

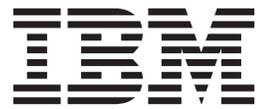
IBM Tivoli Composite Application Manager for WebSphere
Application Server
Version 7.1

Installation Guide



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Note

Before using this information and the product it supports, IBM Tivoli Composite Application Manager for WebSphere Application Server, read the information in “Notices” on page 141.

This edition applies to Version 7.1 of IBM Tivoli Composite Application Manager for WebSphere Application Server and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this guide

This guide provides instructions for installing and configuring IBM® Tivoli® Composite Application Manager for WebSphere® Application Server.

Intended audience

This publication is for administrators or advanced users wanting to install or modify the configuration of IBM Tivoli Composite Application Manager for WebSphere Application Server. The publication assumes that readers are familiar with maintaining operating systems, administering IBM WebSphere Application Server, maintaining databases, and general information technology (IT) procedures. Specifically, readers of this publication must have some knowledge of the following topics:

- Operating systems on which you intend to install product components
- IBM WebSphere Application Server
- Internet protocols such as HTTP, HTTPS, TCP/IP, Secure Sockets Layer (SSL), and Transport Layer Security (TLS)
- Digital certificates for secure communication

ITCAM for WebSphere Application Server publications

The following is a list of the publications in the ITCAM for WebSphere Application Server library:

- *IBM Tivoli Composite Application Manager for WebSphere Application Server: Installation Guide*
Provides instructions for setting up and configuring the Monitoring Agents for ITCAM for WebSphere Application Server
- An online help system that describes the performance metrics and uses case scenarios for IBM Tivoli Composite Application Manager for WebSphere Application Server, which are available from IBM WebSphere Application Server's Tivoli Performance Viewer.

Related publications

The following documentation also provide useful information:

- IBM WebSphere Application Server:
Information about IBM WebSphere Application Server is provided on the following Web site:
<http://www-3.ibm.com/software/webservers/appserv/was/library>
- IBM Tivoli Change and Configuration Management Database:
Information about IBM Tivoli Change and Configuration Management Database is provided on the following Web site:
http://publib.boulder.ibm.com/infocenter/tivihelp/v10r1/index.jsp?toc=/com.ibm.ccmdb.doc/ccmdb_ic.xml
- IBM Support Assistant:
Information about IBM Support Assistant is provided on the following Web site:
<http://www-306.ibm.com/software/support/isa/index.html?rcss=rtlrrr>

Accessing terminology online

The *Tivoli Software Glossary* includes definitions for many of the technical terms related to Tivoli software. The *Tivoli Software Glossary* is available at the following Tivoli software library Web site:

<http://publib.boulder.ibm.com/tividd/glossary/tivoliglossarymst.htm>

The IBM Terminology Web site consolidates the terminology from IBM product libraries in one convenient location. You can access the Terminology Web site at the following Web address:

<http://www.ibm.com/software/globalization/terminology>

Accessing publications online

The documentation CD contains the publications that are in the ITCAM for WebSphere Application Server library. The format of the publications is PDF, HTML, or both.

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli Information Center Web site at <http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp>.

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

About this task

There are several ways to order IBM publications:

- You can order many IBM publications online at the following Web site: <http://www.elink.ibm.link.ibm.com/public/applications/publications/cgibin/pbi.cgi>
- You can order by telephone by calling one of these numbers:
 - In the United States: 800-879-2755
 - In Canada: 800-426-4968
- In other countries, contact your software account representative to order IBM publications. To locate the telephone number of your local representative, perform the following steps:
 1. Go to the following Web site: <http://www.elink.ibm.link.ibm.com/public/applications/publications/cgibin/pbi.cgi>
 2. Select your country from the list and click **Go**.
 3. Click **About this site** in the main panel to see an information page that includes the telephone number of your local representative.

Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. With this product, you can use assistive technologies to hear and navigate the interface. You can also use the keyboard instead of the mouse to operate all features of the graphical user interface.

For additional information, see Appendix I, "Accessibility," on page 137.

Tivoli technical training

For Tivoli technical training information, refer to the following IBM Tivoli Education Web site:<http://www.ibm.com/software/tivoli/education/>

Support information

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

- Go to the IBM Software Support Web site:<http://www.ibm.com/software/support/probsub.html>

- IBM Support Assistant:

IBM Support Assistant (ISA) is a free local software serviceability workbench that helps you resolve questions and problems with IBM software products. ISA provides quick access to support-related information and serviceability tools for problem determination.

Typeface conventions

This publication 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

- Citations (titles of publications, diskettes, and CDs)
- Words defined in text (such as "a nonswitched line is called a *point-to-point line*.")
- Emphasis of words and letters: words as words (such as "Use the word *that* to introduce a restrictive clause." letters as letters (such as "The LUN address must start with the letter *L*."))
- New terms in text, except in a definition list, (such as "a *view* is a frame in a workspace that contains data.")
- Variables and values you must provide (such as "where *myname* represents...")

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

Tivoli command syntax

The following special characters define Tivoli command syntax:

- [] Identifies elements that are optional. Required elements do not have brackets around them.
- ... Indicates that you can specify multiple values for the previous element. Separate multiple values by a space, unless otherwise directed by command information.

If the ellipsis for an element follows a closing bracket, use the syntax within the brackets to specify multiple values. For example, to specify two administrators for the option `[-a admin]...`, use `-a admin1 -a admin2`.

If the ellipsis for an element is within the brackets, use the syntax of the last element to specify multiple values. For example, to specify two hosts for the option `[-h host...]`, use `-h host1 host2`.
- | Indicates mutually exclusive information. You can use the element on either the left or right of the vertical bar.
- { } Delimits a set of mutually exclusive elements when a command requires one of them. Brackets ([]) are around elements that are optional.

In addition to the special characters, Tivoli command syntax uses the typeface conventions described in “Typeface conventions” on page v. The following examples illustrate the typeface conventions used in Tivoli command syntax:

- **wcrtp** `[-a admin]... [-s region] [-m resource]... name`
The *name* argument is the only required element for the **wcrtp** command. The brackets around the options indicate they are optional. The ellipses after the `-a admin resource` option means that you can specify multiple administrators multiple times. The ellipses after the `-m resource` option means that you can specify multiple resources multiple times.
- **wchkdb** `[-o outfile] [-u] [-x] {-f infile | -i | object...}`
The `-f`, `-i`, and *object* elements are mutually exclusive. Braces that surround elements indicate that you are including a required element. If you specify the *object* argument, you can specify more than one object.

Variables for directories

This guide refers to the following variables:

- *DC_home*: the directory where ITCAM for WebSphere Application Server is installed. The following are the default locations:

Table 1. Default locations for *DC_home*

UNIX or Linux	/opt/IBM/WebSphere/itcam/DC
Windows	C:\Program Files\IBM\WebSphere\itcam\DC
IBM i	/qibm/proddata/ecam/71

- *AppServer_home*: the directory where the application server's core product files are installed.

Note: If there are multiple application server installations in the same directory path, the path will end in a directory named after the particular application server installation. In that case, for example, *AppServer_home* will be *IBM_home/WebSphere/WAS61/appserver_instance*.

- *install_home*: on IBM z/OS[®], a read only directory where the ITCAM for WebSphere Application Server files are installed. By default, /usr/lpp/itcamwr/WebSphere/DC.
- *config_home*: IBM z/OS, a read-write directory that is a mirror of the *install_home* for ITCAM for WebSphere Application Server on IBM z/OS. This directory contains configuration for ITCAM for WebSphere Application Server, including runtime directories for monitored application server instances. The default is /u/ecam.

Contents

About this guide. iii

ITCAM for WebSphere Application Server publications	iii
Related publications	iii
Accessing terminology online	iv
Accessing publications online	iv
Ordering publications	iv
Accessibility	iv
Tivoli technical training.	v
Support information.	v
Typeface conventions	v
Tivoli command syntax	vi
Variables for directories	vi

Tables xi

Chapter 1. Overview of ITCAM for WebSphere Application Server 1

Chapter 2. Installing and configuring ITCAM for WebSphere Application Server on Windows. 3

Checklist for installation and configuration on Windows	3
Prerequisites and pre-installation tasks for ITCAM for WebSphere Application Server on Windows	4
System and software prerequisites	4
Permissions.	5
Checking the heap size	5
Adjusting ports for firewalls or for use with other applications.	5
Enabling user ID and password input from sas.client.props for RMI connector types	6
Enabling user ID and password input from soap.client.props for SOAP connector types	6
Information to know before the installation	6
GUI installation and configuration of ITCAM for WebSphere Application Server on Windows	7
Silent installation and configuration of ITCAM for WebSphere Application Server on Windows	20
Additional configuration tasks	23

Chapter 3. Installing and configuring ITCAM for WebSphere Application Server on Linux and UNIX systems 25

Checklist for installation and configuration on Linux and UNIX systems	25
Prerequisites and pre-installation tasks for IBM Tivoli Composite Application Manager for WebSphere Application Server on Linux and UNIX systems.	26
System and software prerequisites.	26
Permissions	29
Checking the heap size	31

HP-UX: tuning HotSpot JVM garbage collection	31
Adjusting ports for firewalls or for use with other applications	32
Making sure there are no invalid mounted file systems.	32
Mounting the ITCAM for WebSphere Application Server DVD on HP-UX	32
Enabling user ID and password input from sas.client.props for RMI connector types.	32
Enabling user ID and password input from soap.client.props for SOAP connector types.	33
Information to know prior to the installation	33
GUI installation and configuration of ITCAM for WebSphere Application Server on UNIX and Linux	35
Silent installation and configuration of IBM Tivoli Composite Application Manager for WebSphere Application Server on UNIX and Linux	47
Additional configuration tasks	50
If you used the root ID for ITCAM for WebSphere Application Server installation and the application server is not owned and operated by the root ID	50
Additional procedure for Security Enhanced Linux (SELinux).	51

Chapter 4. Installing and configuring ITCAM for WebSphere Application Server on IBM i 53

Checklist for installation and configuration on IBM i	53
Prerequisites and pre-installation tasks for ITCAM for WebSphere Application Server on IBM i	53
System and software prerequisites.	53
Permissions	54
Restrictions on the installation path	54
Checking the heap size	55
Adjusting ports for firewalls or for use with other applications	55
Information to know before the installation.	55
Installation and configuration of ITCAM for WebSphere Application Server on IBM i.	56
Silent installation and configuration from the local IBM i host	56
Remote installation from a Windows client	57
Silent configuration from the local IBM i host	58
Additional configuration tasks	59
IBM WebSphere Portal Server: checking heap size and Transaction Service properties.	59

Chapter 5. Configuring ITCAM for WebSphere Application Server on IBM z/OS. 61

Worksheets for configuring and customizing ITCAM for WebSphere Application Server	61
---	----

High-level worksheet for configuring and customizing ITCAM for WebSphere Application Server	61
Worksheet for configuring ITCAM for WebSphere Application Server	61
Configuring ITCAM for WebSphere Application Server on IBM z/OS	62
Creating a new configuration directory	62
Updating the application server Servant Region proc	64
Verifying the installation	64
Executing the runtime setup script	65
Additional configuration tasks	79
Upgrading or applying maintenance for ITCAM for WebSphere Application Server on IBM z/OS	80

Chapter 6. Unconfiguring and uninstalling ITCAM for WebSphere Application Server. 81

Unconfiguring ITCAM for WebSphere Application Server using the Configuration Tool on Windows, UNIX, and Linux	81
Silent unconfiguration of ITCAM for WebSphere Application Server on Windows, UNIX, and Linux	88
Uninstalling ITCAM for WebSphere Application Server on Windows, UNIX, and Linux	89
Unconfiguring ITCAM for WebSphere Application Server on IBM i	92
Uninstalling ITCAM for WebSphere Application Server on IBM i	93
Unconfiguring ITCAM for WebSphere Application Server on IBM z/OS	94
Values for configuration options	94
Unconfiguring ITCAM for WebSphere Application Server in prompt mode	98
Unconfiguring ITCAM for WebSphere Application Server in batch (auto-run) mode	100
Unconfiguring ITCAM for WebSphere Application Server manually	102

Appendix A. Obtaining installation images for Windows, Linux, UNIX systems, and IBM i 105

Appendix B. Starting an installation for Windows, UNIX, or Linux from the IBM WebSphere Application Server LaunchPad 107

Appendix C. Starting and stopping ITCAM for WebSphere Application Server 109

Appendix D. ITCAM for WebSphere Application Server configuration parameters 113

Appendix E. Guidelines for specifying silent values on Windows, UNIX, and Linux 115

Appendix F. What to do if ITCAM for WebSphere Application Server configuration fails 129

Restoring the application server configuration after a failed ITCAM for WebSphere Application Server configuration	129
--	-----

Appendix G. Setting up security 131

Setting up the user ID and password for ITCAM for WebSphere Application Server on z/OS with global security enabled	131
Enabling privacy filtering	133

Appendix H. Using regular expressions 135

Appendix I. Accessibility 137

Trademarks 139

Notices 141

Tables

1. Default locations for <i>DC_home</i>	vi	17. List of options for the <i>setupdc.sh</i> script	70
2. Steps for installing and configuring IBM Tivoli Composite Application Manager for WebSphere Application Server	3	18. Order of unconfiguring and uninstalling ITCAM for WebSphere Application Server by operating system.	81
3. Application server information	15	19. Running the <i>serverStatus</i> command	82
4. Fields for establishing ITCAM for WebSphere Application Server and application server communication	16	20. Fields for information about ITCAM for WebSphere Application Server and application server communication	86
5. Whether to use <i>setup_DC_w32.exe</i> or <i>config_dc.bat</i>	22	21. Running the <i>serverStatus</i> command	88
6. Steps for installing and configuring ITCAM for WebSphere Application Server	25	22. Running the silent unconfiguration command	88
7. Required packages on several Linux distributions.	28	23. Examples of running the silent unconfiguration command	89
8. Default temporary directories for the InstallShield portion of the installation program	30	24. Uninstalling ITCAM for WebSphere Application Server	90
9. Default temporary directories for the InstallShield portion of the installation program	34	25. List of options for the <i>unconfig.sh</i> script	95
10. How to export the <i>DISPLAY</i> variable	35	26. Accessibility of remote installation images	105
11. Application server information	43	27. Descriptions of counters displayed in the Tivoli Performance Viewer	111
12. Fields for establishing ITCAM for WebSphere Application Server and application server communication	43	28. ITCAM for WebSphere Application Server configuration parameters.	113
13. Whether to use the installation executable file or <i>config_dc.sh</i>	49	29. Configuration options for ITCAM for WebSphere Application Server	117
14.	51	30. Unconfiguration options for ITCAM for WebSphere Application Server	124
15. Minimum disk space	53	31. Trace level settings for installation, configuration, or unconfiguration log files	126
16. List of options for the <i>createcfg.sh</i> script	63	32. Syntax of <i>restoreConfig</i> command, non-ND environment	129
		33. Syntax of <i>restoreConfig</i> command, Network Deployment environment	130

Chapter 1. Overview of ITCAM for WebSphere Application Server

New to IBM WebSphere Application Server version 7.0 is the addition of IBM Tivoli Composite Application Manager for WebSphere Application Server (ITCAM for WebSphere Application Server). ITCAM for WebSphere Application Server provides WebSphere transaction statistics that allow application administrators to view application transaction statistics, such as transaction response times by application. This data is visualized per application server in the Tivoli Performance Viewer, found in the IBM WebSphere Application Server administrative console.

ITCAM for WebSphere Application Server is available on all the platforms supported by IBM WebSphere Application Server version 7.0.

If you require capabilities for more detailed monitoring and diagnostics for your WebSphere and non WebSphere applications, install IBM Tivoli Composite Application Manager for Application Diagnostics instead.

For more information about the features and benefits of IBM Tivoli Performance Manager for Applications, go to <http://www-306.ibm.com/software/tivoli/>

Functionality

ITCAM for WebSphere Application Server adds a new PMI module and the user can monitor its metrics in the Performance Viewer (in the administrative console).

ITCAM for WebSphere Application Server does not communicate with the Managing Server or Monitoring Agent (components of ITCAM for Application Diagnostics). To monitor an application server using the Managing Server or Monitoring Agent, you must install and configure the ITCAM for Application Diagnostics Data Collector.

Chapter 2. Installing and configuring ITCAM for WebSphere Application Server on Windows

For an overview of the installation and configuration process and a checklist of the steps that are involved, begin by reading “Checklist for installation and configuration on Windows.”

Checklist for installation and configuration on Windows

About this task

Use the following high-level checklist for installing and configuring IBM Tivoli Composite Application Manager for WebSphere Application Server.

Procedure

1. Obtain the installation images. See Appendix A, “Obtaining installation images for Windows, Linux, UNIX systems, and IBM i,” on page 105.
2. ITCAM for WebSphere Application Server provides both GUI installation and silent installation on Windows. Select the installation option that best meets the needs of your environment:
 - GUI installer: installs ITCAM for WebSphere Application Server using the **InstallShield**.
 - Silent: select a command-line interface instead of a graphical user interface to install the software, especially if you want to do any of the following:
 - Install in a demonstration environment and then later in a production environment using similar options.
 - Install multiple instances of ITCAM for WebSphere Application Server that have shared options.
3. Verify that your computer meets the system and software prerequisites, and perform tasks that are needed before installation. See “Prerequisites and pre-installation tasks for ITCAM for WebSphere Application Server on Windows” on page 4.
4. Install and configure ITCAM for WebSphere Application Server. Use one of the following options:

Table 2. Steps for installing and configuring IBM Tivoli Composite Application Manager for WebSphere Application Server

Option	Procedures to perform
GUI installer	<ol style="list-style-type: none">1. “GUI installation and configuration of ITCAM for WebSphere Application Server on Windows” on page 72. “Additional configuration tasks” on page 23
Silent	<ol style="list-style-type: none">1. “Silent installation and configuration of ITCAM for WebSphere Application Server on Windows” on page 202. “Additional configuration tasks” on page 23

Prerequisites and pre-installation tasks for ITCAM for WebSphere Application Server on Windows

A number of tasks must be performed before installing ITCAM for WebSphere Application Server on Windows.

Verify that your computer meets the system and software prerequisites. See “System and software prerequisites.”

System and software prerequisites

Hardware and software requirements needed to install and use the ITCAM for WebSphere Application Server on Windows.

Hardware prerequisites for the ITCAM for WebSphere Application Server

The required disk space is 200 megabytes for the installation image, and 440 megabytes for installing the product.

Supported operating system and application server combinations

ITCAM for WebSphere Application Server supports IBM WebSphere Application Server version 7.0. on the following Windows platforms:

- Windows Server 2003 all Editions and Windows Server 2003 R2 all Editions (64-bit is supported for only AMD64 and EM64/T)
- Windows XP Professional SP2 (32-bit and 64-bit)
- Windows Vista Business SP1 and Windows Vista Enterprise SP1 (32-bit and 64-bit)
- Windows Server 2008 Standard, Enterprise, and DataCenter (32-bit and 64-bit)

Supported JDKs for the ITCAM for WebSphere Application Server

The supported JDKs for the ITCAM for WebSphere Application Server are the same as the supported JDKs for the particular application server you will be monitoring.

Additional requirements for the operating system

The ITCAM for WebSphere Application Server must be installed on the same host as the application server you will be monitoring. The set of supported operating systems is limited to the supported operating systems for the application server you will be monitoring.

See the following website for the operating system requirements for the IBM WebSphere Application Server 7.0:

<http://www.ibm.com/software/webservers/appserv/doc/latest/prereq.html>

Important: ITCAM for WebSphere Application Server can not be configured for an application server instance where the Data Collector for ITCAM for WebSphere 6.1, ITCAM for Web Resources 6.2, or ITCAM Agent for WebSphere Applications 7.1 (a

component of ITCAM for Application Diagnostics) is configured. However, these products can be installed on the same host and configured for different application server instances.

Permissions

The following permissions are required to install ITCAM for WebSphere Application Server :

- The user who installs ITCAM for WebSphere Application Server must have read, write, and execute privileges on the application server.
- Administrator privileges are not required unless the application server is owned by a user with administrator privileges.
- The application server instance owner ID must have write permission to the directory where the installer creates log files. By default, it is C:\Program Files\IBM\tivoli\common\CYN\logs.

Checking the heap size

About this task

You must ensure the JVM heap size is sufficient. The default value is enough, but if the heap size was configured in WebSphere Application Server, make sure it is not less than 384 MB . Complete the following steps for each server that you want to configure for ITCAM for WebSphere Application Server:

Procedure

1. Log on to the IBM WebSphere Application Server administrative console.
2. Navigate to specifying heap size in the administrative console:
 - a. Click **Server > Application Servers** and select the *server_name*.
 - b. In the **Configuration** tab, navigate to **Server Infrastructure > Java and Process Management > Process Definition > Additional Properties: Java Virtual Machine**.
3. If a value is present the **Maximum Heap Size** field, check it. If it is less than 384, set it to 384.

Adjusting ports for firewalls or for use with other applications

About this task

At various times during the installation, you need to specify or accept the defaults for port numbers used by ITCAM for WebSphere Application Server to communicate with the application server using SOAP or RMI. Make sure that you record the correct port, and that the firewall does not prevent communication on this port from ITCAM for WebSphere Application Server to the application server.

For a Network Deployment environment, ITCAM for WebSphere Application Server will need to use the SOAP or RMI port to communicate with the Deployment Manager, which is usually located on a different host. In this case, take special care that the firewall does not block communication on this port. Consult the documentation for your firewall program to determine which ports are being blocked by your firewall.

Enabling user ID and password input from sas.client.props for RMI connector types

About this task

You can use the configuration program to retrieve the user ID and password (instead of entering them in the panel or silent configuration option) from the sas.client.props when using an RMI connection to WebSphere when global security is enabled. Set properties in the *AppServer_home/profiles/profile_name/properties/sas.client.props* file.

Procedure

1. Set the following properties in sas.client.props:

```
com.ibm.CORBA.loginSource=properties
com.ibm.CORBA.securityEnabled=true
com.ibm.CORBA.loginUserid=user_ID
com.ibm.CORBA.loginPassword=password
```

2. Run the following command to encrypt the password:

```
PropFilePasswordEncoder.bat path_to_props_file/sas.client.props com.ibm.CORBA
.loginPassword
```

3. Run it from the following directory: *AppServer_home/profiles/profile_name/bin*

Enabling user ID and password input from soap.client.props for SOAP connector types

Use the configuration program to retrieve the user ID and password (instead of entering them in the panel or silent configuration option) from the soap.client.props when using a SOAP connection to WebSphere and where global security is enabled. Set properties in the *AppServer_home/profiles/profile_name/properties/soap.client.props* file.

Procedure

1. Set the following properties in soap.client.props:

```
com.ibm.SOAP.securityEnabled=true
com.ibm.SOAP.loginUserid=user_ID
com.ibm.SOAP.loginPassword=password
```

2. Run the following command to encrypt the password:

```
PropFilePasswordEncoder.bat path_to_props_file/soap.client.props com.ibm.SOAP
.loginPassword
```

3. Run it from the following directory: *AppServer_home/profiles/profile_name/bin*

Information to know before the installation

Gathering information about values specified during installation and configuration

You might want to prepare for the installation by gathering information that you will have to provide during the installation. An example of the values that you might have to provide is located here: "Options for installing and configuring ITCAM for WebSphere Application Server on Windows, UNIX, Linux, and IBM i" on page 117.

Notes[®] about the installation and configuration

The following are notes about the installation and configuration:

Notes:

- An ITCAM for WebSphere Application Server installation cannot span over multiple hosts. You must install ITCAM for WebSphere Application Server separately on each host, and configure it for each application server instance. This applies to both Network Deployment and non-Network Deployment environments.
- For a Network Deployment environment, you will need to supply the host name of the Deployment Manager to configure ITCAM for WebSphere Application Server for a node. You do not need to install or configure ITCAM for WebSphere Application Server on the Deployment Manager itself.
- If you are performing a silent installation and configuration, you must copy the installation images to a hard disk. See “Options for installing and configuring ITCAM for WebSphere Application Server on Windows, UNIX, Linux, and IBM i” on page 117.
- For GUI installation and configuration, these instructions are written as if you have downloaded the installation files from the IBM website. If you install ITCAM for WebSphere Application Server from CD-ROMs, additional windows prompt you to insert the required CD-ROMs as needed.
- By default, the installer creates log files in the following directory: C:\Program Files\IBM\tivoli\common\CYN\logs\trace-install.log.
- For GUI installation and configuration, there are three types of fields in the installer:
 - Prefilled, editable: You can either accept the default that is provided or enter your own value.
 - Blank: You must enter a value of your own.
 - Prefilled, noneditable: You cannot change the provided value. These fields are not mentioned in the steps that follow.
- The installation and configuration programs do not accept values for directory paths if the following special characters are included:
`\u `!@#$()+=[]{}|:;'"<>,?`

GUI installation and configuration of ITCAM for WebSphere Application Server on Windows

About this task

Perform the following procedure to install and configure ITCAM for WebSphere Application Server:

Procedure

1. Log on to the computer on which you want to install ITCAM for WebSphere Application Server. Check that you have the appropriate user permissions to perform the installation. See “Permissions” on page 5.
2. Start the instance of the application server that will be monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.

Important: If you are in a Network Deployment environment, before the configuration program applies the configuration, it completes an autosynchronization between the Node Agent and Deployment Manager. You must start the Node Agent and Deployment Manager before the configuration. Starting the instance of the application server is not necessary.

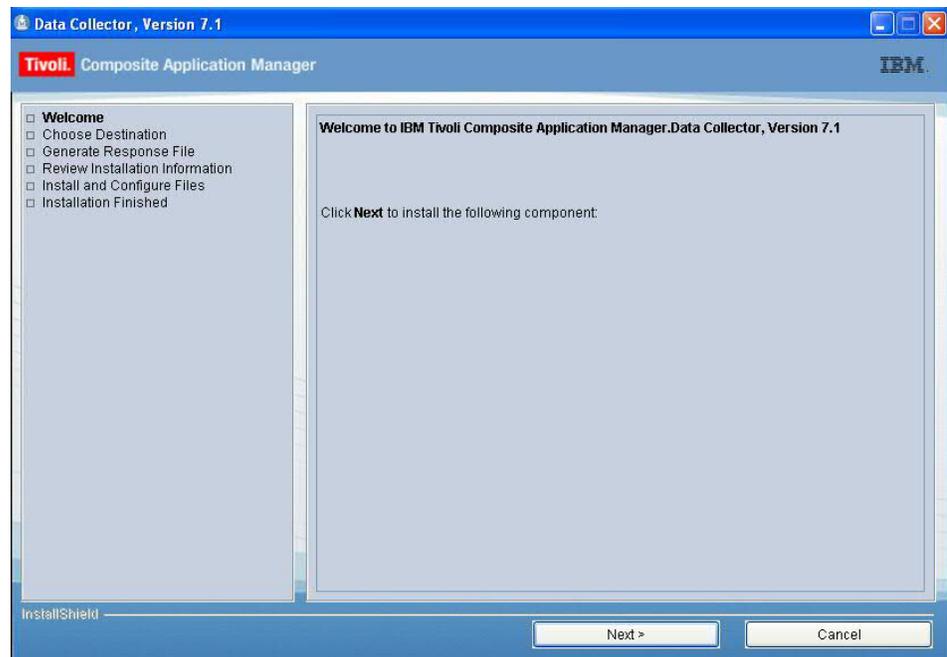
3. If Terminal Services is enabled on Windows 2003 Server, put the server into installation mode. Run the following command from a command prompt:
change user /install

Note: Ignore the following message:

Install mode does not apply to a Terminal server configured for remote administration.

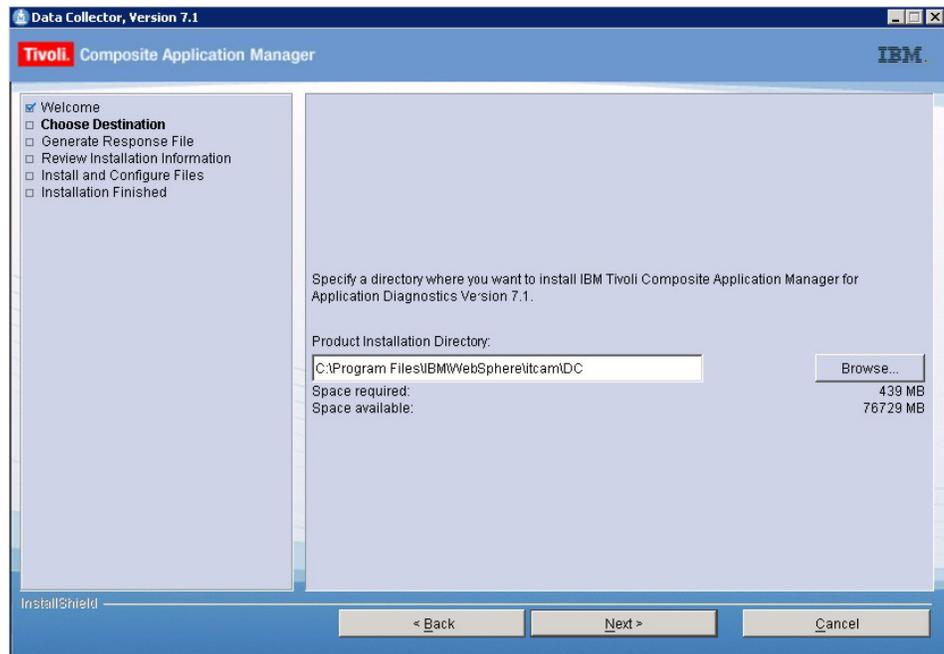
4. Start the installation program. Complete one of the following procedures:
 - Start the installation program using the IBM WebSphere Application Server LaunchPad. See Appendix B, “Starting an installation for Windows, UNIX, or Linux from the IBM WebSphere Application Server LaunchPad,” on page 107.
 - Directly start setup_DC_w32.exe from the directory that contains your ITCAM for WebSphere Application Server installation image.

The **InstallShield** opens the **Welcome** window.



Note: If the installation program detects that your computer does not match the basic prerequisites for starting the installation, a failure window opens instead of the **Welcome** window. See the information in the window to correct the situation and restart the installation.

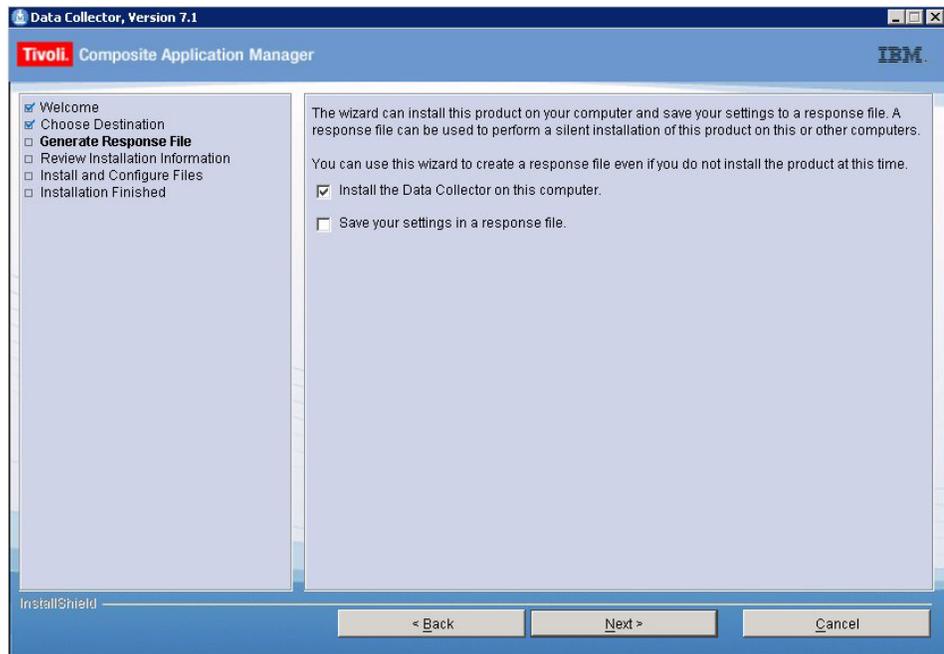
5. Click **Next** to show the **Choose Destination** window to select the installation directory.



6. You can accept the default installation directory path in the **Product Installation Directory** field, or click **Browse** to change this path.

Note:

- a. You cannot install ITCAM for WebSphere Application Server in a directory path that includes the following types of characters:
 - Traditional Chinese
 - Simplified Chinese
 - Japanese
 - Korean
 - Spanish special characters
 - German special characters
 - Portuguese Brazilian special characters
 - French special characters
 - Italian special characters
 - b. If you specify a directory that does not exist, the installation program creates the directory.
7. Click **Next** to open the **Generate Response File** window. In this window, you can choose whether to install ITCAM for WebSphere Application Server on this computer and whether to create a response file from the settings for this installation.



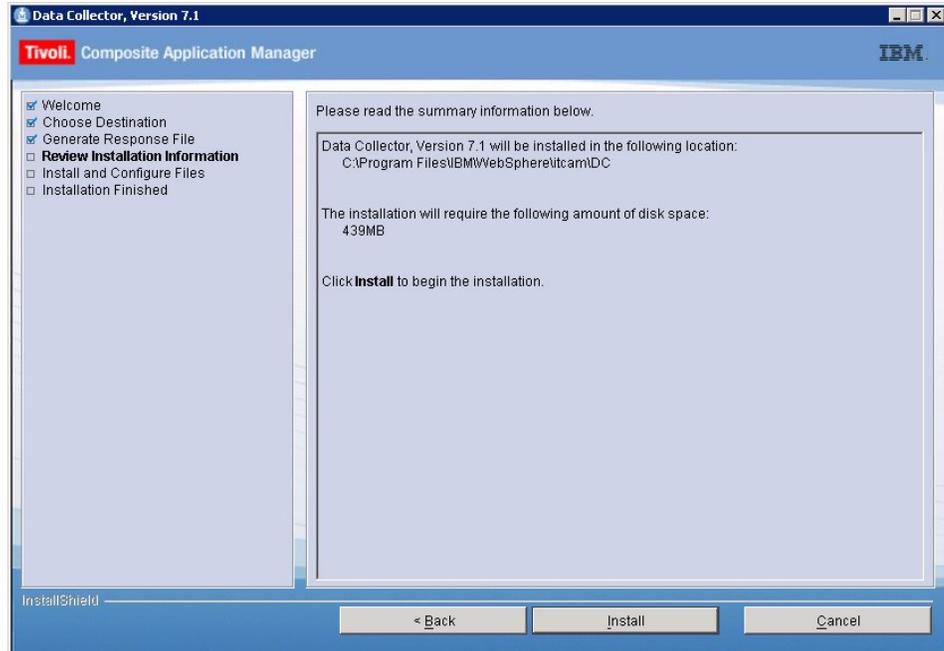
8. If you want to install ITCAM for WebSphere Application Server on this computer, select **Install the Data Collector on this computer.**

Note: One reason not to install ITCAM for WebSphere Application Server on this computer is if you are performing the installation procedure for the sole purpose of creating a response file for a subsequent silent installation.

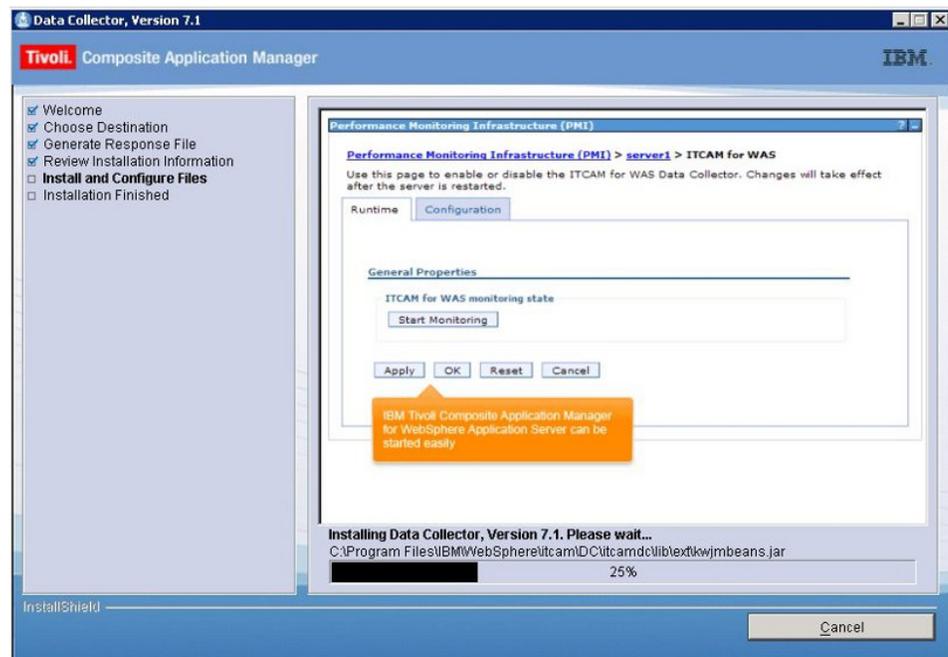
9. If you want to create a response file for a subsequent silent installation, select **Save your settings in a response file** and enter the file path ending with a file name. For example:
C:\temp\response.opt

A response file is only generated if the GUI installation is successful.

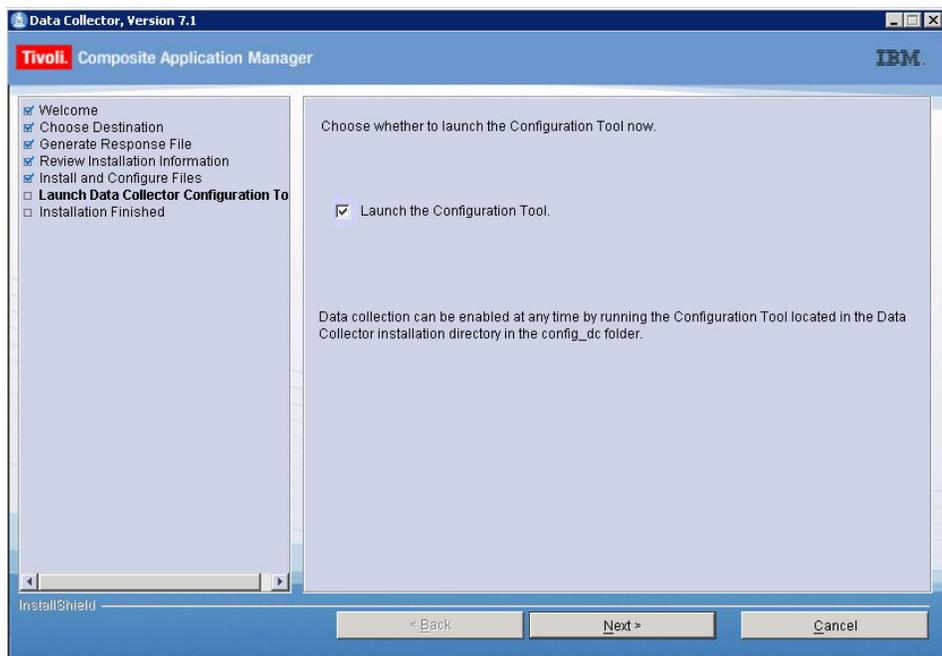
10. Click **Next** to open the **Review Installation Information** window. Read the summary information about the ITCAM for WebSphere Application Server installation.



11. Click **Install**. The **Install and Configure Files** window shows the progress of the installation.

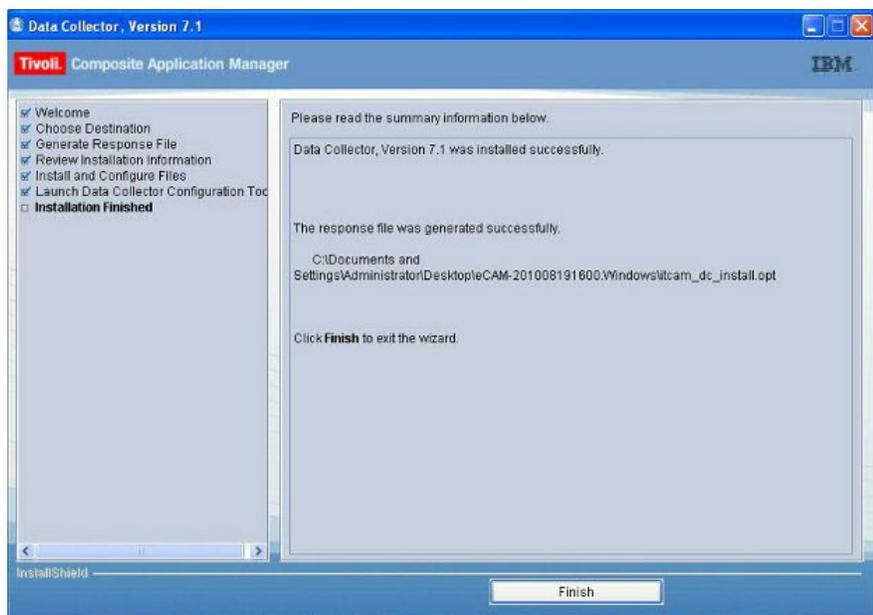


12. When the installation is finished the **Launch Data Collector Configuration Tool** opens.



13. Perform one of the following procedures:
- If you want to run the Configuration Tool now, select **Launch Data Collector Configuration Tool**, then click **Next** to continue.
 - If you want to run the Configuration Tool at a later time, complete the following steps:
 - a. Make sure **Launch the configuration tool** is not selected, and click **Next** to continue.

The **Installation Finished** window indicating successful completion of the installation displays. Click **Finish**.

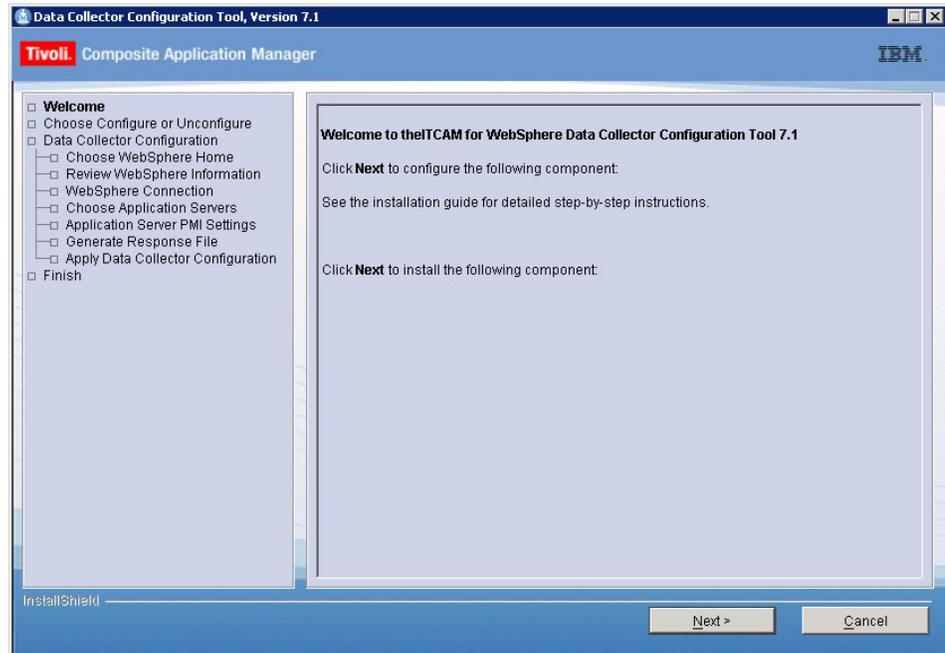


- b. When you want to run the configuration tool, browse to the installation directory for ITCAM for WebSphere Application Server and change to the config_dc directory.

```
cd DC_home/config_dc
```

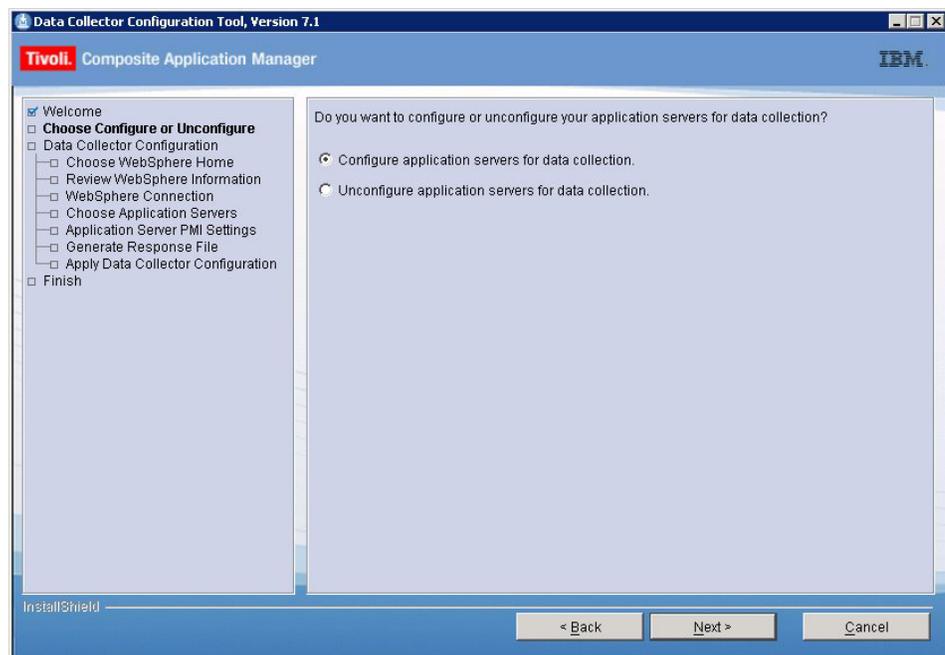
c. Run the *config_dc.bat* file.

14. The Configuration Tool opens, showing the **Welcome** window.



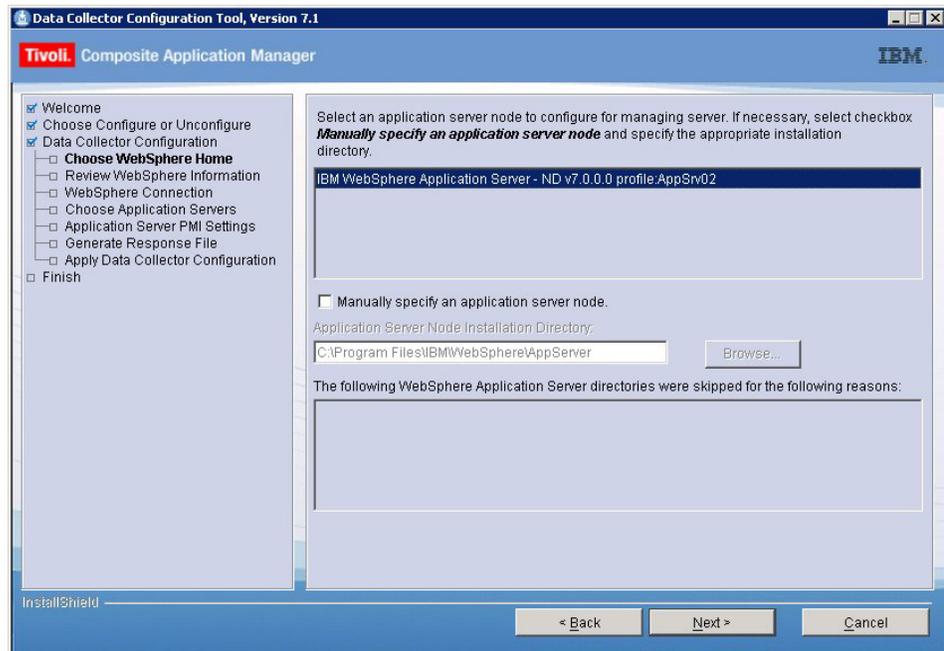
Attention: The Configuration Tool depends on the *dcInputs.txt* file in the *DC_home/config_dc* directory. This file must contain appropriate values or must have been generated by the installer. Do not modify this file. Inappropriate values result in the failure of the Configuration Tool connecting with the selected application server.

15. Click **Next** to open the **Choose Configure or Unconfigure** window.



16. Select **Configure application servers for data collection** and click **Next**. The software searches for installations of IBM WebSphere Application Server

version 7 on your computer and then displays a list of servers.

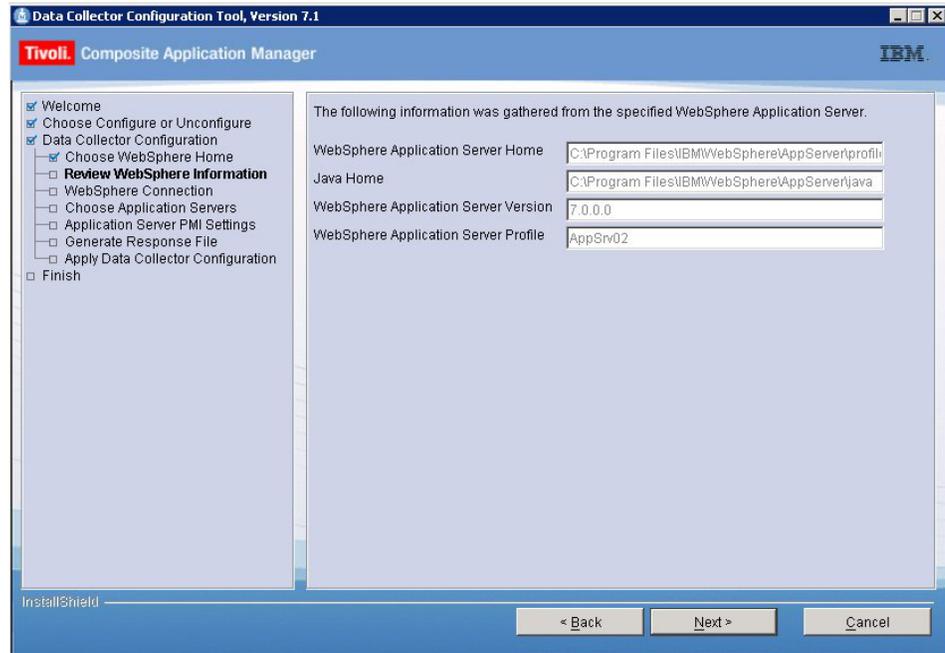


17. Perform one of the following procedures:
 - If the application server profile that ITCAM for WebSphere Application Server will monitor is displayed, select it and click **Next**.
 - If the profile for the application server that ITCAM for WebSphere Application Server will monitor was not detected, specify another profile for the application server:
 - a. Select **Manually specify an application server node**.
 - b. Browse to and select the *AppServer_home* directory.
 - c. Select the profile in the refreshed list of discovered application server profiles.

Notes:

- a. If there are several profiles for the installed application server, make sure that the selected profile is the profile that contains the application servers that you are monitoring. This also applies to a Network Deployment environment.
- b. The list of detected IBM WebSphere Application Server profiles only includes installations of IBM WebSphere Application Server version 7.0 or later.
- c. You cannot configure ITCAM for WebSphere Application Server on an application server instance in a directory path (including profile, cell, node, and server names) that includes the following types of characters:
 - Traditional Chinese
 - Simplified Chinese
 - Japanese
 - Korean
 - Spanish special characters
 - German special characters
 - Portuguese Brazilian special characters

- French special characters
 - Italian special characters
- d. If required, refer to the lower half of the window, which provides a list of application servers that were skipped and the reasons that they were skipped.
18. Click **Next** to open the **Review WebSphere Information** window which shows information about the selected application server.

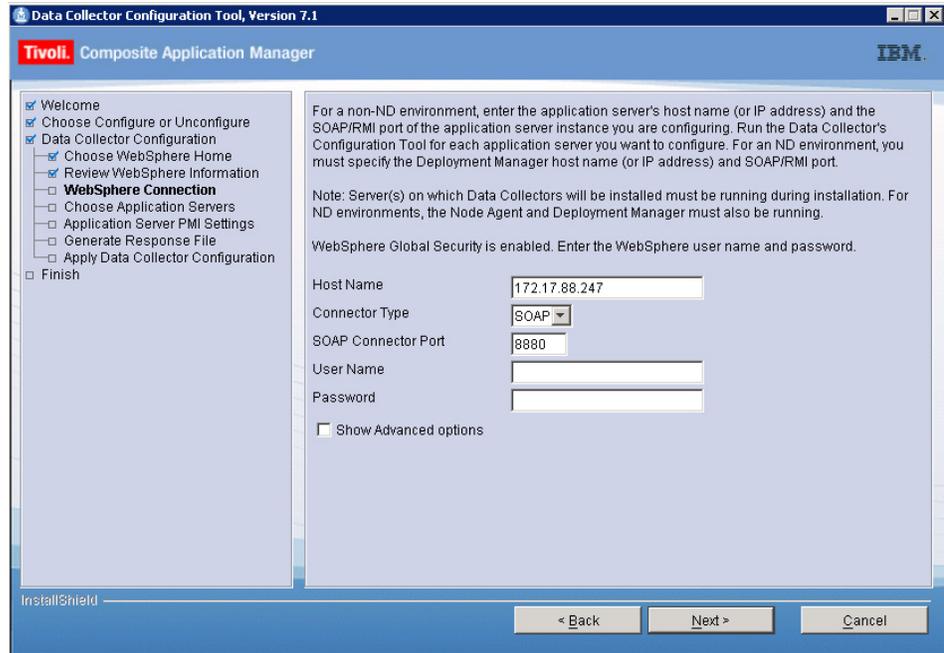


19. See the following table for descriptions of the fields in the window. Confirm the information in the window, by clicking **Next**.

Table 3. Application server information

Field	Description
WebSphere Application Server Home	The location of one of the directories for the profile under <i>AppServer_home</i> /profiles. For example, C:\Program Files\WebSphere\AppServer\profiles\default
Java Home	The location of the Java directory under <i>AppServer_home</i> . For example, C:\Program Files\WebSphere\AppServer\java.
WebSphere Application Server Version	The version. For example, 7.0.0.0.
WebSphere Application Server Profile	The name of the profile. For example, AppSvr02.

20. The **WebSphere Connection** window opens. Use it to enter information to establish communication between ITCAM for WebSphere Application Server and the application server.



21. See the following table for information, complete the fields and click **Next**:

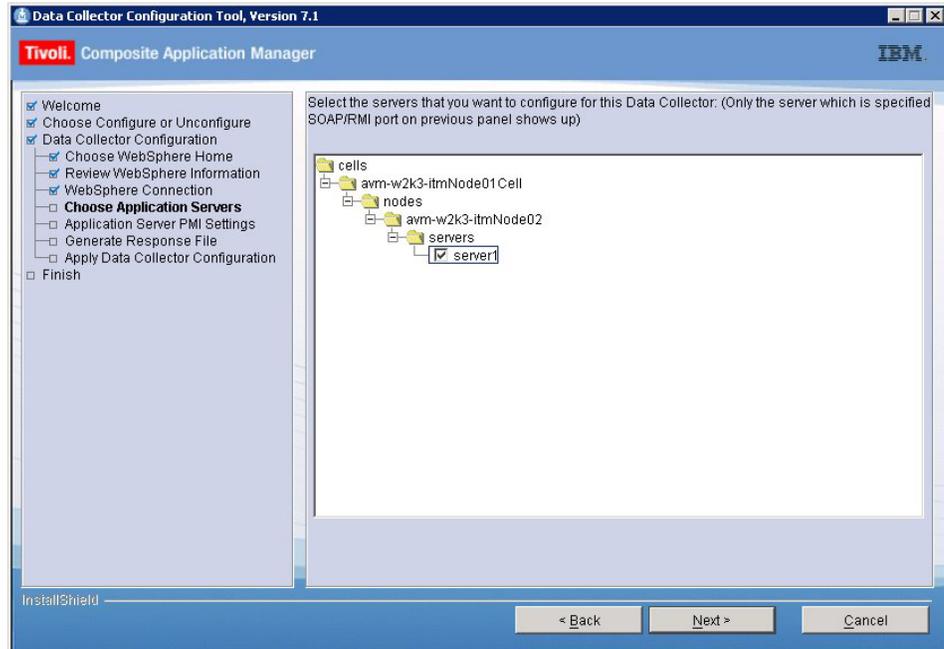
Table 4. Fields for establishing ITCAM for WebSphere Application Server and application server communication

Field	What to do
Host Name	Type the fully qualified host name or IP address of the application server instance that ITCAM for WebSphere Application Server will monitor. If you are using a host name, do not include a protocol in the host name. For example, type <code>myserver.ibm.tivoli.com</code> , not <code>https://myserver.ibm.tivoli.com</code> . Important: For a server in a Network Deployment environment, provide the host name of the Deployment Manager instead.
Connector Type	Select the type of connection that ITCAM for WebSphere Application Server will use to communicate to the application server: SOAP or RMI .
SOAP Connector Port (only if SOAP is selected as the connector type)	If you selected SOAP as the connector type, enter the connector port used by the application server instance to send and receive commands using the Simple Object Access Protocol (SOAP). The SOAP port is identified in the following file for the instance of application server that ITCAM for WebSphere Application Server will monitor: <code>AppServer_home/profiles/profile_name/config/cells/cell_name/nodes/node_name/serverindex.xml</code> Note: If using Network Deployment, provide the SOAP port of the Deployment Manager instead.
RMI Connector Port (only if RMI is selected as the connector type)	If you selected RMI as the connector type, enter the connector port used by the application server instance to send commands using RMI.
User Name (only if Global Security is enabled)	Enter the user ID of a user who is authorized to log on to the IBM WebSphere Application Server administrative console. This user must have the agent role on the application server. If, instead of typing the user ID, you want to retrieve the user ID from a properties file, do the following: <ol style="list-style-type: none">1. Select Show Advanced Options.2. Select the check box that appears below. For SOAP connectors, Use username and password stored in soap.client.props appears. For RMI connectors, Use username and password stored in sas.client.props appears.

Table 4. Fields for establishing ITCAM for WebSphere Application Server and application server communication (continued)

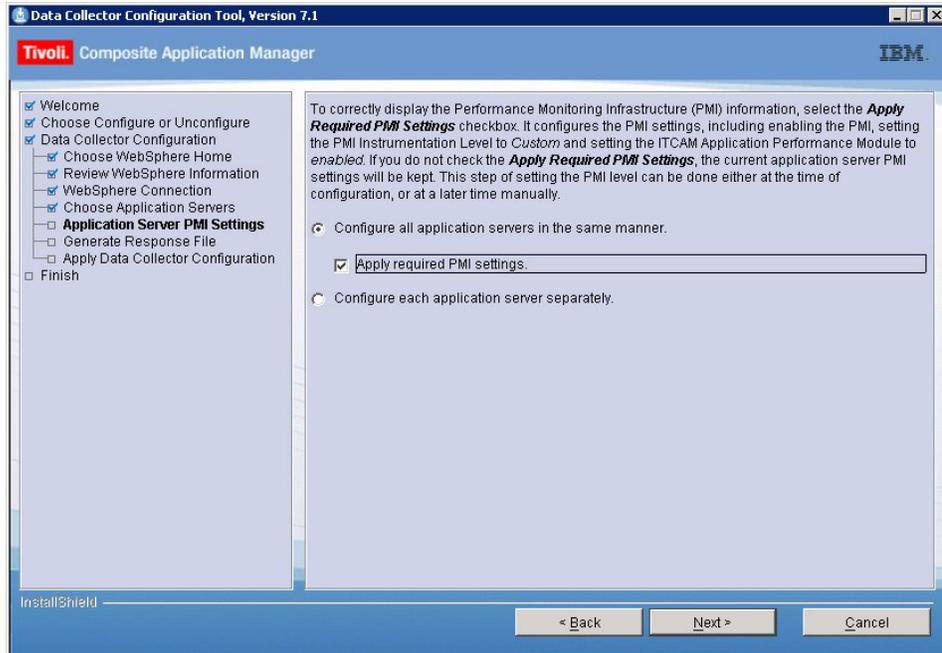
Field	What to do
Password (only if Global Security is enabled)	<p>Enter the password that corresponds to the user specified in the User Name field.</p> <p>If, instead of typing the password, you want to retrieve the password from a properties file, do the following:</p> <ol style="list-style-type: none"> 1. Select Show Advanced Options. 2. Select the check box that appears below. For SOAP connectors, Use username and password stored in soap.client.props. appears. For RMI connectors, Use username and password stored in sas.client.props. appears.

22. Click **Next** to open the **Choose Application Servers** window.



Select the server instance, or several instances, you want to configure for monitoring with ITCAM for WebSphere Application Server.

23. Click **Next** to open the **Application Server PMI Settings** window. Select the Performance Monitoring Infrastructure (PMI) Level you want to use.

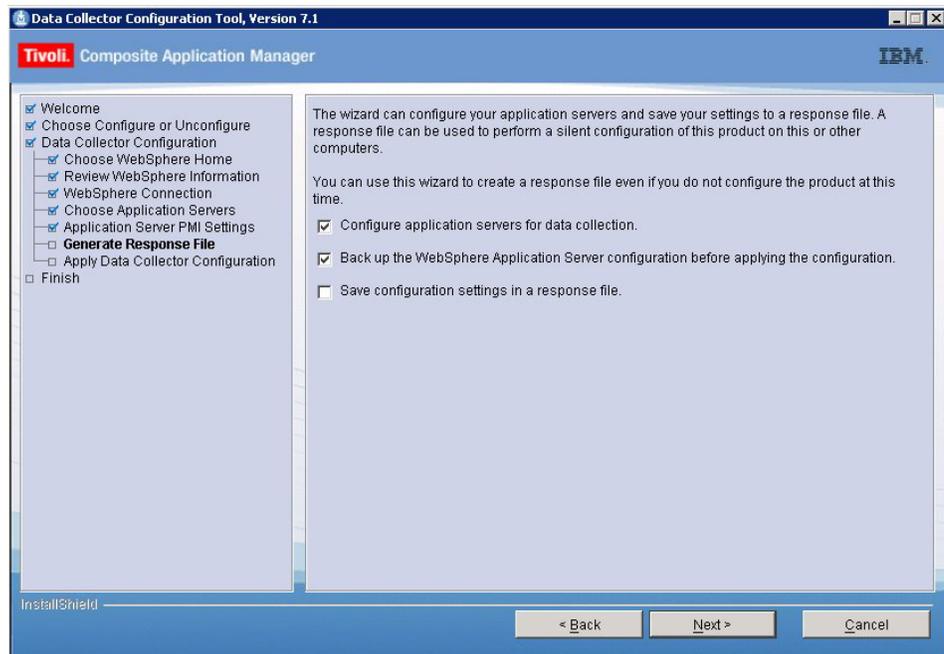


24. Perform one of the following procedures:
- If you want to enable custom PMI setting for all application server instances, select **Configure all application servers in the same manner** and **Apply required PMI settings**. Then click **Next**.
 - If you want to enable custom PMI setting only for particular application server instances, select **Configure each application server separately**, then select the application server instances. Then click **Next**.

For ITCAM for WebSphere Application Server data to appear in the Tivoli Performance Viewer user interface, you must enable PMI and the PMI level must be set to custom. See the following documentation for more information:

- IBM WebSphere Application Server PMI documentation at the following URL:
http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/topic/com.ibm.websphere.nd.multiplatform.doc/info/ae/ae/cprf_pmidata.html
- Custom PMI documentation at the following URL:
http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/topic/com.ibm.websphere.nd.multiplatform.doc/info/ae/ae/cprf_pmi_custom.html
- Description of the custom PMI settings for ITCAM for WebSphere Application Server can be found in the online helps.

25. When you click **Next** after completing either option the **Generate Response File** window opens. Select from the options available.



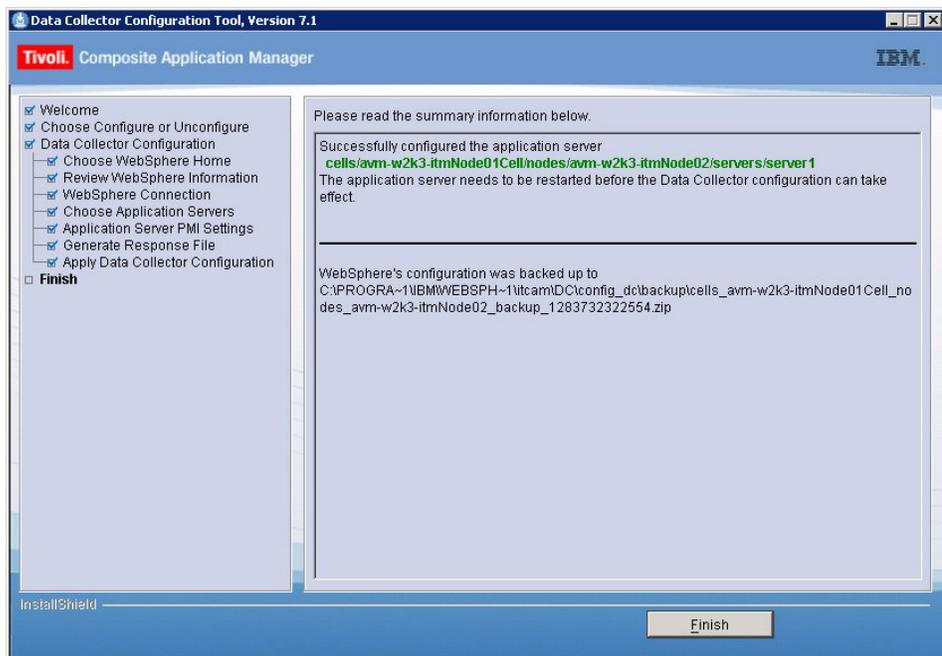
26. Select **Configure application servers for data collection** to configure the application server for data collection. If you deselect **Configure application servers for data collection**, the configuration will not be applied; you can save this configuration to a response file, for use in Silent configuration later..
27. Select **Back up the WebSphere Application Server configuration before applying the configuration** if you made the selection to configure the product in the previous step and you want to back up the application server configuration before applying the ITCAM for WebSphere Application Server configuration.

When you select this option, the configuration program starts the WebSphere backupConfig script before applying ITCAM for WebSphere Application Server configuration. A backup file for the application server configuration is saved in the *DC_home/config_dc/backup* directory. If ITCAM for WebSphere Application Server configuration fails, you can use the WebSphere restoreConfig command to restore the application server configuration. Then try to configure ITCAM for WebSphere Application Server again. See Appendix F, "What to do if ITCAM for WebSphere Application Server configuration fails," on page 129 for details.

28. Select **Save configuration settings in a response file** if you want to create a response file for subsequent silent configuration. If you have selected this box, enter the file path ending with a file name. For example:
C:\temp\response.opt

Important: If the configuration process fails, the response file will not be created,

29. Click **Next**. The Configuration Tool applies the configuration to ITCAM for WebSphere Application Server, and then a window indicating the results of the configuration displays.



30. Read the information in the window and click **Finish**.
31. If the **InstallShield** for ITCAM for WebSphere Application Server installation is still open, click **Finish** to close it.

Silent installation and configuration of ITCAM for WebSphere Application Server on Windows

About this task

This section describes how to use a command-line command pointing to a response file instead of a GUI installer to install and configure ITCAM for WebSphere Application Server. Installation and configuration through the response file without user interaction is called *silent* installation and configuration.

The installation and configuration programs reference response files located on a hard drive in the network, which contains most or all of the required parameters. You must specify the location of this file when you run the silent installation and configuration from a command line. You must specify the location of this file when you run the silent installation and configuration from a command line. You can also specify some of the values for parameters at the command line.

You have the option to only install ITCAM for WebSphere Application Server, both install and configure ITCAM for WebSphere Application Server, or only configure ITCAM for WebSphere Application Server using this procedure. If you only want to configure ITCAM for WebSphere Application Server, perform this procedure after ITCAM for WebSphere Application Server has been installed.

Perform the following procedure to run the silent installation and configuration command:

Procedure

1. Log on to the computer on which you want to install and configure ITCAM for WebSphere Application Server as a user with the proper permissions. If you have not already created this user, see “Permissions” on page 5.
2. Start the instance of the application server that will be monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.

Note: If you are in a Network Deployment environment, before the configuration program applies the configuration, it will perform an autosynchronization between the Node Agent and Deployment Manager. You must start the Node Agent and the Deployment Manager before the installation. Starting the instance of the application server is not necessary.

3. If Terminal Services is enabled on **Windows 2003 Server**, put the server into installation mode. Run the following from a command prompt:

```
change user /install
```

Note: Ignore the following message:

```
Install mode does not apply to a Terminal server configured for remote administration.
```

4. Check the following Web site to see if the latest level of maintenance (such as fix packs or interim fixes) needs to be applied: <http://www-306.ibm.com/software/sysmgmt/products/support/IBMTivoliCompositeApplicationManagerforWebSphere.html>

You have the option to perform both the installation and configuration by running the executable file once and using one response file.

Alternatively, you can run the installation and configuration separately. Perform steps 5 through 7 on page 22 twice: once for the installation and once for the configuration.

5. Perform one of the following procedures:
 - Specify configuration options in the DC_was.opt response file template and save the file.

The file is located in *installation_image_directory*/silent. See Appendix E, “Guidelines for specifying silent values on Windows, UNIX, and Linux,” on page 115 for guidance on entering values for the response file.
 - Use response files created by the GUI installation and configuration programs. If you want to perform both a silent installation and a silent configuration, perform the following steps to make one response file from two generated response files:
 - a. Make sure that you selected **Save settings to the response file** during the GUI installation and the GUI configuration.
 - b. With a text editor, copy and paste the contents of the response file generated from the installation program into the response file generated by the configuration program.
 - c. Save the newly created response file with a unique name or in another location. This response file is the one that you will enter in step 7 on page 22.

If you are performing only the installation, options for the configuration will be ignored when running the silent installation. If you are performing only the configuration, options for the installation will be ignored when running the silent configuration.

6. Perform one of the following procedures:

Table 5. Whether to use *setup_DC_w32.exe* or *config_dc.bat*

If you want to install or install and configure ITCAM for WebSphere Application Server	If you only want to configure ITCAM for WebSphere Application Server
Use the command-line interface to access the directory that contains the installation executable file. The <i>setup_DC_w32.exe</i> file is located in this directory.	Go to the <i>DC_home/config_dc</i> directory. The <i>config_dc.bat</i> file is located in this directory.

7. Run the following command:

```
install_or_config_executable_file -silent [-is:log [log_file_name]]
[configuration_option...] -options response_file
```

where

install_or_config_executable_file

specifies either *setup_DC_w32.exe* or *config_dc.bat*.

log_file_name

specifies the path and name of the log file that the silent installer will write to. The file will be created even if it does not yet exist or if no name is specified. Wrap the path in double-quotes (") if it contains spaces.

configuration_option

specifies one or more configuration options not included in the response file. See "Options for installing and configuring ITCAM for WebSphere Application Server on Windows, UNIX, Linux, and IBM i" on page 117.

response_file

specifies the response file you configured in step 5 on page 21. Indicate the path and name of the file. Wrap the path in double-quotes (") if it contains spaces.

The following are examples:

```
setup_DC_w32.exe -silent -is:log "C:\log\DClog.txt" -V DC_ASL_PORT="8885"
-options C:\itcam\images\silent\DC6.opt
config_dc.bat -silent -V DC_ASL_PORT="8885" -options C:\itcam\images\silent
\DC6.opt
```

Notes:

- a. Configuration options specified in the response file take precedence over those entered in the command line. For a particular command-line configuration option to take effect, you must first nullify that option in the response file by commenting it out with a pound sign (#).
- b. If you are performing a silent configuration (after ITCAM for WebSphere Application Server has been installed), you cannot use the *-is* option. Instead run the command in the following way:

```
config_dc.bat -silent [configuration_option...] -options response_file
```

For example:

```
config_dc.bat -silent -V DC_ASL_PORT="8885" -options C:\itcam\images\silent
\DC6.opt
```

8. If you have performed only a silent installation (you indicated *LAUNCH_CONFIG="false"*), check the *C:\Program Files\IBM\tivoli\common\CYN\logs\trace-install.log* file to find out whether the installation was successful.

Additional configuration tasks

About this task

Perform the following steps:

Procedure

1. Enable ITCAM for WebSphere Application Server in the IBM WebSphere Application Server administrative console. See “Enabling IBM Tivoli Composite Application Manager for WebSphere Application Server” on page 109.
2. Restart the instance of the application server that will be monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on restarting IBM WebSphere Application Server in your environment.

If the application server fails to start up, ITCAM for WebSphere Application Server configuration has failed. You know ITCAM for WebSphere Application Server configuration has failed if any of the following has occurred:

- After the configuration, the application server fails to restart.
- During a GUI configuration, the summary panel for the Configuration Tool indicates the configuration has failed.
- During a silent configuration, the command line indicates a message that the configuration has failed.
- After the configuration, there are messages in the log file that indicate configuration has failed.

If ITCAM for WebSphere Application Server configuration has failed, see Appendix F, “What to do if ITCAM for WebSphere Application Server configuration fails,” on page 129.

3. Start ITCAM for WebSphere Application Server in the IBM WebSphere Application Server administrative console. See “Starting ITCAM for WebSphere Application Server” on page 110.
4. Enable ITCAM counters. It will not show any data when the counters are disabled. See “Enabling IBM Tivoli Composite Application Manager for WebSphere Application Server” on page 109
5. If Terminal Services is enabled on **Windows 2003 Server**, run the following from a command prompt:
change user /execute

Chapter 3. Installing and configuring ITCAM for WebSphere Application Server on Linux and UNIX systems

Begin this chapter by reading “Checklist for installation and configuration on Linux and UNIX systems.” That section provides an overview of the installation and configuration process and a checklist for the steps that are involved.

Checklist for installation and configuration on Linux and UNIX systems

About this task

The following is a high-level checklist for installing and configuring ITCAM for WebSphere Application Server.

Procedure

1. Obtain the installation images. See Appendix A, “Obtaining installation images for Windows, Linux, UNIX systems, and IBM i,” on page 105.
2. Choose the installation option that best meets the needs of your environment. The following provides a brief summary of the types of installations and what steps to perform:
 - **GUI installer:** installs ITCAM for WebSphere Application Server using InstallShield.
 - **Silent:** choose a command-line interface instead of a graphical user interface (GUI) to install the software, especially if you want to do any of the following:
 - Install in a demo environment and then later in a production environment using similar options
 - Install multiple instances of ITCAM for WebSphere Application Server that have shared options
3. Verify that your computer meets the system and software prerequisites, and perform the pre-installation tasks. See “Prerequisites and pre-installation tasks for IBM Tivoli Composite Application Manager for WebSphere Application Server on Linux and UNIX systems” on page 26.
4. Install and configure ITCAM for WebSphere Application Server. Use one of the following options:

Table 6. Steps for installing and configuring ITCAM for WebSphere Application Server

Option	Procedures to perform
GUI installer	<ol style="list-style-type: none">1. “GUI installation and configuration of ITCAM for WebSphere Application Server on UNIX and Linux” on page 352. “Additional configuration tasks” on page 50
Silent	<ol style="list-style-type: none">1. “Silent installation and configuration of IBM Tivoli Composite Application Manager for WebSphere Application Server on UNIX and Linux” on page 472. “Additional configuration tasks” on page 50

Prerequisites and pre-installation tasks for IBM Tivoli Composite Application Manager for WebSphere Application Server on Linux and UNIX systems

This section includes tasks that need to be performed before installing IBM Tivoli Composite Application Manager for WebSphere Application Server (ITCAM for WebSphere Application Server) on Linux and UNIX systems.

Begin this section by verifying that your computer meets the system and software prerequisites. See “System and software prerequisites” on page 4.

System and software prerequisites

The following are the hardware and software requirements for being able to install and use the ITCAM for WebSphere Application Server on Linux and UNIX systems.

Hardware prerequisites for the ITCAM for WebSphere Application Server

The required disk space is 400 megabytes for the installation image, and 550 megabytes for installing the product.

Supported operating system and application server combinations

ITCAM for WebSphere Application Server supports IBM WebSphere Application Server version 7.0 on the following UNIX and Linux platforms:

- AIX® 5.3 with the 5300-07-01 Service Pack or later (32-bit and 64-bit)
- AIX 6.1 with the 6100-00-02 Service Pack or later (32-bit and 64-bit)
- HP-UX 11.iv2 PA-RISC and Itanium (64-bit)
- HP-UX 11.iv3 PA-RISC and Itanium (64-bit)
- Solaris 9 with the latest Patch Cluster (SPARC) (32-bit)
- Solaris 10 with the latest Patch Cluster (SPARC and Opteron) (64-bit)
- Red Hat Enterprise Linux 4.0 Update 5 and above (IA32/PPC/Z where Z=31-bit), (32-bit)
- Red Hat Enterprise Linux 4.0 Update 5 and above (Opteron/EM64T/PPC/Z), (64-bit)
- Red Hat Enterprise Linux 5.0 Update 1 and above (IA32/PPC/Z where Z=31-bit), (32-bit)
- Red Hat Enterprise Linux 5.0 Update 1 and above (Opteron/EM64T/PPC/Z), (64-bit)
- SuSE Linux Enterprise Server 9 with the latest Service Pack (IA32/PPC/Z where Z=31-bit), (32-bit)
- SuSE Linux Enterprise Server 9 with the latest Service Pack (Opteron/EM64T/PPC/Z), (64-bit)
- SuSE Linux Enterprise Server 10 SP1 (IA32/PPC/Z where Z=31-bit), (32-bit)
- SuSE Linux Enterprise Server 10 SP1 (Opteron/EM64T/PPC/Z), (64-bit)

Supported JDKs for the ITCAM for WebSphere Application Server

The supported JDKs for the ITCAM for WebSphere Application Server are the same as the supported JDKs for the particular application server you will be monitoring.

Additional requirements for the operating system

The ITCAM for WebSphere Application Server must be installed on the same machine as the application server you will be monitoring. Thus the set of supported operating systems is further limited by the supported operating systems for the application server you will be monitoring.

See the following Web site for the operating system requirements for the IBM WebSphere Application Server 7.0:

<http://www-306.ibm.com/software/webservers/appserv/doc/latest/prereq.html>

Important: ITCAM for WebSphere Application Server can not be configured for an application server instance where the Data Collector for ITCAM for WebSphere 6.1, ITCAM for Web Resources 6.2, or ITCAM Agent for WebSphere Applications 7.1 (a component of ITCAM for Application Diagnostics) is configured. However, these products can be installed on the same host and configured for different application server instances.

Prerequisite libraries

The ITCAM for WebSphere Application Server installer and configuration utility require several libraries to run in graphics mode.

The following libraries are required for the ITCAM for WebSphere Application Server installer and configuration utility:

- X libraries, including libX11, libXmu and libXp
- The PAM library
- GLib 2

On Linux systems, the following additional libraries are required:

- libstdc++ versions 2.95 and 3.3 (known as libstdc++-compat in some distributions)
- libselinux, if the SELinux kernel is used

If the libraries are not available, the installer and configuration utility will fail.

You can use silent installation and configuration without installing the libraries.

The following packages are required in certain Linux distributions:

Table 7. Required packages on several Linux distributions.

Distribution	Packages
Red Hat Enterprise Linux AS, version 4.0, for IBM System z 31-bit	compat-libstdc++-295-2.95.3-81.s390.rpm compat-libstdc++-33-3.2.3-47.3.s390.rpm xorg-x11-deprecated-libs-6.8.2-1.EL.13.36.s390.rpm xorg-x11--libs-6.8.2-1.EL.13.36.s390.rpm pam-0.77-65.1.i386.rpm libselinux-1.19.1-7.i386.rpm glib2-2.4.7-1.i386.rpm cracklib-2.7-29.i386.rpm cracklib-dicts-2.7-29.i386.rpm
Red Hat Enterprise Linux AS, version 4.0, for IBM System z 64-bit	compat-libstdc++-295-2.95.3-81.s390.rpm compat-libstdc++-33-3.2.3-47.3.s390.rpm pam-0.77-66.14.s390.rpm xorg-x11-deprecated-libs-6.8.2-1.EL.13.36.s390.rpm xorg-x11--libs-6.8.2-1.EL.13.36.s390.rpm libstdc++-3.4.6-3.s390.rpm
Red Hat Enterprise Linux for Mainframe Computing, version 5.0 (5.20.2 and later) 64-bit	compat-libstdc++-295-2.95.3-85.s390.rpm compat-libstdc++-33-3.2.3-61.s390.rpm libX11-1.0.3-8.e15.s390.rpm libXp-1.0.0-8.s390.rpm pam-0.99.6.2-3.14.e15.s390.rpm xorg-x11-xauth-1.0.1-2.1.s390.rpm
SUSE Linux Enterprise Server 9 for IBM System z 31-bit	compat-2004.7.1-1.2.s390.rpm compat-32bit-9-200407011411.s390x.rpm pam-32bit-0.99.3.0-29.4.s390x.rpm pam-modules-32bit-10-2.2.s390x.rpm XFree86-libs-32bit-9-200512021711.s390x.rpm
SUSE Linux Enterprise Server 9 for IBM System z 64-bit	compat-2004.7.1-1.2.s390x.rpm compat-32bit-9-200407011411.s390x.rpm pam-32bit-0.99.3.0-29.4.s390x.rpm pam-modules-32bit-10-2.2.s390x.rpm XFree86-libs-32bit-9-200512021711.s390x.rpm
SUSE Linux Enterprise Server 10 for IBM System z 64-bit	compat-32bit-2006.1.25-11.2.s390x.rpm pam-32bit-0.99.3.0-29.4.s390x.rpm pam-modules-32bit-10-2.2.s390x.rpm xorg-x11-libs-32bit-6.9.0-50.14.s390x.rpm xorg-x11-devel-32bit-6.9.0-50.14.s390x.rpm xorg-x11-6.9.0-50.14.s390x.rpm
Red Hat Enterprise Linux AS and ES, version 4.0 for x86-32 and x86-64	compat-libstdc++-296-2.96-132.7.2.i386.rpm compat-libstdc++-33-3.2.3-47.3.i386.rpm xorg-x11-6.8.1-23.EL.src.rpm pam-0.77-65.1.src.rpm
Red Hat Enterprise Linux, versions 5.0 and 5.1 for x86-32 and x86-64	libXp-1.0.0-8.i386.rpm libXmu-1.0.2-5.i386.rpm compat-libstdc++-33-3.2.3-61.i386.rpm compat-libstdc++-296-2.96-138.i386.rpm
SUSE Linux Enterprise Server 9 for x86-32	compat-libstdc++-2.8.0-2cl.i386.rpm rpm-4.1.1-177.9.i586.rpm pam-0.78-8.i586.rpm xorg-x11-6.8.2-30.i586.rpm
SUSE Linux Enterprise Server 9 for x86-64	compat-libstdc++-2.8.0-2cl.i386.rpm xorg-x11-6.8.2-30.x86_64.rpm pam-0.78-8.i586.rpm
SUSE Linux Enterprise Server 10 for x86-32	compat-libstdc++-5.0.7-6.x86_64.rpm xorg-x11-6.8.2-100.13.i586.rpm pam-0.99.6.3-29.1.i586.rpm

Table 7. Required packages on several Linux distributions. (continued)

Distribution	Packages
SUSE Linux Enterprise Server 10 for x86-64	compat-libstdc++-5.0.7-6.i586.rpm xorg-x11-6.8.2-100.13.x86_64.rpm pam-0.99.6.3-29.1.i586.rpm
Red Hat Enterprise Linux AS, version 4 and 5 for IBM POWER, 32-bit and 64-bit	compat-libstdc++-33-3.2.3-47.3.ppc.rpm xorg-x11-6.8.1-12.ppc.rpm pam-0.77-66.23.ppc.rpm
SUSE Linux Enterprise Server 9 and 10 for IBM POWER, 32-bit and 64-bit	compat-libstdc++-5.0.7-22.2.ppc.rpm xorg-x11-devel-6.9.0-50.54.5.ppc.rpm xorg-x11-libs-6.9.0-50.54.5.ppc.rpm pam-0.99.3.0-29.4.ppc.rpm

Permissions

The following are the required permissions for the user who installs ITCAM for WebSphere Application Server:

- The user who installs ITCAM for WebSphere Application Server must have privileges (read, write, and execute) of accessing the application server.
- The files in the *AppServer_home* directory must be owned by the user who installs ITCAM for WebSphere Application Server.
- The application server instance owner ID must have write permission to the directory where the installer will create log files. By default, it is `/var/ibm/tivoli/common/CYN/logs`.
- Root privileges are not required unless your application server is owned by the root user.
- If the application server instance has a non-root owner ID, you must use the same owner ID as the application server instance to install ITCAM for WebSphere Application Server. See “Additional requirements when using the application server ID (non-root owner ID).”

Additional requirements when using the application server ID (non-root owner ID)

About this task

If the application server instance has a non-root owner ID, you must use the same owner ID as the application server to install ITCAM for WebSphere Application Server. To use that ID, you need to first perform the following procedure to avoid communication problems:

Procedure

1. Make sure that the application server owner ID can write to the *DC_home* directory, which must be empty. This will be specified during the installation.
2. Make sure the user has read and write privileges to one of the following system temporary directories. These directories will be used by the InstallShield portion of the installation program:

Table 8. Default temporary directories for the InstallShield portion of the installation program

Operating system	Directory
Solaris or HP-UX	It is one of the following: <ul style="list-style-type: none"> • If it exists: /var/tmp/ibm_am_installer_dc • If the /var/tmp/ibm_am_installer_dc directory does not exist, /var/tmp
Linux and all other UNIX platforms	It is one of the following: <ul style="list-style-type: none"> • If it exists: /tmp/ibm_am_installer_dc • If the /tmp/ibm_am_installer_dc directory does not exist, /tmp

Note: The InstallShield portion of the installation program does not need to actually write to this directory. There are procedures to perform before running the installation program if you want to specify a different temporary directory for InstallShield to write to. See the installation note “Information to know prior to the installation” on page 33.

3. Make sure the user is able to log to /var/ibm/tivoli.

Notes:

- a. You might have to create this directory as root and use the `chown` command to change ownership to the user.
 - b. The installation and configuration programs do not need to actually write to this directory. There are procedures to perform before running the installation program if you want to specify a different log directory to write to. See the installation note “Information to know prior to the installation” on page 33 of the GUI installation procedure. If you are performing a silent installation, there are options to set the log file directory in the command line or response file.
4. Make sure the user has read and write privileges to the following application server log directory: `AppServer_home/profiles/profile_name/logs`. In addition, if the `AppServer_home/profiles/profile_name/logs/wsadmin.traceout` and `AppServer_home/profiles/profile_name/logs/wsadmin.valout` files exist, the user must have read and write permissions to those files.

If IBM WebSphere Application Server was installed by root and the application server instance is owned by a non-root user:

About this task

If IBM WebSphere Application Server was installed by root and the application server instance created from that installation of IBM WebSphere Application Server was created and is owned by a non-root user, perform the following procedure:

Procedure

1. As the root user, run the following commands:

```
chown -R wasuser:wasgroup AppServer_home/properties/version/history
chown wasuser:wasgroup AppServer_home/properties/version
```

, where *wasuser* and *wasgroup* are the user and group for the application server instance.
2. As your non-root user, run the following command:

```
./versioninfo.sh
```

Results

If after running the `versioninfo.sh` command, you encounter information about the application server version (instead of an error message), you know that you have performed the chown commands successfully.

Checking the heap size

About this task

You must ensure the JVM heap size is sufficient. The default value is enough, but if the heap size was configured in WebSphere Application Server, make sure it is not less than 384 MB . Complete the following steps for each server that you want to configure for ITCAM for WebSphere Application Server:

Procedure

1. Log on to the IBM WebSphere Application Server administrative console.
2. Navigate to specifying heap size in the administrative console:
 - a. Click **Server > Application Servers** and select the `server_name`.
 - b. In the **Configuration** tab, navigate to **Server Infrastructure > Java and Process Management > Process Definition > Additional Properties: Java Virtual Machine**.
3. If a value is present the **Maximum Heap Size** field, check it. If it is less than 384, set it to 384.

Linux in a Network Deployment environment

About this task

For Linux in a Network Deployment environment, it is a requirement (not merely a recommendation) that you increase the Maximum Heap Size to a value above 256; otherwise, the installation might fail with the following error message:

```
CYNCR8522E: The system was unable to retrieve a list of known servers from server server_name using SOAP port port_number.
```

HP-UX: tuning HotSpot JVM garbage collection

About this task

For HotSpot JVM, the default `NewSize` and `MaxNewSize` might be too small for some applications if these applications allocate large numbers of short living objects. Some tuning is recommended for an application that allocates many short living objects:

```
-XX:+DisableExplicitGC -XX:NewSize=128m -XX:MaxNewSize=256m
```

Also, the default `MaxPermSize` might be small for some applications, too. It is recommended to use `-XX:MaxPermSize=128m` or `-XX:MaxPermSize=256m`.

Attention: `NewSize`, `MaxNewSize`, and `MaxPermSize` should be changed based on the Maximum (`-Xmx`) and Minimum (`-Xms`) heap settings of the JVM. Before you modify these parameters, consult the HotSpot JVM documentation for details at the following Web site: http://www.hp.com/products1/unix/java/infolibrary/prog_guide/hotspot.html#tools

Adjusting ports for firewalls or for use with other applications

About this task

At various times during the installation, you need to specify or accept the defaults for port numbers used by ITCAM for WebSphere Application Server to communicate with the application server using SOAP or RMI. Make sure that you record the correct port, and that the firewall does not prevent communication on this port from ITCAM for WebSphere Application Server to the application server.

For a Network Deployment environment, ITCAM for WebSphere Application Server will need to use the SOAP or RMI port to communicate with the Deployment Manager, which is usually located on a different host. In this case, take special care that the firewall does not block communication on this port. Consult the documentation for your firewall program to determine which ports are being blocked by your firewall.

Making sure there are no invalid mounted file systems

About this task

There might be file systems that are specified as mounted in the `/etc/filesystems` file that are not actually mounted or have lost connection with the ITCAM for WebSphere Application Server machine. If that is the case, the installation will hang without producing any error messages.

To prevent this, do the following:

Procedure

1. Either mount all file systems listed in the `/etc/file_systems_file` or comment out all files systems listed in `/etc/file_systems_file` that are not mounted.
where `file_systems_file` is the file that lists the mounted file systems. For example, on **AIX** it is called `filesystems` and on **Linux** it is called `fstab`.
2. Verify that the following commands can be run successfully and without error messages:

```
df -a
df -k
```

Mounting the ITCAM for WebSphere Application Server DVD on HP-UX

About this task

If you plan on using the DVD to install ITCAM for WebSphere Application Server on HP-UX, run the following command when mounting the DVD:

```
mount -F cdfs -o ro,cdcase,rr /dev/dsk/dvd_device /mnt/cdrom
```

Make sure that the value for `dvd_device` corresponds to your particular DVD device.

Enabling user ID and password input from `sas.client.props` for RMI connector types

About this task

You can use the configuration program to retrieve the user ID and password (instead of entering them in the panel or silent configuration option) from the

sas.client.props when using an RMI connection to WebSphere when global security is enabled. Set properties in the *AppServer_home/profiles/profile_name/properties/sas.client.props* file.

Procedure

1. Set the following properties in sas.client.props:
`com.ibm.CORBA.loginSource=properties`
`com.ibm.CORBA.securityEnabled=true`
`com.ibm.CORBA.loginUserId=user_ID`
`com.ibm.CORBA.loginPassword=password`
2. Run the following command to encrypt the password:
`PropFilePasswordEncoder.bat path_to_props_file/sas.client.props com.ibm.CORBA.loginPassword`
3. Run it from the following directory: *AppServer_home/profiles/profile_name/bin*

Enabling user ID and password input from soap.client.props for SOAP connector types

Use the configuration program to retrieve the user ID and password (instead of entering them in the panel or silent configuration option) from the soap.client.props when using a SOAP connection to WebSphere and where global security is enabled. Set properties in the *AppServer_home/profiles/profile_name/properties/soap.client.props* file.

Procedure

1. Set the following properties in soap.client.props:
`com.ibm.SOAP.securityEnabled=true`
`com.ibm.SOAP.loginUserId=user_ID`
`com.ibm.SOAP.loginPassword=password`
2. Run the following command to encrypt the password:
`PropFilePasswordEncoder.bat path_to_props_file/soap.client.props com.ibm.SOAP.loginPassword`
3. Run it from the following directory: *AppServer_home/profiles/profile_name/bin*

Information to know prior to the installation

See each of the following sections:

Gathering information about values specified during installation and configuration

You might want to prepare for the installation by gathering information that you will need to provide during the installation. A good example of the values that you might need to provide is located here: Appendix E, “Guidelines for specifying silent values on Windows, UNIX, and Linux,” on page 115.

Notes about the installation and configuration

The following are notes about the installation and configuration:

Notes:

1. An ITCAM for WebSphere Application Server installation cannot span over multiple hosts. You must install ITCAM for WebSphere Application Server

separately on each host, and configure it for each application server instance. This applies to both Network Deployment and non-Network Deployment environments.

2. For a Network Deployment environment, you will need to supply the host name of the Deployment Manager to configure ITCAM for WebSphere Application Server for a node. You do not need to install or configure ITCAM for WebSphere Application Server on the Deployment Manager itself.
3. If you are performing a silent installation and configuration, you should have copied the response files to a hard drive. See Appendix E, "Guidelines for specifying silent values on Windows, UNIX, and Linux," on page 115.
4. For GUI installation and configuration, these instructions are written as if you have downloaded the installation files from the IBM Web site. If you install ITCAM for WebSphere Application Server from CD-ROMs, additional windows prompt you to insert the required CD-ROMs as needed.
5. By default, the installer will create log files in the following directory:
/var/ibm/tivoli/common/CYN/logs.
6. To install on a cluster, run the installer on each node that you want 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. See "Silent installation and configuration of IBM Tivoli Composite Application Manager for WebSphere Application Server on UNIX and Linux" on page 47.
7. For GUI installation and configuration, there are three types of fields that appear in the installer:
 - Prefilled, editable: you can either accept the default that is provided or enter your own value.
 - Blank: you must enter a value of your own.
 - Prefilled, noneditable: you cannot change the provided value. These fields will not be mentioned in the steps that follow.
8. The installation and configuration programs will not accept values for directory paths if the following special characters are included:
\u `!@#*\$()+= [] | : ; ' " < > , ?
9. The InstallShield portion of the installation program will write to one of the following system temporary directories by default:

Table 9. Default temporary directories for the InstallShield portion of the installation program

Operating system	Directory
Solaris or HP-UX	It is one of the following: <ul style="list-style-type: none"> • If it exists: /var/tmp/ibm_am_installer_dc • If the /var/tmp/ibm_am_installer_dc directory does not exist, /var/tmp
Linux and all other UNIX platforms	It is one of the following: <ul style="list-style-type: none"> • If it exists: /tmp/ibm_am_installer_dc • If the /tmp/ibm_am_installer_dc directory does not exist, /tmp

Run the executable file directly with the following option: `-is:tempdir tmp_dir`. For example:

```
./setup_DC_aix.bin -is:tempdir /opt/ibm/tmp
```

`tmp_dir` is the directory to which you want the InstallShield portion of the installation program to write. The user for the installation should have read, write, and execute privileges to this directory.

10. The installation program will write to the following log directory by default:
/var/ibm/tivoli/common/CYN/logs

If you do not want the installer to write to this directory, do not use the LaunchPad. Run the executable file directly with the following option: `-V LOG_DIR=log_dir`. For example:

```
./setup_DC_aix.bin -V LOG_DIR=/opt/ibm/log
```

The `log_dir` is the directory to which you want the installer to write. The user for the installation should have read and write privileges to this directory.

GUI installation and configuration of ITCAM for WebSphere Application Server on UNIX and Linux

About this task

Perform the following procedure to install and configure IBM Tivoli Composite Application Manager for WebSphere Application Server (ITCAM for WebSphere Application Server).

Procedure

1. If running the installation from a remote computer, do the following: enter `xhost + hostname` on the computer where you are sitting, where `hostname` is the fully qualified host name of the computer on which ITCAM for WebSphere Application Server is being installed.
2. Log on to the computer on which you want to install ITCAM for WebSphere Application Server using the user that has permissions to perform the installation. See “Permissions” on page 29.
3. Export the `DISPLAY` variable. Do one of the following:

Table 10. How to export the `DISPLAY` variable

If running the installation from a remote computer	Enter <code>export DISPLAY=local_machine:0.0</code> where <code>local_machine</code> is the fully qualified host name of the computer where you are sitting.
If running the installation from the computer where ITCAM for WebSphere Application Server is being installed	Enter <code>export DISPLAY=localhost:0.0</code>

4. Start the instance of the application server that will be monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.

Note: If you are in a Network Deployment environment, before the configuration program applies the configuration, it will perform an autosynchronization between the Node Agent and Deployment Manager. You must start the Node Agent and Deployment Manager before the installation. Starting the instance of the application server is not necessary.

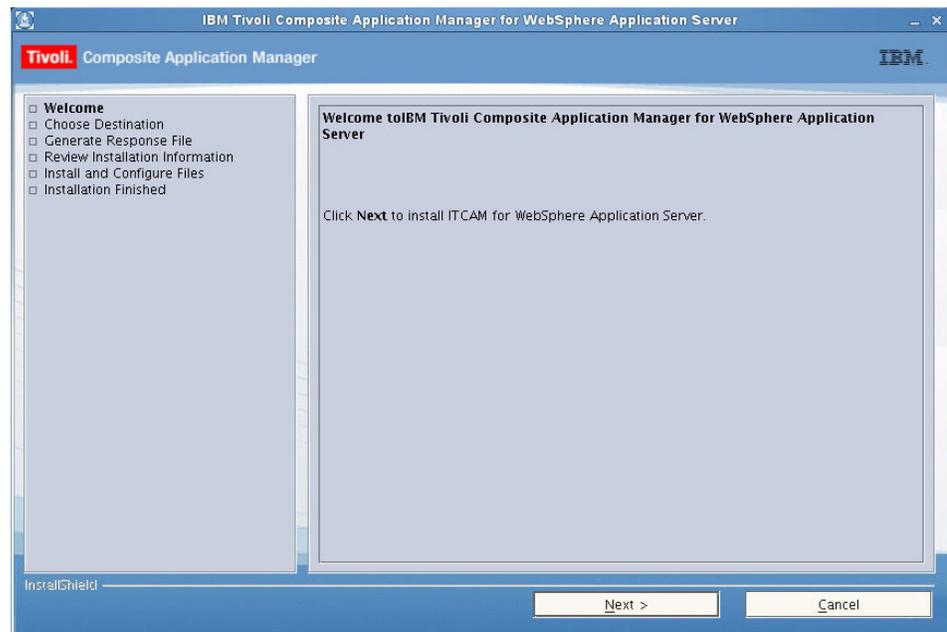
5. Start the installation program. Perform one of the following procedures:
 - Start the installation program using the IBM WebSphere Application Server LaunchPad. See Appendix B, “Starting an installation for Windows, UNIX, or Linux from the IBM WebSphere Application Server LaunchPad,” on page 107.
 - Run one of the following files from the directory that contains your ITCAM for WebSphere Application Server installation image:

- **IBM AIX:** setup_DC_aix.bin
- **Solaris:** setup_DC_sol.bin
- **Linux:** setup_DC_lin.bin
- **HP-UX:** setup_DC_hp11.bin or setup_DC_hp11_ia.bin (This is for HP-UX IA® 64-bit)

The installation program displays a window asking for a path for writing log files.



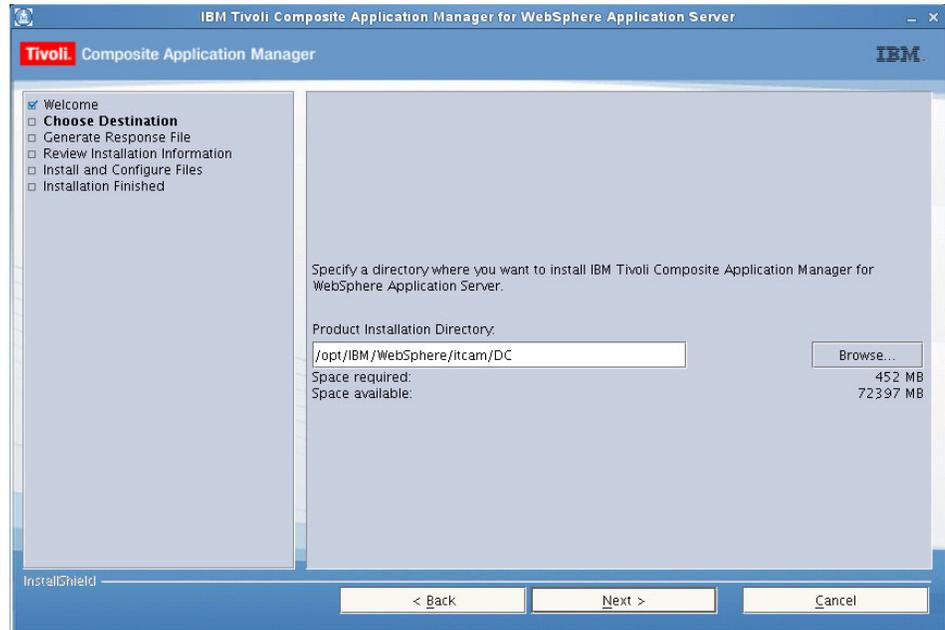
6. Accept the default or click the **Browse** button to select a different path. The current user must have write permissions for this path. The first window for the installation program opens, displaying the Welcome window.



Note: If the installation program detects that your computer does not match the basic prerequisites for starting the installation, a failure window opens

instead of the Welcome window. Refer to the information on the window to correct the situation and restart the installation.

7. Click **Next** to show the **Choose Destination** window to select the installation directory.



8. You can accept the default installation directory path in the **Product Installation Directory** field, or click **Browse** to change this path.

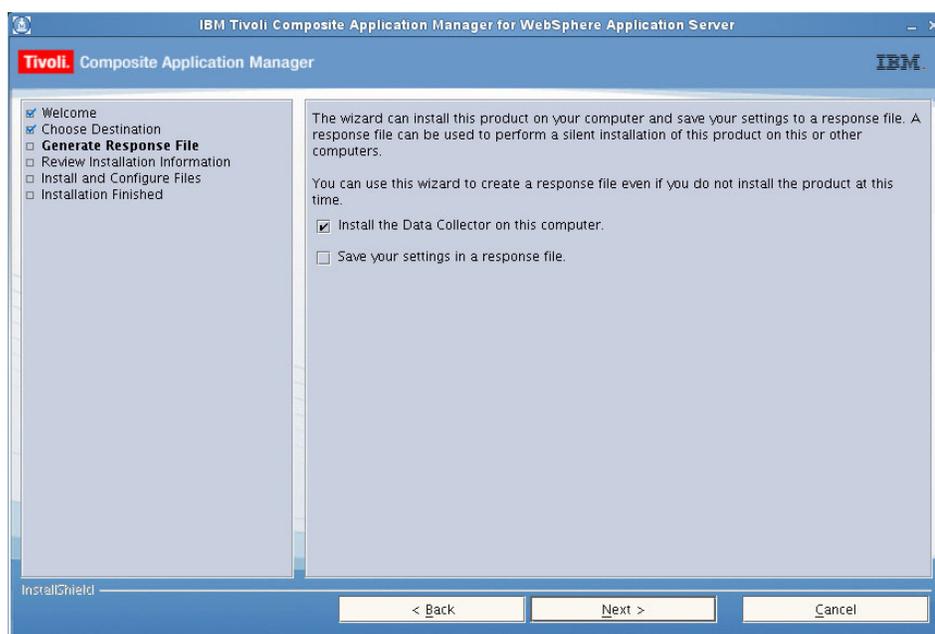
Note:

- a. You cannot install ITCAM for WebSphere Application Server in a directory path that includes the following types of characters:
 - Traditional Chinese
 - Simplified Chinese
 - Japanese
 - Korean
 - Spanish special characters
 - German special characters
 - Portuguese Brazilian special characters
 - French special characters
 - Italian special characters
 - b. If you specify a directory that does not exist, the installation program creates the directory.
9. Click **Next** to accept the default installation directory path in the **Directory Name** field; you can also change this path by typing or browsing to a different directory and then click **Next**.

Notes:

- a. You cannot install ITCAM for WebSphere Application Server in a directory path that includes the following types of characters:
 - Traditional Chinese
 - Simplified Chinese

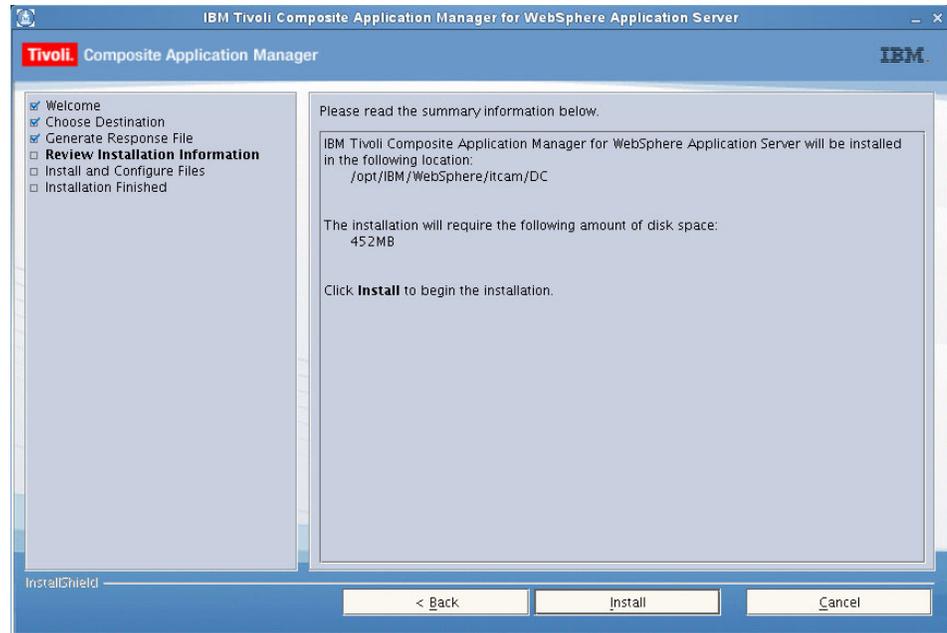
- Japanese
 - Korean
 - Spanish special characters
 - German special characters
 - Portuguese Brazilian special characters
 - French special characters
 - Italian special characters
- b. If you specify a directory that does not exist, the installation program creates the directory.
10. Click **Next** to open the **Generate Response File** window. In this window, you can choose whether to install ITCAM for WebSphere Application Server on this computer and whether to create a response file from the settings for this installation.



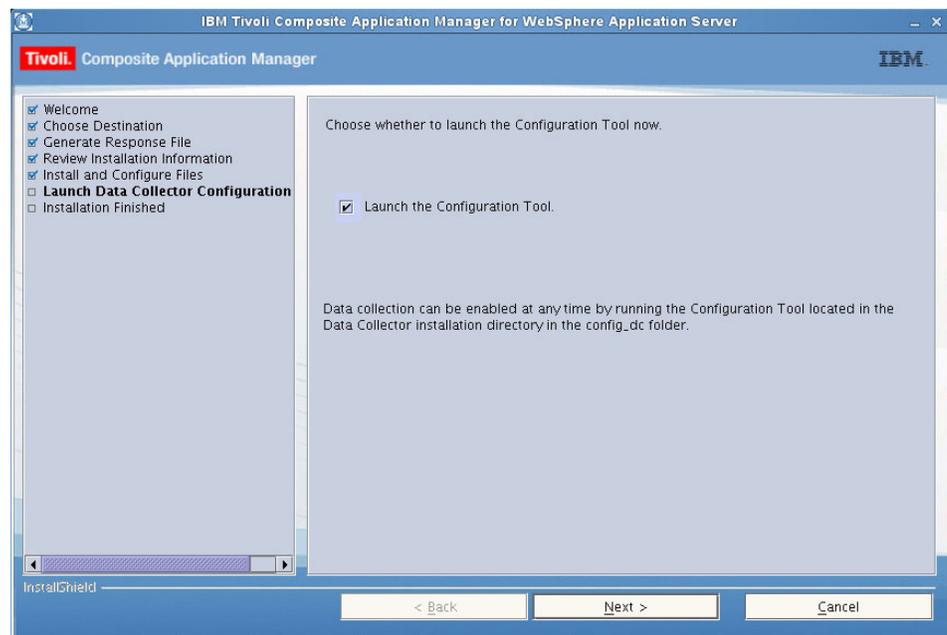
11. If you want to install ITCAM for WebSphere Application Server on this computer, select **Install the Data Collector on this computer**.
- Note:** One reason not to install ITCAM for WebSphere Application Server on this computer is if you are performing the installation procedure for the sole purpose of creating a response file for a subsequent silent installation.
12. If you want to create a response file for a subsequent silent installation, select **Save your settings in a response file** and enter the file path ending with a file name. For example:
- /temp/response.opt

A response file is only generated if the GUI installation completes successfully.

13. Click **Next** to open the **Review Installation Information** window. Read the summary information about the ITCAM for WebSphere Application Server installation.



14. Click **Install** to begin the installation. When the installation is finished, the **Launch Data Collector Configuration Tool** opens.



15. Check the following Web site to see if the latest level of maintenance (such as fix packs or interim fixes) needs to be applied: <http://www-306.ibm.com/software/sysmgmt/products/support/IBMTivoliCompositeApplicationManagerforWebSphere.html>
16. Perform one of the following procedures:
 - If you want to run the Configuration Tool now, select **Launch the configuration tool**, then click **Next** to continue.
 - If you want to run the Configuration Tool at a later time, do the following:
 - a. Make sure **Launch the configuration tool** is not selected, and click **Next** to continue.

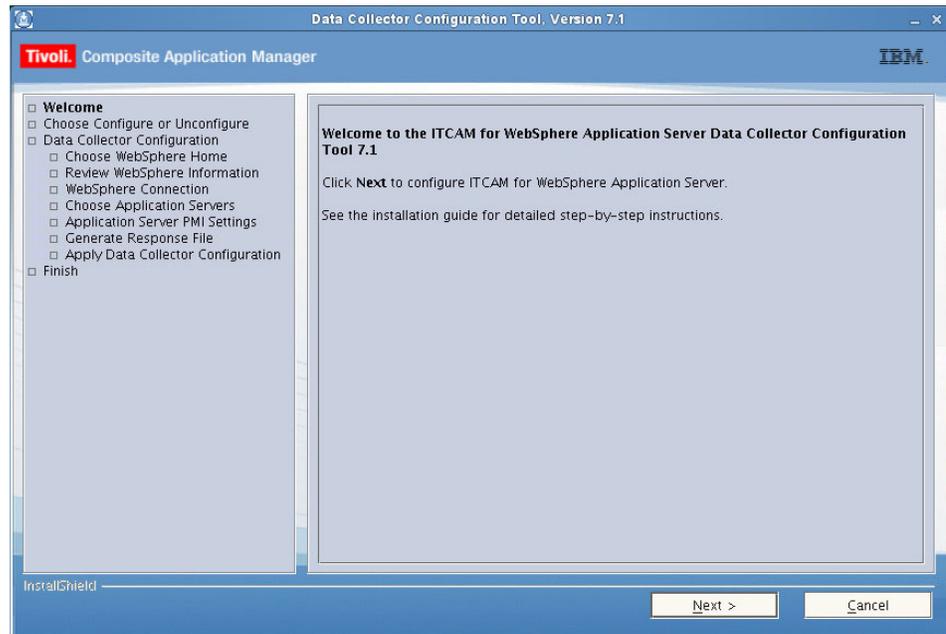
A window indicating successful completion of the installation displays. Click **Finish**.

- b. When you want to run the configuration tool, browse to the installation directory for ITCAM for WebSphere Application Server and change to the `config_dc` directory.

```
cd DC_home/config_dc
```

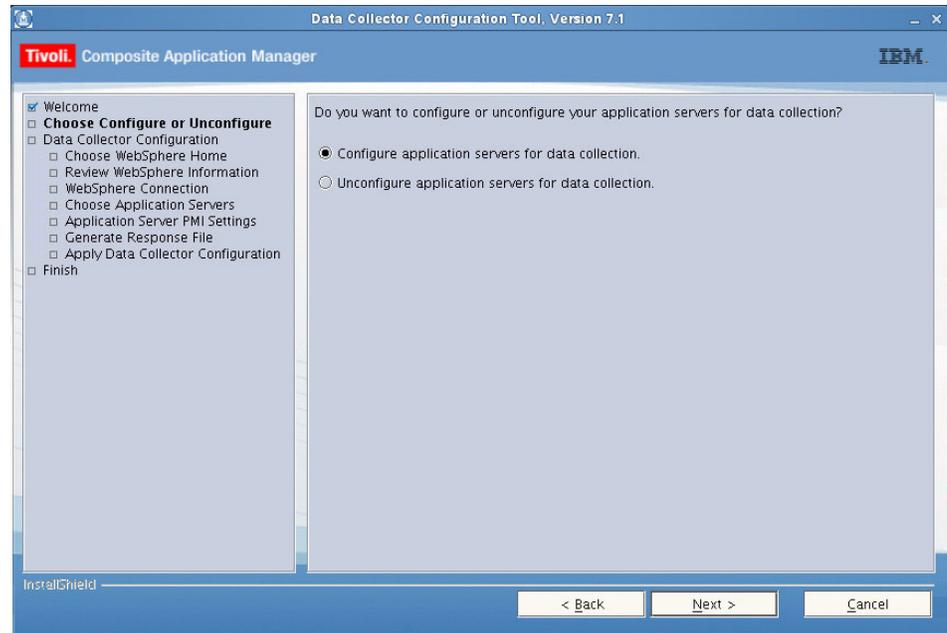
- c. Run the `config_dc.sh` file.

17. The Configuration Tool opens, displaying the **Welcome** window.

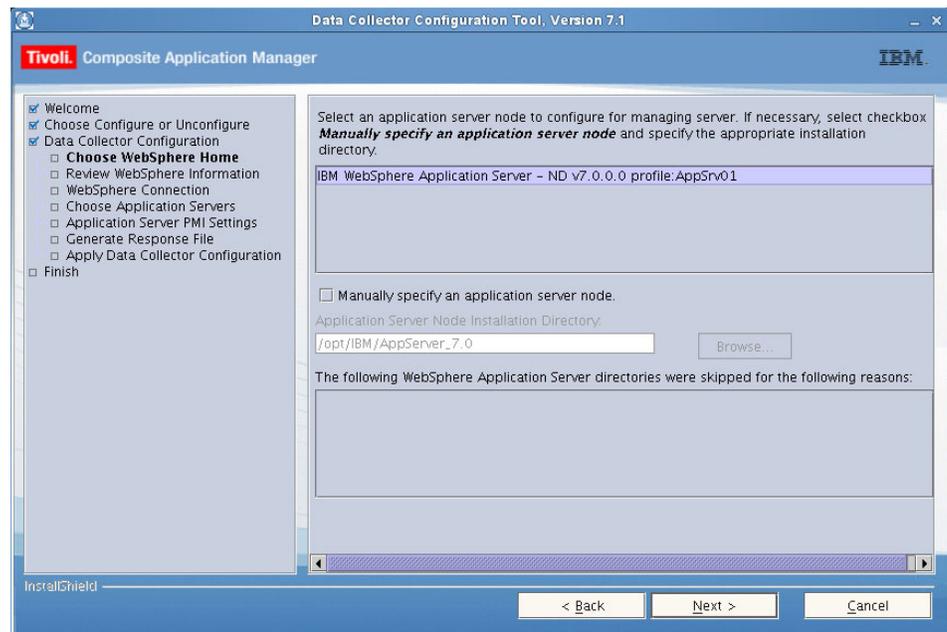


Attention: The Configuration Tool depends on the `dcInputs.txt` file in the `DC_home/config_dc` directory. This file must contain appropriate values or must have been generated by the installer. Do not modify this file. Inappropriate values result in the failure of the Configuration Tool connecting with the selected application server.

18. Click **Next** to open the **Choose Configure or Unconfigure** window..



19. Select **Configure servers for data collection**, and click **Next**. The software searches for installations of IBM WebSphere Application Server version 7 on your computer and then displays a list.



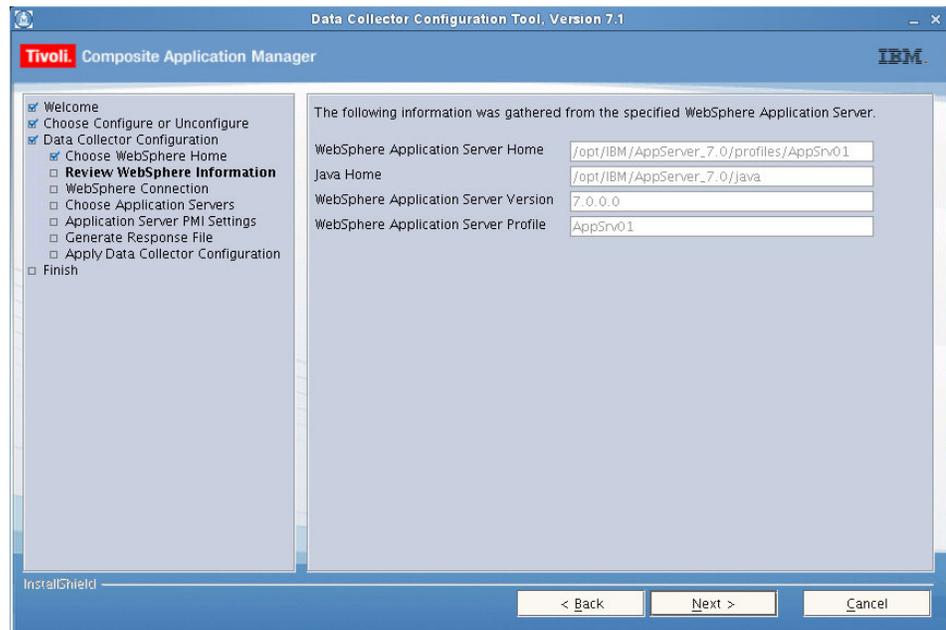
20. Perform one of the following procedures:
- If the application server profile that ITCAM for WebSphere Application Server will monitor is displayed, select it and click **Next**.
 - If the profile for the application server that will be monitored by ITCAM for WebSphere Application Server was not detected, specify another profile for the application server by doing the following:
 - a. Select the check box.
 - b. Browse to and select the *AppServer_home* directory.

- c. Select the profile in the refreshed list of discovered application server profiles.

Notes:

- a. If there are several profiles that exist for the installed application server, make sure that the profile that is selected is the profile that contains the application servers that you are instrumenting. This applies also to a Network Deployment environment.
- b. The list of detected IBM WebSphere Application Server profiles only includes installations of IBM WebSphere Application Server 7.0 or later.
- c. You cannot install ITCAM for WebSphere Application Server on an application server instance in a directory path (including profile, cell, node, and server names) that includes the following types of characters:
 - Traditional Chinese
 - Simplified Chinese
 - Japanese
 - Korean
 - Spanish special characters
 - German special characters
 - Portuguese Brazilian special characters
 - French special characters
 - Italian special characters
- d. If required, refer to the lower half of the window, which provides a list of application servers that were skipped and the reasons that they were skipped.

A window that shows information about the selected application server displays.

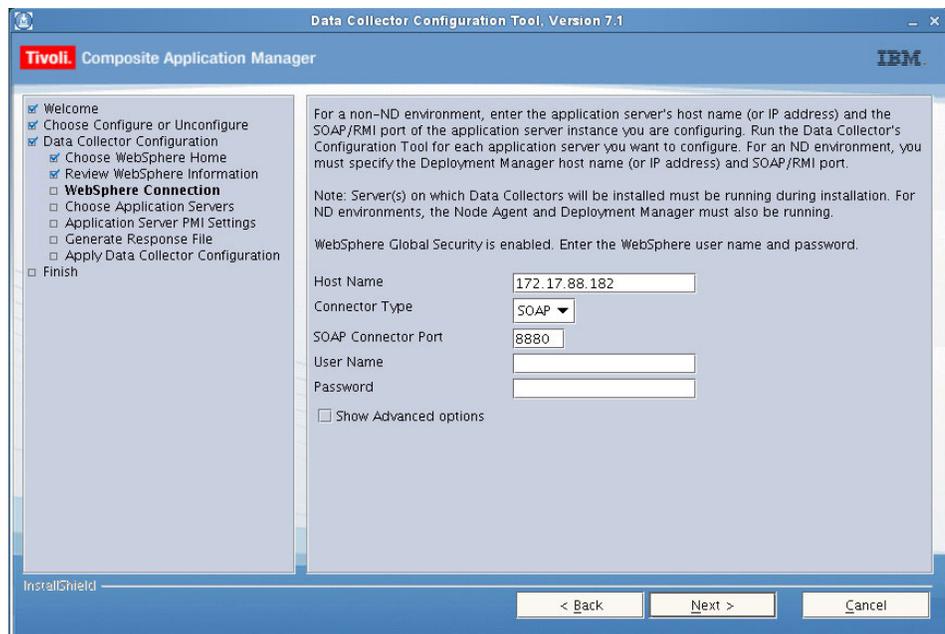


21. Confirm the information for the following by clicking **Next**:

Table 11. Application server information

Field	Description
WebSphere Application Server Home	This is the location of the directory for the profile under <i>AppServer_home</i> /profiles. For example, /opt/IBM/WebSphere/AppServer/profiles/default
Java Home	This is the location of the java directory under <i>AppServer_home</i> . For example, /opt/IBM/WebSphere/AppServer/java
WebSphere Application Server Version	This is the IBM WebSphere Application Server version. For example, 7.0.0.0.
WebSphere Application Server Profile	This is the name of the IBM WebSphere Application Server profile. For example, default.

A window for entering information to establish ITCAM for WebSphere Application Server and application server communication displays.



22. Complete the following fields and click **Next**:

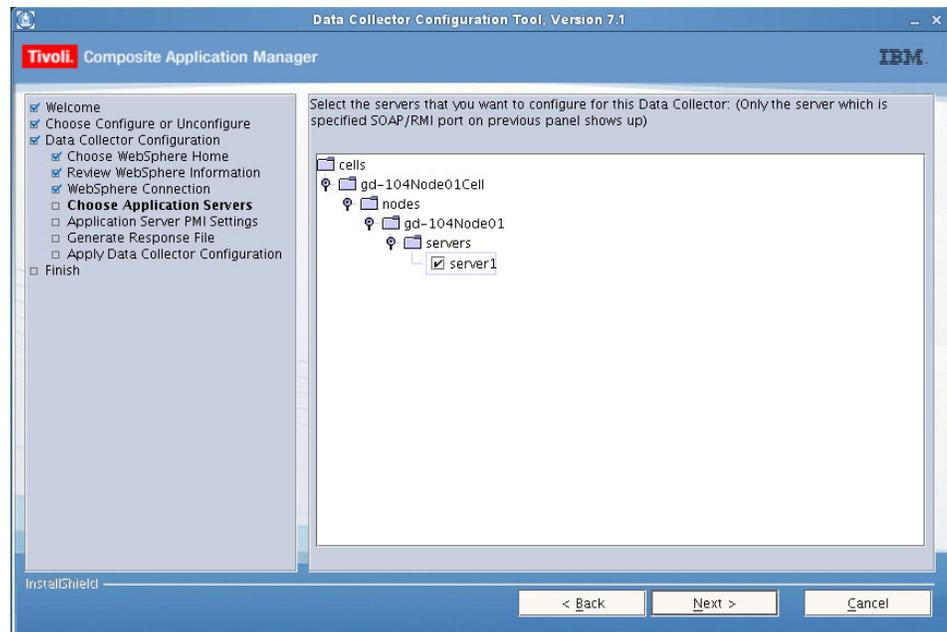
Table 12. Fields for establishing ITCAM for WebSphere Application Server and application server communication

Field	What to do
Host Name	Type the fully qualified host name or IP address of the application server instance that ITCAM for WebSphere Application Server will monitor. Do not include a protocol in the host name. For example, type myserver.ibm.tivoli.com, not https://myserver.ibm.tivoli.com. Important: If using a Network Deployment environment, provide the host name of the Deployment Manager instead.
Connector Type	Select the type of connection ITCAM for WebSphere Application Server and application server will use for communication.

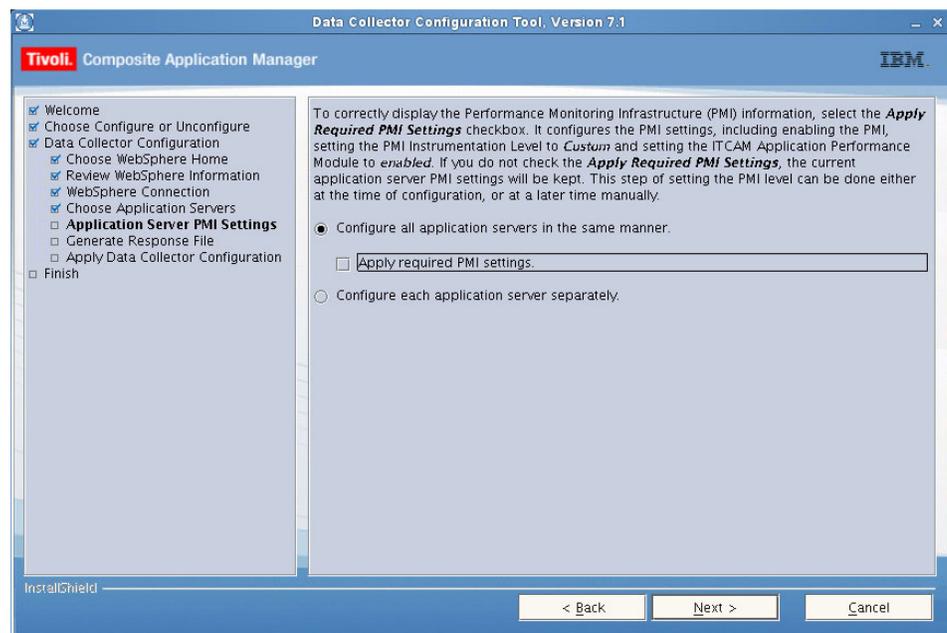
Table 12. Fields for establishing ITCAM for WebSphere Application Server and application server communication (continued)

Field	What to do
SOAP Connector Port (only if SOAP selected as the connector type)	<p>If you selected SOAP as the connector type, enter the connector port used by the application server instance to send commands using the Simple Object Access Protocol (SOAP).</p> <p>The SOAP port is identified in the following file for the instance of application server that ITCAM for WebSphere Application Server will monitor: <i>AppServer_home/profiles/profile_name/config/cells/cell_name/nodes/node_name/serverindex.xml</i> Note: If using Network Deployment, provide the SOAP port of the Deployment Manager instead.</p>
RMI Connector Port (only if RMI selected as the connector type)	<p>If you selected RMI as the connector type, enter the connector port used by the application server instance to send commands using RMI.</p>
User Name (only if Global Security is enabled)	<p>Enter the user ID of a user who is authorized to log on to the IBM WebSphere Application Server administrative console. This user must have the agent role on the application server.</p> <p>If, instead of typing the user ID, you want to retrieve the user ID from a properties file, do the following:</p> <ol style="list-style-type: none"> 1. Select Show Advanced Options. 2. Select the check box that appears below. For SOAP connectors, Use username and password stored in soap.client.props. appears. For RMI connectors, Use username and password stored in sas.client.props. appears.
Password (only if Global Security is enabled)	<p>Enter the password that corresponds to the user specified in the User Name field.</p> <p>If, instead of typing the password, you want to retrieve the password from a properties file, do the following:</p> <ol style="list-style-type: none"> 1. Select Show Advanced Options. 2. Select the check box that appears below. For SOAP connectors, Use username and password stored in soap.client.props. appears. For RMI connectors, Use username and password stored in sas.client.props. appears.

A window for selecting the server for the application server that connects to ITCAM for WebSphere Application Server displays.



23. Select the server.
24. Click **Next**. A window asking for which application server instances to enable ITCAM for WebSphere Application Server's custom Performance Monitoring Infrastructure (PMI) level displays.

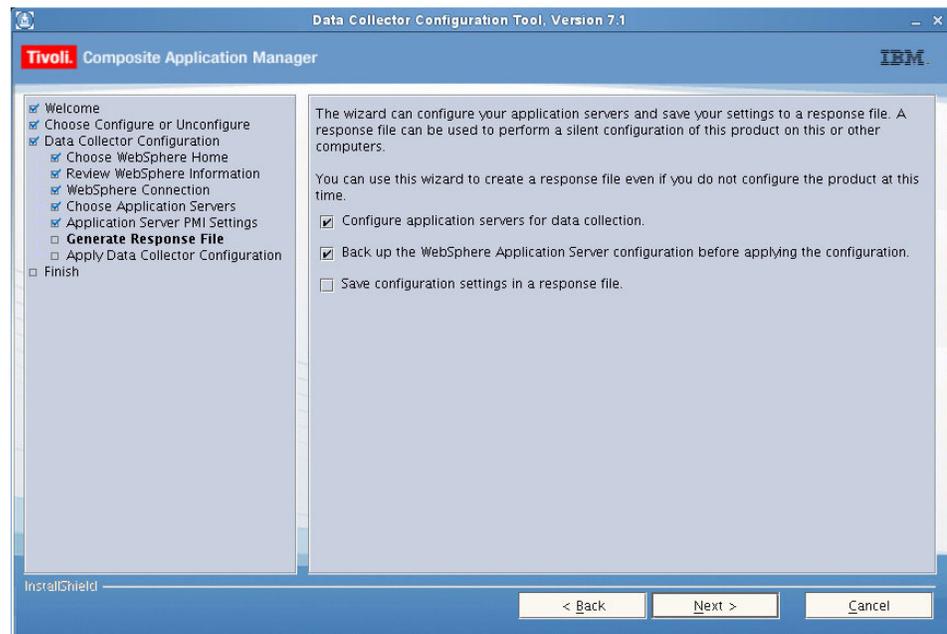


25. Perform one of the following procedures:
 - If you want to enable ITCAM for WebSphere Application Server's custom PMI setting for all application server instances, select **Configure all application servers in the same manner** and **Apply required PMI settings**. Then click **Next**.
 - If you want to enable ITCAM for WebSphere Application Server's custom PMI setting only for particular application server instances, select **Configure each application server separately**, then select the application server instances. Then click **Next**.

In order for ITCAM for WebSphere Application Server data to appear in the Tivoli Performance Viewer user interface, you must enable PMI and the PMI level must be set to custom. See the following documentation for more information:

- IBM WebSphere Application Server PMI documentation at the following URL:
http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/topic/com.ibm.websphere.nd.doc/info/ae/ae/cprf_pmidata.html
- Custom PMI documentation at the following URL:http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/index.jsp?topic=/com.ibm.websphere.nd.doc/info/ae/ae/cprf_pmi_custom.html
- Description of ITCAM for WebSphere Application Server's custom PMI settings can be found in the online helps.

A window asking if you want to configure ITCAM for WebSphere Application Server on this computer, whether you want to back up the IBM WebSphere Application Server configuration before applying the ITCAM for WebSphere Application Server configuration, and whether you want to create a response file from the settings for this configuration displays.



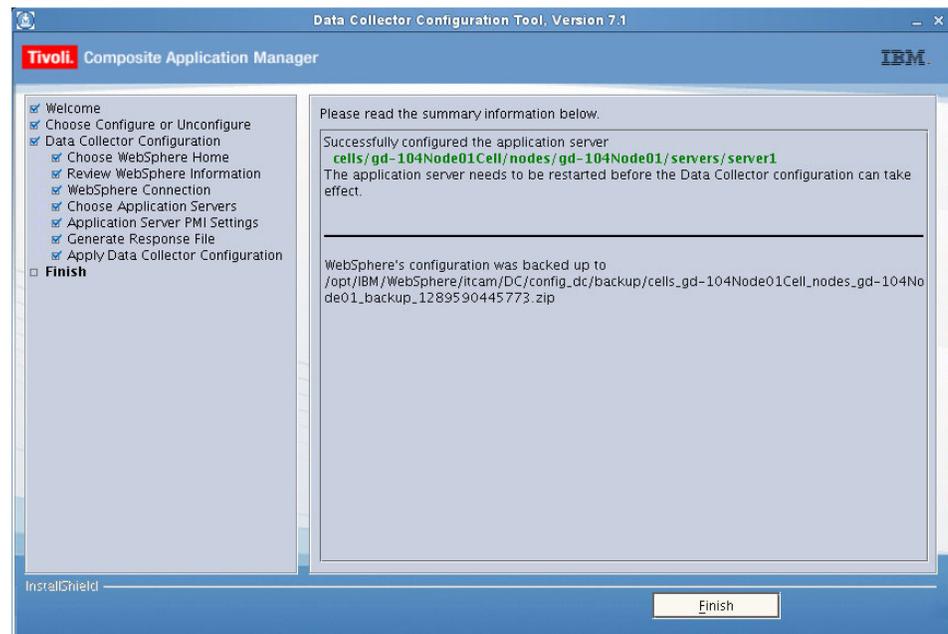
26. If you want to configure ITCAM for WebSphere Application Server on this computer, make the selection to configure it on this computer. One reason you would not want to configure ITCAM for WebSphere Application Server on this computer is if you are performing the configuration procedure for the sole purpose of creating a response file for a subsequent silent configuration.
27. If you want to configure the product in the previous step and you want to back up the application server configuration before applying the ITCAM for WebSphere Application Server configuration, select **Back up the application server configuration(s) before applying changes**. If this is selected, the configuration program will invoke WebSphere's backupConfig script before applying ITCAM for WebSphere Application Server configuration. A backup file for the application server configuration will be saved in the `DC_home/config_dc/backup` directory. If ITCAM for WebSphere Application Server configuration fails, you can use the WebSphere restoreConfig command to restore the application server configuration and then try to configure

ITCAM for WebSphere Application Server again. See Appendix F, “What to do if ITCAM for WebSphere Application Server configuration fails,” on page 129 for details.

28. If you want to create a response file for a subsequent silent configuration, select **Save configuration settings in a response file** and enter the file path ending with a file name. For example:
`/temp/response.opt`

A response file is only generated if the GUI configuration completes successfully.

29. Click **Next**. The Configuration Tool will apply the configuration to ITCAM for WebSphere Application Server, then a window indicating the results of the configuration displays.



30. Read the information in the window and click **Finish**.
31. If the InstallShield program for ITCAM for WebSphere Application Server installation is still open, click **Finish** to close it.

Silent installation and configuration of IBM Tivoli Composite Application Manager for WebSphere Application Server on UNIX and Linux

About this task

This section describes how to use a command-line command pointing to a response file instead of a GUI installer to install and configure ITCAM for WebSphere Application Server. Installation and configuration through the response file without user interaction is called *silent* installation and configuration.

The installation and configuration programs reference response files located on a hard drive in the network, which contains most or all of the required parameters. You must specify the location of this file when you run the silent installation and configuration from a command line. You can also specify some of the values for parameters at the command line.

You have the option to only install ITCAM for WebSphere Application Server, both install and configure ITCAM for WebSphere Application Server, or only configure ITCAM for WebSphere Application Server using this procedure. If you only want to configure ITCAM for WebSphere Application Server, perform this procedure after ITCAM for WebSphere Application Server has been installed.

Perform the following procedure to run the silent installation and configuration command:

Procedure

1. Log on to the computer on which you want to install and configure ITCAM for WebSphere Application Server as a user with the proper permissions. See “Permissions” on page 29.
2. Start the instance of the application server that will be monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.

Note: If you are in a Network Deployment environment, before the configuration program applies the configuration, it will perform an autosynchronization between the Node Agent and Deployment Manager. You must start the Node Agent and Deployment Manager before the installation. Starting the instance of the application server is not necessary.

3. Check the following Web site to see if the latest level of maintenance (such as fix packs or interim fixes) needs to be applied: <http://www-306.ibm.com/software/sysmgmt/products/support/IBMTivoliCompositeApplicationManagerforWebSphere.html>

If there is no maintenance you need to apply, you have the option to perform both the installation and configuration by running the executable file once and using one response file.

If there is maintenance you need to apply, you must run the installation and configuration separately. Perform steps 4 through 6 6 on page 49 twice: once for the installation and once for the configuration. After you perform the silent installation and before you perform the silent configuration, apply the latest level of maintenance.

4. Perform one of the following procedures:
 - Specify configuration options in the DC_was.opt response file template and save the file.

The file is located in *installation_image_directory*/silent. See Appendix E, “Guidelines for specifying silent values on Windows, UNIX, and Linux,” on page 115 for guidance on entering values for the response file.
 - Use response files created by the GUI installation and configuration programs. If you want to perform both a silent installation and a silent configuration, perform the following steps to make one response file from two generated response files:
 - a. Make sure that you selected **Save settings to the response file** during the GUI installation and the GUI configuration.
 - b. With a text editor, copy and paste the contents of the response file generated from the installation program into the response file generated by the configuration program.
 - c. Save the newly created response file with a unique name or in another location. This response file is the one that you will enter in step 6 on page 49.

If you are performing only the installation, options for the configuration will be ignored when running the silent installation. If you are performing only the configuration, options for the installation will be ignored when running the silent configuration.

5. Perform one of the following procedures:

Table 13. Whether to use the installation executable file or config_dc.sh

If you want to install or install and configure ITCAM for WebSphere Application Server	If you only want to configure ITCAM for WebSphere Application Server
Use the command-line interface to access the directory that contains the installation executable file. One of the following files is located in this directory: <ul style="list-style-type: none"> • IBM AIX: setup_DC_aix.bin • Solaris: setup_DC_sol.bin • Linux: setup_DC_lin.bin • HP-UX: setup_DC_hp11.bin 	Go to the <i>DC_home/config_dc</i> directory. The <i>config_dc.sh</i> file is located in this directory.

6. Run the following command:

```
./install_or_config_executable_file -silent [-is:log [log_file_name]]
[configuration_option...] -options response_file
```

, where

install_or_config_executable_file

specifies either the installation executable file or config_dc.sh.

log_file_name

specifies the path and name of the log file that the silent installer will write to. The file will be created even if it does not yet exist or if no name is specified. Wrap the path in double-quotes (") if it contains spaces.

configuration_option

specifies one or more configuration options not included in the response file. See "Options for installing and configuring ITCAM for WebSphere Application Server on Windows, UNIX, Linux, and IBM i" on page 117.

response_file

specifies the response file you configured in step4 on page 48. Indicate the path and name of the file. Wrap the path in double-quotes (") if it contains spaces.

The following are examples:

```
./setup_DC_lin390.bin -silent -is:log /opt/tmp/DClog.txt -V DC_AS_L_PORT="8885"
-options /opt/silent/DC6.opt
./config_dc.sh -silent -V DC_AS_L_PORT="8885" -options /opt/silent/DC6.opt
```

Notes:

- a. Configuration options specified in the response file take precedence over those entered in the command line. For a particular command-line configuration option to take effect, you must first nullify that option in the response file by commenting it out with a pound sign (#).
- b. If you are performing a silent configuration (after ITCAM for WebSphere Application Server has been installed), you cannot use the -is option. Instead run the command in the following way:

```
./config_dc.sh -silent [configuration_option...] -options response_file
```

For example:

```
./config_dc.sh -silent -V DC_AS_L_PORT="8885" -options /opt/silent/DC6.opt
```

7. If you have performed only a silent installation (you indicated `LAUNCH_CONFIG="false"`), check the `/var/ibm/tivoli/common/CYN/trace-install.log` file to find out whether the installation was successful.
8. If you have just performed a silent installation (and are about to perform a silent configuration) and there is maintenance you need to apply, do so from the following Web site: <http://www-306.ibm.com/software/sysmgmt/products/support/IBMTivoliCompositeApplicationManagerforWebSphere.html>

Additional configuration tasks

About this task

Perform the following steps:

Procedure

1. Enable ITCAM for WebSphere Application Server in the IBM WebSphere Application Server administrative console. See “Enabling IBM Tivoli Composite Application Manager for WebSphere Application Server” on page 109.
2. Restart the instance of the application server that will be monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.

If the application server fails to start up, ITCAM for WebSphere Application Server configuration has failed. You know ITCAM for WebSphere Application Server configuration has failed if any of the following has occurred:

- After the configuration, the application server fails to restart.
- During a GUI configuration, the summary panel for the Configuration Tool indicates the configuration has failed.
- During a silent configuration, the command line indicates a message that the configuration has failed.
- After the configuration, there are messages in the log file that indicate configuration has failed.

If ITCAM for WebSphere Application Server configuration has failed, see Appendix F, “What to do if ITCAM for WebSphere Application Server configuration fails,” on page 129.

3. Start ITCAM for WebSphere Application Server in the IBM WebSphere Application Server administrative console. See “Starting ITCAM for WebSphere Application Server” on page 110.
4. Perform the tasks described in each of the following sections, if applicable.

If you used the root ID for ITCAM for WebSphere Application Server installation and the application server is not owned and operated by the root ID

About this task

The installer will have the authority to use whatever directories and files it requires. The installer will be able to find most application server installations on the machine. But, if the application server is not owned and operated by root ID,

you will need to finish the following tasks in order for ITCAM for WebSphere Application Server to work correctly:

Procedure

1. Use the `chown` command to turn over ITCAM for WebSphere Application Server installation from root to the application server owner ID:

```
chown -R wasOwnerId:wasGroupId DC_home
```

2. Make sure that the application server owner ID can write to the `/var/ibm/tivoli/common/CYN` directory:

```
chown -R wasOwnerId:wasGroupId /var/ibm/tivoli/common/CYN
```

Additional procedure for Security Enhanced Linux (SELinux)

After installing ITCAM for WebSphere Application Server on SELinux, for example Red Hat Enterprise Linux Version 5 or SUSE Linux Enterprise Server Version 11, you must perform an additional procedure to identify the Data Collector shared libraries.

To identify the Data Collector shared libraries on SELinux, run the following command as root, substituting the installation directory for `ITM_HOME`:

```
chcon -R -t texrel_shlib_t DC_home/toolkit/lib/architecture_code
```

Use one of the following values for `architecture_code`, depending on your Linux platform:

Table 14.

Linux platform	Architecture code
Linux Intel R2.6 (32 bit)	linux-ix86
Linux Intel R2.6 (64 bit)	linux-ix64
Linux ppc R2.6 (32 bit)	linux-ppc
Linux ppc R2.6 (64 bit)	linux-ppc64
Linux S390 R2.6 (32 bit)	linux-s390
Linux S390 R2.6 (64 bit)	linux-s390-64

Chapter 4. Installing and configuring ITCAM for WebSphere Application Server on IBM i

Begin this chapter by reading “Checklist for installation and configuration on IBM i.” That section provides an overview of the installation and configuration process and a checklist for the steps that are involved.

Checklist for installation and configuration on IBM i

About this task

Use the following high-level checklist to install and configure ITCAM for WebSphere Application Server:

Procedure

1. Obtain the installation images. See Appendix A, “Obtaining installation images for Windows, Linux, UNIX systems, and IBM i,” on page 105.
2. Verify that your computer meets the system and software prerequisites, and complete any tasks that are needed before installation. See “Prerequisites and pre-installation tasks for ITCAM for WebSphere Application Server on IBM i.”
3. Complete the following steps to install and configure ITCAM for WebSphere Application Server.
 - “Installation and configuration of ITCAM for WebSphere Application Server on IBM i” on page 56
 - “Additional configuration tasks” on page 59

Prerequisites and pre-installation tasks for ITCAM for WebSphere Application Server on IBM i

This section includes tasks that must be performed before installing ITCAM for WebSphere Application Server on IBM i.

Check that your computer meets the system and software prerequisites. See “System and software prerequisites”

System and software prerequisites

The following are the hardware and software requirements for being able to install and use the ITCAM for WebSphere Application Server on IBM i.

Hardware prerequisites for the ITCAM for WebSphere Application Server

Minimum disk space required:

Table 15. Minimum disk space

Operating system	For installation image	For installation
IBM i	170 MB	330 MB

Supported operating system and application server combinations

ITCAM for WebSphere Application Server supports IBM WebSphere Application Server version 7.0 on the following IBM i platforms:

- i5/OS® V5R4
- IBM i 6.1 (i5/OS V6R1)

Supported JDKs for the ITCAM for WebSphere Application Server

The supported JDKs for the ITCAM for WebSphere Application Server on IBM i are JDK15 and JDK16.

Additional requirements for the operating system

The ITCAM for WebSphere Application Server must be installed on the same machine as the application server you are monitoring. The set of supported operating systems is further limited by the supported operating systems for the application server you are monitoring.

See the following website for the operating system requirements for the IBM WebSphere Application Server 7.0:

<http://www-01.ibm.com/software/webservers/appserv/doc/latest/prereq.html>

Important: ITCAM for WebSphere Application Server can not be configured for an application server instance where the Data Collector for ITCAM for WebSphere 6.1 or ITCAM Agent for WebSphere Applications 7.1 (a component of ITCAM for Application Diagnostics) is configured. However, these products can be installed on the same host and configured for different application server instances.

Permissions

The user who installs ITCAM for WebSphere Application Server must have at least *SYSADMIN privileges.

If you are performing a remote installation, the IBM i user running the installation should have the *ALLOBJ authority.

In addition, add by command line the following privileges for the application server user:

```
GRTOBJAUT OBJ(QSYS/STRDBG) OBJTYPE(*CMD) USER(QEJBSVR) AUT(*USE)
GRTOBJAUT OBJ(QSYS/ENDSRVJOB) OBJTYPE(*CMD) USER(QEJBSVR) AUT(*USE)
GRTOBJAUT OBJ(QSYS/STRSRVJOB) OBJTYPE(*CMD) USER(QEJBSVR) AUT(*USE)
GRTOBJAUT OBJ(QSYS/DMPJVM) OBJTYPE(*CMD) USER(QEJBSVR) AUT(*USE)
GRTOBJAUT OBJ(QSYS/ANZJVM) OBJTYPE(*CMD) USER(QEJBSVR) AUT(*USE)
```

Restrictions on the installation path

Make sure the installation path for ITCAM for WebSphere Application Server on the IBM i system does not exist in the IFS before the installation.

Checking the heap size

About this task

You must ensure the JVM heap size is sufficient. The default value is enough, but if the heap size was configured in WebSphere Application Server, make sure it is not less than 384 MB . Complete the following steps for each server that you want to configure for ITCAM for WebSphere Application Server:

Procedure

1. Log on to the IBM WebSphere Application Server administrative console.
2. Navigate to specifying heap size in the administrative console:
 - a. Click **Server > Application Servers** and select the *server_name*.
 - b. In the **Configuration** tab, navigate to **Server Infrastructure > Java and Process Management > Process Definition > Additional Properties: Java Virtual Machine**.
3. If a value is present the **Maximum Heap Size** field, check it. If it is less than 384, set it to 384.

Adjusting ports for firewalls or for use with other applications

About this task

At various times during the installation, you need to specify or accept the defaults for port numbers used by ITCAM for WebSphere Application Server to communicate with the application server using SOAP or RMI. Make sure that you record the correct port, and that the firewall does not prevent communication on this port from ITCAM for WebSphere Application Server to the application server.

For a Network Deployment environment, ITCAM for WebSphere Application Server will need to use the SOAP or RMI port to communicate with the Deployment Manager, which is usually located on a different host. In this case, take special care that the firewall does not block communication on this port. Consult the documentation for your firewall program to determine which ports are being blocked by your firewall.

Information to know before the installation

See each of the following sections:

- “Gathering information about values specified during installation and configuration”
- “Notes about the installation and configuration” on page 56

Gathering information about values specified during installation and configuration

You might want to prepare for the installation by gathering information that you will need to provide during the installation. A good example of the values that you might need to provide is located at “Options for installing and configuring ITCAM for WebSphere Application Server on Windows, UNIX, Linux, and IBM i” on page 117.

Notes about the installation and configuration

The following are notes about the installation and configuration:

Notes:

1. An ITCAM for WebSphere Application Server installation cannot span over multiple hosts. You must install ITCAM for WebSphere Application Server separately on each host, and configure it for each application server instance. This applies to both Network Deployment and non-Network Deployment environments.
2. For a Network Deployment environment, you will need to supply the host name of the Deployment Manager to configure ITCAM for WebSphere Application Server for a node. You do not need to install or configure ITCAM for WebSphere Application Server on the Deployment Manager itself.
3. If you are performing a silent installation and configuration, you should have copied the installation images to a hard drive. See Appendix A, "Obtaining installation images for Windows, Linux, UNIX systems, and IBM i," on page 105.
4. By default, the installer will create log files in the following directory:
/QIBM/UserData/tivoli/common/CYN/logs.
5. To install on a cluster, run the installer on each node that you want 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. See "Silent installation and configuration of IBM Tivoli Composite Application Manager for WebSphere Application Server on UNIX and Linux" on page 47.
6. The installation and configuration programs will not accept values for directory paths if the following special characters are included:
`\u`!@#$()+=[]{|:;'"<>,?`
7. The installation and configuration programs will not accept values for user names or passwords if the following special characters are included:
`\u`!@#$()+[]{|:\:;'"<>,?/`

Installation and configuration of ITCAM for WebSphere Application Server on IBM i

This section describes how to install and configure IBM Tivoli Composite Application Manager for WebSphere Application Server on IBM i.

Silent installation and configuration from the local IBM i host

About this task

Perform the following procedure if you are performing the silent installation and configuration on the local IBM i machine:

Procedure

1. Log on to the computer on which you want to install ITCAM for WebSphere Application Server as a user with the appropriate permissions. See "Permissions" on page 54.
2. Copy the installation images to a hard disk on the IBM i machine. See Appendix A, "Obtaining installation images for Windows, Linux, UNIX systems, and IBM i," on page 105.
3. Use the Start TCP/IP (STRTCP) command to start TCP/IP.

4. Use the Start Host Servers (STRHOSTSVR) command to start Host Servers.
5. Enter the QSH environment by running the STRQSH command in the IBM i main menu.
6. Verify that the instance of the application server that will be monitored by ITCAM for WebSphere Application Server is running. At a command prompt, enter the following command from the bin directory under *AppServer_home*. For example, from *AppServer_home/profiles/profile_name/bin*:

```
serverStatus server_name
```

Important: In a Network Deployment environment, do not verify that the application server instance is running. Instead, make sure the Deployment Manager is running, and network communication with it is available.

7. If the instance of the application server is not started, start the application server. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.
8. Create a temporary directory as the installation working directory. For example,

```
mkdir /tmp/itcam_i_dc_install
```
9. Copy the 7.1.0-TIV-ITCAMAD_ECAM-IBMi-FP0002.tar file to the installation working directory from the image media. For example,

```
cp image_location/7.1.0-TIV-ITCAMAD_ECAM-IBMi-FP0002.tar /tmp/itcam_i_dc_install
```
10. Extract this file in the installation working directory. For example,

```
cd /tmp/ecam_install
/qopensys/usr/bin/tar xvf 7.1.0-TIV-ITCAMAD_ECAM-IBMi-FP0002.tar
```
11. Set the JAVA_HOME environment variable, making sure that the Java program is accessible at \$JAVA_HOME/bin. You can run the installation using JDK14 or JDK16. To specify the path to one of them, you can use one of the following commands:

```
export JAVA_HOME=/qibm/proddata/java400/jdk14
```

or

```
export JAVA_HOME=/qibm/proddata/java400/jdk16
```
12. Specify the configuration options in the *DC_was.opt* response file template and save the file. The default path, in the installation working directory, is *silent/DC_was.opt*. See “Options for installing and configuring ITCAM for WebSphere Application Server on Windows, UNIX, Linux, and IBM i” on page 117 for guidance on entering values for the response file.
13. Run the following command to start the installation.

```
setup_DC_os400 -options working_directory/silent/DC_was.opt
```

Results

The installation writes a log file named *trace-install.log* in the following directory:
/QIBM/UserData/tivoli/common/CYN/logs

Remote installation from a Windows client

Use this information to complete a silent installation using a remote Windows client.

About this task

Procedure

1. Copy the installation images to a hard disk on the Windows client. See Appendix A, “Obtaining installation images for Windows, Linux, UNIX systems, and IBM i,” on page 105.
2. Verify that your computer meets the system and software prerequisites, and perform tasks that are needed before installation. See “Prerequisites and pre-installation tasks for ITCAM for WebSphere Application Server on IBM i” on page 53.
3. Run `setup_DC_os400.exe`.
4. The **Remote signon for i5/OS** dialog box is displayed.
5. Enter the full name of the IBM i server where you want to install the ITCAM for WebSphere Application Server 7.0.
6. Enter your corresponding IBM i user name and password, then click **OK**.
7. The installation wizard initializes and then the **Welcome** panel is displayed. Click **Next** to continue.
8. The product installation directory is displayed on the next panel. The default path is `/QIBM/ProdData/itcam/DC`. Accept or change the default value, then click **Next**.
9. Choose to install ITCAM for WebSphere Application Server or save the installation setting in a response file for the silent installation. Click **Next**.
10. Read the summary information, on the next panel and click **Install** to begin the installation.
11. Click **Finish** to close the installation program.

Note: The installer creates log files in the `C:\Program Files\ibm\tivoli\common\CYN\logs\` directory during the installation.

To configure ITCAM for WebSphere Application Server to monitor application server instances, use the silent configuration procedure. See “Silent configuration from the local IBM i host.”

Silent configuration from the local IBM i host

About this task

Perform the following procedure if you need to configure IBM Tivoli Composite Application Manager for WebSphere Application Server on an IBM i host where it is already installed. You may require this if the product was installed remotely from a Windows client, or if you need to monitor an additional application server instance.

Procedure

1. Log on to the computer on which you want to configure ITCAM for WebSphere Application Server as a user with the appropriate permissions. See “Permissions” on page 54.
2. Use the Start TCP/IP (`STRTCP`) command to start TCP/IP.
3. Use the Start Host Servers (`STRHOSTSVR`) command to start Host Servers.
4. Enter the QSH environment by running the `STRQSH` command in the IBM i main menu.
5. Verify that the instance of the application server that will be monitored by ITCAM for WebSphere Application Server is running. At a command prompt,

enter the following command from the bin directory under *AppServer_home*. For example, from *AppServer_home/profiles/profile_name/bin*:

```
serverStatus server_name
```

Important: In a Network Deployment environment, do not verify that the application server instance is running. Instead, make sure the Deployment Manager is running, and network communication with it is available.

6. If the instance of the application server is not started, start the application server. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.

7. Set the JAVA_HOME environment variable, making sure that the Java program is accessible at \$JAVA_HOME/bin. You can run the installation using JDK14 or JDK16. To specify the path to one of them, you can use one of the following commands:

```
export JAVA_HOME=/qibm/proddata/java400/jdk14
```

or

```
export JAVA_HOME=/qibm/proddata/java400/jdk16
```

8. Make a copy of the *DC_was.opt* response file template, set the necessary options, and save the file in the current directory. The default path to the template is *DC_home/config_dc/DC_was.opt*. See “Options for installing and configuring ITCAM for WebSphere Application Server on Windows, UNIX, Linux, and IBM i” on page 117 for guidance on entering values for the response file.

9. Change to the *DC_home/config_dc* directory and run the following command to perform the configuration.

```
config_dc.sh -silent -options ./DC_was.opt
```

Results

The configuration writes a log file named *trace-install.log* in the following directory: */QIBM/UserData/tivoli/common/CYN/logs*

Additional configuration tasks

Perform the instructions in each of the following sections, if applicable.

IBM WebSphere Portal Server: checking heap size and Transaction Service properties

About this task

If your application server is IBM WebSphere Portal Server, then perform the following procedure to check heap size and Transaction Service properties:

Procedure

1. Log in to the IBM WebSphere Application Server administrative console.
2. Navigate to Generic JVM arguments:
 - a. Click **Server > Application Servers** and select the *server_name*.
 - b. In the **Configuration** tab, navigate to **Server Infrastructure > Java and Process Management > Process Definition > Additional Properties: Java Virtual Machine**.
3. If the maximum heap size is set, ensure it is not less than 1024.

4. Navigate to Transaction Service properties:
 - a. Click **Server > Application Servers** and select the *server_name*.
 - b. Click **Container Services > Transaction Service**.
5. Change the total transaction lifetime timeout from 120 seconds to 12000 seconds.
6. Change the client inactivity timeout to 120 seconds.
7. Click **Apply**.
8. In the Messages dialog box, click **Save**.
9. In the Save to Master Configuration dialog box, do one of the following:
 - If you are under a Network Deployment environment, be sure the check box **Synchronize changes with Nodes** is selected and then click **Save**.
 - If you are not under a Network Deployment environment, click **Save**.

Chapter 5. Configuring ITCAM for WebSphere Application Server on IBM z/OS

Begin this chapter by reading “Worksheets for configuring and customizing ITCAM for WebSphere Application Server.” That section provides an overview of the configuration and customization process and worksheets for the steps that are involved.

Worksheets for configuring and customizing ITCAM for WebSphere Application Server

Installation of IBM Tivoli Composite Application Manager for WebSphere Application Server (ITCAM for WebSphere Application Server) on IBM z/OS is done through the SMP/E process, which differs from the installation of ITCAM for WebSphere Application Server on distributed platforms. Refer to the *IBM Tivoli Composite Application Manager for WebSphere Application Server (z/OS) Program Directory* for detailed installation instructions.

After the SMP/E installation, you need to install the available maintenance packages. Then, configure and customize ITCAM for WebSphere Application Server according to the instructions in this book.

High-level worksheet for configuring and customizing ITCAM for WebSphere Application Server

About this task

You should perform the tasks for configuring and customizing ITCAM for WebSphere Application Server in the following order:

Procedure

1. If you have not already done so, install ITCAM for WebSphere Application Server. See the following: *IBM Tivoli Composite Application Manager for WebSphere Application Server Program Directory* (FMID HCYE700).
2. Install the available maintenance packages for ITCAM for WebSphere Application Server. Use ShopzSeries to ensure you have the latest available Program Temporary Fixes (PTFs).
3. Verify installation of and configure ITCAM for WebSphere Application Server. See “Configuring ITCAM for WebSphere Application Server on IBM z/OS” on page 62.

Worksheet for configuring ITCAM for WebSphere Application Server

About this task

The following are roles required to complete this section:

- IBM z/OS SMP/E system programmer
- IBM z/OS USS administrator
- IBM WebSphere Application Server administrator
- Security administrator

- Network administrator
- Storage administrator

Note: This worksheet specifies the people who might perform each of the tasks. This serves as an approximate guide. However, you should follow the links to each of the sections to verify the person in your organization that will actually perform the task.

Procedure

1. “Updating the application server Servant Region proc” on page 64 (IBM z/OS SMP/E system programmer)
2. “Verifying the installation” on page 64 (IBM z/OS SMP/E system programmer)
3. “Executing the runtime setup script” on page 65
 - a. “Overview of the runtime setup script” on page 65 (IBM WebSphere Application Server administrator, IBM z/OS SMP/E system programmer)
 - b. “Tasks to perform and information to know before running the script” on page 67 (IBM WebSphere Application Server administrator, IBM z/OS SMP/E system programmer, Security administrator, Storage administrator)
 - c. “Executing the runtime setup script in prompt mode” on page 74 (IBM WebSphere Application Server administrator)
 - d. “Executing the runtime setup script in batch (auto-run) mode” on page 77 (IBM WebSphere Application Server administrator)
4. “Additional configuration tasks” on page 79
 - a. “Increasing the heap size” on page 79 (IBM WebSphere Application Server administrator)
 - b. “Configuring ITCAM for WebSphere Application Server in a SYSPLEX environment” on page 79 (IBM z/OS SMP/E system programmer, Security administrator)

Configuring ITCAM for WebSphere Application Server on IBM z/OS

Before attempting to perform the instructions in this chapter to complete the configuration of your environment for ITCAM for WebSphere Application Server on IBM z/OS, you should have installed ITCAM for WebSphere Application Server on IBM z/OS using SMP/E. Refer to the program directory for ITCAM for WebSphere Application Server on IBM z/OS (FMID HCYE700). It provides information about installation using SMP/E and about preparing for the installation, including prerequisites.

After completing the SMP/E installation, you must install the available maintenance packages.

Then, configure ITCAM for WebSphere Application Server using the instructions in this chapter. Perform each of the instructions in this chapter in order. Begin this chapter by updating the application server Servant Region proc. See “Updating the application server Servant Region proc” on page 64.

Creating a new configuration directory

After installing ITCAM for WebSphere Application Server, you must, as noted in the Program Directory, create a configuration directory (*config_home*). The default path for this directory is /u/ecam.

This configuration directory is required before you can configure the ITCAM for WebSphere Application Server to monitor application server instances.

You can also create an additional configuration directory for a different environment or LPAR.

In order to create a new configuration directory (*config_home*) on a read-write HFS or zFS file system, perform the following actions:

1. Change to the *install_home* directory (by default, /usr/lpp/itcamwr/WebSphere/DC) and run the *createcfg.sh* script from that directory. The parameters for the script are set out in Table 16.

Table 16. List of options for the *createcfg.sh* script

Command-line option	Description	Equivalent environment variable and value
-batch	Turns off prompting so that the script will run to completion with no user interaction. This parameter is required when running the background, as in the CYNZISRT job. The default is to prompt for all optional values.	ITCAM_BATCH=y
-debug	Adds diagnostic trace information to the standard output. Use this parameter if you encounter problems and need IBM technical support. The default is to refrain from putting out the extra diagnostic information.	ITCAM_DEBUG=y
-cleanup	If you use this parameter, any existing <i>config_home</i> will be removed and re-created by the script. The default is to reuse any existing <i>config_home</i> directory structure.	ITCAM_CLEANUP=y
-config <i>config_home</i>	Specify the full path of the configuration home directory that will be created by the <i>createcfg.sh</i> script. The default is /u/ecam .	ITCAM_CONFIG= <i>config_home</i>
-install <i>install_home</i>	Specify the full path of the <i>install_home</i> directory, which must have been previously created by the SMP/E install process. You may wish to specify a path containing a symbolic link for flexibility. The default is derived from the full path to the <i>createcfg.sh</i> script.	ITCAM_INSTALL= <i>install_home</i>
-owner <i>user[:group]</i>	Sets the owner of the files and directories in <i>config_home</i> as <i>createcfg.sh</i> completes its processing. A user and optionally a group may be specified in the same format as specified for <i>chown</i> . If the current effective user does not have superuser privilege, this parameter is ignored. The default is to leave the ownership of the files and directories in <i>config_home</i> unchanged.	ITCAM_OWNER= <i>user[:group]</i>

Table 16. List of options for the createcfg.sh script (continued)

Command-line option	Description	Equivalent environment variable and value
-access <i>permissions</i>	<p>Sets the access permissions for the files and directories in the config_home created by createcfg.sh. The permissions are specified in the same format as for chmod, and may be either numeric like 664 or symbolic format like a+Xr,u+w,g+w,o-w .</p> <p>The default is to leave the access permissions of the files and directories in config_home unchanged.</p>	ITCAM_ACCESS= <i>permissions</i>

Alternatively, you can run the CYN SZIRT job, which will execute the createcfg.sh script. Refer to the *IBM Tivoli Composite Application Manager for WebSphere Application Server Program Directory* for instructions and sample source code for this job.

Updating the application server Servant Region proc

About this task

The following applies only to 31-bit JDKs:

The application server Servant Region proc must be updated to accommodate the ITCAM for WebSphere Application Server Memory Leak Diagnosis function. If this is not done, the Memory Leak Diagnosis function might cause the application server to abend. Update the Servant Region procedure to include HEAP(,,,FREE). The updated version of the proc looks similar to the following:

```
//BB05ASR PROC ENV=ADCPL.P390.SERVER1,Z=BB05ASRZ
// SET ROOT='/WebSphere/V5R0M1'
//BBOSR EXEC PGM=BBOSR,REGION=0M,TIME=NOLIMIT,
//PARM='TRAP(ON,NOSPIE),HEAP(,,,FREE),ENVAR("_EDC_UMASK_DFLT=007")/'
//BBOENV DD PATH='&ROOT/&ENV/was.env'
// INCLUDE MEMBER=&Z
```

Verifying the installation

About this task

After installing ITCAM for WebSphere Application Server on IBM z/OS, verify that the installed directories and files match those listed in this section. To verify the installation, do the following:

Procedure

1. Change to the *install_home* directory (by default, /usr/lpp/itcamwr/WebSphere/DC).
2. Enter the following command:
ls -lsapF

A list of directories displays.

3. Verify that the following directories appear in the list:
 - bin
 - itcamdc
 - toolkit

4. Change to the *config_home* directory (by default, /u/ecam).
5. Enter the following command:

```
ls -lsapF
```

A list of files, directories, and symbolic links displays.

6. Verify that the following files, directories, and symbolic links appear in the list:
 - bin (This should be a directory containing symbolic links to script files.)
 - itcam.properties
 - itcamdc@ -> *install_home*/itcamdc
 - toolkit@ -> *install_home*/toolkit
 - runtime - (This should be an empty directory, which will contain the configuration files.)

Executing the runtime setup script

View the contents of this section in the following order:

1. “Overview of the runtime setup script”
2. “Tasks to perform and information to know before running the script” on page 67
3. Depending on how you want to execute the runtime setup script, see one of the following:
 - You can execute the runtime setup script in prompt mode, in which you invoke the script and then get prompted for configuration values: “Executing the runtime setup script in prompt mode” on page 74.
 - You can execute the runtime setup script in batch (auto-run) mode, in which you set the configuration values in a batch-mode invocation script, and then invoke the script without further interaction: “Executing the runtime setup script in batch (auto-run) mode” on page 77.

Overview of the runtime setup script

The runtime setup script for ITCAM for WebSphere Application Server on IBM z/OS provides a simple command-line interface to configure an ITCAM for WebSphere Application Server runtime environment for a specified application server. A runtime environment consists of a user-specified runtime directory tree for each monitored application server on the host.

You run the script from the bin directory in the *config_home*. By default it is /u/ecam/bin. Besides creating the runtime directories and files, the script will also invoke the IBM WebSphere admin scripting engine (wsadmin.sh) to configure application server instance to be monitored.

Overview of the runtime environment: After the ITCAM for WebSphere Application Server target files have been installed with SMP/E, you can remount the HFS or zFS filesystem containing your target files (*install_home*, by default /usr/lpp/itcamwr/WebSphere/DC) as read-only. This directory can be shared by any number of ITCAM for WebSphere Application Server configurations in different LPARs and environments.

The runtime environment to be configured has been created on a read-write file system (*config_home*, by default /u/ecam). Typically, you will create a unique *config_home* on each LPAR, and possibly for different environments within an LPAR (i.e. production and testing).

This directory will contain subdirectories with all the configuration files for the server, plus symbolic links for all the executable files to the SMP/E target library files in *install_home*. When you apply maintenance through APAR SYSMODs or PTFs, you do not need to take any further action to distribute the updated code because all of the executable files are symbolically linked. The only situations that might require additional intervention is if instrumentation and configuration files (usually in that directory's */etc* subdirectory) are updated. The SYSMOD hold data will inform you of any required actions.

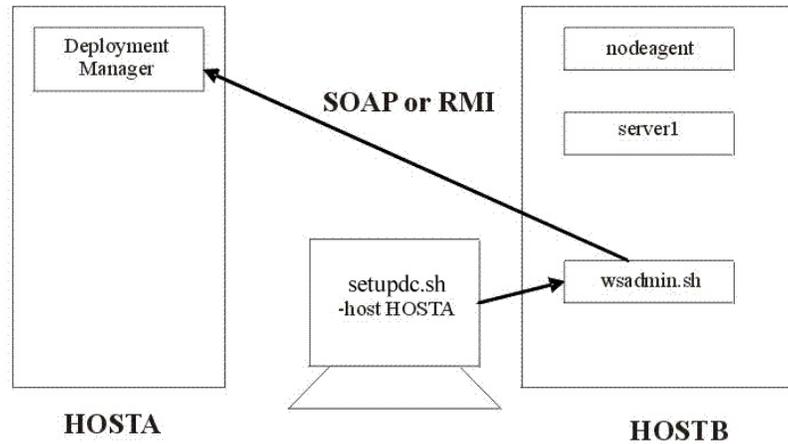
When you run the ITCAM for WebSphere Application Server runtime setup script (*setupdc.sh*) in prompt mode, you will be prompted for the WebSphere Application Server config-root directory of the server to be configured. The script will discover the application server instances in that directory and prompt you to select one of those instances.

If, for example, you are using the default *config_home* (*/u/ecam*) and configuring an instance of IBM WebSphere Application Server 7.0 on a node called *node1* and a server called *server1*, the runtime setup script will create a directory called */u/ecam/runtime/was70.node1.server1/*.

If you need to monitor several application server instances, configure ITCAM for WebSphere Application Server for each of them using the *setupdc.sh* script. As long as the instances are on the same LPAR, you can use the same configuration directory for all of the instances. However, you may choose to use different configuration directories as well (for example, to separate the test and production environments).

Configuration in a Network Deployment environment: Whether or not you are installing and configuring ITCAM for WebSphere Application Server in a Network Deployment environment, you must perform ITCAM for WebSphere Application Server setup for a server on the server's host. The runtime setup script invokes the *wsadmin.sh* script for the necessary application server configuration changes, but you must supply the port and host name of the Deployment Manager in the *setupdc.sh*. The default value for the host name is the local host, so if the Deployment Manager runs on the same host as the server you are configuring, it may not need to be explicitly specified, depending upon what is specified in the *wsadmin.properties* file.

Any local *wsadmin.sh* script within the server's node may be used to configure the application server, assuming it has been set up properly. However, as noted above, for Network Deployment mode, its communication must be established with the Deployment Manager. In contrast, in stand-alone mode when there is no Deployment Manager, the communication is established with the application server.



In the diagram, the user is configuring server1 on host HOSTB, which is within a node in the cell controlled by the Deployment Manager on HOSTA. The ITCAM setupdc.sh task is performed on HOSTB, but the -host parameter specifies the hostname (or IP address) of the Deployment Manager host. The cell configuration repository is on HOSTA. The setupdc.sh script issues an application server node synchronization when it is completed and the Deployment Manager pushes the configuration out to the managed node using the Node Agent.

Tasks to perform and information to know before running the script

This section describes tasks to perform or information that you should know before you run the script.

Setting up the user ID and password for ITCAM for WebSphere Application Server with global security enabled:

About this task

Installing, configuring, and running ITCAM for WebSphere Application Server on z/OS with Global Security turned on might require additional steps, depending on your security configuration. See “Setting up the user ID and password for ITCAM for WebSphere Application Server on z/OS with global security enabled” on page 131.

512 MB of virtual storage: You will need at least 512 MB on the ASSIZEMAX parameter in the RACF[®] OMVS segment for the user to run the setup script. It is recommended that you run the script using a USS telnet session, but if you use OMVS under TSO, make sure that the TSO procedure you use has a large enough REGION size to support running the configuration script.

Performance Monitoring Infrastructure enabled by the script: You should be aware that Performance Monitoring Infrastructure (PMI) is enabled (if it is not already enabled) to default settings when you run the runtime setup script.

Removal of JInsight entries from the Generic JVM arguments of the IBM WebSphere Application Server administrative console: You should be aware that any JInsight entries that exist in the Generic JVM arguments of the IBM WebSphere Application Server administrative console (such as -Xjinsight) will be removed

when you run the runtime setup script. The reason for this is that any such JInsight entries would conflict with the ITCAM for WebSphere Application Server configuration.

Adjusting ports for firewalls or for use with other applications:

About this task

At various times during the installation, you need to specify or accept the defaults for port numbers used by ITCAM for WebSphere Application Server to communicate with the application server using SOAP or RMI. Make sure that you record the correct port, and that the firewall does not prevent communication on this port from ITCAM for WebSphere Application Server to the application server.

For a Network Deployment environment, ITCAM for WebSphere Application Server will need to use the SOAP or RMI port to communicate with the Deployment Manager, which is usually located on a different host. In this case, take special care that the firewall does not block communication on this port. Consult the documentation for your firewall program to determine which ports are being blocked by your firewall.

Enabling user ID and password input from sas.client.props for RMI connector types::

About this task

The runtime setup script provides means for you to retrieve the user ID and password from the sas.client.props file, instead of specifying the -user option (or the ITCAM_USER environment variable) and the -password option (or the ITCAM_PASSWORD environment variable), when using an RMI connection to WebSphere and WebSphere Global Security is enabled. In order for this function to work, you must set properties in the sas.client.props file. Perform the following procedure:

Procedure

1. Set the following properties in sas.client.props:

```
com.ibm.CORBA.loginSource=properties
com.ibm.CORBA.securityEnabled=true
com.ibm.CORBA.loginUserid=user_ID
com.ibm.CORBA.loginPassword=password
```

2. Run the following command to encrypt the password:

```
PropFilePasswordEncoder.sh path_to_props_file/
sas.client.props com.ibm.CORBA.LoginPassword
```

Run it from the following directory: *AppServer_home*/profiles/default/bin, if that is the same directory as your wsadmin.sh script. In other cases, adjust the directory appropriately.

Enabling user ID and password input from soap.client.props for SOAP connector types::

About this task

The runtime setup script provides means for you to retrieve the user ID and password from the soap.client.props file, instead of specifying the -user option (or the ITCAM_USER environment variable) and the -password option (or the ITCAM_PASSWORD environment variable), when using a SOAP connection to WebSphere and WebSphere Global Security is enabled. In order for this function to

work, you must set properties in the soap.client.props file. Perform the following procedure:

Procedure

1. Set the following properties in soap.client.props:

```
com.ibm.SOAP.securityEnabled=true  
com.ibm.SOAP.loginuserid=user_ID  
com.ibm.SOAP.loginPassword=password
```
2. Run the following command to encrypt the password:

```
PropFilePasswordEncoder.sh path_to_props_file  
/soap.client.props com.ibm.SOAP.loginPassword
```

Run it from the following directory: *AppServer_home*/profiles/default/bin, if that is the same directory as your wsadmin.sh script. In other cases, adjust the directory appropriately.

Note: Even if you add the userid and password as described in the above text, you still need to be logged in with appropriate userids if Global Security is active.

Verifying the connection to wsadmin.sh:

About this task

The runtime setup script needs to be able to connect to IBM WebSphere Application Server's wsadmin.sh utility. Perform the following procedure to verify the connection to wsadmin.sh:

Procedure

1. Ensure that the region size is sufficient, particularly if you are running under TSO using OMVS. The wsadmin.sh utility starts up a JVM and takes a lot of memory.
2. If you are in a non-Network Deployment environment, ensure that the instance of the application server that is being monitored by ITCAM for WebSphere Application Server is running. If you are in a Network Deployment environment, ensure that the Deployment Manager is running. If it is not, see the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.
3. Run wsadmin.sh from the directory in which it is located:

```
./wsadmin.sh -conntype SOAP|RMI -port port -host hostname -user  
user_ID -password password
```

See Table 17 on page 70 for a description of the options. (These particular options for running wsadmin.sh are equivalent to the corresponding options for running the runtime setup script.)

Results

If you connect successfully to wsadmin.sh, you will get a message similar to the following:

```
WASX7209I: Connected to process "dmgr" on node SOMENODE using SOAP connector;  
The type of process is: DeploymentManager  
WASX7029I: For help, enter: "$Help help"
```

What to do next

If you cannot connect successfully to `wsadmin.sh`, you will get a message similar to the following:

```
WASX7246E: Cannot establish "SOAP" connection to host "SOMEHOST"...
```

If you cannot connect successfully to `wsadmin.sh`, there might be a problem with your installation or configuration of IBM WebSphere Application Server. Contact IBM Software Support.

Values for configuration options:

The runtime setup script comes with a set of product-provided defaults for the configuration options.

If running the configuration script in prompt mode, you can change the product-provided default values in the following ways:

- You can specify options in the command line when initiating the script.
- You can export the equivalent environment variables before running the script.

Then, when answering the prompts, you can override the existing defaults if you choose. Some options are not prompted for. For those options, if you want to specify values that differ from the product-provided defaults, you must specify the options before the script starts up.

If running the script in batch mode, you set the values (without ever being prompted) by one of the following means:

- Specifying the equivalent environment variables in the `cyezsedc.cntl` batch job file
- Specifying options at a command line that runs `setupdc.sh` in batch mode
- Exporting the equivalent environment variable prior to running `setupdc.sh` in batch mode

Table 17 lists the options used to run the runtime setup script.

Note: Some options are required if Global Security is enabled.

Table 17. List of options for the `setupdc.sh` script

Command-line option	Description	Equivalent environment variable and value
<code>-log logfile_name -nolog</code>	Indicate either <code>-log</code> or <code>-nolog</code> for whether you want the runtime configuration script to create a log of all the configuration operations that it performs. If you indicate <code>-log</code> , you can indicate a different location than the default. By default, the log file is called <code>setupdc.log</code> and is located under the <code>config_home</code> . For example, <code>/u/ecam/runtime/logs/setupdc.log</code> . The default is to create this log file.	N/A. Available as an option on the command line only.
<code>-?</code>	Usage help	N/A. Available as an option on the command line only.
<code>-batch</code>	If specified, no prompting will be done. The script will terminate if necessary parameters are not specified or not valid in the batch job. Required to run the script in batch mode.	<code>ITCAM_BATCH=y</code>

Table 17. List of options for the setupdc.sh script (continued)

Command-line option	Description	Equivalent environment variable and value
-debug	Specifies whether to produce messages in the log file for debugging. You should use this option if you have been having problems configuring ITCAM for WebSphere Application Server using the script and need to provide details to IBM Software Support.	ITCAM_DEBUG=y
-config <i>config_home</i>	<p>The ITCAM for WebSphere Application Server configuration directory. For example: /u/ecam</p> <p>This option is not ordinarily used, the value derived from the contents of the itcam.properties file should be correct. It is provided in case it is necessary for some reason to override that value. In that case, -config or ITCAM_CONFIG can be used to specify an alternative path which will be used in the configuration process. This alternative path must resolve to the actual ITCAM for WebSphere Application Server configuration home path.</p> <p>For example, suppose that the <i>config_home</i> you want is /u/ecam, but because of symbolic linkage the physical path for that logical path is /V1R8M0/u/ecam. Using -config /u/ecam puts the former path in the configuration files and properties so that the physical path can be changed without having to reconfigure ITCAM for WebSphere Application Server. Should it become necessary to re-specify the <i>config_home</i> value for whatever reason, the itcam.properties file must also be corrected. The recommended way to make such a change is to rerun createcfg.sh before (re)running setupdc.sh.</p>	ITCAM_CONFIG= <i>config_home</i>
-cleanup	<p>In the case when there are already subdirectories within the configuration files for that server in the runtime directory, this option indicates that you want to remove the existing runtime directory. A new runtime directory with a configuration for the application server instance will be created instead of the existing runtime directory being retained and overwritten.</p> <p>Whether you specify this option or not, the customized property files are always completely recreated.</p>	ITCAM_CLEANUP=y
-conntype SOAP RMI	The connection type for communications used by wsadmin.sh. The default is to use the connection type specified in the wsadmin.properties file associated with the wsadmin.sh script you have chosen. (The IBM WebSphere Application Server default for this parameter is SOAP.)	ITCAM_CONNTYPE= <i>connect_type</i>

Table 17. List of options for the `setupdc.sh` script (continued)

Command-line option	Description	Equivalent environment variable and value
<p><code>-port <i>port</i></code></p>	<p>The port number used by <code>wsadmin.sh</code>.</p> <p>In a Network Deployment environment, the specified port should be the Deployment Manager's SOAP or RMI port (not the application server instance SOAP or RMI port).</p> <p>To find the SOAP port number in the control region job log, look for the following: BB000222I: ADMC0013I: The SOAP connector is available at port <i>port</i></p> <p>To find the RMI port number in the control region job log, look for the following: BB000222I: ADMC0026I: The RMI connector is available at port <i>port</i></p> <p>The SOAP and RMI ports may also be found using the administration console.</p> <p>The default is to use the port specified in the <code>wsadmin.properties</code> file associated with the <code>wsadmin.sh</code> script you have chosen.</p>	<p><code>ITCAM_PORT=<i>port</i></code></p>
<p><code>-host <i>host</i></code></p>	<p>The fully qualified host name or IP address used by <code>wsadmin.sh</code>. If you don't specify this option, the host name used is taken from the default <code>wsadmin.sh</code> parameters in <code>wsadmin.properties</code>. You do not need to specify this option if the Deployment Manager resides on the same host as the application server, your application server is in stand-alone mode, or the correct host name is configured into the <code>wsadmin.properties</code> file. (Strictly speaking, the host name does not need to be fully qualified if the simple name is correctly resolved in your environment.)</p> <p>If you are in a Network Deployment environment, enter the value for the host for the Deployment Manager.</p> <p>Unless you are in a non-Network Deployment environment, or in a Network Deployment environment and the Deployment Manager is located on the local host, do not enter <code>localhost</code>. The default is the value specified in the <code>wsadmin.properties</code> file associated with the <code>wsadmin.sh</code> script you have chosen.</p>	<p><code>ITCAM_HOST=<i>host_name</i></code></p>
<p><code>-profile <i>profile_script</i></code></p>	<p>Specifies a profile script for running <code>wsadmin.sh</code>. The Web site for IBM WebSphere Application Server provides the following description of a profile script:</p> <p>"The profile script runs before other commands, or scripts. If you specify <code>-c</code>, the profile script runs before it invokes this command. If you specify <code>-f</code>, the profile script runs before it runs the script. In interactive mode, you can use the profile script to perform any standard initialization that you want. You can specify multiple <code>-profile</code> options on the command line, and they invoke in the order that you supply them."</p> <p>This parameter has nothing to do with the IBM WebSphere Application Server profile. (For z/OS there is only one IBM WebSphere Application Server profile: the "default" profile.)</p>	<p><code>ITCAM_PROFILE=<i>script</i></code></p>

Table 17. List of options for the setupdc.sh script (continued)

Command-line option	Description	Equivalent environment variable and value
-user <i>user_id</i>	The user ID to use for connection to wsadmin.sh. This is required if Global Security is enabled unless it set in the sas.client.props (RMI) or soap.client.props (SOAP) files. Note that you must also be logged in as this user when you run the script.	ITCAM_USER= <i>user_id</i>
-password <i>password</i>	The password to use for connection to wsadmin.sh. This is required if Global Security is enabled unless it is set in the sas.client.props (RMI) or soap.client.props (SOAP) files.	ITCAM_PASSWORD= <i>password</i>
-server <i>servername</i>	The name of the application server. (This is the name for the server displayed in the IBM WebSphere Application Server administrative console, not the short name used to construct the z/OS started task names.) For example, server1. This option is required if running in batch mode.	ITCAM_SERVER= <i>servername</i>
-wasroot <i>path</i>	The installation directory for IBM WebSphere Application Server (<i>AppServer_home</i>). It is the partial path to the wsadmin.sh file. For example: /u/WAS7000/Servers/AppServer If you specify a value for -wsadmin, this option will be ignored. Note: Specifying more of the path to the wsadmin.sh script results in a quicker location of the wsadmin.sh script. Specifying less of the path will locate more alternative wsadmin.sh scripts. Note: The default value is /u/WAS70.	ITCAM_WASROOT= <i>AppServer_home</i>
-wsadmin <i>path_and_file</i>	Specifies the full path to the wsadmin.sh file. For example: /u/WAS7000/Servers/AppServer/profiles/default/bin/wsadmin.sh This option is required if running in batch mode and the default wsadmin.sh script that setupdc.sh selects is not acceptable. You may use any local wsadmin.sh script. You might want to use a wsadmin.sh with a particular profile. In general any application server wsadmin.sh script will work, but the one under <i>AppServer_home</i> /profiles/default/bin for the application server instance you are configuring is in some respects the best one to use. The wsadmin.sh script will have its own associated wsadmin.properties file that specifies the default options for the wsadmin script.	ITCAM_WSADMIN= <i>path_and_file</i>
-defaulthostname <i>IP_or_host</i>	Using the default, which is the value returned by running the hostname command, as the host name is usually acceptable, but in some environments, that value will not work. If running the hostname command returns a value that is not usable for configuring ITCAM for WebSphere Application Server, you can use the -defaulthostname option. The -defaulthostname option specifies the fully qualified host name or IP address that will replace the value of the local host name for all purposes in configuring ITCAM for WebSphere Application Server.	ITCAM_DEFAULTHOSTNAME= <i>IP_or_host</i>

Table 17. List of options for the `setupdc.sh` script (continued)

Command-line option	Description	Equivalent environment variable and value
<code>-defaulthostip host_IP</code>	Using the default, which is the value returned by running the host IP command, as the host IP address is usually acceptable, but in some environments, that value will not work. If running the host IP command returns a value that is not usable for configuring ITCAM for WebSphere Application Server, you can use the <code>-defaulthostip</code> option. The <code>-defaulthostip</code> option specifies the default local host IP. The default is the system default host IP. For multi-homed addresses, the IP address to use will be prompted for. In the batch mode, the first IP address will be used.	<code>ITCAM_DEFAULTHOSTIP= host_IP</code>
<code>-localhost hostname</code>	Used for a <code>findServers.jacl</code> to make a node match if there is a problem identifying nodes. This is only meaningful if the <code>WAS_NODE</code> associated with <code>wsadmin.sh</code> is not usable. The default is the value entered or defaulted for the <code>-defaulthostname</code> option. The local host name and IP address are used to determine the local node. This is not an issue if the <code>-server</code> option is specified.	<code>ITCAM_LOCALHOST=hostname</code>
<code>-localip IP_address</code>	Used for a <code>findServers.jacl</code> to make a node match if there is a problem identifying nodes. This is only meaningful if the <code>WAS_NODE</code> associated with <code>wsadmin.sh</code> is not usable. The default is the value entered for the <code>-defaulthostip</code> option. The local host name and IP address are used to determine the local node. This is not an issue if the <code>-server</code> option is specified.	<code>ITCAM_LOCALIP=IP_address</code>

Executing the runtime setup script in prompt mode

About this task

Perform the following procedure to execute the runtime setup script in prompt mode:

Note: In the prompts that occur when executing the runtime setup script in prompt mode, if a default value is applicable, it will be shown in brackets at the end of the prompt. If no value is entered, the default value will be used. The default value also serves as an example of the format of the value that is required.

Procedure

1. If WebSphere Global Security is enabled, log in as a WebSphere administrator who will be able to administer the application server configuration.
2. Perform one of the following procedures:
 - If you are running the application server in a Network Deployment environment, make sure the Deployment Manager and the node agent are running. If you need to restart the node agent, instructions are at the Web site for instructions on starting IBM WebSphere Node Agent in your environment.
 - If you are running the application server in a non-Network Deployment environment, ensure that the instance of the application server that is being monitored by ITCAM for WebSphere Application Server is running. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.

3. If you want to set any of the configuration options as environment variables before running the runtime setup script, export the environment variables. See the right-hand column of Table 17 on page 70 for a list of the environment variables. Here are examples of how to export an environment variable from a command line:

```
export ITCAM_CONNTYPE=RMI
export ITCAM_USER=wsadmin
```

By exporting these variables, the `setupdc.sh` script will use them as the new default values. You will not need to enter a value (simply press **Enter**) when you are prompted for them.

4. Run the following command from the `config_home/bin` directory:

```
./setupdc.sh [options]
```

The default path for the location of the script is `/u/ecam/bin`.

See Table 17 on page 70 for a list of the options for running the script command. By setting options in the command line, the `setupdc.sh` script will use them as the new default values. (In other words, defaults on the command line override defaults set by exported environment variables.) You will not need to enter a value (simply press **Enter**) when you are prompted for them.

If there are multiple IP addresses for the machine where ITCAM for WebSphere Application Server is being configured, you will be prompted to select an IP address:

Select host IP address:

- 1) 9.11.22.111
- 2) 199.999.44.99
- 3) 192.111.22.44

Enter selection: 1

5. Enter the number that corresponds to the correct IP address.

You will be prompted for the path of `AppServer_home` through the following message:

Enter the path of the WAS user install root [/u/WAS7000]:

6. Enter the HFS path name of `AppServer_home` and press **Enter**.

The configuration script uses this path to search for the `wsadmin.sh` script that will be used to configure the target application server for ITCAM for WebSphere Application Server monitoring.

You should respond with a valid HFS path name, for example, `/u/was7000`. You will be prompted to select one of the discovered occurrences of the `wsadmin.sh` script:

Found `wsadmin.sh` in the following locations:

- 1) `/u/was7000/DeployMgr/AppServer/bin/wsadmin.sh`
- 2) `/u/was7000/DeployMgr/AppServer/profiles/default/bin/wsadmin.sh`
- 3) `/u/was7000/DeployMgr/DeploymentManager/bin/wsadmin.sh`

Enter the number of the `wsadmin` to use for configuration:

7. Enter the number that corresponds to the path for the appropriate `wsadmin.sh` script and press **Enter**. You may use any one of the listed `wsadmin.sh` scripts assuming that it has been properly configured to successfully connect with the Deployment Manager, perhaps with some options overridden. You might want to use a `wsadmin.sh` with a particular profile specified in its associated `wsadmin.properties` file. In general, any application server `wsadmin.sh` script will work, but the one under `AppServer_home/profiles/default/bin` for the

application server instance you are configuring may be the best one to use. The `wsadmin.sh` script will use its `wsadmin.properties` file to set its default values. The script will check for the application server version and use the `wsadmin.sh` that you selected to find all server instances that are running on this node. Then you will be prompted to select one of the discovered instances of the application server:

- 1) IBM123
- 2) IBM124
- 3) IBM125
- 4) IBMabc

Enter the number of the server to select:

Note: The list should not include Deployment Manager or Node Manager servers.

8. Enter the number that corresponds to the name of the server for the appropriate instance of the application server that you want to monitor and press **Enter**. If there are already subdirectories with the configuration files for that application server instance in the runtime directory (for example if the instance of the application server has already been configured for ITCAM for WebSphere Application Server and you are now updating the configuration), the script will ask you whether you want to overwrite (instead of removing and recreating) the runtime directory for the application server instance that is being configured:

```
The ITCAM configuration already exists:
/u/ecam/runtime/was70.ABC01.IBM123
You may retain this directory and replace the
configuration and connection files within, or
you may remove it and start over fresh.
Do you wish to retain this directory? (y|n) [y]:
```

9. If that prompt displays, enter `y` or `n` and press **Enter**.

In the case when there are already subdirectories with the configuration files for that server in the runtime directory, entering `n` indicates that you want to remove the existing runtime directory. A new runtime directory with a configuration for the application server instance will be created instead of the existing runtime directory being retained but overwritten.

Whether you enter `y` or enter `n`, the customized property files created by `setupdc.sh` are always completely recreated. You will then be provided with a summary of all the parameters provided, followed by a prompt asking you if you want to proceed with the configuration:

Setup will create an ITCAM runtime with the following parameters:

- 1) WAS server name : IBM123
- 64-bit address mode : 31bit

Enter item number to modify, 'y' to accept, or 'n' to cancel: y

10. Do one of the following:

- Enter `y` to accept the configuration. Then press **Enter**.

Note: The `setupdc.sh` script can be safely rerun over an already configured application server.

- Enter `n` to exit the runtime setup script. Then press **Enter**.

Up to this point, no configuration changes have been made. It is safe to exit at this point and nothing will have been done to your IBM WebSphere Application Server configuration.

- If the parameters for one of the numbered items are not correct, you can modify the configuration information by entering the item number and pressing **Enter**. The script will prompt you for that information again.

The script displays summary information (unless you entered n to exit the runtime setup script). Then it begins configuration.

11. If you have a Network Deployment environment, run the script for each server you wish to monitor. The script should be run on the host associated with the node that owns the server.

Results

The runtime setup script creates a log of all the configuration operations that it performs. You can review the log for any error conditions, and you might be requested to provide the log contents to IBM software support. The log file is called `setupdc.log` and is located under *config_home*. For example, `/u/ecam/runtime/setupdc.log`.

For successful configuration look for messages similar to the following:

```
Successfully configured data collector for server IBM123
```

Executing the runtime setup script in batch (auto-run) mode

Executing the runtime setup script in batch (auto-run) mode eliminates the need for command-line-execution prompting. You can either enter values for environmental variables in the `cyezsdc.cntl` batch job and submit it as a z/OS JCL job that uses `BPXBATCH`, or you can execute `export` command and the `setupdc.sh` script through a command line. Perform one of the following procedures to execute the runtime setup script in batch (auto-run) mode:

- “Editing the `cyezsdc.cntl` batch job and submitting it as a z/OS JCL job that uses `BPXBATCH`”
- “Executing the `setupdc.sh` script through a command line” on page 78

Editing the `cyezsdc.cntl` batch job and submitting it as a z/OS JCL job that uses `BPXBATCH`:

About this task

Perform the following procedure to execute the runtime setup script in batch (auto-run) mode by editing the `cyezsdc.cntl` batch job and submitting it as a z/OS JCL job that uses `BPXBATCH`:

Procedure

1. If WebSphere Global Security is enabled, log in as a WebSphere administrator who will be able to administer the application server configuration.
2. Perform one of the following procedures:
 - If you are running the application server in a Network Deployment environment, make sure the Deployment Manager and the node agent are running. If you need to restart the node agent, see the WebSphere documentation for instructions on starting IBM WebSphere Node Agent in your environment.
 - If you are running the application server in a non-Network Deployment environment, ensure that the instance of the application server that is being monitored by ITCAM for WebSphere Application Server is running. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.

3. Copy the sample batch job, `cyezsedc.cntl`, from the `install_home/bin` directory to a location of your choice.
4. In the sample batch job, modify the environment variables. See Table 17 on page 70 for the list of environment variables.
5. Save the batch job file you modified in step 4.
6. In TSO, submit a z/OS JCL job using the contents of the file you modified in step 4. Using a z/OS JCL-submitted job with BPXBATCH is advantageous if you want to produce a record or do not want to tie up your terminal.
Resolve any security issues you encounter when running the job.

Results

The runtime setup script creates a log of all the configuration operations that it performs. You can review the log for any error conditions, and you might be requested to provide the log contents to IBM software support for problem diagnosis. The log file is called `setupdc.log` and is located under `config_home`. For example, `/u/ecam/runtime/setupdc.log`.

For successful configuration, look for messages similar to the following:

```
Successfully configured data collector for server IBM123
```

Executing the `setupdc.sh` script through a command line:

About this task

Perform the following procedure to execute the runtime setup script in batch (auto-run) mode by executing the `setupdc.sh` script through a command line:

Procedure

1. If WebSphere Global Security is enabled, log in as a WebSphere administrator who will be able to perform the application server configuration.
2. Perform one of the following procedures:
 - If you are running the application server in a Network Deployment environment, ensure that the Deployment Manager and the node agent are running. If you need to restart the node agent, see the WebSphere documentation for instructions on starting the IBM WebSphere Node Agent in your environment.
 - If you are running the application server in a non-Network Deployment environment, ensure that the instance of the application server that is being monitored by ITCAM for WebSphere Application Server is running. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.
3. Run `setupdc.sh` from a command line. Perform the same procedure as you would for running `setupdc.sh` in prompt mode (see “Executing the runtime setup script in prompt mode” on page 74), but indicate all the options you want to specify at the command line (or by exporting the corresponding environment variable prior to running `setupdc.sh`). Make sure to indicate options that are required for running in batch mode (see Table 17 on page 70 for the list of options, especially those that are required for running in batch mode).

Results

The runtime setup script creates a log of all the configuration operations that it performs. You can review the log for any error conditions, and you might be

requested to provide the log contents to IBM software support for problem diagnosis. The log file is called `setupdc.log` and is located in the runtime directory under `config_home`. For example, `/u/ecam/runtime/setupdc.log`.

For successful configuration, look for messages similar to the following:
Successfully configured data collector for server IBM123

Additional configuration tasks

About this task

Perform the following steps:

Procedure

1. Restart the instance of the application server that will be monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on restarting IBM WebSphere Application Server in your environment.
2. Perform the tasks described in each of the following sections, if applicable.

Increasing the heap size

About this task

Increase the heap-size configuration to 128 MB above the current configuration. To do this, perform the following steps for each server that you want to configure for ITCAM for WebSphere Application Server:

Procedure

1. Log in to the IBM WebSphere Application Server administrative console.
2. Navigate to specifying heap size in the IBM WebSphere Application Server administrative console:
 - a. Click **Server > Application Servers** and select the `server_name`.
 - b. In the **Configuration** tab, navigate to **Server Infrastructure > Java and Process Management > Process Definition > Servant > Additional Properties: Java Virtual Machine**.
3. Edit the field **Maximum Heap Size**. If the default is not specified, then it assumes 256. In that case, you should enter a value of 384.

Configuring ITCAM for WebSphere Application Server in a SYSPLEX environment

About this task

Perform the following procedure:

Procedure

1. On one LPAR in the SYSPLEX environment, create the zone and complete the SMP/E installation.
2. On each LPAR in the SYSPLEX environment, perform the following steps:
 - a. Configure system environment settings.
 - b. Configure ITCAM for WebSphere Application Server for each application server instance individually.

Important: Make sure all configuration settings are identical for every LPAR in the SYSPLEX.

Upgrading or applying maintenance for ITCAM for WebSphere Application Server on IBM z/OS

About this task

Perform the following procedure to apply the latest maintenance to ITCAM for WebSphere Application Server.

Important: ITCAM for WebSphere Application Server 7.1 is shipped as a maintenance package for ITCAM for WebSphere Application Server 7.0. To upgrade from ITCAM for WebSphere Application Server 7.0, follow the procedure for applying maintenance.
an ITCAM for WebSphere Application Server instance that has already been installed and configured:

Procedure

1. Use ShopzSeries to check for the latest Program Temporary Fixes (PTFs). Install the new PTFs if they are available.
2. After installing a PTF, for every configuration directory (*config_home*), run the `amupdate.sh` script from *config_home/bin*:

```
./amupdate.sh [-config config_home] [-debug] [-batch] [-?]
```

The parameters are:

-config

Set a different *config_home* directory. Not needed when the script is started from *config_home/bin*.

-debug

Output debug information.

-batch

Run the script without any prompts.

-? Display help on the script syntax.

Chapter 6. Unconfiguring and uninstalling ITCAM for WebSphere Application Server

About this task

Use this information to unconfigure and uninstall ITCAM for WebSphere Application Server on all supported platforms except z/OS. For instructions on uninstalling on z/OS, see the ITCAM for WebSphere Application Server program directory.

Attention: Before deleting an application server profile, you must unconfigure ITCAM for WebSphere Application Server for all monitored instances in this profile. Otherwise, running the WebSphere update command might fail (typically with a JACL failed error message).

Complete the steps in the following order:

Table 18. Order of unconfiguring and uninstalling ITCAM for WebSphere Application Server by operating system

Operating system	Order
Windows, UNIX, or Linux	<ol style="list-style-type: none">1. Unconfigure ITCAM for WebSphere Application Server. Complete one of the following procedures:<ul style="list-style-type: none">• “Unconfiguring ITCAM for WebSphere Application Server using the Configuration Tool on Windows, UNIX, and Linux”• “Silent unconfiguration of ITCAM for WebSphere Application Server on Windows, UNIX, and Linux” on page 882. Uninstall ITCAM for WebSphere Application Server. See “Uninstalling ITCAM for WebSphere Application Server on Windows, UNIX, and Linux” on page 89.
IBM i	“Uninstalling ITCAM for WebSphere Application Server on IBM i” on page 93
z/OS	“Unconfiguring ITCAM for WebSphere Application Server on IBM z/OS” on page 94

Unconfiguring ITCAM for WebSphere Application Server using the Configuration Tool on Windows, UNIX, and Linux

About this task

Complete the following steps to unconfigure ITCAM for WebSphere Application Server using the Configuration Tool on Windows, UNIX, and Linux:

Procedure

1. On UNIX or Linux, if running the uninstallation from a remote computer, enter `xhost + hostname` on the computer where you are sitting. Where `hostname` is the fully qualified host name of the computer on which ITCAM for WebSphere Application Server is being uninstalled.
2. Log on to the computer that you want to uninstall ITCAM for WebSphere Application Server using the same user name that performed the installation.

3. On UNIX or Linux, export the *DISPLAY* variable using one of the following options:
 - If running the unconfiguration from a remote computer


```
Enter
export DISPLAY=local_machine:0.0
```

where
local_machine is the fully qualified host name of the computer where you are sitting.
 - If running the unconfiguration from the computer where ITCAM for WebSphere Application Server was installed


```
Enter
export DISPLAY=localhost:0.0
```
4. Verify that the instance of the application server that is being monitored by ITCAM for WebSphere Application Server is running. At a command prompt, enter one of the following commands from the bin directory under *AppServer_home*. For example, application servers, from *AppServer_home/profiles/profile_name/bin*:

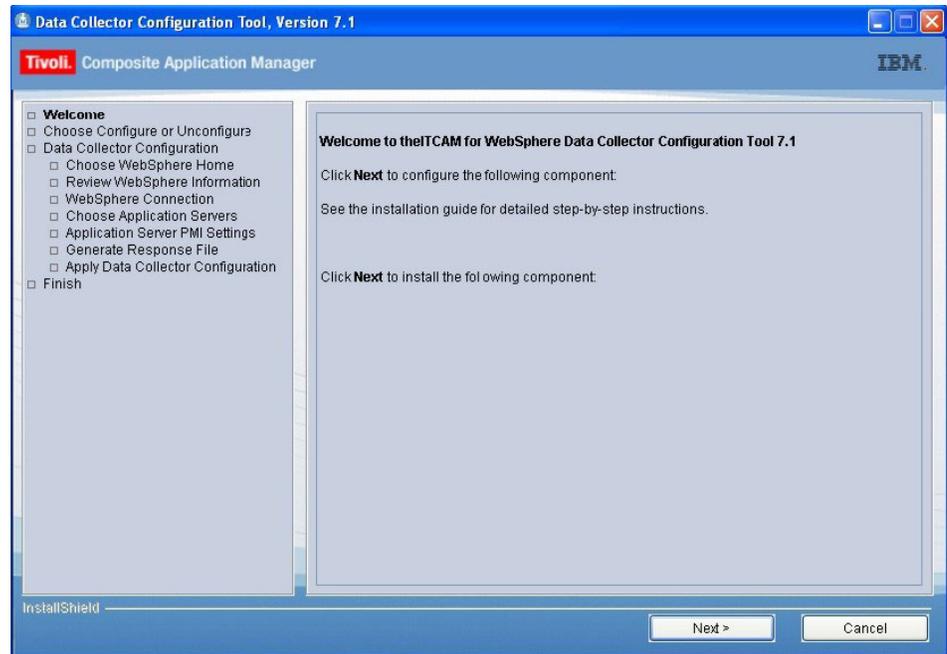
Table 19. Running the *serverStatus* command

Windows	UNIX or Linux
<code>serverStatus.bat <i>server_name</i></code>	<code>/serverStatus.sh <i>server_name</i></code>

If the instance of the application server is not started, see the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.

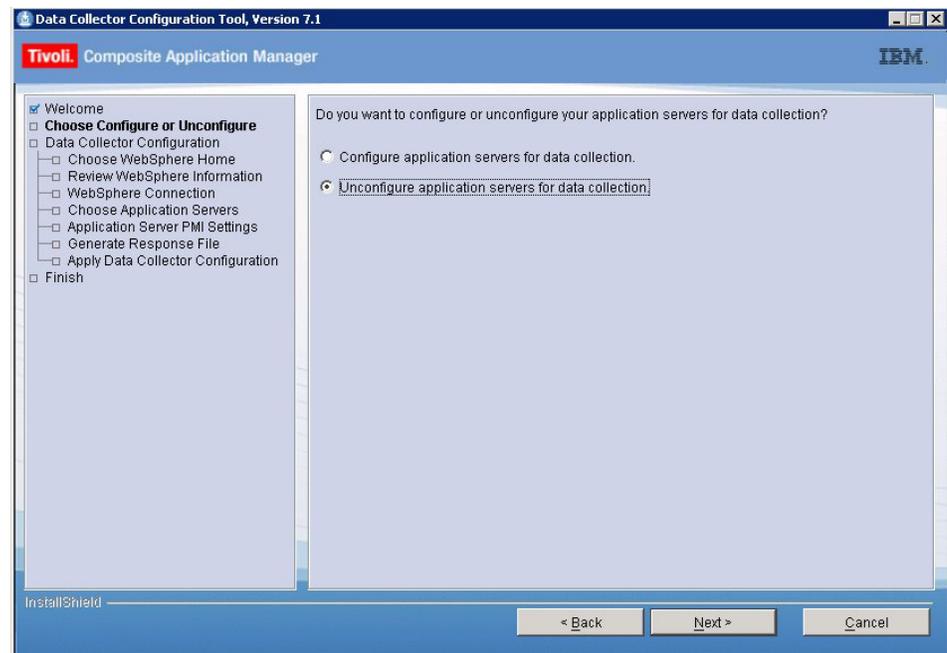
Note: If you are in a Network Deployment environment, before the configuration program applies the unconfiguration, it performs an autosynchronization between the Node Agent and Deployment Manager. You must start the Node Agent and Deployment Manager. Starting the instance of the application server is not necessary.

5. Browse to the installation directory for ITCAM for WebSphere Application Server and change to the *config_dc* directory.
6. Run *config_dc.bat* (Windows) or *config_dc.sh* (UNIX and Linux). The Configuration Tool opens, displaying the **Welcome** panel.

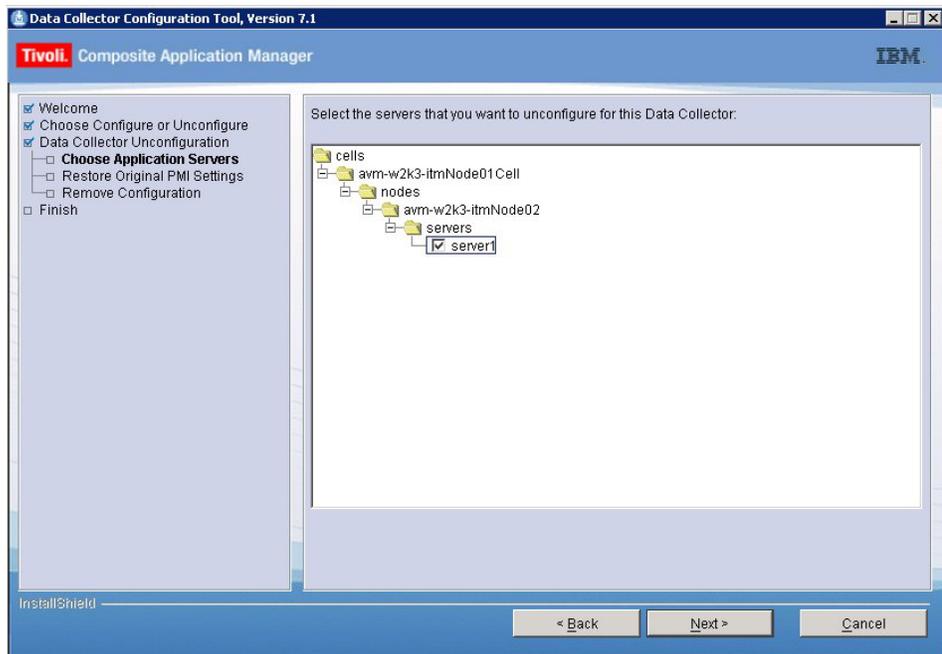


Note: The Configuration Tool depends on the *dcInputs.txt* file in the *DC_home/config_dc* directory. This file must contain appropriate values or should have been generated by the installer. Inappropriate values result in the failure of the Configuration Tool to connect to the required application server.

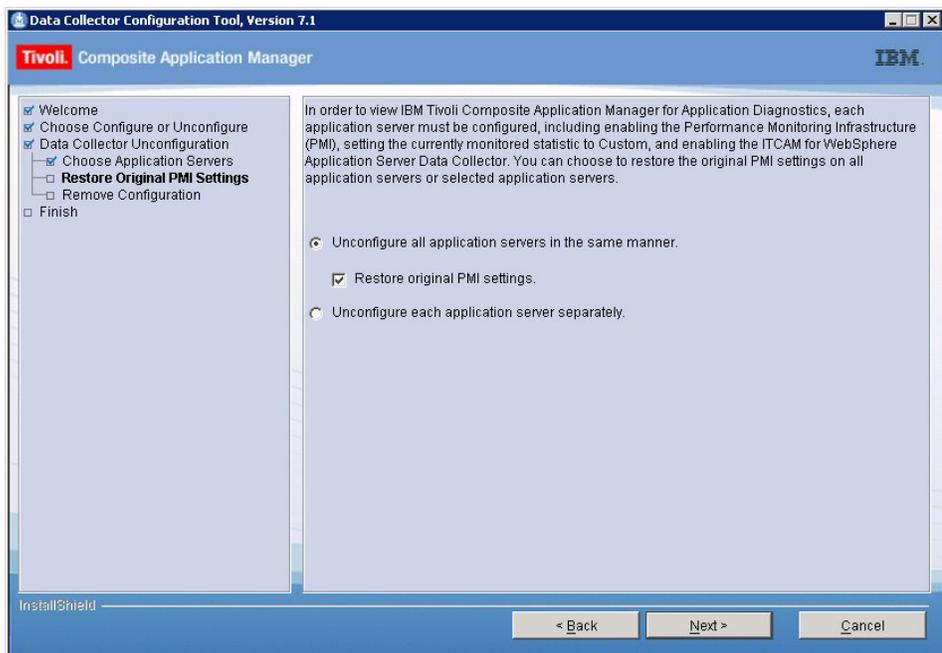
7. Click **Next** to open the **Choose Configure or Unconfigure** panel.



8. Select **Unconfigure application servers for data collection**.
9. Click **Next** to view the **Choose Application Servers** panel.



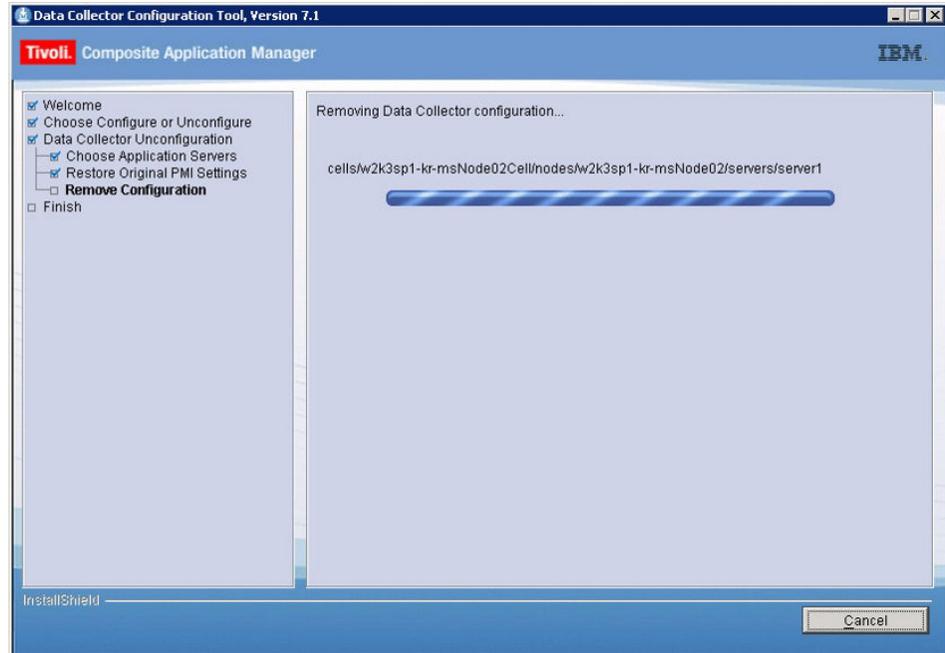
10. Select the application servers that you want to unconfigure from the ITCAM for WebSphere Application Server.
11. Then click **Next**. The **Restore Original PMI Settings** panel displays. Select which application server instances to restore the original Performance Monitoring Infrastructure (PMI) settings that existed before the ITCAM for WebSphere Application Server configuration.



12. Select one of the following options:
 - If you want to restore the original PMI settings that existed before the ITCAM for WebSphere Application Server configuration for all application server instances, select **Unconfigure all application servers in the same manner** and **Restore original PMI settings**. Then click **Next**.

- If you want to restore the original PMI settings that existed before the ITCAM for WebSphere Application Server configuration only for particular application server instances, select **Unconfigure each application server separately**

Then click **Next** to start the unconfiguration process.



13. The unconfiguration program validates the connection between ITCAM for WebSphere Application Server and the application server using the information entered when you configured ITCAM for WebSphere Application Server. If the user name, password, or cell name have changed since configuration, the validation will fail. If validation fails, a window displays in which you must enter information about ITCAM for WebSphere Application Server and application server communication.

cells/w2k3sp1-kr-msNode02Cell/nodes/w2k3sp1-kr-msNode02/servers/server1

For a non-ND (Base) environment, enter the application server host name (or IP address) and the SOAP/RMI port of the application server instance you are configuring. Run the Data Collector's Configuration Tool for each application server you want to configure. The servers on which the Data Collector will be installed must be running.

For an ND environment, you must specify the Deployment Manager host name (or IP address) and SOAP/RMI port. The Node Agent and Deployment Manager must be running.

Host Name: 172.17.88.242

Connector Type: SOAP

SOAP Connector Port: 8881

User Name: [Empty]

Password: [Empty]

OK Cancel

If the cell name has changed (which occurs, for example, when the application server has joined a Network Deployment, Deployment Manager), you are prompted for all the information in the following table. If only the user name or password has changed, you are prompted for the user name and password only. If the validation fails, complete each of the following fields in the window, and click **Next**.

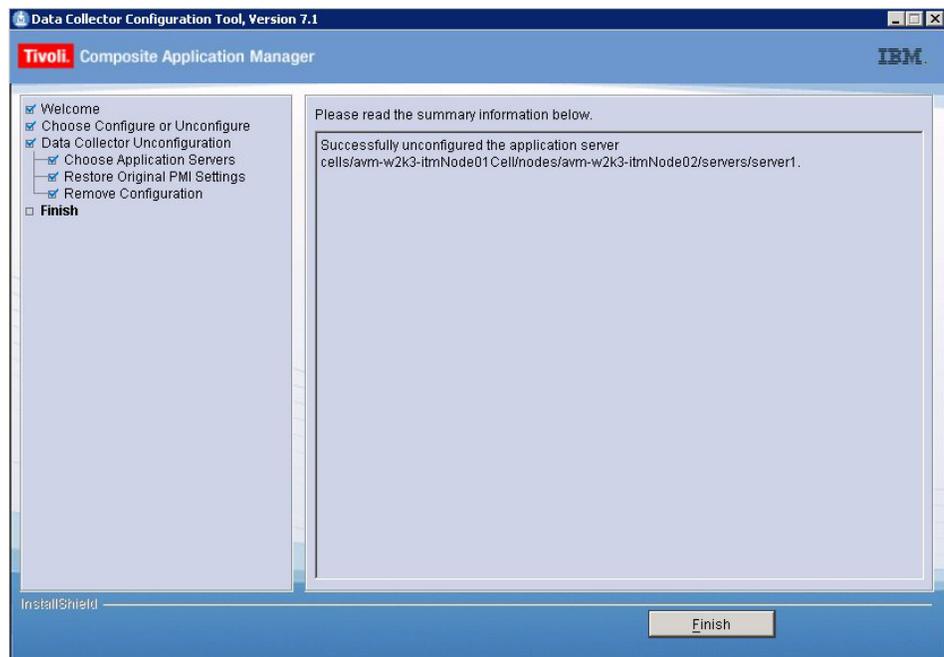
Table 20. Fields for information about ITCAM for WebSphere Application Server and application server communication

Field	What to do
Host Name	Type the fully qualified host name or IP address of the application server instance that ITCAM for WebSphere Application Server monitors. Do not include a protocol in the host name. For example, type myserver.ibm.tivoli.com, not https://myserver.ibm.tivoli.com. Note: If using a Network Deployment environment, provide the host name of the Deployment Manager instead.
Connector Type	Select the type of connection ITCAM for WebSphere Application Server and application server uses for communication.
SOAP Connector Port (only if SOAP selected as the connector type)	If you selected SOAP as the connector type, enter the connector port used by the application server instance to send commands using the Simple Object Access Protocol (SOAP). The SOAP port is identified in the following file for the instance of application server that ITCAM for WebSphere Application Server is monitoring: <i>AppServer_home/profiles/profile_name/config/cells/cell_name/nodes/node_name/serverindex.xml</i> . Note: If using Network Deployment, provide the SOAP port of the Deployment Manager instead.
RMI Connector Port (only if RMI selected as the connector type)	If you selected RMI as the connector type, enter the connector port used by the application server instance to send commands using RMI.

Table 20. Fields for information about ITCAM for WebSphere Application Server and application server communication (continued)

Field	What to do
User Name (only for Global Security enabled)	<p>Type the user ID of a user who is authorized to log on to the IBM WebSphere Application Server administrative console. This user must have the agent role on the application server.</p> <p>If, instead of typing the user ID, you want to retrieve the user ID from a properties file, complete the following steps:</p> <ol style="list-style-type: none"> 1. Select Show Advanced Options. 2. Select the check box that appears below. <ul style="list-style-type: none"> • For SOAP connectors, Use username and password stored in soap.client.props. appears. • For RMI connectors, Use username and password stored in sas.client.props. appears.
Password (only for Global Security enabled)	<p>Type the password that corresponds to the user specified in the User Name field.</p> <p>If, instead of typing the password, you want to retrieve the password from a properties file, complete the following steps:</p> <ol style="list-style-type: none"> 1. Select Show Advanced Options. 2. Select the check box that appears below. <ul style="list-style-type: none"> • For SOAP connectors, Use username and password stored in soap.client.props. appears. • For RMI connectors, Use username and password stored in sas.client.props. appears.

A panel with summary information indicating the results of the unconfiguration procedure displays.



14. Read the information in the panel and click **Finish**.

Silent unconfiguration of ITCAM for WebSphere Application Server on Windows, UNIX, and Linux

About this task

Perform the following procedure:

Procedure

1. Verify that the instance of the application server that was being monitored by ITCAM for WebSphere Application Server is running. At a command prompt, enter one of the following commands from the bin directory under *AppServer_home*. (For example, application servers, from *AppServer_home/profiles/profile_name/bin*):

Table 21. Running the *serverStatus* command

Windows	UNIX or Linux
<code>serverStatus.bat server_name</code>	<code>/serverStatus.sh server_name</code>

If the instance of the application server is not started, see the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.

Note: If you are in a Network Deployment environment, before the configuration program applies the unconfiguration, it will perform an autosynchronization between the Node Agent and Deployment Manager. You must start the Node Agent and Deployment Manager. Starting the instance of the application server is not necessary.

2. Specify configuration options in the *DC_unconfig.opt* response file template and save the file. See “Options for unconfiguring ITCAM for WebSphere Application Server on Windows, UNIX, and Linux” on page 123 for the list of options.
3. Go to the *DC_home/config_dc* directory. The *config_dc.bat* (Windows) or *config_dc.sh* (UNIX and Linux) file is located in this directory.
4. Run one of the following commands:

Table 22. Running the silent unconfiguration command

Windows	UNIX or Linux
<code>config_dc.bat -silent [configuration_option...] -options response_file</code>	<code>./config_dc.sh -silent [configuration_option...] -options response_file</code>

where,

configuration_option

specifies one or more configuration options not included in the response file. See “Options for unconfiguring ITCAM for WebSphere Application Server on Windows, UNIX, and Linux” on page 123.

response_file

specifies the response file you configured in step 2. Indicate the path and name of the file. Wrap the path in double-quotes (") if it contains spaces.

The following are examples:

Table 23. Examples of running the silent unconfiguration command

Windows	UNIX or Linux
<pre>config_dc.bat -silent -V DC_CCUC_UNCONFIG=true -V DC_ASL_SOAPPOR T="8885" -options C:\itcam\images \silent\DC6.opt</pre>	<pre>./config_dc.sh -silent -V DC_CCUC_UNCONFIG=true -V DC_ASL_SOAPPOR T="8885" -options /opt/silent /DC6.opt</pre>

Note: Configuration options specified in the response file take precedence over those entered in the command line. For a particular command-line configuration option to take effect, you must first nullify that option in the response file by commenting it out with a pound sign (#).

Uninstalling ITCAM for WebSphere Application Server on Windows, UNIX, and Linux

Before you begin

You must have already unconfigured ITCAM for WebSphere Application Server. See “Unconfiguring ITCAM for WebSphere Application Server using the Configuration Tool on Windows, UNIX, and Linux” on page 81.

About this task

Use this information to uninstall ITCAM for WebSphere Application Server on Windows, UNIX, and Linux.

Procedure

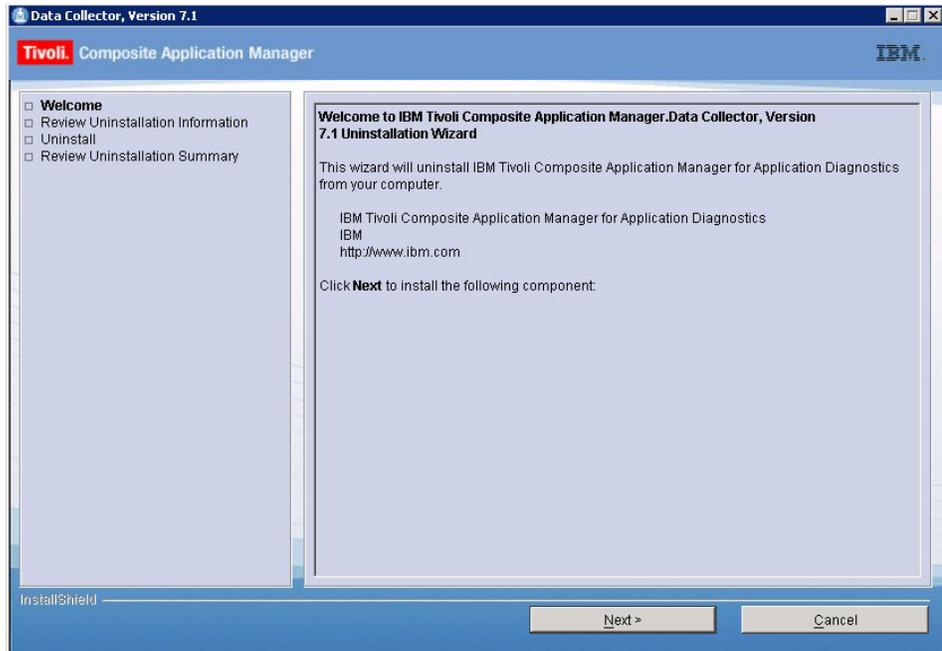
1. On UNIX or Linux, if running the uninstallation from a remote computer, enter `xhost + hostname` on the computer where you are sitting, where *hostname* is the fully qualified host name of the computer on which ITCAM for WebSphere Application Server is being uninstalled.
2. Log on to the computer on which you want to uninstall ITCAM for WebSphere Application Server using the same user name that performed the installation.
3. On UNIX or Linux, export the DISPLAY variable. Do one of the following:
 - If running the uninstallation from a remote computer.
Enter
`export DISPLAY=local_machine:0.0`
where *local_machine* is the fully qualified host name of the computer where you are sitting.
 - If running the uninstallation from the computer where ITCAM for WebSphere Application Server was installed.
Enter
`export DISPLAY=localhost:0.0`
4. Stop the instance of the application server that was being monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on stopping IBM WebSphere Application Server in your environment.
5. Back up files from the ITCAM for WebSphere Application Server installation that you still need.

- Depending on your operating system, do one of the following to begin to uninstall ITCAM for WebSphere Application Server:

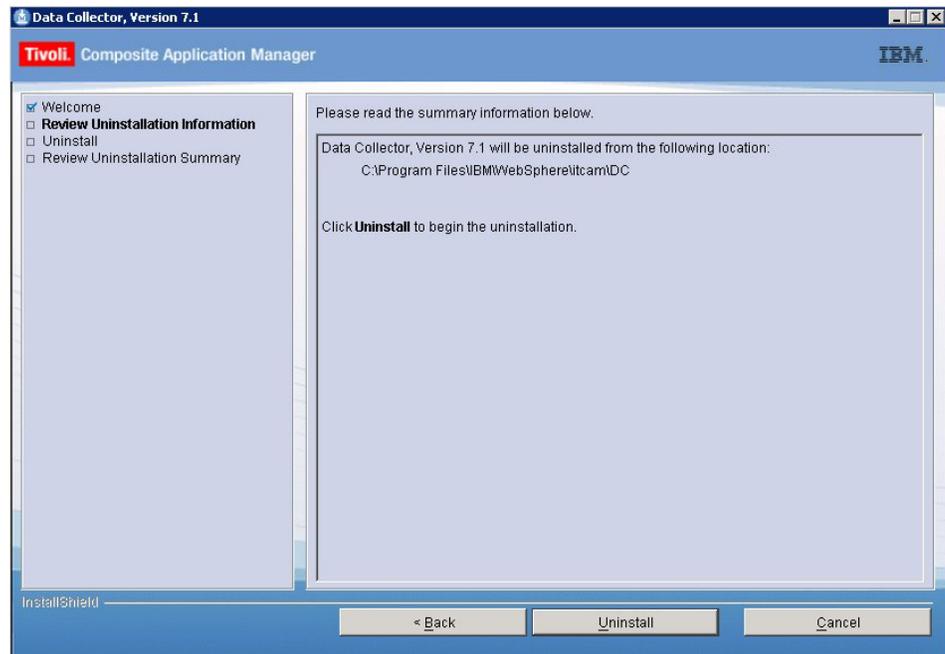
Table 24. Uninstalling ITCAM for WebSphere Application Server

Operating system	Procedure
Windows	<ol style="list-style-type: none"> From the desktop, click Start > Control Panel. Click Add or Remove Programs. Click IBM Tivoli Composite Application Manager for WebSphere Application Server. Click Change/Remove. Select Remove and click Next.
UNIX or Linux	<p>Run the uninstallation program with the following file: <code>DC_home/_uninst/uninstaller.bin</code></p> <p>Note: You must run the <code>uninstaller.bin</code> file in the <code>DC_home/_uninst</code> directory. Otherwise, the InstallShield cannot create the <code>CYN</code> directory in <code>/var/ibm/tivoli/common</code>.</p>

The first window for the uninstallation program opens, displaying the **Welcome** panel.



- Click **Next**. The **Review Uninstallation Information** panel displays the location of the files to be uninstalled.

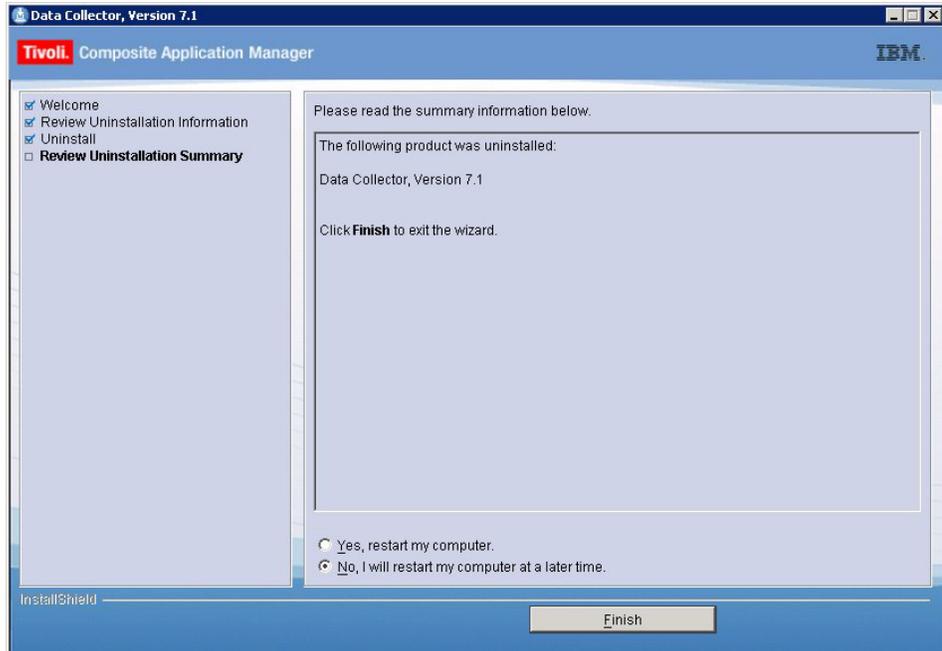


8. Read the information in the panel and click **Uninstall**.



9. If there are files remaining from a previous or existing ITCAM for WebSphere Application Server installation, select the required options to decide whether to remove these in each of the windows.

Note: You might find that empty folders remain after the uninstallation even if you select **Yes to All**. This is because the folders are occupied by the application servers during the installation. You can restart your environment and manually remove them after the uninstallation.



10. Read the information in the panel and click **Finish** to complete the uninstallation.
11. If you used the Add/Remove Programs tool on Windows to uninstall ITCAM for WebSphere Application Server and you get the following message in the Add/Remove Programs tool window complete the following steps:

An error occurred while trying to remove ITCAM for WebSphere Application Server. It may have already been uninstalled. Would you like to remove ITCAM for WebSphere Application Server from the Add or Remove programs list?

 - a. Click **Yes**.
 - b. Run the uninstaller.exe program from the `DC_home_uninst` directory.
 - c. Repeat steps 7 on page 90 to 10.

Unconfiguring ITCAM for WebSphere Application Server on IBM i

About this task

Perform the following procedure if you need to unconfigure IBM Tivoli Composite Application Manager for WebSphere Application Server from an application server instance on an IBM i host.

Procedure

1. Log on to the computer on which you want to configure ITCAM for WebSphere Application Server as a user with the appropriate permissions. See "Permissions" on page 54.
2. Use the Start TCP/IP (STRTCP) command to start TCP/IP.
3. Use the Start Host Servers (STRHOSTSVR) command to start Host Servers.
4. Enter the QSH environment by running the STRQSH command in the IBM i main menu.
5. Verify that the instance of the application server that you want to unconfigure for ITCAM for WebSphere Application Server is running. At a command

prompt, enter the following command from the bin directory under *AppServer_home*. For example, from *AppServer_home/profiles/profile_name/bin*:

```
serverStatus server_name
```

Important: In a Network Deployment environment, do not verify that the application server instance is running. Instead, make sure the Deployment Manager is running, and network communication with it is available.

6. If the instance of the application server is not started, start the application server. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.
7. Set the JAVA_HOME environment variable, making sure that the Java program is accessible at \$JAVA_HOME/bin. You can run the installation using JDK14 or JDK16. To specify the path to one of them, you can use one of the following commands:

```
export JAVA_HOME=/qibm/proddata/java400/jdk14
```

or

```
export JAVA_HOME=/qibm/proddata/java400/jdk16
```

8. Make a copy of the *DC_unconfig.opt* response file template, set the necessary options, and save the file in the current directory. The default path to the template is *DC_home/config_dc/DC_unconfig.opt*. See “Options for unconfiguring ITCAM for WebSphere Application Server on Windows, UNIX, and Linux” on page 123 for guidance on entering values for the response file.
9. Run the following command to perform the unconfiguration:

```
config_dc.sh -silent -options ./DC_unconfig.opt
```

Uninstalling ITCAM for WebSphere Application Server on IBM i

About this task

Perform the following procedure to uninstall ITCAM for WebSphere Application Server on IBM i:

Procedure

1. Ensure that you have unconfigured ITCAM for WebSphere Application Server for all application server instances.
Attention: Because all the instances of ITCAM for WebSphere Application Servers on IBM i share the same installation, do not run *uninstaller_os400* unless you have unconfigured ITCAM for WebSphere Application Server for all application server instances on this system.
2. Log on to the computer on which you want to uninstall ITCAM for WebSphere Application Server as a user with the appropriate permissions. See “Permissions” on page 54.
3. Use the Start TCP/IP (STRTCP) command to start TCP/IP.
4. Use the Start Host Servers (STRHOSTSVR) command to start Host Servers.
5. Enter the QSH environment by running the STRQSH command in the IBM i main menu.
6. Change to the *DC_home/_uninst* directory and run the following command:
uninstaller_os400

7. Optionally, and only if ITCAM Agent for WebSphere Applications Data Collector is not installed on the host, remove the service program. To do this, run the following commands:

```
rm /QSYS.LIB/QGPL.LIB/AM7102S15
rm /QSYS.LIB/QGPL.LIB/AM7102S16
```

Attention: Do **not** remove the service program if ITCAM Agent for WebSphere Applications Data Collector is installed on the host.

Unconfiguring ITCAM for WebSphere Application Server on IBM z/OS

This section describes how to unconfigure ITCAM for WebSphere Application Server either using the unconfiguration script or manually. Do one of the following:

- If you will be using the unconfiguration script:
 1. Read the description of how to enter values for configuration options: “Values for configuration options.”
 2. Depending on how you want to execute the unconfiguration script, see one of the following:
 - You can execute the unconfiguration script in prompt mode, in which you invoke the script and then get prompted for configuration values: “Unconfiguring ITCAM for WebSphere Application Server in prompt mode” on page 98.
 - You can execute the unconfiguration script in batch (auto-run) mode, in which you set the configuration values in a batch-mode invocation script and then invoke the script without further interaction: “Unconfiguring ITCAM for WebSphere Application Server in batch (auto-run) mode” on page 100.
- If you tried to run the `unconfig.sh` script to unconfigure it and it failed, you need to unconfigure the Data Collector manually. See “Unconfiguring ITCAM for WebSphere Application Server manually” on page 102.

Values for configuration options

The runtime setup script comes with a set of product-provided defaults for the configuration options.

Unconfiguring in prompt mode

If you will be unconfiguring ITCAM for WebSphere Application Server in prompt mode, you can change the product-provided default values in the following ways:

- You can specify options in the command line when initiating the script.
- You can export the equivalent environment variables before running the script.

Then, when answering the prompts, you can override the existing defaults, if you choose. Some options are not prompted for. For those options, if you want to specify values that differ from the product-provided defaults, you must specify the options before the script starts up.

Unconfiguring in batch mode

If running the script in batch mode, you set the values (without ever being prompted) by one of the following means:

- Specifying the equivalent environment variables in `cyezucfg.cntl` batch job file

- Specifying options at a command line that runs `unconfig.sh` in batch mode
- Exporting the equivalent environment variable prior to running `unconfig.sh` in batch mode

List of unconfiguration options

See Table 25 for a list of the options.

Note: Some options are required if Global Security is enabled.

Table 25. List of options for the `unconfig.sh` script

Command-line option	Description	Equivalent environment variable and value
<code>-log logfile_name</code> <code>-nolog</code>	Indicate either <code>-log</code> or <code>-nolog</code> for whether you want the runtime unconfiguration script to create a log of all the unconfiguration operations that it performs. If you indicate <code>-log</code> , you can indicate a different location than the default. By default the log file is called <code>unconfig.log</code> and is located under <code>config_home</code> . For example: <code>/u/ecam/runtime/setupdc.log</code> . The default is to create this log file.	N/A. Available as an option on the command line only.
<code>-?</code>	Usage help	N/A. Available as an option on the command line only.
<code>-batch</code>	If specified, no prompting will be done. The script will terminate if necessary parameters are not specified or not valid in the batch job. Required to run the script in batch mode.	<code>ITCAM_BATCH=y</code>
<code>-debug</code>	Specifies whether to produce messages in the log file for debugging. You should use this option if you have been having problems unconfiguring ITCAM for WebSphere Application Server using the script and need to provide details to IBM Software Support.	<code>ITCAM_DEBUG=y</code>
<code>-config config_home</code>	The ITCAM for WebSphere Application Server configuration directory. For example: <code>/u/ecam</code>	<code>ITCAM_CONFIG=config_home</code>
<code>-cleanup</code>	This option indicates that you want to remove the existing runtime directory for the application server instance. Whether you specify this option or not, the IBM WebSphere Application Server customization done for ITCAM for WebSphere Application Server is removed.	<code>ITCAM_CLEANUP=y</code>
<code>-cleanuppolicy</code>	Undo ITCAM changes to the server Java 2 security policy file. Since the security policy file is shared by all servers on the node, only use this option if you have unconfigured ITCAM for WebSphere Application Server for all application server instances on this node.	<code>ITCAM_CLEANUPPOLICY=n</code>
<code>-conntype SOAP</code> <code>RMI</code>	The connection type for communications used by <code>wsadmin.sh</code> . The default is to use the connection type specified in the <code>wsadmin.properties</code> file associated with the <code>wsadmin.sh</code> script you have chosen. (The IBM WebSphere Application Server default for this parameter is SOAP.)	<code>ITCAM_CONNTYPE=connect_type</code>

Table 25. List of options for the *unconfig.sh* script (continued)

Command-line option	Description	Equivalent environment variable and value
-port <i>port</i>	<p>The port number used by <i>wsadmin.sh</i>.</p> <p>In a Network Deployment environment, the specified port should be the Deployment Manager's SOAP or RMI port (not the application server instance SOAP or RMI port).</p> <p>To find the SOAP port number in the control region job log, look for the following: BB000222I: ADMC0013I: The SOAP connector is available at port <i>port</i></p> <p>To find the RMI port number in the control region job log, look for the following: BB000222I: ADMC0026I: The RMI connector is available at port <i>port</i></p> <p>The default is to use the port specified in the <i>wsadmin.properties</i> file associated with the <i>wsadmin.sh</i> script you have chosen.</p>	ITCAM_PORT= <i>port</i>
-host <i>host</i>	<p>The fully qualified host name or IP address used by <i>wsadmin.sh</i>. If you don't specify this option, the host name used is the default <i>wsadmin.sh</i> parameters from the <i>wsadmin.properties</i> file. You do not need to specify this option if the Deployment Manager resides on the same host as the application server, your application server is in stand-alone mode, or the correct host name is configured into the <i>wsadmin.properties</i> file. (Strictly speaking, the host name does not need to be fully qualified if the simple name is correctly resolved in your environment.)</p> <p>If you are in a Network Deployment environment, enter the value for the host for the Deployment Manager.</p> <p>Unless you are in an Network Deployment environment, enter the value for the host for the Deployment Manager. Unless you are in a non-Network Deployment environment, or a Network Deployment environment and the Deployment Manager is located on the local host, do not enter <i>localhost</i>. The default is the value specified in the <i>wsadmin.properties</i> file associated with the <i>wsadmin.sh</i> script you have chosen</p>	ITCAM_HOST= <i>host_name</i>
-profile <i>profile_script</i>	<p>Specifies a profile script for running <i>wsadmin.sh</i>. The Web site for IBM WebSphere Application Server provides the following description of a profile script:</p> <p>"The profile script runs before other commands, or scripts. If you specify <i>-c</i>, the profile script runs before it invokes this command. If you specify <i>-f</i>, the profile script runs before it runs the script. In interactive mode, you can use the profile script to perform any standard initialization that you want. You can specify multiple <i>-profile</i> options on the command line, and they invoke in the order that you supply them."</p> <p>The parameter has nothing to do with the IBM WebSphere Application Server profile. (For z/OS there is only one IBM WebSphere Application Server profile: the "default" profile.</p>	ITCAM_PROFILE= <i>script</i>

Table 25. List of options for the `unconfig.sh` script (continued)

Command-line option	Description	Equivalent environment variable and value
<code>-user user_id</code>	The user ID to use for connection to <code>wsadmin.sh</code> . This is required if Global Security is enabled and it is not set in the <code>sas.client.props</code> (RMI) or <code>soap.client.props</code> (SOAP) files.	<code>ITCAM_USER=user_id</code>
<code>-password password</code>	The password to use for connection to <code>wsadmin.sh</code> . This is required if Global Security is enabled and it is not set in the <code>sas.client.props</code> (RMI) or <code>soap.client.props</code> (SOAP) files.	<code>ITCAM_PASSWORD=password</code>
<code>-server servername</code>	The application server's name. (This is the name for the server displayed in the IBM WebSphere Application Server administrative console, not the short name used to construct the z/OS started task names.) For example, <code>server1</code> . This option is required if running in batch mode.	<code>ITCAM_SERVER=servername</code>
<code>-wasroot path</code>	The installation directory for IBM WebSphere Application Server (<i>AppServer_home</i>). It is the partial path to the <code>wsadmin.sh</code> file. For example: <code>/u/WAS7000/Servers/AppServer</code> If you specify a value for <code>wsadmin</code> , this option will be ignored. Note: Specifying more of the path to the <code>wsadmin.sh</code> script results in a quicker location of the <code>wsadmin.sh</code> script. If you specify less of the path, you will get more <code>wsadmin.sh</code> choices.	<code>ITCAM_WASROOT=AppServer_home</code>
<code>-wsadmin path_and_file</code>	Specifies the full path to the <code>wsadmin.sh</code> file. For example: <code>/u/WAS7000/Servers/AppServer/profiles/default/bin/wsadmin.sh</code> This option is required if running in batch mode and the default <code>wsadmin.sh</code> script that <code>unconfig.sh</code> selects is not acceptable.	<code>ITCAM_WSADMIN=path_and_file</code>
<code>-defaulthostname IP_or_host</code>	Using the value returned by running the <code>hostname</code> command, as the host name is usually acceptable, but in some environments that value will not work. If running the <code>hostname</code> command returns a value that is not usable for configuring ITCAM for WebSphere Application Server, you can use the <code>-defaulthostname</code> option. The <code>-defaulthostname</code> option specifies the fully qualified host name or IP address that will replace the value of the local host name for all purposes in configuring ITCAM for WebSphere Application Server, such as for the bind IP or export IP.	<code>ITCAM_DEFAULTHOSTNAME=IP_or_host</code>
<code>-defaulthostip host_IP</code>	Using the value returned by running the <code>host IP</code> command as the host IP address is usually acceptable, but in some environments, that value will not work. If running the <code>host IP</code> command returns a value that is not usable for configuring ITCAM for WebSphere Application Server, you can use the <code>-defaulthostip</code> option. The <code>-defaulthostip</code> option specifies the default local host IP. The default is the system default host IP. For multi-homed addresses, the IP address to use will be prompted for. In the batch mode, the first IP address will be used. This value is normally not specified. It is available in case the results of normal processing are not valid.	<code>ITCAM_DEFAULTHOSTIP=host_IP</code>

Table 25. List of options for the `unconfig.sh` script (continued)

Command-line option	Description	Equivalent environment variable and value
<code>-localhost</code> <i>hostname</i>	Used by <code>findServers.jacl</code> to make a node match if there is a problem identifying nodes. This is only required if the <code>WAS_NODE</code> associated with <code>wsadmin.sh</code> is not usable. The default is the value entered for the <code>-defaulthostname</code> option. The local host name and IP address are used to determine the local node. This is not an issue if the <code>-server</code> option is specified.	<code>ITCAM_LOCALHOST=hostname</code>
<code>-localip</code> <i>IP_address</i>	Used by <code>findServers.jacl</code> to make a node match if there is a problem identifying nodes. This is only required if the <code>WAS_NODE</code> associated with <code>wsadmin.sh</code> is not usable. The default is the value entered for the <code>-defaulthostip</code> option. The local host name and IP address are used to determine the local node. This is not an issue if the <code>-server</code> option is specified.	<code>ITCAM_LOCALIP=IP_address</code>

Unconfiguring ITCAM for WebSphere Application Server in prompt mode

About this task

Perform the following procedure to unconfigure ITCAM for WebSphere Application Server using the unconfiguration script in prompt mode:

Note: In the prompts that occur when executing the unconfiguration script in prompt mode, if a default value is applicable, it will be shown in brackets at the end of the prompt. If no value is entered, the default value will be used. The default value also serves as an example of the format of the value that is required.

Procedure

1. If WebSphere Global Security is enabled, log in as a WebSphere administrator who will be able to administer the application server configuration.
2. Perform one of the following procedures:
 - If you are running the application server in a Network Deployment environment, ensure that the Deployment Manager and the node agent are running. If you need to restart the node agent, see the WebSphere documentation for instructions on starting the IBM WebSphere Node Agent in your environment:
 - If you are running the application server in a non-Network Deployment environment, ensure that the instance of the application server that is being monitored by ITCAM for WebSphere Application Server is running. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.
3. If you want to set any of the configuration options as environment variables before running the unconfiguration script, export the environment variables. See the right-hand column of Table 25 on page 95 for a list of the environment variables. Here are examples of how to export an environment variable from a command line:

```
export ITCAM_CONNTYPE=RMI
export ITCAM_CLEANUP=y
```

By exporting these variables, the `unconfig.sh` script will use them as the new default values. You will not need to enter a value (simply press **Enter**) when you are prompted for them.

4. Run the following command from the `config_home/bin` directory:

```
./unconfig.sh [options]
```

The default path for the location of the script is `u/ecam/bin`.

See Table 25 on page 95 for a list of the options for running the script command.

By setting options in the command line, the `unconfig.sh` script will use them as the new default values. You will not need to enter a value (simply press **Enter**) when you are prompted for them. You will be prompted for the path of `AppServer_home`:

Enter the path of the WAS user install root [`/u/WAS7000`]:

5. Enter the HFS path name of `AppServer_home` and press **Enter**.

The configuration script uses this path to search for the `wsadmin.sh` script that was used to configure the target application server for ITCAM monitoring during the configuration.

You should respond with a valid HFS path name, for example, `/u/WAS7000`. You will be prompted to select one of the discovered occurrences of the `wsadmin.sh` script:

Found `wsadmin.sh` in the following locations:

- 1) `/u/was7000/DeployMgr/AppServer/bin/wsadmin.sh`
- 2) `/u/was7000/DeployMgr/AppServer/profiles/default/bin/wsadmin.sh`
- 3) `/u/was7000/DeployMgr/DeploymentManager/bin/wsadmin.sh`

Enter the number of the `wsadmin` to use for unconfiguration:

6. Enter the number that corresponds to the path for the appropriate `wsadmin.sh` script and press **Enter**. The script will use the `wsadmin.sh` that you selected to find all server instances that are running on this node. Then you will be prompted to select one of the discovered instances of the application server:

- 1) IBM123
- 2) IBM124
- 3) IBM125
- 4) IBMabc

Enter the number of the server to select:

7. Enter the number that corresponds to the appropriate instance of the application server that you want to unconfigure and press **Enter**. You will be prompted whether you want to remove the runtime directory for the application server instance that is being unconfigured:

Server "IBM123" has been selected
The runtime directory for IBM123 is:

```
/u/ecam/runtime/was70.TIVOLI.IBM123
```

Do you wish to remove this directory? (y|n) [n]:

8. Enter `y` or `n` and press **Enter**.

Entering `y` indicates that you want to remove the existing runtime directory for the application server instance. Whether you enter `y` or enter `n`, the IBM WebSphere Application Server customization done for ITCAM for WebSphere Application Server will be removed.

You will be prompted whether you want to remove ITCAM statements from the `server.policy` file.

ITCAM configuration adds statements to the Java 2 security file `server.policy`. Since this policy file is shared by all servers on this node, you should only remove these statements when the last server configured for ITCAM is unconfigured.

Do you wish to remove ITCAM changes to the `server.policy` file? (y|n) [n]:

Enter y if you have unconfigured ITCAM for WebSphere Application Server for all server instances on this node. Otherwise, enter n. The script will unconfigure ITCAM for WebSphere Application Server.

Results

For successful unconfiguration, look for messages similar to the following:

```
Successfully unconfigured data collector for server IBM123
```

The runtime unconfiguration script creates a log of all the unconfiguration operations that it performs. You can review the log for any error conditions, and you might be requested to provide the log contents to IBM Software Support. The log file is called `unconfig.log` and is located in the runtime directory under `config_home`. For example, `/u/ecam/runtime/unconfig.log`.

Unconfiguring ITCAM for WebSphere Application Server in batch (auto-run) mode

Executing the unconfiguration script in batch (auto-run) mode eliminates the need for command-line-execution prompting. You can either enter values for environmental variables in the `cyezucfg.cntl` batch job and submit it as a z/OS JCL job that uses `BPXBATCH`, or you can execute the `unconfig.sh` script through a command line.

Perform one of the following procedures to execute the unconfiguration script in batch (auto-run) mode:

- “Editing the `cyezucfg.cntl` batch job and submitting it as a z/OS JCL job that uses `BPXBATCH`”
- “Executing the `unconfig.sh` script through a command line” on page 101

Editing the `cyezucfg.cntl` batch job and submitting it as a z/OS JCL job that uses `BPXBATCH`

About this task

Perform the following procedure to execute the unconfiguration script in batch (auto-run) mode by editing the `cyezucfg.cntl` batch job and submitting it as a z/OS JCL job that uses `BPXBATCH`:

Procedure

1. If WebSphere Global Security is enabled, log in as a WebSphere administrator who will be able to administer the application server configuration.
2. Perform one of the following procedures:
 - If you are running the application server in a Network Deployment environment, ensure that the Deployment Manager and the node agent are running. If you need to restart the node agent, see the WebSphere documentation for instructions on starting the IBM WebSphere Node Agent in your environment.

- If you are running the application server in a non-Network Deployment environment, ensure that the instance of the application server that is being monitored by ITCAM for WebSphere Application Server is running. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.
3. Copy the sample batch job, `cyezucfg.cntl`, from the `install_home/bin` directory to a location of your choice.
 4. In the sample batch job, modify the environment variables appropriately. See Table 25 on page 95 for the list of environment variables.
 5. Save the batch job file you modified in step 4.
 6. In TSO, submit a z/OS JCL job using the contents of the file you modified in step 4, which uses `BPXBATC`H. Using a z/OS JCL submitted job with `BPXBATC`H is advantageous if you want to produce a record or do not want to tie up your terminal.
- Resolve any security issues you encounter when running the job.

Results

For successful unconfiguration, look for messages similar to the following:

```
Successfully unconfigured data collector for server ibm001
```

The runtime unconfiguration script creates a log of all the unconfiguration operations that it performs. You can review the log for any error conditions, and you might be requested to provide the log contents to IBM Software Support. The log file is called `unconfig.log` and is located in the runtime directory under `config_home`. For example, `/u/ecam/runtime/unconfig.log`.

Executing the `unconfig.sh` script through a command line

About this task

Perform the following procedure to execute the unconfiguration script in batch (auto-run) mode by executing the `unconfig.sh` script through a command line:

Procedure

1. If WebSphere Global Security is enabled, log in as a WebSphere administrator who will be able to administer the application server configuration.
2. Perform one of the following procedures:
 - If you are running the application server in a Network Deployment environment, ensure that the Deployment Manager and the node agent are running. If you need to restart the node agent, see the WebSphere documentation for instructions on starting the IBM WebSphere Node Agent in your environment.
 - If you are running the application server in a non-Network Deployment environment, ensure that `<ph conref="reused_phrases.dita#reused_phrases/was"></ph>` the instance of the application server that is being monitored by ITCAM for WebSphere Application Server is running. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.
3. Run `unconfig.sh` from a command line. Perform the same procedure as you would for running `unconfig.sh` in prompt mode (see “Unconfiguring ITCAM for WebSphere Application Server in prompt mode” on page 98), but indicate all the options you want to specify at the command line (or by exporting the corresponding environment variable prior to running `unconfig.sh`). Make sure

to indicate options that are required for running in batch mode (see Table 25 on page 95 for the list of options, especially those that are required for running in batch mode). The script will unconfigure ITCAM for WebSphere Application Server.

Results

For successful unconfiguration, look for messages similar to the following:
Successfully unconfigured data collector for server IBM123

The runtime unconfiguration script creates a log of all the unconfiguration operations that it performs. You can review the log for any error conditions, and you might be requested to provide the log contents to IBM Software Support. The log file is called `unconfig.log` and is located in the runtime directory under `config_home`. For example, `/u/ecam/runtime/unconfig.log`.

Unconfiguring ITCAM for WebSphere Application Server manually

About this task

If you tried to run the `unconfig.sh` script to unconfigure it and it failed, you need to unconfigure ITCAM for WebSphere Application Server manually.

Perform the following procedure to unconfigure ITCAM for WebSphere Application Server manually on z/OS:

Procedure

1. Navigate to Generic JVM arguments in the IBM WebSphere Application Server administrative console:
 - a. Click **Server > Application Servers** and select the *server_name*.
 - b. In the **Configuration** tab, navigate to **Server Infrastructure > Java and Process Management > Process Definition > Servant > Additional Properties: Java Virtual Machine**.
2. In the **Generic JVM arguments** field, remove the values that were added as a result of the ITCAM for WebSphere Application Server configuration. Make sure you do not remove the values that are not related to the ITCAM for WebSphere Application Server configuration.
3. For JVM custom properties, select and remove the values that were added as a result of the ITCAM for WebSphere Application Server configuration. Make sure you do not remove the values that are not related to the ITCAM for WebSphere Application Server configuration.
4. Navigate to the custom properties page:
 - a. Click **Server > Application Servers** and select the *server_name*.
 - b. In the **Configuration** tab, navigate to **Process Definition > Servant > Custom Properties**.
5. For custom properties, select and remove the values that were added as a result of the ITCAM for WebSphere Application Server configuration. Make sure you do not remove the values that are not related to the ITCAM for WebSphere Application Server configuration.
6. Navigate to the custom services page:
 - a. Click **Server > Application Servers** and select the *server_name*.
 - b. Navigate to **Server Infrastructure: Administration > Custom Services**.

7. For custom services, select and remove the **am** custom service.
8. Navigate to the Performance Monitoring Infrastructure page:
 - a. Click **Server > Application Servers** and select the *server_name*.
 - b. Navigate to **Performance: Performance Monitoring Infrastructure (PMI)**.
9. Modify the Performance Monitoring Service to the **none** level and set the startup to false.
10. Navigate to the page for environment variables at the server level: In the Navigation Pane, select **Environment > WebSphere Variables**, and navigate to the server level variables.
11. Select and remove the ITCAMDCHOME and CCLOG_COMMON_DIR variables.
12. Edit the NLSPATH and LIBPATH environment variables to remove the ITCAM for WebSphere Application Server paths.
13. Click **Apply**.
14. In the Messages dialog box, click **Save**.
15. In the Save to Master Configuration dialog box, do one of the following:
 - If you are under a Network Deployment environment, ensure that the check box **Synchronize changes with Nodes** is selected and then click **Save**.
 - If you are not under a Network Deployment environment, click **Save**.
16. Run the IBM WebSphere Application Server wsc2n.sh script to process the options and verify that processing will be successful. You can find this script in the bin subdirectory of the application server profile home directory.

Appendix A. Obtaining installation images for Windows, Linux, UNIX systems, and IBM i

To obtain images for Windows, UNIX, Linux, and IBM i that are ready for the installation, you can either download the images from the web, or use the images on the ITCAM for WebSphere Application Server CD.

Using installation files for Windows, Linux, or UNIX systems from the web

Perform the following procedure to obtain installation images for Windows, Linux, or UNIX systems from the web:

1. Download the installation software from the web. You need a password to access the software download site from IBM. Contact your IBM marketing representative to receive your user ID and password and website address for IBM Passport Advantage[®] of the IBM Software Group. Contact IBM Sales for more information. No fee is charged for this distribution option.
2. Choose a directory or directories in which to store the installation images. The directory must be accessible to the computers on which you are installing the component. For a remote installation, do one of the following:

Table 26. Accessibility of remote installation images

Linux or UNIX systems	Mount the remote directory on the target computer.
Windows	Map the remote directory to the target computer in Windows Explorer.

3. Expand the software packages into the directory or directories.

Using installation files for IBM i from the web

Perform the following procedure to obtain installation images for IBM i from the web:

1. Download the installation software from the web using a Windows or Linux machine. You need a password to access the software download site from IBM. Contact your IBM marketing representative to receive your user ID and password and website address for IBM Passport Advantage of the IBM Software Group. Contact IBM Sales for more information. No fee is charged for this distribution option.
2. Upload the installation software to your IBM i machine.

Using installation files from CDs

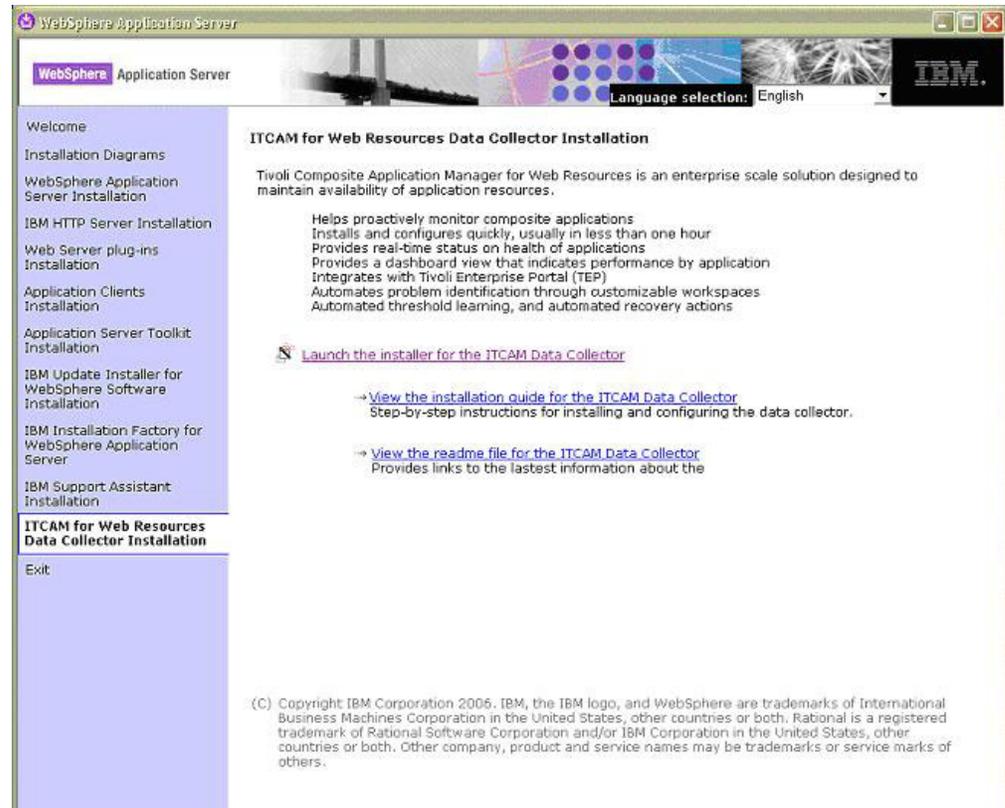
You can use the CDs in either one of the following ways:

- Copy the contents of the CDs to a hard disk and a directory or directories to hold the installation images.
- Run an installation from the CDs. Run the installation program from the CD-ROM drive of your computer.

Appendix B. Starting an installation for Windows, UNIX, or Linux from the IBM WebSphere Application Server LaunchPad

Before you begin

You should have already started the IBM WebSphere Application Server LaunchPad as documented in the IBM WebSphere Application Server documentation.



About this task

Perform the following procedure to use the LaunchPad to start an installation of IBM Tivoli Composite Application Manager for WebSphere Application Server (ITCAM for WebSphere Application Server) on Windows, UNIX, or Linux:

Procedure

1. Click **ITCAM for Web Resources Data Collector Installation** A panel from which you can launch the installation displays.
2. Click **Launch the installer for the ITCAM Data Collector** This launches the installation program for ITCAM for WebSphere Application Server.

What to do next

If you want to access the installation guide or the readme file for ITCAM for WebSphere Application Server, click the appropriate links in the panel.

Appendix C. Starting and stopping ITCAM for WebSphere Application Server

Enabling IBM Tivoli Composite Application Manager for WebSphere Application Server

Perform the following steps to enable IBM Tivoli Composite Application Manager for WebSphere Application Server (ITCAM for WebSphere Application Server):

1. In the IBM WebSphere Application Server administrative console, navigate in the side panel to **Monitoring and Tuning -> Performance Monitoring Infrastructure (PMI)**.
2. Select the application server instance you want to start monitoring. Then click the name of the server.
3. Click the **Configuration** tab.
4. Select the **Enable Performance Monitoring Infrastructure (PMI)** check box.
5. Under **Additional Properties**, click **ITCAM for WAS**.
6. Select the **Enable ITCAM for WAS Data Collector** check box and click **OK**. The system saves the change to the local repository, while Tivoli Performance Viewer sends the status to ITCAM for WebSphere Application Server through an MBean call. ITCAM for WebSphere Application Server will update the status to the local repository. For example, ITCAM for WebSphere Application Server will set the ITCAM_DC_ENABLED environment variable to true for the selected application server.
7. Restart the instance of the application server that will be monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on restarting IBM WebSphere Application Server in your environment.

Attention: To use ITCAM for WebSphere Application Server after enabling it, you need to start it (see “Starting ITCAM for WebSphere Application Server” on page 110) and then enable its counters (see “Enabling ITCAM for WebSphere Application Server counters” on page 110).

Disabling ITCAM for WebSphere Application Server

Perform the following steps to disable ITCAM for WebSphere Application Server:

1. In the IBM WebSphere Application Server administrative console, click **Monitoring and Tuning Performance Monitoring Infrastructure (PMI)**.
2. Select the application server instance you want to start monitoring. Then click the server instance.
3. Click the **Configuration** tab.
4. Under **Additional Properties**, click **ITCAM for WAS**.
5. Clear the **Enable ITCAM for WAS Data Collector** check box and click **OK**. The system saves the change to the local repository, while Tivoli Performance Viewer sends the status to ITCAM for WebSphere Application Server through an MBean call. ITCAM for WebSphere Application Server will update the status to the local repository. For example, ITCAM for WebSphere Application Server will set the ITCAM_DC_ENABLED environment variable to false for the selected application server.

6. Restart the instance of the application server that was being monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on restarting IBM WebSphere Application Server in your environment.

Starting ITCAM for WebSphere Application Server

Perform the following steps to start ITCAM for WebSphere Application Server:

1. In the IBM WebSphere Application Server administrative console, click **Performance Monitoring Infrastructure (PMI)**.
2. Select the application server instance you want to start monitoring.
3. Click **Additional Properties**, then **ITCAM for WAS**.
4. Click the **Runtime** tab.
5. Click **Start Monitoring**.

The system starts monitoring the ITCAM for WebSphere Application Server module, and the Tivoli Performance Viewer sends the signal to ITCAM for WebSphere Application Server through a JMX call. ITCAM for WebSphere Application Server will register all performance modules from the PMI registry and start monitoring.

Attention: To use ITCAM for WebSphere Application Server after starting it, you need to enable its counters (see “Enabling ITCAM for WebSphere Application Server counters”).

Stopping ITCAM for WebSphere Application Server

Perform the following steps to stop ITCAM for WebSphere Application Server:

1. In the IBM WebSphere Application Server administrative console, click **Performance Monitoring Infrastructure (PMI)**.
2. Select the application server instance you want to stop monitoring.
3. Click **Additional Properties**, then **ITCAM for WAS**.
4. Click the **Runtime** tab.
5. Click **Stop Monitoring**.

The system stops monitoring the ITCAM for WebSphere Application Server module, and Tivoli Performance Viewer sends the signal to ITCAM for WebSphere Application Server through a JMX call. ITCAM for WebSphere Application Server will unregister all performance modules from the PMI registry and stop monitoring.

Enabling ITCAM for WebSphere Application Server counters

Important: Before enabling ITCAM for WebSphere Application Server counters, start ITCAM for WebSphere Application Server.

Perform the following steps to enable ITCAM for WebSphere Application Server counters:

1. In the IBM WebSphere Application Server administrative console, click **Performance Monitoring Infrastructure (PMI)**.
2. Select the application server instance you want to start monitoring.
3. Click the **Runtime** tab.
4. Select the **Custom** radio button.
5. Select **ITCAM Application Performance**.

- In the list displayed, select the counters you want to monitor, and click **Enable**.

Disabling ITCAM for WebSphere Application Server counters

Perform the following steps to disable ITCAM for WebSphere Application Server counters:

- In the IBM WebSphere Application Server administrative console, click **Performance Monitoring Infrastructure (PMI)**.
- Select the application server instance you want to start monitoring.
- Click the **Runtime** tab.
- Select the **Custom** radio button.
- Select **ITCAM Application Performance**.
- In the list displayed, clear the counters you do not want to monitor, and click **Disable**.

Enabling instrumentation of web service requests

If web service caching is enabled in WebSphere Application Server, Tivoli Performance Viewer reports requests as servlets, not web services.

To view web service requests in Tivoli Performance Viewer, disable web service caching in WebSphere Application Server by completing the following steps:

- In the WebSphere Application Server administrative console, click **Servers > WebSphere Application Servers > server_name > Web Container Settings > Web Container**. The configuration page opens.
- Clear the **Enable Servlet Caching** option.
- Click **OK**. Save the changes and restart WebSphere Application Server.

Counters displayed in the Tivoli Performance Viewer

Enabling counters allows data to be displayed in the Tivoli Performance Viewer. You can choose to display the particular data by enabling selected counters. The data will not display when the correlative counters are disabled. The following table explains the counters.

Table 27. Descriptions of counters displayed in the Tivoli Performance Viewer

Counters	Descriptions of counters
RequestCount	The number of requests completed since the counter is enabled or reset.
AverageResponseTime	The average response time of requests in milliseconds.
MinimumResponseTime	The fastest response time since the counter is enabled or reset in milliseconds. This counter is available only at the instance level.
MaximumResponseTime	The slowest response time since the counter is enabled or reset in milliseconds. This counter is available only at the instance level.
LastMinuteAverageResponseTime	The average response time of requests completed in the last minute (when the counter value is retrieved) in milliseconds.

Table 27. Descriptions of counters displayed in the Tivoli Performance Viewer (continued)

Counters	Descriptions of counters
90%ResponseTime	<p>90% median of requests in milliseconds. There is a maximum limit on the number of requests' response time stored to calculate the 90% response time and can be set by defining eCAM.90Percent.buffer.limit (default is 50) in toolkit_custom.properties. This counter is available only at the instance level.</p> <p>The 90% median is calculated by taking the sample at the 90% of the total samples. The formula to calculate the 90% median sample is $(\text{number of samples} - 1) * 0.9$. For example, if the current sample size is 31 (from 0 - 30), the $(31 - 1) * 0.9 = 27$th sample would be returned. If the result is not an integer, like when current sample size is 32, the $(32 - 1) * 0.9 = 27.9$th sample should be returned. This will be done by returning 10% of the 27th sample and 90% of the 28th sample.</p>
AverageCPUUsage	The average CPU usage of requests in milliseconds.
MinimumCPUUsage	The least intensive CPU usage since the counter is enabled or reset in milliseconds. This counter is available only at the instance level.
MaximumCPUUsage	The most intensive CPU usage since the counter is enabled or reset in milliseconds. This counter is available only at the instance level.
LastMinuteAverageCPUUsage	The average CPU usage of requests completed in the last minute (when the counter value is retrieved) in milliseconds.
90%CPUUsage	<p>90% median of requests in milliseconds. There is a maximum limit on the number of requests' CPU usage stored to calculate the 90% CPU usage and can be set by defining eCAM.90Percent.buffer.limit (default is 50) in toolkit_custom.properties. This counter is available only at the instance level.</p> <p>The 90% median is calculated by taking the sample at the 90% of the total samples. The formula to calculate the 90% median sample is $(\text{number of samples} - 1) * 0.9$. For example, if the current sample size is 31 (from 0 - 30), the $(31 - 1) * 0.9 = 27$th sample would be returned. If the result is not an integer, like when current sample size is 32, the $(32 - 1) * 0.9 = 27.9$th sample should be returned. This will be done by returning 10% of the 27th sample and 90% of the 28th sample.</p>

Appendix D. ITCAM for WebSphere Application Server configuration parameters

You might need to change several configuration parameters. Table 28 describes these parameters.

Set all parameters in the `DC_home/runtime/server/custom/toolkit_custom.properties` file, in the format `parameter=value`.

Important: Do not change any settings in this file, except the settings listed in Table 28. If the file does not exist, create it.

You need to restart the application server after the parameters are changed.

Table 28. ITCAM for WebSphere Application Server configuration parameters

Configuration parameter	Description
eCAM.90Percent.buffer.limit	<ul style="list-style-type: none"> This parameter controls the number of sample used to calculate 90% metrics. See “Counters displayed in the Tivoli Performance Viewer” on page 111 All statistics instances will have one buffer for 90% request time and one for 90% CPU usage if both are enabled. All buffers have the same size, the default value is 50.
eCAM.PMI.Threadpool.size	<ul style="list-style-type: none"> This parameter controls the thread pool size to update the PMI statistics. Updating the PMI statistics is decoupled from the application thread so it will not lengthen the application response time. The default value is 2. If the thread pool size is too small, updating the PMI statistics will slow down and more memory will be used. Unless the application server is running out of memory, there is no need to fine tune this parameter.
eCAM.memory.limit	<p>This parameter controls the amount of memory in Megabytes that the ITCAM for WebSphere Application Server will use.</p> <p>The default value is 20. When the memory limit is reached, new PMI statistics will not be created. New applications and requests will not show up in the PMI.</p> <p>An error message ΔExceeding memory limit defined in <code>eCAM.memory.limit=size limit</code>. New counter will not be created, please increase memory limit.Δ will be logged in the ITCAM log file.</p>

Table 28. ITCAM for WebSphere Application Server configuration parameters (continued)

Configuration parameter	Description
eCAM.disable.BCI	When this parameter is set to <i>true</i> , ITCAM for WebSphere Application Server will disable the BCI engine when it first starts. This parameter is used to reduce the memory usage of the ITCAM for WebSphere Application Server. The default value is <i>true</i> .

Appendix E. Guidelines for specifying silent values on Windows, UNIX, and Linux

This appendix provides guidelines for specifying values for the silent installation, configuration, or unconfiguration. It contains the following sections:

- “Requirements for a response file”
- “Manually typing configuration options” on page 116
- “Syntax of configuration options” on page 116
- “Options for installing and configuring ITCAM for WebSphere Application Server on Windows, UNIX, Linux, and IBM i” on page 117
- “Options for unconfiguring ITCAM for WebSphere Application Server on Windows, UNIX, and Linux” on page 123
- “Options for monitoring installation, configuration, or unconfiguration messages” on page 126
- “Examples of modified response file templates” on page 127

Requirements for a response file

You should use a response file for the following reasons:

- You can reuse the response file for multiple installations and configurations.
- The response file preserves configuration data for an installation, configuration, or unconfiguration, so that you can identify configuration details at a later date.

The following is general information and applies to any response file you create for IBM Tivoli Composite Application Manager for WebSphere Application Server. A response file must have the following characteristics:

- Contains the configuration options for your installation, configuration, or unconfiguration, which are listed in “Options for installing and configuring ITCAM for WebSphere Application Server on Windows, UNIX, Linux, and IBM i” on page 117
 - The names of the configuration options must follow the uppercase and lowercase conventions shown in “Options for installing and configuring ITCAM for WebSphere Application Server on Windows, UNIX, Linux, and IBM i” on page 117 as they are case sensitive.
 - Each configuration option must exist on a separate line.
 - The configuration options can be sorted in any order.
- Does not contain null values. If you do not specify a value for a configuration option, you must make sure that line is commented out with a pound sign (#) or that the value string to the right of the equal sign (=) is NULL.
- Does not contain the `-silent` flag, the `-options` flag, or `-is`
- If there are any spaces in the value string to the right of the equal sign (=), the value must be enclosed in double-quotation marks ("). It is best to enter the value between the double-quotation marks that are already there in the response file template.

Note: When you use a response file to specify options, you can type additional options in the command line. Configuration options specified in the response file take precedence over those entered in the command line. Configuration options specified in the response file take precedence over those entered in the command

line. For a particular command-line configuration option to take effect, you must first nullify that option in the response file by commenting it out with a pound sign (#).

Manually typing configuration options

This section lists some reasons to manually type configuration options, instead of including them in the response file:

- **Unique options:** to reuse the response file in multiple installations and configurations, but some of the options are unique to each. Manually type the unique options in the command line during each installation, configuration, or unconfiguration. The response file supplies the values that are valid only for multiple target computers.

Note: If you want to reuse a response file in multiple installations, but some of the options are unique to each installation, you should first nullify those options in the response file by commenting them out with a pound sign (#). This is because configuration options specified in the response file take precedence over those entered in the command line. Make sure that for each of the installations using that response file, the commented-out configuration options are entered in the command line.

- **Password protection:** to safeguard the password by manually entering it during each installation, configuration, or unconfiguration. If you record the password in the option (.opt) file, the password is unencrypted and visible to anyone who opens the file.

However, if you are using a response file generated from the Configuration Tool, the response file contains an encrypted password and there is no need to type it in the command line for the purpose of password protection.

The following examples set one of the passwords on the command line and rely on a response file to provide all other configuration details:

```
setup_DC_w32.exe -silent -V DC_ASL_PASSWD="tivoli" -options C:\itcam\images
\silent\dc_scenario1.opt
./setup_DC_lin390.bin -silent -V DC_ASL_PASSWD="tivoli" -options /opt/IBM/itcam
/images/silent/DC7.opt
```

Syntax of configuration options

This section describes the syntax for configuration options for ITCAM for WebSphere Application Server silent installation, configuration, or unconfiguration.

You can use configuration options in the command line or in a response file.

There are three flags for configurations options, -P, -V, and -W.

The configuration options accept the following parameters:

```
-P entity_ID.dataItem="value"
-V entity_ID.dataItem="value"
-W entity_ID.dataItem="value"
```

where,

entity_ID

identifies an entity involved in an installation, configuration, or unconfiguration, such as the log settings for the installation, configuration, or unconfiguration.

dataItem

is the name of an attribute, such as the installation path or the communications port.

value specifies the value for an attribute of an entity involved in an installation, configuration, or unconfiguration, such as a port number like 8100.

Options for installing and configuring ITCAM for WebSphere Application Server on Windows, UNIX, Linux, and IBM i

The following table lists the options for installation and configuration of ITCAM for WebSphere Application Server.

Table 29. Configuration options for ITCAM for WebSphere Application Server

Feature or entity that the option configures	Option string	Description	Optional or required?
Installation settings	-V disableOSPrereqChecking=true false	Indicates whether the operating-system-level checking is turned on before the installation. Specifying true means the program will ignore the results of the operating-system-level checking. Specifying false means that the operating-system-level checking is turned on before the installation and the program will exit if the operating system on the target machine has not met the minimum requirements for the installation.	Required

Table 29. Configuration options for ITCAM for WebSphere Application Server (continued)

Feature or entity that the option configures	Option string	Description	Optional or required?
	-P installLocation= <i>value</i>	<p>Specifies the path of the installation directory for ITCAM for WebSphere Application Server. If you do not specify this option, the installation program uses the default directory path:</p> <ul style="list-style-type: none"> • Windows: C:\Program Files\IBM\itcam\WebSphere\DC • UNIX and Linux: /opt/IBM/itcam/WebSphere/DC • IBM i /qibm/proddata/ecam <p>Note: You cannot install ITCAM for WebSphere Application Server in a directory path that includes the following types of characters:</p> <ul style="list-style-type: none"> • Traditional Chinese • Simplified Chinese • Japanese • Korean • Spanish special characters • German special characters • Portuguese Brazilian special characters • French special characters • Italian special characters 	Optional
	-V LAUNCH_CONFIG=true false	Specifies whether to launch the Configuration Tool after installation.	Required
	-V DEFER_CONFIG=true false	Specifies whether to defer running the Configuration Tool to a later time.	Required

Table 29. Configuration options for ITCAM for WebSphere Application Server (continued)

Feature or entity that the option configures	Option string	Description	Optional or required?
Configuration settings	-V DC_BACKUP_WAS=true false	If you want to back up the application server configuration before applying the ITCAM for WebSphere Application Server configuration, enter true. If you enter true, before applying the ITCAM for WebSphere Application Server configuration, the configuration program will invoke WebSphere's backupConfig script. A backup file for the application server configuration will be saved in the <i>DC_home/config_dc/backup</i> directory. If the ITCAM for WebSphere Application Server configuration fails, you can use the WebSphere restoreConfig command to restore the application server configuration and then try to configure ITCAM for WebSphere Application Server again. See Appendix F, "What to do if ITCAM for WebSphere Application Server configuration fails," on page 129 for details.	Optional
	-V DC_ITCAMFWAS=true false	Specifies whether to configure the ITCAM for WebSphere Data Collector.	Required
	-V DC_CCUC_CONFIG=true false	Specifies whether to run the Configuration Tool for the purpose of configuring ITCAM for WebSphere Application Server.	Required if -V LAUNCH_CONFIG=true
	-V DC_CCUC_UNCONFIG=true false	Specifies whether to run the Configuration Tool for the purpose of unconfiguring ITCAM for WebSphere Application Server.	Required
	-V DC_RECONFIG_ALLOW=true false	Indicates whether reconfiguring ITCAM for WebSphere Application Server is allowed. Specifying true indicates that reconfiguration of ITCAM for WebSphere Application Server is allowed. Specifying false indicates that the installer will exit if the specified application server has been configured already.	Required

Table 29. Configuration options for ITCAM for WebSphere Application Server (continued)

Feature or entity that the option configures	Option string	Description	Optional or required?
	-V DC_CAS_WAS=true false	Specifies whether to configure the IBM WebSphere Application Server. Specifying true indicates that IBM WebSphere Application Server will be configured. Specifying false indicates that IBM WebSphere Application Server will not be configured.	Required
	-V APP_SERVER_NAMES= <i>value</i>	Specifies the path to the application server. For example, <code>cells/ibmuserNode06Cell/nodes/ibmuserNode06/servers/server1</code>	Required
	-V APPLY_PMI_TO_ALLSERVERS=true false	Specifies whether the custom PMI settings apply to all application server instances.	Required
	-V ITCAM_PMI_ENABLE=true false	Specifies whether to enable ITCAM for WebSphere Application Server's custom PMI setting for this particular application server instance.	Required if you indicated -V APPLY_PMI_TO_ALLSERVERS=true
	-V <i>server_name</i> _ITCAM_PMI_ENABLE=true false	Specifies whether to enable ITCAM for WebSphere Application Server's custom PMI setting for this particular application server instance.	Required if you indicated -V APPLY_PMI_TO_ALLSERVERS=false
	-V WS_NODE_NAME= <i>value</i>	Specifies the navigation to the application server. The default is <code>cells/hostNode01Cell/nodes/hostNode01</code> Note: Use a forward slash (/) as a separator in the navigation.	Optional
	-V DC_WD_PROFILEHOME= <i>value</i>	Specifies the path of the profile for the application server. For example, <code>D:\IBM\AppServer\profiles\profile7</code> or <code>/opt/IBM/AppServer/profiles/profile6</code>	Required
	-V DC_WD_JAVAHOME= <i>value</i>	Specifies the path for the location of the Java home directory. For example, <code>D:\IBM\AppServer\java</code> or <code>/opt/IBM/AppServer/java</code>	Optional

Table 29. Configuration options for ITCAM for WebSphere Application Server (continued)

Feature or entity that the option configures	Option string	Description	Optional or required?
	-V DC_WD_PROFILENAME= <i>value</i>	Specifies the name of the profile for the application server. For example, <code>profile6</code> .	Required
	-V DC_WD_WASBASEDIR= <i>value</i>	<p>Specifies the path for the location of the application server base directory. For example, <code>C:\IBM\AppServer</code> (on Windows), <code>/opt/IBM/AppServer</code> (on Linux and UNIX systems), <code>/QIBM/ProdData/WebSphere/AppServer/V7/nd</code> (on IBM i).</p> <p>You cannot install IBM Tivoli Composite Application Manager for WebSphere Application Server on an application server instance in a directory path (including profile, cell, node, and server names) that includes the following types of characters:</p> <ul style="list-style-type: none"> • Traditional Chinese • Simplified Chinese • Japanese • Korean • Spanish special characters • German special characters • Portuguese Brazilian special characters • French special characters • Italian special characters 	Required
	-V DC_WD_WASVER= <i>value</i>	Specifies the version of the application server. Specify <code>70</code> .	Required
	-V DC_ASL_HOSTNAME= <i>value</i>	<p>Specifies the fully qualified host name or IP address of the server where ITCAM for WebSphere Application Server will be installed. For example, <code>ibmmachine.usca.ibm.com</code></p> <p>Note: If using Network Deployment, provide the fully qualified host name or IP address of the Deployment Manager instead.</p>	Required
	-V DC_ASL_CONNTYPE=SOAP RMI	The type of connection the application server and ITCAM for WebSphere Application Server will use for communication. The default is SOAP.	Required

Table 29. Configuration options for ITCAM for WebSphere Application Server (continued)

Feature or entity that the option configures	Option string	Description	Optional or required?
	-V DC_AS_L_PORT= <i>value</i>	<p>If you selected SOAP as the connector type, enter the connector port used by the application server instance to send commands using the Simple Object Access Protocol (SOAP). The default is 8880.</p> <p>The SOAP port is identified in the following file for the instance of the application server that ITCAM for WebSphere Application Server will monitor: <i>AppServer_home/profiles/profile_name/config/cells/cell_name/nodes/node_name/serverindex.xml</i></p> <p>If you selected RMI as the connector type, enter the connector port used by the application server instance to send commands using RMI.</p> <p>Note: If using Network Deployment, provide the port of the Deployment Manager instead.</p>	Optional
	-V DC_AS_L_USERNAME= <i>value</i>	The user ID of a user who is authorized to log on to the IBM WebSphere Application Server administrative console. This user must have the agent role on the application server.	Required if Global Security is enabled.
	-V DC_AS_L_PASSWD= <i>value</i>	The password for the user who is authorized to log on to the IBM WebSphere Application Server administrative console.	Required if Global Security is enabled.
	-V DC_AS_L_USECLIENTPROP= <i>true</i> <i>false</i>	<p>Specifies whether the Global Security of IBM WebSphere Application Server is enabled.</p> <p>Specifying true indicates that the Global Security of IBM WebSphere Application Server is enabled. The configurator will use the user ID and password in the <i>soap.client.props/sas.client.props</i> file of IBM WebSphere Application Server.</p> <p>Specifying false indicates that the Global Security of IBM WebSphere Application Server is disabled. The configurator will use the user ID and password in the response file.</p>	Optional

Table 29. Configuration options for ITCAM for WebSphere Application Server (continued)

Feature or entity that the option configures	Option string	Description	Optional or required?
Message generation	-W LogSetting.consoleOut=true false	Specifies whether to display messages issued by the installation and configuration program on the console.	Required
	-W LogSetting.logLevel= <i>value</i>	Specifies the trace level setting for the installation and configuration log files. This log file lists error, warning, informational, and debug messages that are issued by the installation and configuration program. See "Options for monitoring installation, configuration, or unconfiguration messages" on page 126 for a complete list of trace level settings. Access the installation and configuration log files in the following path: <ul style="list-style-type: none"> • Windows: C:\Program Files\IBM\tivoli\common\CYN\logs • UNIX and Linux: /var/ibm/tivoli/common/CYN/logs • IBM i /QIBM/UserData/tivoli/common/CYN/logs 	Optional
	-V LOG_DIR= <i>value</i>	This specifies the writable directory to which the installation and configuration programs will write log files. This is useful if the default directory is not writable on your systems. If you set this new option, the installation and configuration programs will use it as real log path even if the default log path is writable.	Required if the default log file directory is not writable.

Options for unconfiguring ITCAM for WebSphere Application Server on Windows, UNIX, and Linux

The following table lists the options for the unconfiguration of ITCAM for WebSphere Application Server on Windows, UNIX, and Linux.

Table 30. Unconfiguration options for ITCAM for WebSphere Application Server

Option string	Description	Optional or required?
-V DC_CCUC_CONFIG=true false	Specifies whether to run the Configuration Tool for the purpose of configuring ITCAM for WebSphere Application Server. Specify false.	Required
-V DC_CCUC_UNCONFIG=true false	Specifies whether to run the Configuration Tool for the purpose of unconfiguring ITCAM for WebSphere Application Server. Specify true.	Required
-V APP_SERVER_NAMES= <i>value</i>	<p>Specifies the path to the application servers you want to unconfigure.</p> <p>You can unconfigure several application server instances at one time using a single response file. It is required that you list all of the paths for the application server instances that you are configuring, separated by a comma and a space. This is required even if the application server instances are located in the same node and cell and have the same associated user name and password. After specifying -V APP_SERVER_NAMES, specify one complete set of required options for each application server instance that is being unconfigured. If you are unconfiguring more than one application server instance, prefix the option with the string "SERVER1_" for the first application server instance that is listed in -V APP_SERVER_NAMES. Prefix the option with the string "SERVER2_" for the second application server instance that is listed in -V APP_SERVER_NAMES. Follow this pattern for the rest of the application server instances to be unconfigured. See "Examples of modified response file templates" on page 127 for an example of how this is done.</p>	Required
-V APPLY_PMI_TO_ALLSERVERS=true false	If you want to restore the original IBM WebSphere Application Server PMI settings that existed prior to the ITCAM for WebSphere Application Server configuration for all application server instances that are being unconfigured, specify true.	Required
-V RESTORE_ORIGIN_PMI_SETTING=true false	If you want to restore the original IBM WebSphere Application Server PMI settings that existed prior to the ITCAM for WebSphere Application Server configuration for all application server instances that are being unconfigured, specify true.	Required if you indicated -V APPLY_PMI_TO_ALLSERVERS=true

Table 30. Unconfiguration options for ITCAM for WebSphere Application Server (continued)

Option string	Description	Optional or required?
-V RESTORE_ORIGIN_PMI_SETTING_LIST=true false	If you want to restore the original IBM WebSphere Application Server PMI settings that existed prior to the ITCAM for WebSphere Application Server configuration only for particular application server instances, specify true or false for each application server. Separate the value with a comma. For example, true,true,false.	Required if you indicated -V APPLY_PMI_TO_ALLSERVERS=false
-V index_number_DC_ASL_HOSTNAME= <i>value</i>	Specifies the fully qualified host name or IP address of the server where ITCAM for WebSphere Application Server will be unconfigured. For example, ibmmachine.usca.ibm.com Note: If using Network Deployment, provide the fully qualified host name or IP address of the Deployment Manager instead.	
-V index_number_DC_ASL_CONNTYPE=SOAP RMI	The type of connection the application server and ITCAM for WebSphere Application Server will use for communication. The default is SOAP.	Required
-V index_number_DC_ASL_PORT= <i>value</i>	If you selected SOAP as the connector type, enter the connector port used by the application server instance to send commands using the Simple Object Access Protocol (SOAP). The default is 8880. The SOAP port is identified in the following file for the instance of the application server that ITCAM for WebSphere Application Server is monitoring: <i>AppServer_home/profiles/profile_name/config/cells/cell_name/nodes/node_name/serverindex.xml</i> If you selected RMI as the connector type, enter the connector port used by the application server instance to send commands using RMI. Note: If using Network Deployment, provide the port of the Deployment Manager instead.	Optional
-V index_number_DC_ASL_USERNAME= <i>value</i>	The user ID of a user who is authorized to log on to the IBM WebSphere Application Server administrative console. This user must have the agent role on the application server.	Required if Global Security is enabled.
-V index_number_DC_ASL_PASSWD= <i>value</i>	The password for the user who is authorized to log on to the IBM WebSphere Application Server administrative console.	Required if Global Security is enabled.

Table 30. Unconfiguration options for ITCAM for WebSphere Application Server (continued)

Option string	Description	Optional or required?
-V <i>index_number</i> _DC_ASL_USECLIENTPROP=true false	Specifies whether the Global Security of IBM WebSphere Application Server is enabled. Specifying true indicates that the Global Security of IBM WebSphere Application Server is enabled. The configurator will use the user ID and password in the soap.client.props/sas.client.props file of IBM WebSphere Application Server.	Optional

Options for monitoring installation, configuration, or unconfiguration messages

The following two configuration options control the display or logging of installation, configuration, or unconfiguration messages. These options can help you monitor and debug all phases of an installation, configuration, or unconfiguration.

- -W LogSetting.consoleOut=true | false specifies whether to display messages issued by the installation, configuration, or unconfiguration program on the console. If you use this option with a native launcher, it must be used in combination with the -is:javaconsole option.
- -W LogSetting.logLevel=*value* specifies the level of tracing for the installation, configuration, or unconfiguration log files. The amount of tracing for a specific level includes the messages for that level and all messages at a higher severity. For example, if you choose the WARNING trace level, the following messages are logged: WARNING, ERROR, and FATAL. During the installation, configuration, or unconfiguration, maximum logging is turned on by default. Access the installation, configuration, or unconfiguration log files in C:\Program Files\IBM\tivoli\common\CYN\logs (Windows) or /var/ibm/tivoli/common/CYN/logs (UNIX and Linux).

Table 31. Trace level settings for installation, configuration, or unconfiguration log files

Option string	Description
-W LogSetting.logLevel=FATAL	Log fatal messages. A fatal message reports an error from which the program cannot recover. A fatal message is the most severe message.
-W LogSetting.logLevel=ERROR	Log error messages. An error message reports a serious failure. An error message is less severe than a fatal message.
-W LogSetting.logLevel=WARNING	Log warning messages. A warning message reports that an abnormal condition has occurred. The condition might or might not require the user to take action.
-W LogSetting.logLevel=INFO	Log information messages. An information message indicates a condition that is worth noting but does not require the user to take action.
-W LogSetting.logLevel=DEBUG_MIN	Log debug messages that provide minimal detail. DEBUG_MIN is appropriate for a software trace that is always running. It provides some information about the program state with only minimal impact to performance. DEBUG_MIN is the default setting for installation, configuration, or unconfiguration log files.

Table 31. Trace level settings for installation, configuration, or unconfiguration log files (continued)

Option string	Description
-W LogSetting.logLevel=DEBUG_MID	Log debug messages that provide a medium amount of detail. The DEBUG_MID setting produces a level of detail between DEBUG_MIN and DEBUG_MAX.
-W LogSetting.logLevel=DEBUG_MAX	Log debug messages that provide the most detail about program execution. Program performance is usually not an issue when debugging in this mode.
-W LogSetting.logLevel=ALL	Enable all message logging.

Examples of modified response file templates

The following are examples of response file templates modified with suitable values. They correspond to values that would be specified if you were installing and configuring ITCAM for WebSphere Application Server on IBM WebSphere Application Server version 7 and modifying the DC_was.opt template:

Installation and configuration on **Windows**:

```
##
# Log Parameters
##
-V LOG_DIR="C:\PROGRA~1\IBM\tivoli\common"
##
# Install Parameters
##
-V disableOSPrereqChecking="true"
-W LogSetting.logLevel="ALL"
-W LogSetting.consoleOut="false"
-P installLocation="C:\Program Files\IBM\itcam\WebSphere\DC"
-V LAUNCH_CONFIG="true"
-V DEFER_CONFIG="false"
##
# Configuration Parameters
##
-V DC_CCUC_CONFIG="true"
-V DC_CCUC_UNCONFIG="false"
-V DC_RECONFIG_ALLOW="true"
-V DC_CC_ITCAMFVAS="true"
-V DC_CAS_WAS="true"
-V APP_SERVER_NAMES="cells/IBMUERNode01Cell/nodes/IBMUERNode01/servers/server1"
-V APPLY_PMI_TO_ALLSERVERS="true"
-V SERVER1_ITCAM_PMI_ENABLE="true"
-V WS_NODE_NAME="cells/IBMUERNode01Cell/nodes/IBMUERNode01"
-V DC_WD_PROFILEHOME="C:\Program Files\IBM\WebSphere\AppServer\profiles\AppSrv01"
-V DC_WD_PROFILENAME="AppSrv01"
-V DC_WD_JAVAHOME="C:\Program Files\IBM\WebSphere\AppServer\java"
-V DC_WD_WASBASEDIR="C:\Program Files\IBM\WebSphere\AppServer"
-V DC_WD_WASVER="70"
-V DC_AS_L_HOSTNAME="111.222.1.44"
-V DC_AS_L_CONNTYPE=SOAP
-V DC_AS_L_PORT="8880"
-V DC_AS_L_USERNAME="NULL"
-V DC_AS_L_PASSWD="NULL"
-V DC_BACKUP_WAS="true"
-V REDIRECT_GC_LOG="false"
```

Installation and configuration on **UNIX or Linux**:

```
##
# Log Parameters
##
```

```

-V LOG_DIR="/var/ibm/tivoli/common/CYN/logs"
##
# Install Parameters
##
-V disableOSPrereqChecking="true"
-W LogSetting.logLevel="ALL"
-W LogSetting.consoleOut="false"
-P installLocation="/opt/IBM/itcam/WebSphere/DC"
-V LAUNCH_CONFIG="true"
-V DEFER_CONFIG="false"
##
# Configuration Parameters
##
-V DC_CCUC_CONFIG="true"
-V DC_CCUC_UNCONFIG="false"
-V DC_RECONFIG_ALLOW="true"
-V DC_CC_ITCAMFWAS="true"
-V DC_CAS_WAS="true"
-V APP_SERVER_NAMES="cells/IBMUSERNode01Cell/nodes/IBMUSERNode01/servers/server1"
-V APPLY_PMI_TO_ALLSERVERS="true"
-V SERVER1_ITCAM_PMI_ENABLE="true"
-V WS_NODE_NAME="cells/IBMUSERNode01Cell/nodes/IBMUSERNode01"
-V DC_WD_PROFILEHOME="/opt/IBM/WebSphere/AppServer/profiles/AppSrv01"
-V DC_WD_PROFILENAME="AppSrv01"
-V DC_WD_JAVAHOME="/opt/IBM/WebSphere/AppServer/java"
-V DC_WD_WASBASEDIR="/opt/IBM/WebSphere/AppServer"
-V DC_WD_WASVER="70"
-V DC_ASL_HOSTNAME="111.222.1.44"
-V DC_ASL_CONNTYPE=SOAP
-V DC_ASL_PORT="8880"
-V DC_ASL_USERNAME="NULL"
-V DC_ASL_PASSWD="NULL"
-V DC_BACKUP_WAS="true"
-V REDIRECT_GC_LOG="false"

```

Unconfiguration on **UNIX or Linux**:

```

-V DC_CCUC_CONFIG="false"
-V DC_CCUC_UNCONFIG="true"

-V APP_SERVER_NAMES="cells/Cell01/nodes/Node01/servers/WebSphere_Portal, cells
/Cell01/nodes/Node01/servers/server1"

-V APPLY_PMI_TOALLSERVERS=true
-V RESTORE_ORIGIN_PMI_SETTING=true
#-V RESTORE_ORIGIN_PMI_SETTING_LIST=true,true

-V SERVER1_DC_ASL_HOSTNAME="hijklmnop01.us.ibm.com"
-V SERVER1_DC_ASL_CONNTYPE="SOAP"
-V SERVER1_DC_ASL_PORT="10033"
-V SERVER1_DC_ASL_USERNAME="name1"
-V SERVER1_DC_ASL_PASSWD="password1"
-V SERVER1_DC_ASL_USECLIENTPROP="false"

-V SERVER2_DC_ASL_HOSTNAME="abcdefg01.us.ibm.com"
-V SERVER2_DC_ASL_CONNTYPE="SOAP"
-V SERVER2_DC_ASL_PORT="10005"
-V SERVER2_DC_ASL_USERNAME="name2"
-V SERVER2_DC_ASL_PASSWD="password2"
-V SERVER2_DC_ASL_USECLIENTPROP="false"

```

Appendix F. What to do if ITCAM for WebSphere Application Server configuration fails

You know the IBM Tivoli Composite Application Manager for WebSphere Application Server (ITCAM for WebSphere Application Server) configuration has failed if any of the following has occurred:

- After the configuration, the application server fails to restart.
- During a GUI configuration, the summary panel for the Configuration Tool indicates the configuration has failed.
- During a silent configuration, the command line indicates a message that the configuration has failed.
- After the configuration, there are messages in the Tivoli common log file that indicate configuration has failed.

If ITCAM for WebSphere Application Server configuration has failed, you can do the following to try to complete the configuration successfully:

1. Restore the application server configuration that you had before attempting the failed configuration. See “Restoring the application server configuration after a failed ITCAM for WebSphere Application Server configuration.”
2. Run the GUI or silent configuration again.

Restoring the application server configuration after a failed ITCAM for WebSphere Application Server configuration

About this task

These instructions apply only to the **Windows**, **UNIX**, and **Linux** platforms.

If the application server fails to start up, you can use the `restoreConfig` command to restore the application server configuration. Perform one of the following procedures:

Procedure

- In a non-Network Deployment environment:
 1. Locate the backup configuration file that was created in the `DC_home/config_dc/backup` directory.
 2. Stop all instances of application servers. See the WebSphere documentation for instructions on stopping IBM WebSphere Application Server in your environment.
 3. Run the `restoreConfig` command from the following directory: `Appserver_home/profiles/profile_name/bin`. The syntax is as follows:

Table 32. Syntax of `restoreConfig` command, non-ND environment

Operating system	Syntax	Example
Windows	<code>restoreConfig.bat DC_home/config_dc/backup/backup_file</code>	<code>restoreConfig.bat "C:\Program Files\IBM\itcam\WebSphere\DC\config_dc\backup\WebSphereConfig_2008-04-22.zip"</code>

Table 32. Syntax of restoreConfig command, non-ND environment (continued)

Operating system	Syntax	Example
UNIX or Linux	<code>./restoreConfig.sh DC_home/config_dc /backup/backup_file</code>	<code>./restoreConfig.sh /opt/IBM/itcam/WebSphere /DC/config_dc/backup/WebSphereConfig_2008-04-22.zip</code>

4. Restart the instance of application server that is being monitored by the Data Collector. See the WebSphere documentation for instructions on restarting IBM WebSphere Application Server in your environment.
- In a Network Deployment environment:
 1. Locate the backup configuration file that was created in the `DC_home/config_dc/backup` directory.
 2. Stop all instances of application servers. See the WebSphere documentation for instructions on stopping IBM WebSphere Application Server in your environment.
 3. Run the restoreConfig command from the following directory: `Appserver_home/profiles/profile_name/bin`. The syntax is as follows:

Table 33. Syntax of restoreConfig command, Network Deployment environment

Operating system	Syntax	Example
Windows	<code>restoreConfig.bat DC_home/config_dc /backup/backup_file -location temp_directory</code>	<code>restoreConfig.bat "C:\Program Files\IBM\itcam\WebSphere\DC\config_dc\backup\WebSphereConfig_2008-04-22.zip" -location /tmp/restore</code>
UNIX or Linux	<code>./restoreConfig.sh DC_home/config_dc /backup/backup_file -location temp_directory</code>	<code>./restoreConfig.sh /opt/IBM/itcam/WebSphere /DC/config_dc/backup/WebSphereConfig_2008-04-22.zip -location /tmp/restore</code>

Running the restoreConfig command restores the original application server configuration to the temporary directory.

4. Copy the server.xml, variables.xml, and pmi-config.xml files from under the temporary directory (`temp_dir/restored_configuration_home/cells/cell_name/nodes/node_name/servers/server_name`) to the following directory: Deployment Manager's `Appserver_home/profiles/profile_name/config/cells/cell_name/nodes/node_name/servers/server_name`. For example: `/opt/IBM/WebSphere/AppServer/profiles/default/config/cells/tivCell01/nodes/tivNode01/servers/server1`

Here is an example of the path for the three files that you are copying from under the temporary directory:

`tmp/restore/cells/Ce1101/nodes/Node01/servers/server1`

5. Perform a node sync from the Deployment Manager's administrative console for the node.
6. In the Deployment Manager's administrative console, save changes to the master configuration.
7. Restart the application server that is being monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on restarting IBM WebSphere Application Server in your environment.

Appendix G. Setting up security

Setting up optional security for IBM Tivoli Composite Application Manager for WebSphere Application Server (ITCAM for WebSphere Application Server) is described in this appendix.

Perform the procedures in each of the following sections, if they apply.

Setting up the user ID and password for ITCAM for WebSphere Application Server on z/OS with global security enabled

About this task

Installing, configuring, and running ITCAM for WebSphere Application Server on z/OS with Global Security turned on might require additional steps, depending on your security configuration.

If WebSphere Global Security has been turned on, perform the following steps prior to running the `setupdc.sh` script:

Procedure

1. Make sure the user ID you will use to log on to UNIX System Services (USS) and to run the `setupdc.sh` script has read and write access to the IBM WebSphere Application Server configuration files. This user ID must also have permission to execute the WebSphere Scripting Client script (`wsadmin.sh`).
2. Make sure the user ID you will use to run `setupdc.sh` is a member of the same UNIX group as the servant user ID. Since this user ID will create the ITCAM for WebSphere Application Server runtime directories for the server, the servant user ID must also have read and write access to these directories.
3. Make sure the user ID you will use to run `setupdc.sh` fulfills the requirements for Secure Sockets Layer (SSL) security.

Background information:

When Global Security is enabled, SSL security is always used by the administrative subsystem to secure administrative commands, the IBM WebSphere Application Server administrative console, and communications between IBM WebSphere Application Server processes (which includes the `wsadmin.sh` scripting facility). SSL support always provides a mechanism by which the server proves its identity.

In addition, SSL support on IBM WebSphere Application Server for z/OS allows the following ways for a client to prove its identity:

- Basic authentication (also known as SSL Type 1 authentication), in which a client proves its identity to the server by passing a user identity and password known by the target server
- Client certificate support, in which both the server and client supply digital certificates to prove their identities to each other

For the client to authenticate the server, the server (actually, the controller user ID) must possess a signed certificate created by a certificate authority. The server passes the signed certificate to prove its identity to the client. The client must possess the CA certificate from the same certificate authority that issued the server's certificate. The IBM WebSphere Application Server customization

dialogs generate jobs that, amongst other things, define the user IDs for the various IBM WebSphere Application Server regions (Deployment Manager, Node Agent, Server Controller, and Servant tasks). These jobs also specify user IDs that can be used to log on to the IBM WebSphere Application Server administrative console. The RACF customization jobs create key rings for each of these user IDs and connect certificates to them. You may use one of these user IDs to perform the ITCAM for WebSphere Application Server setup if it also has the necessary permissions to access the IBM WebSphere Application Server configuration root files mentioned in step 1 on page 131.

If you do not already have a user ID with the necessary permissions and certificates for SSL security, you can define one. Perform the following procedure:

- a. Find the following information:
 - 1) The user ID and group of the IBM WebSphere Application Server servant started task
 - 2) The name of the CA certificate that was used to sign the controller user ID's server certificate. (If configuring a server in a Network Deployment, find the name of the CA certificate that was used to sign the Deployment Manager server certificate).

If you don't know the group ID of the servant ID, issue the TSO RACF command LISTUSER (LU) for servant task owner. For example:

```
LU WSSR1
```

```
USER=ASCR1  NAME=WAS APPSVR CR          OWNER=IBMUSER  CREATED=05.043
DEFAULT-GROUP=WSCFG1  PASSDATE=N/A    PASS-INTERVAL=N/A
ATTRIBUTES=PROTECTED
REVOKE DATE=NONE  RESUME DATE=NONE
```

This shows that the group default group name for the ID is WSCFG1.

- b. Define a user ID that you will use exclusively for running the ITCAM for WebSphere Application Server setup configuration using the TSO RACF command ADDUSER (AU). For example:

```
AU ITCAMWS NAME('ITCAM for WAS USER') PASSWORD(password) -
  OWNER(IBMUSER) DFLTGRP(WSCFG1) UACC(READ) -
  TSO(ACCTNUM(ACCT#) PROC(GENERAL) -
  SIZE(200000) MAXSIZE(200000)) -
  OMVS(HOME(/u/itcamws) PROGRAM(/bin/sh) UID(00001234))
```

The TSO segment for this user profile is required if you intend to run the ITCAM for WebSphere Application Server setup from TSO OMVS. This same user ID will be used for the ITCAM for WebSphere Application Server JMX client (See step 8 on page 133 for information on how to manually define the user ID and password for the ITCAM for WebSphere Application Server JMX client).

- c. Create a keyring for this user ID, and have the cell signing CA certificate placed on it, as follows:

```
RACDCERT ID(ITCAMWS) CONNECT -
(RING(WASKeyring) LABEL('WebSphereCA') CERTAUTH)
```

Access to keyrings and certificates is protected by RACF by a set of profiles in the FACILITY class. Although the keyring is associated with the user ID, the user must have read authority to the IRR.DIGTCERT.LISTRING profile in order to access its keyring. The user must also have read access to the IRR.DIGTCERT.LIST profile to be able to access its certificate.

4. If you selected Use SAF EJBROLE profiles to enforce J2EE roles during security domain setup in the IBM WebSphere Application Server Customization Dialogs, make sure the user ID you will use to run `setupdc.sh` has read access to the EJBROLE administrator profile. The following administrative roles were defined by the customization jobs:

```
RDEFINE EJBROLE (optionalSecurityDomainName.) administrator UACC(NONE)
RDEFINE EJBROLE (optionalSecurityDomainName.) monitor UACC(NONE)
RDEFINE EJBROLE (optionalSecurityDomainName.) configurator UACC(NONE)
RDEFINE EJBROLE (optionalSecurityDomainName.) operator UACC(NONE)
```

Ideally, your user ID will be a member of the servant ID group, which is already granted permission to these profiles.

5. For any RACF classes whose profiles have been added or modified, refresh the RACF cache. To do this, an authorized RACF administrator must issue the following command:

```
SETROPTS RACLIST(classname) GENERIC(classname) REFRESH
```

6. Use the WebSphere Scripting Client directly to see if the user ID is set up correctly. From a USS session, change to the bin directory of IBM WebSphere Application Server and issue the following command:

```
./wsadmin.sh -user itcamws -password itcamws
```

You should see messages similar to the following if the user ID is set up correctly (This example is from a Network Deployment environment.):

```
WASX7209I: Connected to process "dmgr" on node PLEX1Manager using SOAP
connector; The type of process is: DeploymentManager WASX7029I: For
help, enter: "$Help help"
```

7. Enter `quit` to terminate the WebSphere Scripting Client.
8. If needed, change the user ID and password used by the ITCAM for WebSphere Application Server JMX client. The `setupdc.sh` script configures the ITCAM for WebSphere Application Server JMX client security using the user ID and password that you supply in the `setupdc.sh` script parameters `-user` and `-password` respectively.

Enabling privacy filtering

About this task

This is used to filter out SQL, cookie, and HTTP Request query strings. When this property is set to true, these data are not collected by ITCAM for WebSphere Application Server.

Procedure

1. Stop the application server instance that is being monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on stopping IBM WebSphere Application Server in your environment.
2. Set the following property definition in `install_home/runtime/appserver_version.node_name.server_name/appserver_version.node_name.server_name.datacollector.properties`:
`secure.filter.on=true`
3. Start the application server instance that is being monitored by ITCAM for WebSphere Application Server. See the WebSphere documentation for instructions on starting IBM WebSphere Application Server in your environment.

Results

The following statement is printed out to the ITCAM for WebSphere Application Server log when privacy filtering is properly configured:

```
Privacy Filter is On. Http Request Query String, SQL String and Http Cookie data is not trasmitted.
```

Appendix H. Using regular expressions

Regular expressions are sets of symbols and characters that are used to match patterns of text. You can use regular expressions to search specific IP addresses across your Web environment. Regular expressions also enable you to search a simple, fixed URI or a complex URI pattern that matches one or more groups of transactions.

This appendix contains the following sections:

- “Regular expressions library”
- “Frequently used regular expressions”
- “Specifying exclusions with the bang (!) operator (Quality of Service listening policies only)” on page 136

Regular expressions library

An extensive library of regular expression characters and operators is available for your URI filters and IP address specifications. The International Components for Unicode (ICU) open-source development project provides this library for your use. The next section provides the most frequently used expressions for this product. However, you can refer to the following Web page for a full description of the ICU regular expression library and an explanation of how to use the characters and operators for complex expressions: <http://oss.software.ibm.com/icu/userguide/regexp.html>

Frequently used regular expressions

The following list highlights characters and operators most frequently used in regular expressions:

\ Quotes the character that follows it, which treats that character as a literal character or operator (not a regular expression). When you want the following characters to be treated as literal, you must precede them with a backslash:

* ? + [() { } ^ \$ | \ . /

In other words, use a backslash followed by a forward slash (\/) to include a forward slash in a URI filter. Use a backslash followed by a period (\.) to include a period in a URI filter.

Example: to specify the URI pattern `http://www.ibm.com/`, use the following regular expression:

`http:\\www\.ibm\.com\`

To specify all URIs that begin with `http://www.ibm.com/`, use the following regular expression:

`http:\\www\.ibm\.com\.*`

.

Matches any one character.

Example: to match both `ibm2` and `ibm3` within a string, use `ibm.` such as in the following example: `http:\\www\.ibm\.com\`

(?: ...)

Non-capturing parentheses. Groups the included pattern, but does not provide capturing of matching text. Somewhat more efficient than capturing parentheses.

Example: you can use the non-capturing parenthesis to group expressions to form more complicated regular expressions. To match a URI that starts with one of the following: `http://www.ibm.com/marketing/` or `http://www.ibm.com/sales/`, you would do a grouping with a pipe sign (`|`) (represents *or*):

```
http://www.ibm.com/(?:marketing)|(?:sales)/
```

* Matches the preceding element zero or more times. You must quote this character.

Example: the expression, `ca*t`, matches `cat`, `caat`, `ct`, and `caaaaat`. The term `cabt`, would not return as a match.

Specifying exclusions with the bang (!) operator (Quality of Service listening policies only)

Note: This section applies to the entry of URI and client IP filters for Quality of Service listening policies only.

You can use an exclamation point (!), also called the *bang* operator, to filter out transactions that might match the regular expressions already entered, but that should not be considered valid transactions for this listening policy. These exclusions are considered negative filters. You can enter these exclusions as additional URI or client IP filters. The formatting of these additional filters is as follows:

URI Filter Exclusions

Use only fixed strings. For example, you can use the following strings:

```
!http://www.ibm.com/  
!http://www.ibm.com/hr/index.html  
!http://www.ibm.com/it/errorpage.html
```

Client IP Exclusions

The following are valid:

```
!* .24.45.46  
!12.*.45.56  
!12.24.*.56  
!12.24.45.*  
!12.24.45.56
```

You can replace any "octet" (there are four in an IP address: `octet . octet . octet . octet`) with a wildcard (*). Note that this is not the regular expression wildcard (`.*`) from the positive filters.

Appendix I. Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. These are the major accessibility features you can use with ITCAM for WebSphere Application Server when accessing it through the *IBM Personal Communications* terminal emulator:

- You can operate all features using the keyboard instead of the mouse.
- You can read text through interaction with assistive technology.
- You can use system settings for font, size, and color for all user interface controls.
- You can magnify what is displayed on your screen.

For more information on viewing PDFs from Adobe, go to the following Web site:
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**IBM Tivoli Composite Application Manager for WebSphere Application Server
Installation Guide
Version 7.1**

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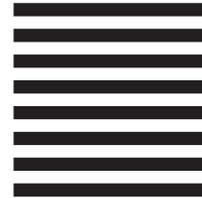
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