



# WebSphere Studio Application Monitor Operator's Guide

3.2





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3.2

**Note:**

Before using this information and the product it supports, read the information in Appendix E, "Support Information," on page 51.

**Ninth Edition (April 2005)**

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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# Contents

<b>Preface</b> . . . . .	<b>v</b>
About this book . . . . .	v
Who should read this book . . . . .	v
Where to find more information . . . . .	v
Publications . . . . .	v
Accessing publications online. . . . .	v
Ordering publications . . . . .	vi
Tivoli technical training . . . . .	vi
Support information . . . . .	vi
Conventions used in this guide . . . . .	vii
Typeface conventions . . . . .	vii
Operating system-dependent variables and paths . . . . .	vii
<b>Tables</b> . . . . .	<b>ix</b>
<b>Part 1. The Application Monitor</b> . . . . .	<b>1</b>
<b>Chapter 1. System Level Operations</b> . . . . .	<b>3</b>
Starting DB2 UDB . . . . .	3
Starting the Oracle Database . . . . .	4
Starting the Web Server. . . . .	4
Starting Virtual Frame Buffer . . . . .	4
Linux. . . . .	5
AIX . . . . .	5
Setting up the Graphical Environments (UNIX-only) . . . . .	5
Starting the rest of the Visualization Engine . . . . .	6
Starting the rest of the Application Monitor . . . . .	6
Stopping the Application Monitor . . . . .	6
<b>Chapter 2. Component Level Operations.</b> . . . . .	<b>9</b>
Watchdog Operations . . . . .	10
Performing Database Optimization . . . . .	10
Data Maintenance . . . . .	10
To perform data maintenance on the database: . . . . .	10
Oracle Database Optimization . . . . .	11
The Data Trimmer . . . . .	11
Log Files . . . . .	12
<b>Part 2. The Common Services Address Space (z/OS and OS/390).</b> . . . . .	<b>13</b>
<b>Chapter 3. The Common Services Address Space</b> . . . . .	<b>15</b>
<b>Chapter 4. Commands and Parameters</b> . . . . .	<b>17</b>
Starting CYN1 . . . . .	17
Stopping CYN1 . . . . .	18
Modifying CYN1 . . . . .	18
The ACT CYN1 Command . . . . .	18
The CPU CYN1 Command . . . . .	19
The INACT CYN1 Command . . . . .	21
The DUMP CYN1 Command . . . . .	21
The SMFWRITE CYN1 Command . . . . .	22
The TRACE CYN1 Command . . . . .	22
The SPINLOG CYN1 Command . . . . .	22

The ZAP CYN1 Command . . . . .	22
The STAMP CYN1 Command . . . . .	23
The VER CYN1 Command . . . . .	23
The STATS CYN1 Command . . . . .	23

---

**Part 3. The Data Collector . . . . . 25**

**Chapter 5. Disabling the Data Collector. . . . . 27**

Disabling Data Collectors for WebSphere . . . . .	27
Disable . . . . .	27
Disabling Data Collectors for WebSphere . . . . .	27
Disabling Data Collectors for WebLogic . . . . .	27
PMI Module Settings . . . . .	28

---

**Part 4. Appendixes. . . . . 29**

**Appendix A. Starting Multiple Instances of Application Monitor Components . . . . . 31**

**Appendix B. Sample Cron Jobs . . . . . 33**

**Appendix C. Managing Server and Data Collector Tuning . . . . . 35**

Properties Files . . . . .	35
aa.properties . . . . .	35
ve.properties . . . . .	37
md.properties . . . . .	37
kl.properties . . . . .	38
datacollector.properties . . . . .	39
ps.properties . . . . .	42
sam1.properties . . . . .	43
WebSphere Global Security . . . . .	44
Miscellaneous . . . . .	45

**Appendix D. Data Trimmer . . . . . 47**

Data Trimmer Properties Files . . . . .	47
---	----

**Appendix E. Support Information . . . . . 51**

Searching knowledge bases . . . . .	51
Searching the information center . . . . .	51
Searching the Internet . . . . .	51
Obtaining fixes . . . . .	52
Receiving weekly support updates . . . . .	52
Contacting IBM Software Support . . . . .	53
Determining the business impact . . . . .	54
Describing problems and gathering information . . . . .	54
Submitting problems . . . . .	54

**Notices . . . . . 57**

Trademarks . . . . .	59
----------------------	----

**Index . . . . . 61**

**Bibliography . . . . . 63**

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## Preface

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### About this book

This book is the Operator's Guide for WebSphere Studio Application Monitor (Application Monitor). It contains information about the operation of the Application Monitor and the common services address space.

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### Who should read this book

Those who want to use the Application Monitor.

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### 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.

---

## Publications

This section describes how to access Tivoli publications online and how to order Tivoli publications.

### Accessing publications online

The documentation CD contains the publications that are in the product library. The format of the publications is PDF, HTML, or both. Refer to the readme file on the CD for instructions on how to access the documentation.

The product CD contains the publications that are in the product library. The format of the publications is PDF, HTML, or both. To access the publications using a Web browser, open the `infocenter.html` file. The file is in the appropriate publications directory on the product CD.

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli software information center Web site. Access the Tivoli software information center by first going to the Tivoli software library at the following Web address:

<http://www.ibm.com/software/tivoli/library/>

Scroll down and click the **Product manuals** link. In the Tivoli Technical Product Documents Alphabetical Listing window, click the **WebSphere Studio Application Monitor** link to access the product library at the Tivoli software information center.

**Note:** If you print PDF documents on other than letter-sized paper, set the option in the **File** → **Print** window that allows Adobe Reader to print letter-sized pages on your local paper.

## Ordering publications

You can order many Tivoli publications online at the following Web site:

<http://www.elink.ibm.com/public/applications/publications/cgi-bin/pbi.cgi>

You can also order by telephone by calling one of these numbers:

- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, see the following Web site for a list of telephone numbers:

In other countries, contact your software account representative to order Tivoli publications.

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## Tivoli technical training

For Tivoli technical training information, refer to the following IBM Tivoli Education Web site:

<http://www.ibm.com/software/tivoli/education>

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## Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

- **Searching knowledge bases:** You can search across a large collection of known problems and workarounds, Technotes, and other information.
- **Obtaining fixes:** You can locate the latest fixes that are already available for your product.
- **Contacting IBM Software Support:** If you still cannot solve your problem, and you need to work with someone from IBM, you can use a variety of ways to contact IBM Software Support.



For more information about these three ways of resolving problems, see “Contacting IBM Software Support” on page 53.

---

## Conventions used in this guide

This guide uses several conventions for special terms and actions, operating system-dependent commands and paths, and margin graphics.

### Typeface conventions

This guide uses the following typeface conventions:

#### **Bold**

- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text
- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multicolumn lists, containers, menu choices, menu names, tabs, property sheets), labels (such as **Tip:**, and **Operating system considerations:**)
- Keywords and parameters in text

#### *Italic*

- Words defined in text
- Emphasis of words (words as words)
- New terms in text (except in a definition list)
- Variables and values you must provide

#### Monospace

- Examples and code examples
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
- Message text and prompts addressed to the user
- Text that the user must type
- Values for arguments or command options

### Operating system-dependent variables and paths

This guide uses the UNIX convention for specifying environment variables and for directory notation.

When using the Windows command line, replace *\$variable* with *% variable%* for environment variables and replace each forward slash (/) with a backslash (\) in directory paths. The names of environment variables are not always the same in Windows and UNIX. For example, *%TEMP%* in Windows is equivalent to *\$TMP* in UNIX.

**Note:** If you are using the bash shell on a Windows system, you can use the UNIX conventions.



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## Tables

1. Example of Dump CYN1 Command Output 21
2. Example of Zap CYN1 Command . . . . . 23



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## **Part 1. The Application Monitor**



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## Chapter 1. System Level Operations

The Managing Server runs on either the RS6000/AIX<sup>®</sup>, Intel/Linux, Sparc/Solaris, Windows or z/Linux platform. It consists of the following components:

- Kernel
- Publish Server
- Archive Agent
- Message Dispatcher
- Visualization Engine
- Database
- SAM/GPS
- Polling Agent

It is by default that the code base for the Managing Server is located at /opt/IBM/wsam. If you installed the Managing Server elsewhere, please adjust the documentation accordingly.

The four sub-directories under the /opt/IBM/wsam are bin, etc, lib, and logs.

1. Executable scripts are located under the /opt/IBM/wsam/bin directory.
2. Configuration files are located under the /opt/IBM/wsam/etc directory.
3. Log files generated by the components are located under /opt/IBM/wsam/logs.

All commands are executed as the "amuser" user.

The Managing Server will start 2 instances of the Kernel, the Publish Server and Archive Agent and a single instance of the remaining components by default. (For more information on starting multiple instances of the Application Monitor component, please see the Appendix C, "Managing Server and Data Collector Tuning," on page 35).

**To start the Managing Server in the following sequence after a reboot:**

1. Start the database.
2. Start the Web Server.
3. Start Virtual Frame Buffer.
4. Start the Visualization Engine.
5. Start the rest of the Application Monitor components.

---

### Starting DB2 UDB

If you are using DB2<sup>®</sup> for your Managing Server database perform the following steps.

To manually start DB2 UDB, type in:

For UNIX:  
su - db2inst1  
db2start

For Windows: Open a DB2 command-line processor.  
db2start

---

## Starting the Oracle Database

To manually start the Oracle database, type in

For UNIX:

```
su - oracle
```

For Windows:

Open an oracle sqlplus editor.

1. Check if ORACLE\_SID is octigate, if not, do:  
export ORACLE\_SID=octigate
2. Start Server Manager:  
svrmgrl
3. Connect to octigate database:  
connect internal
4. Start octigate database:  
startup
5. Exit from Server Manager Command line mode:  
quit
6. Check if Oracle database listener is running and if octigate is part of the service:  
lsnrctl stat
7. Start Oracle database listener if it has not yet been up running or octigate is not in the service:  
lsnrctl start

---

## Starting the Web Server

This step is optional. Use only if you want to use an HTTP server to view the Application Monitor.

To manually start the Web Server, type in:

For UNIX:

```
su - root  
/opt/IBMHttpServer/bin/apachectl
```

For Windows:

Login as Administrator.

```
c:\opt\IBMHttpServer\bin\apachectl
```

---

## Starting Virtual Frame Buffer

You will need Virtual Frame Buffer if you are starting WebSphere® for the Managing Server from a telnet terminal window. Virtual Frame Buffer is required for displaying graphics.



## Linux

To implement a virtual X11 environment on Linux:

To start Xvfb server, type in:

```
$ /usr/bin/nohup /usr/X11R6/bin/Xvfb :1 1>/dev/null 2>/dev/null &
```

## AIX

To start Xvfb server, type in:

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

OR

```
$ /bin/nohup X -vfb -force :1 1>/dev/null 2>/dev/null &
```

---

## Setting up the Graphical Environments (UNIX-only)

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 8 and 10

```
Xvfb :1 &
```

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

### Solaris 9

```
Xvfb :0 &
```

(Typically located in /usr/openwin/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.

---

## Starting the rest of the Visualization Engine

To manually start the Visualization Engine, type in:

For UNIX:

```
su - root
```

For Windows:

Login as Administrator.

Start virtual frame buffer as described above.

For WebSphere:

```
<WAS installation directory>/bin/  
startServer.sh <server name> &
```

WebSphere will be started.

For WebLogic:

```
<weblogic installation directory>/user_projects/  
domain/<domain name>/startWSAM_Weblogic.sh
```

**Note:** The admin server should already be running.

WebLogic will be started.

**Note:** If you followed the instructions in the Installation and Customization Guide, the Application Monitor Visualization Engine Application Server should also be started too.

---

## Starting the rest of the Application Monitor

To start the rest of the Application Monitor manually, type in:

For UNIX:

```
su - amuser  
cd /opt/IBM/wsam/bin
```

For Windows:

Login as amuser. Open a Korn shell.

Change directory to \$WSAMBIN, for example `cd $WSAMBIN`.

```
./am-start.sh
```

---

## Stopping the Application Monitor

To stop the Application Monitor manually, type in:

For UNIX:

```
su - amuser  
cd <MS Installation Directory>/bin
```

For Windows:

Login as amuser. Open a Korn shell.

Change directory to <MS Installation Directory>, for example `cd $WSAMBIN`.

`./am-stop.sh`

This will stop all the stand alone Java™ components. It will not stop the WSAM application server or the database.

**Note:** <MS Installation Directory> is the directory where you installed the Managing Server.



---

## Chapter 2. Component Level Operations

This section gives you guidelines on how to operate specific components within the Managing Server. The Kernel, Publish Server, Archive Agent, Message Dispatcher, Polling Agent, and Global Publish Server are all controlled via a common script "<MS installation directory>/bin/amctl.sh". The syntax is:

For UNIX:

```
su - amuser  
cd <MS Installation directory>
```

```
./amctl.sh <component name> <command>
```

For Windows:

Login as amuser. Open a Korn shell.

Change directory to <MS Installation directory>, for example `cd $WSAMBIN`.

```
./amctl.sh <component name> <command>
```

<command> refers to one of "start", "stop", "ping" or "status".

By default, the following component names are available on the Managing Server:

- k11 - first instance of the kernel
- k12 - second instance of the kernel
- ps1 - first instance of the publish server
- ps2 - second instance of the publish server
- sam - the one instance Global Publish Server
- aa1 - first instance of the archive agent
- aa2 - second instance of the archive agent
- md- message dispatcher
- pa - polling agent

For Example:

To start the first instance of the kernel, type in:

```
./amctl.sh k11 start
```

To stop the first instance of the kernel, type in:

```
./amctl.sh k11 stop
```

To check the status of the first instance of the kernel, type in:

```
./amctl.sh k11 status
```

To ping the first instance of the kernel, type in:

```
./amctl.sh k11 ping
```

---

## Watchdog Operations

The Watchdog is a lightweight component that manages a particular kernel. If the kernel does not respond, the watchdog process restarts the kernel. Each kernel has its own watchdog process. The Watchdog process must be on the machine where the kernel is running.

Watchdog properties file:

```
klwd1.properties
```

Tune the following properties in the file:

```
kernelwd.renewal.failure=3
```

This property takes an integer value. It is the number of times the Watchdog pings the kernel before it restarts the kernel.

```
kernelwd.ping.interval=5000
```

This property takes an integer value. Its units are in milliseconds. It is the time between individual pings from the Watchdog to the Kernel.

To start the kernel with the Watchdog:

```
amctl.sh k11 start
```

To stop the kernel with the Watchdog:

```
amctl.sh k11 stop
```

To start the kernel without the Watchdog:

```
klctl.sh start k11.properties
```

To stop the kernel without the Watchdog:

```
klctl.sh stop k11.properties
```

---

## Performing Database Optimization

### Data Maintenance

The script `run-stat-cmds.sh` is provided as a command-line utility so that users can simply schedule Cron jobs to periodically maintain the database. Execute `run-stat-cmds.sh` daily. If there is still a performance problem in the Performance Analysis and Reporting, then perform the following procedures.

The data maintenance utilities are as follows:

- REORGCHK
- REORG
- RUNSTAT

### To perform data maintenance on the database:

1. Login to WSAM DB2 server.
2. db2 connect to octigate user db2inst1
3. db2 reorgchk update statistics on table <am.tablename>

Go to step 4 and 5 for table reorganization if an asterisk is shown in the REORG column of the output. Otherwise, skip them.

4. `db2 reorg table <am.tablename> index <am.indexname>`
5. `db2 runstat on table <am.tablename>`

**Note:** If tables are being reorganized, then archive agent will not be able to insert any data into the tables.

## Oracle Database Optimization

To perform database maintenance on the Oracle database, perform the following steps:

1. Login to the database server machine: For UNIX:

```
su - oracle
```

For Windows: Open an oracle sqlplus editor.

2. Connect to the octigate database:

```
sqlplus <am username>/<password>@octigate
```

3. Execute the command to collect schema statistics:

```
exec dbms_stats.gather_schema_stats ('am')
```

4. Exit the database:

```
quit
```

---

## The Data Trimmer

The Data Trimmer is used to trim old data that does not need to be maintained in the database any longer. It is provided as a command-line utility so that users can simply schedule Cron jobs to periodically trim appropriate data. Please be aware that running this command could take a very long time depending on the amount of data being trimmed.

The syntax is as follows:

For UNIX:

```
/opt/IBM/wsam/bin/dataTrimmer.sh dbuser dbpassword startdate  
starttime enddate endtime [maxrow]
```

For Windows:

```
c:\Program Files\IBM\wsam\bin\dataTrimmer.bat dbuser dbpassword  
startdate starttime enddate endtime [maxrow]
```

starttime and endtime must be specified using military (24-hour) notation. The optional parameter maxRow is the number of rows is committed to database in a transaction. The default for maxRow is 1000.

For example, to delete data collected from January 1 2003 to March 31 2003, use the following invocation:

For UNIX:

```
/opt/IBM/wsam/bin/dataTrimmer.sh dbuser dbpassword  
01/01/03 00:00:00 03/31/03 11:59:59
```

For Windows:

```
c:\Program Files\IBM\wsam\bin\dataTrimmer.bat dbuser dbpassword  
01/01/03 00:00:00 03/31/03 11:59:59
```

---

## Log Files

The following parameters pertain to the file size and rotation of the log files. The log files are located in <AM\_HOME>/logs directory, and the property files are located in AM\_HOME/etc. The log files available are as follows:

- log-kl1.properties
- log-kl2.properties
- log-aa.properties
- log-aa1.properties
- log-aa2.properties
- log-md.properties
- log-ps1.properties
- log-ps2.properties
- log-sam1.properties
- log-pa.properties
- log-datatrimmer.properties

The parameters are as follows:

MaxFileSize=1000KB MaxBackupIndex=10



---

## **Part 2. The Common Services Address Space (z/OS and OS/390)**



---

## Chapter 3. The Common Services Address Space

The Common Services Address Space CYN1 only exists in a z/OS® or OS/390® environment where applications running inside WebSphere are being monitored. It serves as a repository for SMF records generated by the WebSphere Application Server and captured by the SMF address space. This repository takes copies of SMF records and provides the basis for real time analysis when used in conjunction with the Monitoring Console. It also provides other functions that are unique to the z/OS or OS/390 environment.



---

## Chapter 4. Commands and Parameters

---

### Starting CYN1

CYN1 is defined as an MVS™ subsystem; it also runs as a started task and the JCL resides in one of the system PROCLIB datasets. The PROCLIB member name and the subsystem name do not have to be the same; if they are, the sub parameter "SUB=JES2" must be added to the start command to inform the system to start the job under the JES2 procedure library, instead of the MSTR library, which is the default when the task being started is a subsystem.

The syntax of the start command is as follows:

```
START xxxx[.yy][,SUB=JES2][,PARM=zzzz][SMFWRITE=ON | OFF]
```

Where:

**xxxx** The name of the PROCLIB member containing the JCL for CYN1. "CYN1" is also the name of the MVS subsystem. The PROCLIB member is usually called "CYN1", but it does not have to be. In fact, in order to avoid specifying "SUB=JES2", it is recommended to keep those names distinct and use "CYN1PROC" as the name for the Proclib member.

**yy** The optional identifier of the started task for future reference is the MODIFY or STOP commands. For short yy = "CC". If yy is not specified, the system uses xxxx as the identifier.

#### **SUB=JES2**

If the PROCLIB member and the subsystem share the same name, that is "CYN1", this specification is required so that the JCL to be selected is to be found in the JES2 procedure library, e.g., USER.PROCLIB, instead of the default MSTR.

#### **PARM=zzzz**

It is appended to the string "CYNP" to form the name of a parameter module DSECT, member of the STEPLIB library, in which the run parameters are specified. If omitted, the name specified in the PARM keyword, in the JCL EXEC statement will be selected. If there is no PARM keyword, this specification is required.

#### **SMFWRITE=ON | OFF**

Either ON or OFF must be used if the SMFWRITE directive is specified. If omitted, the name specified in the SMFWRITE keyword, in the JCL EXEC statement will be selected. If there is no SMFWRITE keyword, this specification is required. This specification sets the initial value of the SMFWRITE variable, which can be subsequently changed with the SMFWRITE command. If SMFWRITE is ON, WebSphere Application Server generated SMF records (type 120, subtypes 3, 6, and 8) will be written to the SMF datasets. If SMFWRITE is OFF, writing of these records will be disabled.

Example:

```
START CYN1.CC,SUB=JES2
```

```
START CYN1PROC.DS
```

```
START CYN1PROC,PARM=BIG
```

```
START CYN1PROC,SMFWRITE=ON
START CYN1PROC.CC,SMFWRITE=OFF,PARMS=TEST
```

---

## Stopping CYN1

The syntax of the stop command is as follows:

```
P xxxx or P yy
```

Where:

**xxxx** The name of the PROCLIB member containing the JCL for CYN1. This form is required when no identifier name was supplied in the start command.

**yy** The optional identifier for the started task, in the start command. If yy is not specified, the system uses xxxx as the identifier.

**Note:** When stopping CYN1, outstanding requests will be completed. Subsequent requests, however, may produce unpredictable results. Therefore use the INACT CYN1 command (see below) prior to issuing command to insure that no additional requests will be initiated.

---

## Modifying CYN1

The syntax of the modify command is as follows:

```
F xxxx,verb[,param...[,param]...]
```

Or

```
F yy,verb[,param...[,param]...]
```

Where:

**xxxx** The name of the PROCLIB member containing the JCL for CYN1. This form is required when no identifier name was supplied in the start command.

**yy** The optional identifier for the started task, in the start command. If yy is not specified, the system uses xxxx as the identifier.

**verb** The command verb. Currently there are eight verbs: "ACT", "INACT", "DUMP", "TRACE", "SPINLOG", "ZAP", "STAMP", "VER", for the CYN1 commands described below.

**param** The CYN1 command parameters. They are command dependent and their presence is optional.

---

## The ACT CYN1 Command

The form of the ACT command is as follows:

```
F xxxx,ACT
```

Or

```
F yy,ACT
```

The ACT command is only useful to render CYN1 active again in the event the INACT command has been issued. When CYN1 is started, it is initiated in active mode, ready to process Clients' requests.

---

## The CPU CYN1 Command

The CPU command is used to display CPU information about a particular address space identified by its asid (address space identification). The CPU information consists in the accumulated CPU time in central processors expressed in seconds. Additionally under z/OS V1R6 and above, some zAAP (zSeries Application Assist Processor) data are given. They are the accumulated CPU time in zAAP, also known as Integration Facility for Applications (IFA) processors, the accumulated CPU time in CP (central processors), and the accumulated CPU time in CP which could have been spent in zAAP. All CPU times are normalized and expressed in seconds.

**Note:** If you have a multiple IP's then edit the file IPAddress\_List.txt and add all the IP addresses including local host IP separated line by line.

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**Note:** If you have a multiple IP's then edit the file IPAddress\_List.txt and add all the IP addresses including local host IP separated line by line.

The form of the CPU command is as follows:

```
F {xxxx | yy},CPU asid
```

### **asid**

It specifies the asid of the address space for which the CPU information will be given. It is a four hexadecimal digit number.

Example:

```
F CC,CPU 006A
```

will output CPU information for the address space whose asid is 006A.



---

## The INACT CYN1 Command

The form of the INACT command is as follows:

```
F xxxx,INACT
```

Or

```
F yy,INACT
```

The INACT command puts CYN1 in a state where no further Client requests will be accepted, however, currently active requests will be completed. The use of the INACT command is recommended when "trouble" is detected, either at the Server, or the Clients' level, or when CYN1 is about to be brought down.

---

## The DUMP CYN1 Command

The DUMP command is used to display in hexadecimal and character format areas of storage in the CYN1 address space.

The form of the DUMP command is as follows:

```
F {xxxx | yy},DUMP,AS,hexaddr[,length]
```

**AS** AS stands for address space.

### Hexaddr

It specifies an eight-digit hexadecimal starting address of the memory location to be displayed. Alternately, the starting address can be specified with keywords describing what control blocks to be displayed.

The current valid keywords are:

\$CYNCYNA	The CYN1 anchor area in CSA
\$CYNSETB	The server directory table
\$CYNSTITB	The server/container interval table
\$CYNSSPL	The server section entry pool
\$CYNBSPL	The bean section entry pool
\$CYNBMPL	The bean method section entry pool
\$CYNHSPL	The HttpSessionManager section entry pool
\$CYNWSPL	The WebApplication section entry pool
\$CYNVPL	The Servlet section entry pool
\$LOGBOOK	The in-core SYSLOG book
\$CMDBOOK	The in-core command book

**Note:** The corresponding DSECTs are part of the macro library.

### length

It specifies the length in bytes of the area to be displayed. The length is specified in decimal and has a maximum of 4 digits (9999 bytes). Default is 16 bytes (one dump line).

Example:

*Table 1. Example of Dump CYN1 Command Output*

F CC,DUMP,AS,00000000	It displays 16 bytes of the PSA.
F CC,DUMP,AS,\$CYNSETB,192	It displays entries 0 and 1 of the server directory table.
F CC,DUMP,AS,02A0C100,4096	It displays one memory page starting at location 02A0C100.

---

## The SMFWRITE CYN1 Command

The SMFWRITE command is used to turn on/off the writing of WebSphere Application Server generated SMF records (type 120, subtypes 3, 6, and 8) to the SMF datasets. It is also used to display the current value of SMFWRITE.

The form of the SMFWRITE command is as follows:

```
F {xxxx | yy},SMFWRITE {ON | OFF | SHOW}
```

**Note:** ON will turn the SMF writing on, while OFF will turn it off. When CYN1 comes up, the writing is governed by the SMFWRITE specification in the CYN1 START command, or is hard-coded in the JCL of the corresponding PROCLIB member JCL. SHOW will display the current value (ON or OFF) of SMFWRITE.

---

## The TRACE CYN1 Command

The TRACE command is used to turn on/off the SYSLOG trace, which currently consists of information messages regarding the reception of SMF records. The SYSLOG dataset is buffered in a circular in-core book, the size of which is specified in the PARM member.

The form of the TRACE command is as follows:

```
F {xxxx | yy},TRACE {ON | OFF}
```

**Note:** ON will turn the trace on, while OFF will turn it off. When CYN1 comes up, the trace is off.

---

## The SPINLOG CYN1 Command

The SPINLOG command is used to reset pointers to the in-core SYSLOG book, close the current SYSLOG dataset, and reopen a new one. The closed SYSLOG dataset can be subsequently retrieved by report writer programs. SYSLOG traces can be separated.

The form of the SPINLOG command is as follows:

```
F {xxxx | yy},SPINLOG
```

---

## The ZAP CYN1 Command

The ZAP command is used to modify areas of storage in the CYN1 address. The form of the ZAP command is as follows:

```
F {xxxx | yy},ZAP,{AS|SS},hexaddr,hexcont,hexrep|
```

### AS|SS

AS stands for address space dump. SS stands for address space authorized. Either one must be specified.

### hexaddr

It specifies an eight-digit hexadecimal address of the word to be zapped. Low core (4 kilobyte PSA) zapping is always disabled. System region, i.e. virtual addresses 00001001 through 00005000 can only be zapped if SS address space authorized option is specified.

### hexcont

It specifies the eight-digit hexadecimal current contents of the word to be zapped, for verification.

### Hexrepl

It specifies the eight-digit hexadecimal value to replace hexcont with at address hexaddr.

Example:

Table 2. Example of Zap CYN1 Command

Valid	Invalid
F CC,ZAP,SS,0000100F,E8000000,00000000	F CC,ZAP,AS,00000000,040C0000,00000000 or F CC,ZAP,SS,00000000,040C0000,00000000 <b>Note:</b> It is invalid because the area to be zapped is in the PSA.
F CC,ZAP,AS,028AC300,001F007A,00000000 zeroes the word at virtual address 028AC300 location.	F CC,ZAP,AS,0000100F,E8000000,00000000 <b>Note:</b> It is invalid because the area to be zapped is in the system region.

---

## The STAMP CYN1 Command

The STAMP command is used to turn on/off time stamping, which consists in outputting to the SYSLOG dataset stamp records corresponding to critical events in processing clients' requests. The SYSLOG dataset is buffered in a circular in-core book, the size of which is specified in the PARM member.

The form of the STAMP command is as follows:

F {xxxx | yy},STAMP {ON | OFF}

**Note:** ON will turn the STAMP on, while OFF will turn it off. When CYN1 comes up, time stamping is off.

---

## The VER CYN1 Command

The VER command is used to display the version information in CYN1 main task entry module CYN1DRVR. The information consists of the name of the module followed by the "version.level.change" number followed by the date and time of the module assembly.

The form of the VER command is as follows:

F {xxxx | yy},VER

---

## The STATS CYN1 Command

The STATS command is used to reset the statistical information that is gathered by CYN1 from the WebSphere generated SMF records. SMF records of type 120 are generated on a regular basis (recommended every 300 seconds) by every WebSphere application server instances, summarizing server activity (subtype 3), ejb container activity (subtype 6) and Web container activity (subtype 8) for that period. Normally CYN1 gathers this information and accumulates/averages these statistics across periods for each server instance, so that what the user sees on the System Resource screen is a running activity history for that server instance. The RESET option of the STATS command will cause the next generated statistics to override the current accumulated statistics for all server instances, thereby starting a new history interval. After the override, statistics accumulation resumes until the next time the RESET option is used. If the RESET option was entered by mistake,

the CUMUL option will nullify it provided the CUMUL option is entered prior to WebSphere generation of the next SMF records.

The form of the STATS command is as follows:

```
F {xxxx | yy},STATS {RESET | CUMUL}
```

**Note:** RESET will reset the start of the statistics accumulation interval. CUMUL will undo RESET if entered before the next SMF record cycle. CUMUL has no effect if RESET was not entered.

---

## **Part 3. The Data Collector**



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## Chapter 5. Disabling the Data Collector

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### Disabling Data Collectors for WebSphere

Follow the instructions appropriate for the platform on which you would like to disable the Data Collectors for WebSphere.

---

#### 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.
3. Click the + sign until you ungroup the Application Servers directory.
4. Select the server where the Administrator installed the data collector.
5. For WAS 5.x, select Custom Services and highlight AM Custom Services. For WAS 6.x, go to Server Infrastructure > Administration > Custom Services and highlight AM Custom Services.
6. Click **Edit**.
7. Clear the Enabled box or change the server startup value to False.
8. Click **OK** and click **Apply**.
9. For WAS 5.x, go back to Process Definition > Java Virtual Machine. For WAS 6.x, go back to Server Infrastructure > Process Definition > Java Virtual Machine.
10. In the Generic JVM Arguments field remove:  
-Xrunam
11. Click **OK** and click **Apply**.

#### Disabling Data Collectors for WebLogic

Perform these instructions to disable the Data Collector for WebLogic.

**To disable the Data Collector for WebLogic:**

1. In the WebLogic startup script (if you are using standalone server) or in Server > Remote Start > Arguments (if you are using network deployment) remove the following argument:  
-Xrunam
2. In current.env, comment out or remove the JAVA\_OPTIONS parameters.
3. Restart the control region.
4. Restart the WebLogic server.

---

## PMI Module Settings

WebSphere 5.x:

To view the PMI data for the WebSphere 5 Data Collector, the individual PMI module settings must be as follows:

JVM Runtime	- High
ORB	- High
ThreadPools	- High
Transaction Manager	- High
Enterprise Beans	- Maximum
Servlet Session Manager	- High
WebApplications	- High
J2C Connection Pool	- High
Db Connection Pool	- High

For WebSphere 6.x:

Set the PMI monitoring to extended.



---

## Part 4. Appendixes



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## Appendix A. Starting Multiple Instances of Application Monitor Components

By default, the Application Monitor has following runtime instances. There is a property file for each of them.

- kl1 - first instance of the Kernel, kl1.properties
- kl2 - second instance of the Kernel, kl2.properties
- ps1 - first instance of the Publish Server, ps1.properties
- ps2 - second instance of the Publish Server, ps2.properties
- aa1 - first instance of the Archive Agent, aa1.properties
- aa2 - second instance of the Archive Agent, aa2.properties
- md - Message Dispatcher, md.properties
- pa - Polling Agent, pa.properties1
- sam1 - the one instance Global Publish Server, sam1.properties

You may create additional instances of the Kernel, Publish Server or Archive Agent. Each instance must have its own property file. The simplest way to create another instance of one of these components is to make a copy of an existing property file and change the component ID and the port number to a unique value.

For example, to create an additional instance of the Publish Server, you would copy ps1.properties to ps3.properties and modify the lines in that file that define the component ID and port number to be unique values distinct from component ID and port number used by any other component instance.



---

## Appendix B. Sample Cron Jobs

You can find sample Cron jobs on the Managing Server in `/opt/IBM/wsam/bin` for regular housekeeping tasks.

### HTTP Server Log Files

Rotate the HTTP server log files, created by the IHS or Apache HTTP server running on the same node with the VE. This is necessary on Linux, but is recommended on other supported Managing Server platforms as well.

The crontab and the script must be edited before they are used, and the `APACHE_HOME` variable must be defined correctly. The crontab must be run as the person who controls the HTTP server processes and has permissions to delete server log files (often the root user).

### DB2 Database Tuning

Improve the performance of the Application Monitor DB2 (Octigate) database. The crontab and the script must be edited before they are used, especially the script's schema, database, and `DB2INST_HOME`. The variables must be correctly set to the owner of the tables, the database name, and the DB2 instance home directory, respectively. The script must be issued by the instance owner (e.g. `db2inst1`), NOT the schema owner (e.g. `amuser`).



---

## Appendix C. Managing Server and Data Collector Tuning

The following instructions will assist you with tuning the Managing Server and Data Collector to best suit the needs of your environment.

---

### Properties Files

The following properties support the Application Monitor. Use the parameters listed with the specific property if you want to adjust or change it.

#### Acronyms

- AA - Archive Agent
- MD - Message Dispatcher
- GC - Garbage Collection
- Global Publish Server - Global Publish Server
- PAR - Performance Analysis & Reporting
- PMI - Performance Monitoring Infrastructure
- PS - Publish Server
- RFS - Request for Stub
- RMI - Remote Method Invocation
- SAM - synonym for the Global Publish Server
- URI - Universal Resource Identifier
- VE - Visualization Engine

### aa.properties

The following are the properties listed in the aa.properties file. If you have more than one instance of the Archive Agent, you will have aa1.properties, aa2.properties, and so on:

#### **serverPortNumber**

The port where the AA listens for the socket connections from the other components.

#### **queues.pmi.size**

The default value is 1024 PMI records. Size of the PMI queue. This is a circular queue and the AA wraps the queue (cleans the queue). If the queue reaches this set size, the PS pushes PMI data to this queue.

#### **queues.pmi.priority**

The default value is 5. Priority of the PMI dequeuing thread (aka PMI Reader Thread). Default values range from minimum 1 to maximum 10.

#### **queues.method.size**

The default value is 5120 request records. Size of the method/request queue. This is a circular queue and the AA wraps the queue (cleans the queue). If the queue reaches this set size, the PS pushes request/method data to this queue.

#### **queues.method.priority**

The default value is 6 method availability records. Priority of the method/request dequeuing thread (aka Request Reader Thread).

#### **queues.availability.size**

The default value is 3072 availability records. Size of the availability queue.

This is a circular queue and the AA wraps the queue (cleans the queue). If the queue reaches this set size, the PS and Kernel push availability data to this queue.

**queues.availability.priority**

The default value is 7. Priority of the availability dequeuing thread (aka Availability Reader Thread).

**queues.memory.size**

The default value is 1024 memory records. Size of the memory queue. This is a circular queue and the AA wraps the queue (cleans the queue). If the queue reaches this set size, the PS pushes memory related data (GC data and Heap Dump data) to this queue.

**queues.memory.priority**

The default value is 5. Priority of the memory dequeuing thread (aka Memory Reader Thread).

**TEXTSTRING\_SEQ\_BLOCK**

The default value is 10. This value specifies how many keys the primary key generator should cache in memory for the table TEXTSTRING. A higher number increases efficiency by reducing the number of calls to the database to fetch the next block of keys. However this may cause large gaps in the primary key sequence, because when the archive agent is stopped, all unused keys in memory are discarded.

**PROBES\_SEQ\_BLOCK**

The default value is 10. This value specifies how many keys the primary key generator should cache in memory for the table PROBES. A higher number increases efficiency by reducing the number of calls to the database to fetch the next block of keys. However, this may cause large gaps in the primary key sequence, because when the archive agent is stopped, all unused keys in memory are discarded.

**REQUEST\_SEQ\_BLOCK**

The default value is 20. This value specifies how many keys the primary key generator should cache in memory for the table REQUEST. A higher number increases efficiency by reducing the number of calls to the database to fetch the next block of keys. However, this may cause large gaps in the primary key sequence, because when the archive agent is stopped, all unused keys in memory are discarded.

**REQUESTDATA\_READER\_SLEEPTIME**

The default value is 2000 milliseconds. Time for which the Request reader thread sleeps if no data is available in the request/method queue for dequeuing (queue is empty). After this time elapses, the thread wakes up and re-checks the queue to see if data is available in the queue. The request data reader reads data from the request/method queue and processes the data and puts it in a temporary request buffer. A different thread (Request Data writer thread) reads data from this buffer and inserts it into the database.

**REQUESTDATA\_WRITER\_SLEEPTIME**

The default value is 1000 milliseconds. Time interval at which the Request writer thread will be inserting data into the database. Request writer thread reads data from the request buffer and inserts it into the database.

**REQUESTDATA\_BUFFER\_THRESHOLD**

The default value is 10. If the number of requests in the request buffer exceeds this size, the writer thread wakes up and inserts requests into the database irrespective of the REQUESTDATA\_WRITER\_SLEEPTIME property.

**BATCH\_THRESHOLD**

The default threshold is 10000 inserts in a batch. This specifies the



maximum number of database inserts that can be executed in a batch. When this number is exceeded, the database insert buffer is flushed to avoid running out of memory space.

#### **AVAILABILITY\_READER\_SLEEPTIME**

The default value is 2000 milliseconds. Time that the Availability reader thread sleeps if no data is available in the availability queue for dequeuing (queue is empty). After this time elapses, the thread wakes up and re-checks the queue to see if data is available in the queue.

#### **PMI\_READER\_SLEEPTIME**

The default value is 2000 milliseconds. Time that the PMI reader thread sleeps if no data is available in the PMI queue for dequeuing (queue is empty). After this time elapses, the thread wakes up and re-checks the queue to see if data is available in the queue.

#### **MEMORY\_READER\_SLEEPTIME**

The default value is 2000 milliseconds. Time that the memory reader thread sleeps if no data is available in the memory queue for dequeuing (queue is empty). After this time elapses, the thread wakes up and re-checks the queue to see if data is available in the queue.

#### **TRAP\_SEQ\_BLOCK**

The default value is 100. This value specifies how many keys the primary key generator should cache in memory for the tables TRAP\_HISTORY, TRAP\_THREAD\_DUMP, TRAP\_METHOD\_DETAIL, and TRAP\_STACK\_TRACE. A higher number increases efficiency by reducing the number of calls to the database to fetch the next block of keys. However, this may cause large gaps in the primary key sequence, because when the archive agent is stopped, all unused keys in memory are discarded.

## **ve.properties**

The following are the properties listed in the ve.properties file:

#### **kernel.codebase**

The value of this property is filled in during installation time by the installer. It specifies where the Kernel codebase can be found.

#### **kernel.rfs.address**

The value of this property is filled in during installation time by the installer. This is used by the VE to locate the Kernel components.

#### **com.cyanea.ve.report.sql.MAX\_ROW\_COUNT**

The default value is 1000. Specifying too high a value may cause the VE to run out of memory when running the reports. This specifies the maximum number of rows that should be retrieved from the database when displaying the detail reports (request, method, SQL) in the PAR component.

## **md.properties**

The following are the properties listed in the md.properties file:

#### **component.listen.port**

Default port number is 9106. The port number that the MD listens to accepts incoming requests. Check that this port number is available in the machine running the Application Monitor. You may also change this value to any other port number available on the machine.

Example:

```
component.listen.port=9106
```

**component.id**

A unique identifier for a component in the Application Monitor. This ID is generated during the installation.

Example:

```
component.id=30ca500d-3798-d601-3ccc-00065b0ea116
```

**template.directory**

Default value is <installation directory>/etc. Unless you want to move the template directory to a different path, changing this value is not recommended. The directory that keeps the message template files of the Application Monitor. When sending an outgoing message, the MD searches for the target message template file based on this value.

Example:

```
template.directory=/opt/IBM/wsam/etc
```

**smtp.host**

Default value is the IP address or hostname that is entered in the installation program. The IP address or hostname of the SMTP server. In order to send an outgoing email, an SMTP server is required by the MD.

Example:

```
smtp.host=192.168.3.12
```

## kl.properties

The following are the properties listed in the kl.properties file. If you have more than one instance of the Kernel, you will have kl1.properties, kl2.properties, and so on.

**kernel.codebase.port**

Default port numbers are 9122 and 9123, when there are two instances of the Kernel up and running. Check that these port numbers are available in the machine running the Application Monitor. You may also change this value to any other port number available on the machine. The port number that the codebase server in the Kernel listens to accepts incoming requests.

Example:

```
kernel.codebase.port=8122
```

**kernel.codebase.libpath**

Default value is <installation directory>/lib. Unless you want to move the codebase directory to a different path, changing this value is not recommended. The directory that keeps the Java binary files of the Application Monitor. After accepting a request, the codebase server in the Kernel searches for the target Java binary file based on this value.

Example:

```
kernel.codebase.libpath=/opt/IBM/wsam/lib
```

**kernel.rmi.port**

Default port numbers are 9118 and 9119, when there are two instances of the Kernel up and running. Check that these port numbers are available in the machine running the Application Monitor. You may also change this value to any other port number available on the machine. The port number that the RMI-based Kernel listens to that accepts incoming requests.

Example:

```
kernel.rmi.port=8118
```

**kernel.rfs.port**

Default port numbers are 9120 and 9121. Check that these port numbers are available in the machine running the Application Monitor. You may also change this value to any other port number available on the machine. The port number that the RFS server in the Kernel listens to that accepts incoming requests. The RFS server returns the stub object of the Kernel to the components in the Application Monitor. With the stub object, the components establish a connection with the Kernel and then make use of the services that the Kernel provides.

Example:

```
kernel.rfs.port=8120
```

**contract.duration**

Default value is 15 seconds. Changing this value to below 10 seconds is not recommended. Valid values are 5 to 60 seconds. The time interval in seconds that each component in the Application Monitor renews the contract with the Kernel. Each component in the Application Monitor needs to maintain a heartbeat with the Kernel; this is done by renewing a time-limited contract with the Kernel. The Kernel determines the availability of services in the Application Monitor based on the heartbeat.

Example:

```
contract.duration=15
```

**avm.max.renewal.failure**

Default value is 1. Changing this value to higher than 3 is not recommended. Valid values are 1 to 5. The maximum number of times that a component fails to renew the contract before the Kernel determines that the component is not available.

Example:

```
avm.max.renewal.failure=1
```

**component.id**

The component ID is a unique identifier of a component. When there are two instances of the Kernel up and running, a unique ID is assigned to each instance.

## **datacollector.properties**

The following are the properties listed in the datacollector.properties file:

**kernel.codebase**

The value of this property is filled in during installation time by the installer. It specifies where the Kernel codebase can be found.

**kernel.rfs.address**

The value of this property is filled in during installation time by the installer. This is used by the VE to locate the Kernel components.

**probe.library.name**

Default value is am. This property specifies the name of the native shared library which the Data Collector needs to run. If the value of the property is am, the Data Collector searches for a shared library with the name libam.so on UNIX<sup>®</sup> platforms and libam.dll on the Windows<sup>®</sup> platform. In normal cases, this property does not need to be specified or changed from the default. Only when the user needs to run a native shared library with a different name does this property need to change.

Example:

probe.library.name=am

**internal.probe.event.packet.size**

Default value is 5000 or (5000 X 1024 bytes). Changing below the default of 5000 is not recommended. Valid values are 500 to 4000000 (or up to available process memory on the server). This property specifies the size of the Data Collector's internal send buffer. The send buffer controls how much data the Data Collector can be sent to the PS at a given time. In normal situations, this property does not have to be changed, as the default send buffer size is more than adequate. However, if the user is seeing a problem with the amount of data the Data Collector sends to the PS, this property allows the user to configure the size of the send buffer.

**internal.memory.limit**

Default value is 30 (MB). This property limits the amount of memory the Data Collector may use.

**internal.memory.accept.threshold**

Default value is 2 (MB). This property specifies the minimum free memory after which the Data Collector starts accepting data once it reaches the upper limit, as specified by the property internal.memory.limit.

**internal.url.limit**

Default value is 1000. This property controls the maximum URL length accepted by Data Collector.

**internal.sql.limit**

Default value is 1000. This property controls the maximum SQL length accepted by Data Collector.

**internal.probe.event.queue.size.limit**

Default value is 5000. This property controls the maximum size of the queue of events maintained by the Data Collector. When the queue is full, the Data Collector will drop events.

**proxy.host, proxy.port**

If there is a firewall between the Managing Server and the Data Collectors, by default two additional ports need to be opened in the firewall for each Data Collector on a host. However, only one port is needed for all Data Collectors if the communication is done through proxy servers. A proxy server should be run on each Data Collector host.

In order for the Data Collector to communicate with the Managing Server through the proxy, the properties proxy.host and proxy.port must be set in the datacollector.properties. Property proxy.host is the host name of the computer which runs the proxy server. Example:

```
proxy.host=qaapp-aix-s01
```

**proxy.port**

Property proxy.port is a port opened in the firewall for the proxy server. As long as the proxy servers reside on different hosts, they can share the same port number. Example:

```
proxy.port=8080
```

**deploymentmgr.rmi.port**

It is not necessary to define the property deploymentmgr.rmi.port if you are running a standalone WebSphere. This property is needed for WebSphere 5 clusters or application servers controlled by a deployment manager. Example:

```
deploymentmgr.rmi.port=<Deployment Manager RMI (bootstrap) port>
```

**deploymentmgr.rmi.host**

It is not necessary to define the property `deploymentmgr.rmi.host` if you are running a standalone WebSphere. This property is needed for WebSphere 5 clusters or application servers controlled by a deployment manager. Example:

```
deploymentmgr.rmi.host=<Deployment Manager host>
```

**Network Agent Socket Reset Time**

The default is no reset. Time interval after which the connection between the Data Collector and the Publish Server will be reset. #

```
networkagent.socket.resettime=-1
```

**IBM JVMs**

The following properties pertain to platforms that use IBM® JVMs with WebSphere on AIX and Windows.

**internal.app.ext.dir**

This variable specifies the full path name of the installed applications directory for the application server.

The directory contains the application's set of classes (within EARs) installed on the application server.

When `CY_HIGH_PERF_TRACING` is set to YES, the data collector will only apply method tracing to the application's set of classes.

WAS 5.0:

```
Uses default set to $WAS_HOME/installedApps/$WAS_CELL
```

WAS 6.0

Users default set to

```
$WAS_HOME/profiles/default/installedApps/$WAS_CELL
```

**internal.bootstrap.file**

Specifies a Java property file which contains the two properties `classes_to_trace` and `classes_not_to_trace`.

**internal.tracing.mode**

Specifies either "new" or "classic". Default is "new". Setting `internal.tracing.mode` to "classic" provides better performance, but prohibits dynamic change to monitoring level L3.

**classes\_to\_trace=...**

This property specifies an additional list of classes which are to be method traced. These classes are in addition to those in the user's application set.

The property only applies when `CY_HIGH_PERF_TRACING` is set to YES.

**classes\_not\_to\_trace=...**

This property specifies a list of classes which are not to be method traced. The property only applies when `CY_HIGH_PERF_TRACING` is set to YES.

A class list consists of class specifiers and uses either `:` or `;` 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 of a property setting:

```
trace.classlist=java/net/SocketInputStream:com/cyanea/kernel/common/
HTTPClassLoader:java/net/*:java/util/Vector:java/io/*:com/ibm/websphere/
pmi/server/LoadDataImpl:java/util/*
```

## ps.properties

The following are the properties listed in the ps.properties file. If you have more than one instance of the Publish Server, you will have ps1.properties, ps2.properties, and so on.

### **PORT\_PS**

The port where the PS listens for socket connections.

### **TIMEOUT\_LIMIT**

Default value is 5 minutes. Value is in minutes. Time after which the request will be deleted from the PS's local cache if no activity occurred on this request (no request/method records received by PS) for TIME\_OUT interval.

### **ve.host**

The hostname of the J2EE application server upon which the WSAM web application has been deployed. This property is used to generate URLs in outgoing trap email messages. If omitted, this property defaults to the current hostname.

### **ve.port**

The HTTP port of virtual host of the J2EE application server upon which the WSAM web application has been deployed. This property is used to generate URLs in outgoing trap email messages or email links for saved PAR reports. If omitted, this property defaults to 80.

### **cyanea.aa.recheckTime**

Default value is 15000 milliseconds. Values are in milliseconds. If PS loses the connection to AA, the frequency at which it will try to re-connect to AA.

### **cyanea.ps.dataSource.useQueue**

Default value is true. Values can be true or false. Use separate threads for reading data from the socket (data written by probe) and for processing that data.

### **cyanea.ps.dataSource.maxQueueLength**

Default value is 1000000. Max allowable queue size if the cyanea.ps.dataSource.useQueue property is set to true. This sets the max queue size between thread reading data from the socket and thread processing that data.

### **cyanea.socket.timeout**

Default value is 3 hours. Values are in milliseconds. PS will wait on the socket for this length of time interval when it is trying to read data from the sockets. If no data is received in this interval, PS will close the socket. If this property is set to 0 PS will wait infinitely. (This setting is advisable so that PS won't close sockets to the probe if no activity occurs on the probe for a long time.)

### **cyanea.socket.keepAlive**

Default value is true. Valid values are true or false. When the keepAlive option is set for a TCP socket and no data has been exchanged across the socket in either direction for 2 hours, TCP automatically sends a keepAlive probe to the peer.

### **cyanea.socket.sendBuffer**

Default value is 65536. This sets a suggested size for the underlying buffers used by the platform for outgoing network I/O. This is a suggestion to the Kernel from the application about the size of buffers to use for the data to

be sent over the socket. Increasing buffer size can increase the performance of network I/O for high-volume connection, while decreasing it can help reduce the backlog of incoming data.

**cyanea.socket.recvBuffer**

Default value is 65356. This sets a suggested size for the underlying buffers used by the platform for incoming network I/O. This is a suggestion to the Kernel from the application about the size of buffers to use for the data to be received over the socket.

**cyanea.socket.noDelay**

Default is true. Valid values are true or false. True=Disable Nagle's algorithm for this connection. Written data to the network is not buffered pending acknowledgement of previously written data. False=Enable Nagle's algorithm.

**cyanea.ps.aa.maxQueueLength**

Default value is 10000. Maximum queue length between the PS and the AA. The PS buffers events in a queue if the PS is trying to write data to the AA faster than the AA can read or if the AA is down.

**com.cyanea.ps.recent\_activity\_max\_requests**

Default value is 100. This is the number of completed requests that the user wants to view at one time. Maximum number of recent activity data applies to each server. When the queue is full, the newest request data will replace the oldest data.

**DAILY\_STATS\_ARCHIVE\_INTERVAL**

Default value is 15 minutes. Interval at which we will be collecting SMF daily statistics. We put the data collected at this interval in a working table in the database and push that data to the actual table in the database if we notice that the probe goes down or if it's a midnight poll.

**user.name**

The return email address to be used on all outgoing trap email. By default, it is the username of the UNIX user which starts the message dispatcher process.

## **sam1.properties**

The following are the properties listed in the sam1.properties file, which is the properties file for the Global Publish Server.

**PORT\_SAM**

The port where the GPS listens for socket connections.

**SOCKET\_BACKLOG**

The default value is 5 connections.

The size of the backlog the GPS will allow while this dispatching connection attempts to Listeners.

**MAX\_SOCKET\_WRITES**

The default value is 100,000 sockets.

The number of times the PS can write to a socket before it closes the socket and opens a new one.

**WRITE\_TIMEOUT**

The default is 60,000 milliseconds. 0 is infinite.

For the PS to GPS socket connection

### **SAM\_ID**

The component ID of the GPS, which is used by the Kernel to uniquely identify the GPS.

### **CONN\_POOL\_SIZE**

The minimum default is 5. Do not recommend setting the pool size less than 5.

The number of database connection pools.

### **INSERT\_BATCH\_SIZE**

The default value is 1000.

### **BACKUP\_THREAD\_TIMER**

The default value is 120000 in milliseconds.

### **CLEANUP\_THREAD\_TIMER**

The default value is 60000 in milliseconds.

### **DEQUEUEING\_THREAD\_TIMER**

The default value is 2000 in milliseconds.

### **SAMPLING\_THREAD\_TIMER**

The default value is 2000 in milliseconds.

### **TOKEN\_RESOLUTION\_TIMEOUT**

The default value is 120 hours.

### **ORPHAN\_RESOLUTION\_TIMEOUT**

The default value is 5 minutes.

### **THREAD\_END\_TIMEOUT**

The default value is 5 minutes.

### **RESOLVED\_TRANSACTIONS\_TIMEOUT**

The default value is 1 minute.

## **WebSphere Global Security**

If the password was changed with Global security enabled, follow the instructions below.

1. Uncomment and set the following variables in the paswdGen.sh script in the Data Collector bin directory:  
JAVA\_HOME=<your WebSphere installation's Java home>  
CYANEA\_HOME<Cyanea/One home directory>
2. Run the password generation script:  
./paswdGen.sh (on UNIX) and paswdGen.bat (on Windows) The script will ask for a user ID, password, permit, and magic key and will generate a file called pswdfile. The user ID and password are what you use to login to the administrative console when Global security is on. The permit and magic key are a certificate and a salt stored in datacollector.properties file. As long as none of the arguments changes, you may share the generated file across Data Collector installations.
3. Put this file in <cyanea\_home>/etc.
4. In the administrative console for WebSphere 5, go to Servers > Application Servers > <your server> > Process Definition > Java Virtual Machine > Custom Properties. For WebSphere 4, go to Nodes > <your node> > Application Server > <your server> > JVM Settings > System Properties.  
Add the following Java system properties (not the full path, just the name):



cyanea.pswdfile=<name of the pswd file created earlier>

Apply and save.

5. Restart the AppServer and PMI with security should be enabled. You can watch logs for security ENABLED messages if successful.

**Note:** If you do NOT want to go through this encryption logic at all, you can specify in JVM System Properties: cyanea.jmx.user= <user id>  
cyanea.jmx.pswd= <password> By doing this you will bypass all encryption features and can skip all the steps above.

## Miscellaneous

To sustain large amounts of trace, change the following settings:

1. Increase the method count limit of the PS;

The PS will truncate method trace larger than a specified number. To increase the limit, change methodCount=10000 to methodCount=50000 in /opt/IBM/wsam/etc/ps1.properties and /opt/IBM/wsam/etc/ps2.properties files.

2. Increase the Java heap size of the AA;

The runtime memory of the AA needs to be increased as potentially bigger method trace from the PS. Set HEAP\_MIN\_SIZE\_ARCHIVE\_AGENT=1024 and HEAP\_MAX\_SIZE\_ARCHIVE\_AGENT=2048 in file /opt/IBM/wsam/bin/setenv.sh to increase the Java heap size.

3. Reduce the batch size of the AA;

The AA will try to batch process a specified number of requests, the default is 10 requests. It will hit the limit of the DB2 driver with the large requests. Change REQUESTDATA\_BUFFER\_THRESHOLD=10 to REQUESTDATA\_BUFFER\_THRESHOLD=1 in /opt/IBM/wsam/etc/aa.properties.

4. Increase the Java and JNI stack size of the AA; and

Even one big request may still hit the DB2 driver limit. To avoid it, add -Xoss8M and -Xss8M in the Java startup command. i.e.  
\${JAVA\_HOME}/bin/java -classpath \$CLASSPATH -Xoss8M -Xss8M \ in /opt/IBM/wsam/bin/aactl.

5. Increase the query heap size of DB2.

Also increase the query heap size of the DB2 server to accommodate the large batch query from the AA. To do so, issue db2 update dbm cfg using query\_heap\_sz 8000 using user db2inst1.



---

## Appendix D. Data Trimmer

The Data Trimmer is used to trim old data that does not need to be maintained in the database any longer. It is provided as a command-line utility so that users can simply schedule Cron jobs to periodically trim appropriate data. For REQUEST and METHOD tables, this process has two parts: marking records to be deleted and deleting marked records. Be aware that running this command could take a very long time depending on the amount of data being trimmed.

This release of the Data Trimmer does not support more than one instance of the trimmer running concurrently.

You will need to use the amuser account, and you should make the properties file accessible to the amuser. You will need the following files to use the Data Trimmer:

- \$AM\_HOME/lib/datatrim.jar
- \$AM\_HOME/etc/datatrim.xml
- \$AM\_HOME/etc/markdatadeleting.xml
- \$AM\_HOME/bin/datatrim.sh

The Data Trimmer will produce the following file after it runs:

- \$AM\_HOME/logs/datatrim.log

### To execute the Data Trimmer:

1. Start the Data Trimmer process on the Managing Server (If you have your Managing Server and Database Server on two different machines, start the Data Trimmer on the Managing Server machine.), the syntax is as follows:  

```
$AM_HOME/bin/datatrim.sh <dbname> <dbuser> <dbpassword>
```

Where the dbname is the WSAM database name, dbuser and dbpassword combination will allow the Data Trimmer to access the WSAM database.
2. The process log file is located under  

```
$AM_HOME/logs/datatrim.log
```
3. The default JVM minimum heap size is 128 and the maximum is 256. You can increase the JVM heap size in datatrim.sh for optimum performance.
4. See the property files (markdatadeleting.xml and datatrim.xml) to set up the parameters.
5. In case of failure, rerun the datatrim.sh script.

---

## Data Trimmer Properties Files

### markdatadeleting.xml

The markdatadeleting.xml file is found in the <AM\_HOME>/etc directory.

To schedule deleting records in the REQUEST and METHOD tables, set the following properties:

### commitcount

Number of records to be committed to database in a transaction (commitcount). The default for commitcount is 500. This number should be set to a number lower than the maximum number of locks allowed to be held per transaction.

#### **useoracle**

Indicator of database type (useoracle). The default for useoracle is false. If an Oracle database is used, then the value should be true.

#### **daystokeep**

Number of days to keep the data (daystokeep). If you want to trim all data up to 7 days ago, then daystokeep=7. For example, if today is July 8, 2004, and you specify daystokeep=7, the Data Trimmer will do the following:

- Find out what the current date is (July 8, 2004).
- Keep today's data.
- Start counting 7 days back from 24 hours ago yesterday (July 7, 2004) – July 1st, 2004.
- Delete all data up to June 30th, 2004, inclusive.
- Data from July 1st onwards is kept.

#### **startdate**

Start date for deleting data (startdate). Use this to specify a time period for deleting data. To delete from and not include January 1 2003, enter startDate=01/01/03 00:00:00. If "daystokeep" property is specified, then this property will not be used.

#### **enddate**

End date for deleting data (enddate). Use this to specify a time period for deleting data. To delete up to and not including March 31, 2003, enter endDate=03/31/03 00:00:00. If "daystokeep" property is specified, then this property will not be used.

#### **datatrim.xml**

The datatrim.xml file is found in the <AM\_HOME>/etc directory.

To schedule deleting records in the database, set the following properties:

#### **Properties are applied to all tables**

##### **commitcount**

Number of records to commit to database in a transaction (commitcount). The default for commitcount is 500. This number should be set to a number lower than the maximum number of locks allowed to be held per transaction.

##### **useoracle**

Indicator of a database type (useoracle). The default for useoracle is false. If an Oracle database is used, then the value is true.

**Properties are applied to each individual table, such as PMISTATS, SERVERSTATS, and VOLUMESTAT.**

### **daystokeep**

Number of days to keep the data (daystokeep). If you want to trim all data up to 7 days ago, then daystokeep=7. For example, if today is July 8, 2004, and you specify daystokeep=7, the Data Trimmer will do the following:

- Find out what the current date is (July 8, 2004)
- Keep today's data
- Start counting 7 days back from 24 hours ago yesterday (July 7, 2004) – July 1st, 2004
- Delete all data up to June 30th, 2004, inclusive
- Data from July 1st onwards is kept

### **startdate**

Start date for deleting data (startdate). Use this to specify a time period for deleting data. To delete from and not include January 1 2003, enter startDate=01/01/03 00:00:00. If "daystokeep" property is specified, then this property will not be used.

### **enddate**

End date for deleting data (enddate). Use this to specify a time period for deleting data. To delete up to and not including March 31, 2003, enter endDate=03/31/03 00:00:00. If "daystokeep" property is specified, then this property will not be used.



---

## Appendix E. Support Information

<http://www.ibm.com/software/support>

<http://techsupport.services.ibm.com/guides/handbook.html>

<http://techsupport.services.ibm.com/guides/contacts.html>

[http://www.lotus.com/services/passport.nsf/  
WebDocs/Passport\\_Advantage\\_Home](http://www.lotus.com/services/passport.nsf/WebDocs/Passport_Advantage_Home)

<https://techsupport.services.ibm.com/ssr/login>

<http://www.ibm.com/software/support/probsub.html>

<http://www.ibm.com/servers/eserver/techsupport.html>

<http://www.ibm.com/services/us/index.wss/so/its/a1000030/dt006>

If you have a problem with your IBM software, you want to resolve it quickly. This section describes the following options for obtaining support for IBM software products:

- “Searching knowledge bases”
- “Obtaining fixes” on page 52
- “Receiving weekly support updates” on page 52
- “Contacting IBM Software Support” on page 53

---

### Searching knowledge bases

You can search the available knowledge bases to determine whether your problem was already encountered and is already documented.

#### Searching the information center

IBM provides extensive documentation that can be installed on your local computer or on an intranet server. You can use the search function of this information center to query conceptual information, instructions for completing tasks, and reference information.

#### Searching the Internet

If you cannot find an answer to your question in the information center, search the Internet for the latest, most complete information that might help you resolve your problem.

To search multiple Internet resources for your product, use the **Web search** topic in your information center. In the navigation frame, click **Troubleshooting and support** ► **Searching knowledge bases** and select **Web search**. From this topic, you can search a variety of resources, including the following:

- IBM technotes
- IBM downloads
- IBM Redbooks

- IBM developerWorks
- Forums and newsgroups
- Google

---

## Obtaining fixes

A product fix might be available to resolve your problem. To determine what fixes are available for your IBM software product, follow these steps:

1. Go to the IBM Software Support Web site at <http://www.ibm.com/software/support>.
2. Click **Downloads and drivers** in the **Support topics** section.
3. Select the **Software** category.
4. Select a product in the **Sub-category** list.
5. In the **Find downloads and drivers by product** section, select one software category from the **Category** list.
6. Select one product from the **Sub-category** list.
7. Type more search terms in the **Search within results** if you want to refine your search.
8. Click **Search**.
9. From the list of downloads returned by your search, click the name of a fix to read the description of the fix and to optionally download the fix.

For more information about the types of fixes that are available, see the *IBM Software Support Handbook* at <http://techsupport.services.ibm.com/guides/handbook.html>.

---

## Receiving weekly support updates

To receive weekly e-mail notifications about fixes and other software support news, follow these steps:

1. Go to the IBM Software Support Web site at <http://www.ibm.com/software/support>.
2. Click **My support** in the upper right corner of the page.
3. If you have already registered for **My support**, sign in and skip to the next step. If you have not registered, click **register now**. Complete the registration form using your e-mail address as your IBM ID and click **Submit**.
4. Click **Edit profile**.
5. In the **Products** list, select **Software**. A second list is displayed.
6. In the second list, select a product segment, for example, **Application servers**. A third list is displayed.
7. In the third list, select a product sub-segment, for example, **Distributed Application & Web Servers**. A list of applicable products is displayed.
8. Select the products for which you want to receive updates, for example, **IBM HTTP Server** and **WebSphere Application Server**.
9. Click **Add products**.
10. After selecting all products that are of interest to you, click **Subscribe to email** on the **Edit profile** tab.
11. Select **Please send these documents by weekly email**.
12. Update your e-mail address as needed.
13. In the **Documents** list, select **Software**.



14. Select the types of documents that you want to receive information about.
15. Click **Update**.

If you experience problems with the **My support** feature, you can obtain help in one of the following ways:

**Online**

Send an e-mail message to [erchelp@ca.ibm.com](mailto:erchelp@ca.ibm.com), describing your problem.

**By phone**

Call 1-800-IBM-4You (1-800-426-4968).

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## Contacting IBM Software Support

IBM Software Support provides assistance with product defects.

Before contacting IBM Software Support, your company must have an active IBM software maintenance contract, and you must be authorized to submit problems to IBM. The type of software maintenance contract that you need depends on the type of product you have:

- For IBM distributed software products (including, but not limited to, Tivoli, Lotus, and Rational products, as well as DB2 and WebSphere products that run on Windows, or UNIX operating systems), enroll in Passport Advantage in one of the following ways:

**Online**

Go to the Passport Advantage Web site at [http://www.lotus.com/services/passport.nsf/WebDocs/Passport\\_Advantage\\_Home](http://www.lotus.com/services/passport.nsf/WebDocs/Passport_Advantage_Home) and click **How to Enroll**.

**By phone**

For the phone number to call in your country, go to the IBM Software Support Web site at

<http://techsupport.services.ibm.com/guides/contacts.html> and click the name of your geographic region.

- For customers with Subscription and Support (S & S) contracts, go to the Software Service Request Web site at <https://techsupport.services.ibm.com/ssr/login>.
- For customers with IBMLink, CATIA, Linux, S/390, iSeries, pSeries, zSeries, and other support agreements, go to the IBM Support Line Web site at <http://www.ibm.com/services/us/index.wss/so/its/a1000030/dt006>.
- For IBM eServer software products (including, but not limited to, DB2 and WebSphere products that run in zSeries, pSeries, and iSeries environments), you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for eServer software products, go to the IBM Technical Support Advantage Web site at <http://www.ibm.com/servers/eserver/techsupport.html>.

If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States. From other countries, go to the contacts page of the *IBM Software Support Handbook* on the Web at <http://techsupport.services.ibm.com/guides/contacts.html> and click the name of your geographic region for phone numbers of people who provide support for your location.

To contact IBM Software support, follow these steps:

1. "Determining the business impact"
2. "Describing problems and gathering information"
3. "Submitting problems"

## Determining the business impact

When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem that you are reporting. Use the following criteria:

### Severity 1

The problem has a *critical* business impact. You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.

### Severity 2

The problem has a *significant* business impact. The program is usable, but it is severely limited.

### Severity 3

The problem has *some* business impact. The program is usable, but less significant features (not critical to operations) are unavailable.

### Severity 4

The problem has *minimal* business impact. The problem causes little impact on operations, or a reasonable circumvention to the problem was implemented.

## Describing problems and gathering information

When describing a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
- Can you re-create the problem? If so, what steps were performed to re-create the problem?
- Did you make any changes to the system? For example, did you make changes to the hardware, operating system, networking software, and so on.
- Are you currently using a workaround for the problem? If so, be prepared to explain the workaround when you report the problem.

## Submitting problems

You can submit your problem to IBM Software Support in one of two ways:

### Online

Click **Submit and track problems** on the IBM Software Support site at <http://www.ibm.com/software/support/probsub.html>. Type your information into the appropriate problem submission form.

### By phone

For the phone number to call in your country, go to the contacts page of the *IBM Software Support Handbook* at <http://techsupport.services.ibm.com/guides/contacts.html> and click the name of your geographic region.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround that you can implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the Software Support Web site daily, so that other users who experience the same problem can benefit from the same resolution.



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## Index

### C

conventions  
  typeface vii  
customer support  
  *See* Software Support

### D

directory names, notation vii

### E

education  
  *See* Tivoli technical training  
environment variables, notation vii

### F

fixes, obtaining 52

### I

information centers, searching for problem resolution 51  
Internet  
  searching for problem resolution 51

### K

knowledge bases, searching for problem resolution 51

### N

notation  
  environment variables vii  
  path names vii  
  typeface vii

### O

ordering publications vi

### P

path names, notation vii  
problem determination  
  describing problems 54  
  determining business impact 54  
  submitting problems 54  
publications  
  ordering vi

### S

Software Support  
  contacting 53  
  describing problems 54

Software Support (*continued*)  
  determining business impact 54  
  receiving weekly updates 52  
  submitting problems 54

### T

Tivoli technical training vi  
training, Tivoli technical vi

### V

variables, notation for vii



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- *WebSphere Studio Application Monitor: User's Guide (SC32-1761-00)*
- *WebSphere Studio Application Monitor: Operator's Guide (SC32-1763-00)*
- *WebSphere Studio Application Monitor: Installation and Configuration Guide (SC32-1762-00)*
- *WebSphere Studio Application Monitor: CICS Data Collector Product Guide (SC32-1764-00)*
- *WebSphere Studio Application Monitor: IMS Data Collector Product Guide (SC32-1765-00)*
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- *WebSphere Studio Application Monitor: Program Directory for the CICS Data Collector (GI10-3350-00)*
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