allocating large numbers of short living objects.</p> <p>Here are the settings we recommend for an application that allocates many short living objects:</p> <pre>-XX:+DisableExplicitGC -XX:NewSize=128m -XX:MaxNewSize=256m - Xconcurrentio</pre> <p>Note: The arguments NewSize and MaxNewSize should be set based on the Maximum and Minimum heap settings of the JVM.</p>
Custom Properties (JVM)	<p>Add the following system properties:</p> <ul style="list-style-type: none"> • <pre>java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar</pre> <p>Where <MS_CYANEA_HOME> is the cyanea home where the Managing Server was installed. For example, /opt/cyaneaone.</p> • <pre>cyanea.home=<CYANEA_HOME></pre> • <pre>java.security.policy=<CYANEA_HOME>/etc/datacollector.policy</pre> • <pre>cyanea.probe.stdout=<path of application server stdout></pre> • <pre>cyanea.nodename=<node name></pre> • <pre>cyanea.appserver=<application server name></pre> • <pre>appserver.platform=wps502</pre> <pre>com.ibm.websphere.classloader.plugin=com.cyanea.bcm.websphere. BcmPlugin</pre>

Table 10. Application Server Options for WebSphere 5.0.2 Portal on Solaris

Entity	Settings
Custom Services	<p>Add a custom service as follows:</p> <p>Name: Cyanea Custom Service</p> <p>Classname: com.cyanea.ws5.ProbeService</p> <p>Classpath: null</p> <p>Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.</p>
Shared Library Settings	<p>Modify "WPSlib " Shared Libraries at the node level to include ppe.wps_5.jar in the classpath. This can be done through administrative console or by modifying libraries.xml at the node level.</p> <p>To set it through administrative console go to:</p> <p>Environment-->Shared libraries-->WPSlib</p> <p>Add <CYANEA_HOME>/lib/ppes.wps_5.jar to the classpath.</p>
Performance Monitoring Service	<p>beanModule=X cacheModule=N connectionPoolModule=H j2cModule=H jvmRuntimeModule=H orbPerfModule=H servletSessionsModule=H systemModule=M threadPoolModule=H transactionModule=M webAppModule=H webServicesModule=N wlmModule=M wsgwModule=N</p>
Environment Entries	<p>Set the following environment variables:</p> <p>LD_LIBRARY_PATH=<CYANEA_HOME>/lib</p>

Configuring WebSphere 5.0.2 Portal on Windows

These are the recommended application server options for WebSphere 5.0.2 on Windows.

Table 11. Application Server Options for WebSphere 5.0.2 Portal on Windows

Entity	Settings
Generic JVM Arguments	<p>Add the following as arguments to the JVM command line:</p> <p>Note: The order the instructions are performed in is important. Please follow this order.</p> <p>-Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar -XrunCyanea</p>

Table 11. Application Server Options for WebSphere 5.0.2 Portal on Windows

Entity	Settings
Environment Entries	Set the following environment variables: _JVM_THREAD_DUMP_BUFFER_SIZE=25000000 PATH=<CYANEA_HOME>\lib
Custom Properties (JVM)	Add the following system properties: <ul style="list-style-type: none"> • java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar Where <MS_CYANEA_HOME> is the directory where the Managing Server is installed. For example, /opt/cyaneaone • cyanea.home=<CYANEA_HOME> • java.security.policy=<CYANEA_HOME>/etc/datacollector.policy • cyanea.nodename=<node name> • cyanea.appserver=<application server name> • appserver.platform=wps502 • com.ibm.websphere.classloader.plugin=com.cyanea.bcm.websphere.BcmPlugin
Custom Services	Add a custom service as follows: Name: Cyanea Custom Service Classname: com.cyanea.ws5.ProbeService Classpath: null Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.
Shared Library Settings	Modify "WPSlib " Shared Libraries at the node level to include ppe.wps_5.jar in the classpath. This can be done through administrative console or by modifying libraries.xml at the node level. To set it through administrative console go to: Environment-->Shared libraries-->WPSlib Add <CYANEA_HOME>/lib/ppe.wps_5.jar to the classpath.

Table 11. Application Server Options for WebSphere 5.0.2 Portal on Windows

Entity	Settings
Performance Monitoring Service	beanModule=X cacheModule=N connectionPoolModule=H j2cModule=H jvmRuntimeModule=H orbPerfModule=H servletSessionsModule=H systemModule=M threadPoolModule=H transactionModule=M webAppModule=H webServicesModule=N wlmModule=M wsgwModule=N

Configuring WebSphere 5.0.2.6 on Intel/Linux and z/Linux

These are the recommended application server options for WebSphere 5.0.2.6 on Intel/Linux and z/Linux.

Table 12. Application Server Options for WebSphere 5.0.2.6 on Intel/Linux and z/Linux

Entity	Settings
Generic JVM Arguments	Add the following as arguments to the JVM command line: Note: The order the instructions are performed in is important. Please follow this order. -Xoss2M -Xss1M - Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar - Xruncyanea
Environment Entries	Set the following environment variables: LD_LIBRARY_PATH =<CYANEA_HOME>/lib

Table 12. Application Server Options for WebSphere 5.0.2.6 on Intel/Linux and z/Linux (continued)

Entity	Settings
Custom Properties (JVM)	<p>Add the following system properties:</p> <ul style="list-style-type: none"> • java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar <p>Where <MS_CYANEA_HOME> is the cyanea home where the Managing Server was installed. For example, /opt/cyaneaone.</p> <ul style="list-style-type: none"> • cyanea.home=<CYANEA_HOME> • java.security.policy=<CYANEA_HOME>/etc/datacollector.policy • cyanea.nodename=<node name> • cyanea.appserver=<application server name> • appserver.platform=was502 • Optional if you are using MQ: cyanea.ext.dirs=<MQ HOME>/lib
Custom Services	<p>Add a custom service as follows:</p> <p>Name: Cyanea Custom Service</p> <p>Classname: com.cyanea.ws5.ProbeService</p> <p>Classpath: null</p> <p>Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.</p>
Performance Monitoring Service	<p>beanModule=X cacheModule=N connectionPoolModule=H j2cModule=H jvmRuntimeModule=H orbPerfModule=H servletSessionsModule=H systemModule=M threadPoolModule=H transactionModule=M webAppModule=H webServicesModule=N wlmModule=M wsgwModule=N</p>

Configuring WebSphere 5.0.2.6 on AIX

These are the recommended application server options for WebSphere 5.0.2.6 on AIX.

Table 13. Application Server Options for WebSphere 5.0.2.6 on AIX

Entity	Settings
Generic JVM Arguments	<p>Add the following as arguments to the JVM command line:</p> <p>Note: The order the instructions are performed in is important. Please follow this order.</p> <pre>-Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar -Xrun cyanea -Xgcthreads1</pre>
Environment Entries	<p>Set the following environment variables:</p> <ul style="list-style-type: none"> • <code>_JVM_THREAD_DUMP_BUFFER_SIZE=25000000</code> • <code>AIXTHREAD_SCOPE=S</code> • <code>AIXTHREAD_MUTEX_DEBUG=OFF</code> • <code>AIXTHREAD_COND_DEBUG=OFF</code> • <code>AIXTHREAD_RWLOCK_DEBUG=OFF</code> • <code>LIBPATH=<CYANEA_HOME>/lib</code> <p>In order to view thread CPU times, set the following environment variable:</p> <ul style="list-style-type: none"> • <code>AIXTHREAD_ENRUSG=ON</code>
Custom Properties (JVM)	<p>Add the following system properties:</p> <ul style="list-style-type: none"> • <code>java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar</code> <p>Where <MS_CYANEA_HOME> is the cyanea home where the Managing Server was installed. For example, /opt/cyaneaone.</p> <ul style="list-style-type: none"> • <code>cyanea.home=<CYANEA_HOME></code> • <code>java.security.policy=<CYANEA_HOME>/etc/datacollector.policy</code> • <code>cyanea.nodename=<node name></code> • <code>cyanea.appserver=<application server name></code> • <code>appserver.platform=was502</code> • Optional if you are using MQ: <code>cyanea.ext.dirs=<MQ_HOME>/lib</code>

Table 13. Application Server Options for WebSphere 5.0.2.6 on AIX (continued)

Entity	Settings
Custom Services	<p>Add a custom service as follows:</p> <p>Name: Cyanea Custom Service</p> <p>Classname: com.cyanea.ws5.ProbeService</p> <p>Classpath: null</p> <p>Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.</p>
Performance Monitoring Service	<p>beanModule=X</p> <p>cacheModule=N</p> <p>connectionPoolModule=H</p> <p>j2cModule=H</p> <p>jvmRuntimeModule=H</p> <p>orbPerfModule=H</p> <p>servletSessionsModule=H</p> <p>systemModule=M</p> <p>threadPoolModule=H</p> <p>transactionModule=M</p> <p>webAppModule=H</p> <p>webServicesModule=N</p> <p>wlmModule=M</p> <p>wsgwModule=N</p>

Configuring WebSphere 5.0.2.6 on Solaris

These are the recommended application server options for WebSphere 5.0.2.6 on Solaris.

Table 14. Application Server Options for WebSphere 5.0.2.6 on Solaris

Entity	Settings
Generic JVM Arguments	<p>Run the JVM in server mode.</p> <p>Add the following as arguments to the JVM command line:</p> <p>Note: The order the instructions are performed in is important. Please follow this order.</p> <p>-server - Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar - Xruncyanea</p> <p>Note: The default NewSize and MaxNewSize might be small for some Applications if the Application is allocating large numbers of short living objects.</p> <p>Here are the settings we recommend for an application that allocates many short living objects:</p> <p>-XX:+DisableExplicitGC -XX:NewSize=128m -XX:MaxNewSize=256m - Xconcurrentio</p> <p>Note: The arguments NewSize and MaxNewSize should be set based on the Maximum and Minimum heap settings of the JVM.</p>

Table 14. Application Server Options for WebSphere 5.0.2.6 on Solaris (continued)

Entity	Settings
Custom Properties (JVM)	<p>Add the following system properties:</p> <ul style="list-style-type: none"> • java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar <p>Where <MS_CYANEA_HOME> is the cyanea home where the Managing Server was installed. For example, /opt/cyaneaone.</p> <ul style="list-style-type: none"> • cyanea.home=<CYANEA_HOME> • java.security.policy=<CYANEA_HOME>/etc/datacollector.policy • cyanea.probe.stdout=<path of application server stdout> • cyanea.nodename=<node name> • cyanea.appserver=<application server name> • appserver.platform=was502 • Optional if you are using MQ: cyanea.ext.dirs=<MQ_HOME>/lib
Custom Services	<p>Add a custom service as follows:</p> <p>Name: Cyanea Custom Service</p> <p>Classname: com.cyanea.ws5.ProbeService</p> <p>Classpath: null</p> <p>Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.</p>
Performance Monitoring Service	<p>beanModule=X cacheModule=N connectionPoolModule=H j2cModule=H jvmRuntimeModule=H orbPerfModule=H servletSessionsModule=H systemModule=M threadPoolModule=H transactionModule=M webAppModule=H webServicesModule=N wlmModule=M wsgwModule=N</p>
Environment Entries	<p>Set the following environment variables:</p> <p>LD_LIBRARY_PATH=<CYANEA_HOME>/lib</p>

Configuring WebSphere 5.0.2.6 on HP-UX

These are the recommended application server options for WebSphere 5.0.2.6 on HP-UX.

Table 15. Application Server Options for WebSphere 5.0.2.6 on HP-UX

Entity	Settings
Generic JVM Arguments	<p>Add the following as arguments to the JVM command line:</p> <p>Note: The order the instructions are performed in is important. Please follow this order.</p> <pre>-Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar -XrunCyanea</pre> <p>Note: The default NewSize and MaxNewSize might be small for some Applications if the Application is allocating large numbers of short living objects.</p> <p>Some tuning we recommend for an application that allocates many short living objects:</p> <pre>-XX:+DisableExplicitGC -XX:NewSize=128m -XX:MaxNewSize=256m -Xconcurrentio</pre> <p>Note: NewSize and MaxNewSize should be changed based on the Maximum and Minimum heap settings of the JVM.</p>
Custom Properties (JVM)	<p>Add the following system properties:</p> <ul style="list-style-type: none"> • <pre>java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar</pre> <p>Where <MS_CYANEA_HOME> is the cyanea home where the Managing Server was installed. For example, /opt/cyaneaone.</p> • <pre>java.security.policy=<CYANEA_HOME>/etc/datacollector.policy</pre> • <pre>cyanea.probe.stdout=<path of application server stdout></pre> • <pre>cyanea.home=<CYANEA_HOME></pre> • <pre>cyanea.nodename=<node name></pre> • <pre>cyanea.appserver=<application server name></pre> • <pre>appserver.platform=was502</pre> • Optional if you are using MQ: <pre>cyanea.ext.dirs=<MQ_HOME>/lib</pre>

Table 15. Application Server Options for WebSphere 5.0.2.6 on HP-UX (continued)

Entity	Settings
Custom Services	<p>Add a custom service as follows:</p> <p>Name: Cyanea Custom Service</p> <p>Classname: com.cyanea.ws5.ProbeService</p> <p>Classpath: null</p> <p>Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.</p>
Performance Monitoring Service	<p>beanModule=X</p> <p>cacheModule=N</p> <p>connectionPoolModule=H</p> <p>j2cModule=H</p> <p>jvmRuntimeModule=H</p> <p>orbPerfModule=H</p> <p>servletSessionsModule=H</p> <p>systemModule=M</p> <p>threadPoolModule=H</p> <p>transactionModule=M</p> <p>webAppModule=H</p> <p>webServicesModule=N</p> <p>wlmModule=M</p> <p>wsgwModule=N</p>
Environment Entries	<p>Set the following environment variables:</p> <p>SHLIB_PATH=<CYANEA_HOME>/lib</p> <p>cyanea.home=<CYANEA_HOME></p> <p>cyanea.nodename=<node name></p> <p>cyanea.appserver=<application server name></p> <p>appserver.platform=was502</p> <p>Optional if you are using MQ:</p> <p>cyanea.ext.dirs=<MQ_HOME>/lib</p>

Configuring WebSphere 5.0.2.6 on Windows

These are the recommended application server options for WebSphere 5.0.2.6 on Windows.

Table 16. Application Server Options for WebSphere 5.0.2.6 on Windows

Entity	Settings
Generic JVM Arguments	<p>Add the following as arguments to the JVM command line:</p> <p>Note: The order the instructions are performed in is important. Please follow this order.</p> <p>-Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar -Xruncyanea</p>

Table 16. Application Server Options for WebSphere 5.0.2.6 on Windows (continued)

Entity	Settings
Environment Entries	Set the following environment variables: _JVM_THREAD_DUMP_BUFFER_SIZE=25000000 PATH=<CYANEA_HOME>\lib
Custom Properties (JVM)	Add the following system properties: <ul style="list-style-type: none"> • java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar Where <MS_CYANEA_HOME> is the directory where the Managing Server is installed. For example, /opt/cyaneaone • cyanea.home=<CYANEA_HOME> • java.security.policy=<CYANEA_HOME>/etc/datacollector.policy • cyanea.nodename=<node name> • cyanea.appserver=<application server name> • appserver.platform=was502 • Optional if you are using MQ: cyanea.ext.dirs=<MQ_HOME>/lib
Custom Services	Add a custom service as follows: Name: Cyanea Custom Service Classname: com.cyanea.ws5.ProbeService Classpath: null Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.
Performance Monitoring Service	beanModule=X cacheModule=N connectionPoolModule=H j2cModule=H jvmRuntimeModule=H orbPerfModule=H servletSessionsModule=H systemModule=M threadPoolModule=H transactionModule=M webAppModule=H webServicesModule=N wlmModule=M wsgwModule=N

Configuring WebSphere 5.1.1 on AIX

These are the recommended application server options for WebSphere 5.1.1 on AIX.

Note: Clean \$WAS_ROOT/logs/preload prior to a new installation.

Table 17. Application Server Options for WebSphere 5.1.1 on AIX

Entity	Settings
Generic JVM Arguments	<p>Add the following as arguments to the JVM command line:</p> <pre>-Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar-Xruncyanea</pre>
Environment Entries	<p>Set the following environment variables:</p> <ul style="list-style-type: none"> • <code>_JVM_THREAD_DUMP_BUFFER_SIZE=25000000</code> • <code>AIXTHREAD_SCOPE=S</code> • <code>AIXTHREAD_MUTEX_DEBUG=OFF</code> • <code>AIXTHREAD_COND_DEBUG=OFF</code> • <code>AIXTHREAD_RWLOCK_DEBUG=OFF</code> • <code>LIBPATH=<CYANEA_HOME>/lib</code> <p>In order to view thread CPU times, set the following environment variable:</p> <ul style="list-style-type: none"> • <code>AIXTHREAD_ENRUSG=ON</code>
Custom Properties (JVM)	<p>Add the following system properties:</p> <ul style="list-style-type: none"> • <code>java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar</code> Where <MS_CYANEA_HOME> is the cyanea home where the Managing Server was installed. For example, /opt/cyaneaone. • <code>cyanea.home=<CYANEA_HOME></code> • <code>java.security.policy=<CYANEA_HOME>/etc/datacollector.policy</code> • <code>cyanea.nodename=<node name></code> • <code>cyanea.appserver=<application server name></code> • <code>appserver.platform=was511</code> • Optional if you are using MQ: <code>cyanea.ext.dirs=<MQ HOME>/lib</code>

Table 17. Application Server Options for WebSphere 5.1.1 on AIX (continued)

Entity	Settings
Custom Services	<p>Add a custom service as follows:</p> <p>Name: Cyanea Custom Service</p> <p>Classname: com.cyanea.ws5.ProbeService</p> <p>Classpath: null</p> <p>Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.</p>
Performance Monitoring Service	<p>beanModule=X</p> <p>cacheModule=N</p> <p>connectionPoolModule=H</p> <p>j2cModule=H</p> <p>jvmRuntimeModule=H</p> <p>orbPerfModule=H</p> <p>servletSessionsModule=H</p> <p>systemModule=M</p> <p>threadPoolModule=H</p> <p>transactionModule=M</p> <p>webAppModule=H</p> <p>webServicesModule=N</p> <p>wlmModule=M</p> <p>wsgwModule=N</p>

Configuring WebSphere 5.1.1 on Intel/Linux and z/Linux

These are the recommended application server options for WebSphere 5.1.1 on Intel/Linux and z/Linux.

Table 18. Application Server Options for WebSphere 5.1.1 on Intel/Linux and z/Linux

Entity	Settings
Generic JVM Arguments	<p>Add the following as arguments to the JVM command line:</p> <p>-Xoss2M -Xss1M -Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar -Xruncyanea</p> <p><CYANEA_HOME> = Cyanea installation directory</p>
Environment Entries	<p>Set the following environment variables:</p> <ul style="list-style-type: none"> LD_LIBRARY_PATH =<CYANEA_HOME>/lib

Table 18. Application Server Options for WebSphere 5.1.1 on Intel/Linux and z/Linux (continued)

Entity	Settings
Custom Properties (JVM)	<p>Add the following system properties:</p> <ul style="list-style-type: none"> • java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar Where <MS_CYANEA_HOME> is the cyanea home where the Managing Server was installed. For example, /opt/cyaneaone. • cyanea.home=<CYANEA_HOME> • java.security.policy=<CYANEA_HOME>/etc/datacollector.policy • cyanea.nodename=<node name> • cyanea.appserver=<application server name> • appserver.platform=was511 <p>Note: Clean \$WAS_ROOT/logs/preload prior to a new installation.</p> <ul style="list-style-type: none"> • Optional if you are using MQ: cyanea.ext.dirs=<MQ HOME>/lib
Custom Services	<p>Add a custom service as follows:</p> <p>Name: Cyanea Custom Service</p> <p>Classname: com.cyanea.ws5.ProbeService</p> <p>Classpath:null</p> <p>Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.</p>
Performance Monitoring Service	<p>beanModule=X cacheModule=N connectionPoolModule=H j2cModule=H jvmRuntimeModule=H orbPerfModule=H servletSessionsModule=H systemModule=M threadPoolModule=H transactionModule=M webAppModule=H webServicesModule=N wlmModule=M wsgwModule=N</p>

Configuring WebSphere 5.1.1 on Solaris

These are the recommended application server options for WebSphere 5.1.1 on Solaris.

Table 19. Application Server Options for WebSphere 5.1.1 on Solaris

Entity	Settings
Generic JVM Arguments	<p>Run the JVM in server mode.</p> <p>Add the following as arguments to the JVM command line:</p> <p>Note: The order in which the options are specified is important. Please follow this order.</p> <pre>-server - Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar - XrunCyanea</pre> <p>Note: The default NewSize and MaxNewSize might be small for some Applications if the Application is allocating large numbers of short living objects.</p> <p>Here are the settings we recommend for an application that allocates many short living objects:</p> <pre>-XX:+DisableExplicitGC -XX:NewSize=128m -XX:MaxNewSize=256m - Xconcurrentio</pre> <p>Note: The arguments NewSize and MaxNewSize should be set based on the Maximum and Minimum heap settings of the JVM.</p>
Custom Properties (JVM)	<p>Add the following system properties:</p> <ul style="list-style-type: none"> • <pre>java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar</pre> <p>Where <MS_CYANEA_HOME> is the cyanea home where the Managing Server was installed. For example, /opt/cyaneaone.</p> • <pre>cyanea.home=<CYANEA_HOME></pre> • <pre>java.security.policy=<CYANEA_HOME>/etc/datacollector.policy</pre> • <pre>cyanea.probe.stdout=<path of application server stdout></pre> • <pre>cyanea.nodename=<node name></pre> • <pre>cyanea.appserver=<application server name></pre> • <pre>appserver.platform=was511</pre> <p>Note: Clean \$WAS_ROOT/logs/preload prior to a new installation.</p> • Optional if you are using MQ: <pre>cyanea.ext.dirs=<MQ_HOME>/lib</pre>

Table 19. Application Server Options for WebSphere 5.1.1 on Solaris (continued)

Entity	Settings
Custom Services	<p>Add a custom service as follows:</p> <p>Name: Cyanea Custom Service</p> <p>Classname: com.cyanea.ws5.ProbeService</p> <p>Classpath: null</p> <p>Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.</p>
Performance Monitoring Service	<p>beanModule=X</p> <p>cacheModule=N</p> <p>connectionPoolModule=H</p> <p>j2cModule=H</p> <p>jvmRuntimeModule=H</p> <p>orbPerfModule=H</p> <p>servletSessionsModule=H</p> <p>systemModule=M</p> <p>threadPoolModule=H</p> <p>transactionModule=M</p> <p>webAppModule=H</p> <p>webServicesModule=N</p> <p>wlmModule=M</p> <p>wsgwModule=N</p>
Environment Entries	<p>Set the following environment variables:</p> <p>LD_LIBRARY_PATH=<CYANEA_HOME>/lib</p>

Configuring WebSphere 5.1.1 on HP-UX

These are the recommended application server options for WebSphere 5.1.1 on HP-UX.

Table 20. Application Server Options for WebSphere 5.1.1 on HP-UX

Entity	Settings
Generic JVM Arguments	<p>Add the following as arguments to the JVM command line:</p> <p>-Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar -XrunCyanea</p> <p>Note: The default NewSize and MaxNewSize might be small for some Applications if the Application is allocating large numbers of short living objects.</p> <p>Some tuning we recommend for an application that allocates many short living objects:</p> <p>-XX:+DisableExplicitGC -XX:NewSize=128m -XX:MaxNewSize=256m -Xconcurrentio</p> <p>Note: NewSize and MaxNewSize should be changed based on the Maximum and Minimum heap settings of the JVM.</p>

Table 20. Application Server Options for WebSphere 5.1.1 on HP-UX (continued)

Entity	Settings
Custom Properties (JVM)	<p>Add the following system properties:</p> <ul style="list-style-type: none"> • java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar <p>Where <MS_CYANEA_HOME> is the cyanea home where the Managing Server was installed. For example, /opt/cyaneaone.</p> <ul style="list-style-type: none"> • java.security.policy=<CYANEA_HOME>/etc/datacollector.policy • cyanea.probe.stdout=<path of application server stdout> • cyanea.home=<CYANEA_HOME> • cyanea.nodename=<node name> • cyanea.appserver=<application server name> • appserver.platform=was511 • Optional if you are using MQ: cyanea.ext.dirs=<MQ_HOME>/lib
Custom Services	<p>Add a custom service as follows:</p> <p>Name: Cyanea Custom Service</p> <p>Classname: com.cyanea.ws5.ProbeService</p> <p>Classpath: null</p> <p>Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.</p>
Performance Monitoring Service	<p>beanModule=X cacheModule=N connectionPoolModule=H j2cModule=H jvmRuntimeModule=H orbPerfModule=H servletSessionsModule=H systemModule=M threadPoolModule=H transactionModule=M webAppModule=H webServicesModule=N wlmModule=M wsgwModule=N</p>

Table 20. Application Server Options for WebSphere 5.1.1 on HP-UX (continued)

Entity	Settings
Environment Entries	Set the following environment variables: SHLIB_PATH=<CYANEA_HOME>/lib cyanea.home=<CYANEA_HOME> cyanea.nodename=<node name> cyanea.appserver=<application server name> appserver.platform=was511 Optional if you are using MQ: cyanea.ext.dirs=<MQ_HOME>/lib

Configuring WebSphere 5.1.1 on Windows

These are the recommended application server options for WebSphere 5.1.1 on Windows.

Table 21. Application Server Options for WebSphere 5.1.1 on Windows

Entity	Settings
Generic JVM Arguments	Add the following as arguments to the JVM command line: -Xbootclasspath/p:<CYANEA_HOME>/lib/cyanea.bootstrap_was.jar -Xrun cyanea
Environment Entries	Set the following environment variables: _JVM_THREAD_DUMP_BUFFER_SIZE=25000000 PATH=<CYANEA_HOME>\lib

Table 21. Application Server Options for WebSphere 5.1.1 on Windows (continued)

Entity	Settings
Custom Properties (JVM)	<p>Add the following system properties:</p> <ul style="list-style-type: none"> • java.rmi.server.codebase = file://<MS_CYANEA_HOME>/lib3.1/ppe.probe.jar file://<MS_CYANEA_HOME>/lib/ppe.probe-intf.jar file://<MS_CYANEA_HOME>/lib3.1/ppe.was_5.jar <p>Where <MS_CYANEA_HOME> is the directory where the Managing Server is installed. For example, \opt\cyaneaone</p> <ul style="list-style-type: none"> • cyanea.home=<CYANEA_HOME> • java.security.policy=<CYANEA_HOME>\etc\datacollector.policy • cyanea.nodename=<node name> • cyanea.appserver=<application server name> • appserver.platform=was511 <p>Note: Clean \$WAS_ROOT/logs/preload prior to a new installation.</p> <ul style="list-style-type: none"> • Optional if you are using MQ: cyanea.ext.dirs=<MQ HOME>/lib
Custom Services	<p>Add a custom service as follows:</p> <p>Name: Cyanea Custom Service</p> <p>Classname: com.cyanea.ws5.ProbeService</p> <p>Classpath: null</p> <p>Note: There is a bug in the Administrative Console that will not allow you to type an empty classpath.</p>
Performance Monitoring Service	<p>beanModule=X cacheModule=N connectionPoolModule=H j2cModule=H jvmRuntimeModule=H orbPerfModule=H servletSessionsModule=H systemModule=M threadPoolModule=H transactionModule=M webAppModule=H webServicesModule=N wlmModule=M wsgwModule=N</p>

Appendix E. Setting up an HTTP Server with your Managing Server

It is recommended that you use a HTTP Web server to access the Managing Server front end running on WebSphere Application Server. If you choose to use IBM HTTP Server (IHS) version 1.3, verify the following:

1. Please make sure, that the IHS installation program has appended the following two lines to the Web server configuration file `httpd.conf`

```
LoadModule ibm_app_server_http_module \  
<WAS_HOME>/bin/mod_ibm_app_server_http.so  
WebSpherePluginConfig <WAS_HOME>/config/cells/plugin-cfg.xml
```

where `<WAS_HOME>` is your WebSphere 5.1 installation directory. The configuration file `httpd.conf` usually gets installed in directory `/usr/HTTPServer/conf` or `/opt/IBMHTTPServer/conf`, but that varies depending on the conventions used at your site.

2. If the Web server is not configured to listen to the default port (80), you will need to specify the appropriate port number in the Managing Server front end access URL (e.g. `http://<hostname>:90/cyanea_one/home` for port 90). If you wish to access the front end at the default port (80), you need to verify that the Web server is listening at the default port. The ports are defined by two IHS runtime directives

```
Port 80
```

```
Listen 80
```

in the `httpd.conf` file. Once the plug-in and port configurations for IHS are correct, you may access the front end without any port specification in the URL (e.g. `http://<hostname>/cyanea_one/home`).

3. For further information on configuring IHS, please refer to IBM documentation at http://publib.boulder.ibm.com/infocenter/wasinfo/index.jsp?topic=/com.ibm.websphere.base.doc/info/aes/ae/tins_webserver.html.

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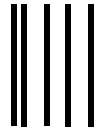
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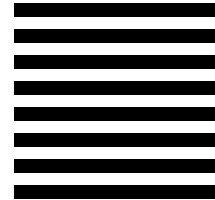
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Easy to find	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easy to understand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Well organized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Applicable to your tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Overall satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Accurate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Complete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easy to find	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easy to understand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Well organized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Applicable to your tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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