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WebSphere Application Server V6: Installation Problem Determination

This paper discusses how to diagnose issues associated with WebSphere Application Server V6 installation. It covers actions and resolutions related to the following installation issues:

- ▶ Launchpad or installation wizard will not start
- ▶ Installation failure or hang
- ▶ Profile creation failure
- ▶ Install Verification Test (IVT) failures

The installation routine for other products, such as IBM® HTTP Server and Web Server plug-ins, is separate from the application server products. This paper only covers issues that are related to WebSphere Application Server V6 installation.

Important: We recommend that you start your problem determination process by reading *Approach to Problem Determination in WebSphere Application Server V6* at <http://www.redbooks.ibm.com/redpapers/pdfs/redp4073.pdf>.

Introduction

The installation process for WebSphere Application Server V6 has changed from previous versions. The main change is that only one copy of the core product files is installed. Profiles are used to define multiple server runtime environments.

Before trying to determine the cause of an installation problem, make sure that you have read and met the hardware and software prerequisites. The latest information about these is available at:

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

The entry point into WebSphere® Application Server installation is the launchpad (Figure 1). From here, you can choose to launch the installation wizard for WebSphere Application Server.

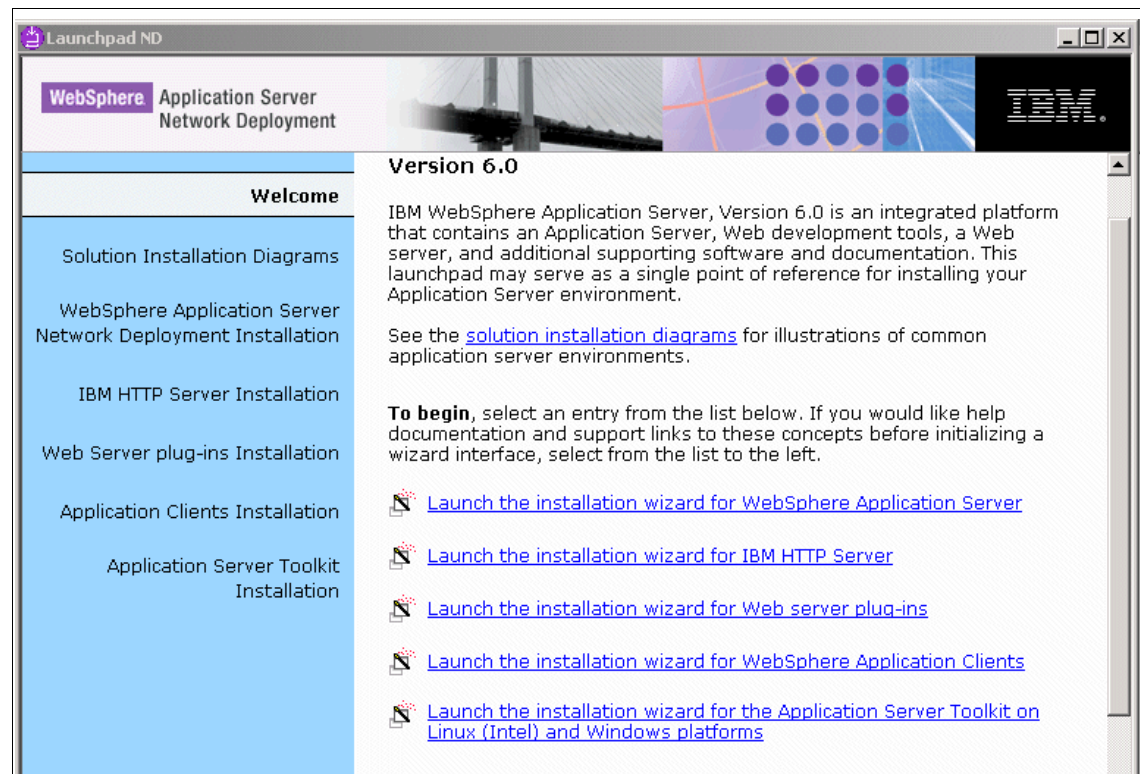


Figure 1 Launchpad for WebSphere Application Server installation

Figure 2 provides an overview of the installation events and common issues that are associated with installation.

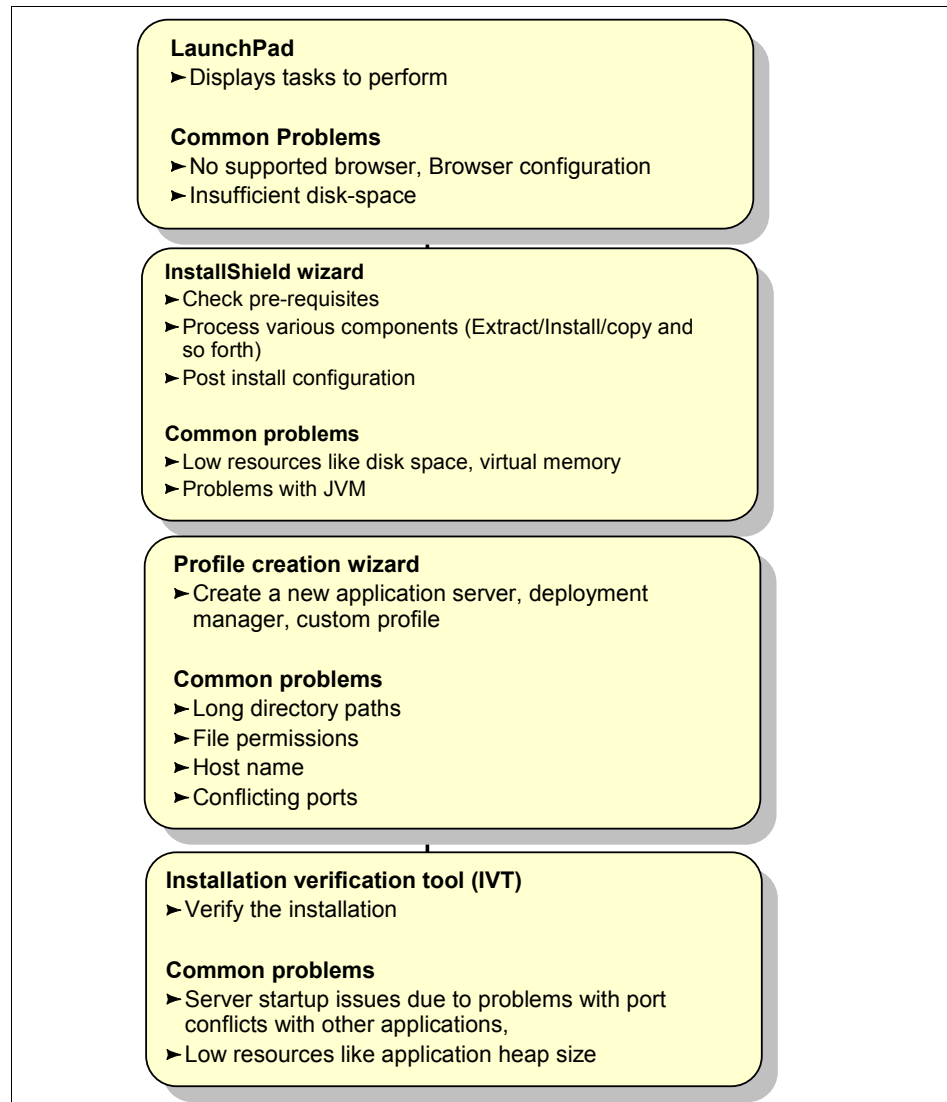


Figure 2 Overview of installation events, common issues, and logs

Note: In Figure 2 on page 3, the Installation wizard and Profile creation wizard are shown as different entities. This is what you will see if you are installing the Network Deployment version. In a WebSphere Application Server base or Express installation, profile creation for the default profile occurs in the Installation wizard itself.

Work the problem

You begin the problem determination process by evaluating the high-level symptoms to determine if one of these symptoms describes your problem. If it does not, you need to collect the appropriate data that is required to diagnose the problem.

Next, you go through the documentation to try to determine where the problem is. And lastly, we provide guidance on the next step to take for resolution, whether it be a support site, contacting IBM, information about configuration, or some other suggestion as to how to proceed.

Now, let's work the problem. You were led to this paper because you were experiencing one of the following impacts to an application or task:

- ▶ Symptom: Launchpad or installation wizard will not start or fails
- ▶ Symptom: Installation wizard hangs
- ▶ Symptom: Profile creation failure
- ▶ Symptom: IVT fails

If you do not find your symptom listed here, go to “The next step” on page 17.

Recovering from a failed or hung installation:

Depending on the state that the system is in when an installation fails or hangs, you might need to uninstall WebSphere Application Server manually before you retry the process. The WebSphere Information Center has detailed, platform-specific instructions for uninstalling at:

http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp?topic=/com.ibm.websphere.nd.doc/info/ae/ae/tins_uninstman.html

Symptom: Launchpad or installation wizard will not start or fails

This symptom covers the following situations:

- ▶ Executing the **launchpad.bat** command in windows or the **launchpad.sh** script in a UNIX® environment does not start the launchpad.
- ▶ Selecting **Launch the installation wizard for WebSphere Application Server** from the launchpad fails to start the installation wizard or the wizard exits with or without an error message.

Possible causes for type of problem include Web browser requirements and disk space or permission requirements.

If the installation wizard starts and runs for a while but appears to hang, go to “Symptom: Installation wizard hangs” on page 7.

Data to collect

Installation events are logged in the following:

- ▶ The launchpad log

Events related to launchpad are logged in the file at the following location:

- UNIX

`/tmp/IBM_WebSphere_launchpad/IBM_WebSphere_LaunchPad_log.txt`

- Windows®

`%TEMP%\IBM_WebSphere_launchpad\IBM_WebSphere_LaunchPad_log.txt`

If the launchpad fails to start or fails at an early stage, it is possible that no log files are generated. Take note of any error messages that are displayed before the wizard exits.

- ▶ The installation log

`<WAS_install_root>/logs/log.txt`

This log contains events that are related to the installation wizard and is created when the installation begins.

If the installer fails at a very early stage, then this log file might not be created or it might exist in the system temporary area, `%TEMP%\log.txt` in Windows or `/tmp/log.txt` in UNIX.

If this file does not exist, then run the installer from a command window using **-log** option to create a log of all events.

– UNIX

```
./install -log !logfile @ALL
```

– Windows

```
install -log !logfile @ALL
```

Where *logfile* is a fully qualified file name for writing the log events.

As you collect the log files, copy them to a place where you can view them. If you need to recreate the problem in order to collect this documentation, be sure to prepare (schedule off-shift hours, review prerequisites, and so forth).

What to look for

Problems starting the launchpad or installation wizard can usually be traced back to missing prerequisite system or application levels. The first step in diagnosing this problem is to ensure that you have the proper prerequisites for installation. You can find this information at:

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

Problems starting the launchpad or Installation wizard

If the problem you are having is in starting the launchpad, look at the IBM_WebSphere_LaunchPad_log.txt log. This log normally contains minimal messages that indicate when the launchpad was run. In the event of an error during launch, it might also contain error messages. If the launchpad does not start at all, then no log file is created.

If you see any error messages or warnings in this file that are not self-explanatory or if the log does not exist, ensure that you have a supported Web browser and that it is configured correctly (see “Web browser requirements” on page 14).

Problems in the installation wizard

Installation events are installed in log.txt. If the installation wizard starts but fails during the installation process, look in log.txt for messages that contain INSTCONFSUCCESS, INSTCONFPARTIALSUCCESS, or INSTCONFFAILED, which might indicate the current status of the installation.

If you see the INSTCONFPARTIALSUCCESS or INSTCONFFAILED messages, then there should be error or warning messages preceding them (for example, messages that indicate problems with resources, such as not enough disk space, exceptions in the JVM™, segmentation faults, and so forth).

An error that resembles the following indicates a problem with disk space:

```
A suitable JVM could not be found. Please run the program again using the
option -is:javahome < JAVA HOME DIR> No space left on device
```

This error indicates there is not enough free space for the installer to run on. You can get this error even if enough space exists where you plan to install WebSphere Application Server (for example, drive D: or /usr) .

Verify that the location of C:\Temp or %TEMP% in Windows or /tmp directory in UNIX has enough free space for the installer to run. You need to check the install document to determine the exact amount of temporary disk space required, typically a minimum of 100 MB.

Another option is to use `-is:tempdir` with the installation wizard, where *tempdir* is the location of a temporary directory on a partition with enough free space.

If you meet the installation prerequisites and you still have not resolved your problem, go to “The next step” on page 17 for information about how to search for known problems with installation.

Symptom: Installation wizard hangs

During installation, a progress indicator is displayed to show you how far the install has progressed. If there is no change in the progress indicator for a very long time, the installation process could be hung.

Reasons that the install process might hang include the following:

- ▶ The system is very low on resources such as virtual memory or swap space.
- ▶ There might be heavy network traffic or network breakdown if installing from a remote location.
- ▶ A task or thread has gone into an infinite wait or loop.

In a WebSphere Application Server or WebSphere Application Server - Express installation, the installation wizard creates a default server profile. The installer first starts the file copy process and then the profile creation process. In WebSphere Application Server Network Deployment, this is a two-step process. The install completes, then you are asked if you want to create a profile.

Data to collect

If the installation hangs, check the following:

- ▶ `<WAS_install_root>/logs/log.txt`

If the installer fails at a very early stage, then this log file might not be created or it might exist in the system temporary area, which is `%TEMP%\log.txt` in Windows or `/tmp/log.txt` in UNIX.

To ensure that you get a full listing of messages in this log, run the installer from a command window using the `-log` option to create a log of all events.

- UNIX

```
./install -log !logfile @ALL
```

- Windows

```
install -log !logfile @ALL
```

Where *logfile* is a fully qualified file name for writing the log events.

- ▶ `<WAS_install_root>/profiles/<profile>/logs/pctLog.txt`

This log file is created only when the profile creation wizard is executed. This log is not created when using the `wasprofile` command directly or during installation of the product.

What to look for

If you think the install process is hung, check the `log.txt` file periodically to see if progress is being made. Messages such as `INSTCONFSUCCESS`, `INSTCONFPARTIALSUCCESS`, or `INSTCONFFAILED` in `log.txt` indicate the current status of the installation. If you see the `INSTCONFPARTIALSUCCESS` or `INSTCONFFAILED` messages, then there should be error or warning messages preceding them.

Also, check other system activities, such as CPU utilization, hard disk usage, or any network activity (if installing remotely), to make sure there are not external factors that are affecting the install.

If the installation does appear to be hung, look for the last recorded message in the log file. This message gives you an idea of what the installer was doing before it hung.

Determine if errors occurred in the file copy process

Look in log.txt for an entry such as the following:

```
(<Date and time stamp>), Install,  
com.ibm.ws.install.ni.ismp.actions.ISMPConfigManagerLaunchAction, msg1,  
INSTCONFSUCCESS: Post-installation configuration is successful
```

If you see this message, the file copy process has completed successfully. If not, inspect the messages in the log for an indication of the error.

Determine if the errors occurred in the profile creation process

If the file copy was completed successfully, any error messages after this indicate problems in profile creation or with other subsequent steps, including sample application and administrative console application deployment. Look for the following entry in the log (log.txt for WebSphere Application Server and WebSphere Application Server - Express, pctLog.txt for WebSphere Application Server Network Deployment):

```
(<Date and time stamp>), Install,  
com.ibm.ws.install.ni.ismp.actions.ISMPWSPprofileLaunchAction, msg1,  
INSTCONFSUCCESS: Post-installation configuration is successful
```

If you do not see this message, then there are problems with profile creation. To diagnose problems with profile creation, see “Symptom: Profile creation failure” on page 9.

On the other hand, if you see this message, the profile creation was successful, and it is time to re-evaluate your symptoms. Go to “The next step” on page 17.

Symptom: Profile creation failure

Profiles allow you to define multiple runtime environments, each with its own administrative interface while sharing the same code base. Problems with profile creation might be due to long directory paths, file permissions, problems with the host name, and so forth.

A default server profile is created as part of the installation process in a WebSphere Application Server or WebSphere Application Server - Express installation. The Network Deployment installation wizard gives you the option of creating a profile. Profiles can also be created at any time after installation.

Data to collect

If the profile creation fails, check the following:

- ▶ `<WAS_install_root>/logs/wasprofile/wasprofile_create_<profile>.log`

This log file is created when the installation phase has completed the file copy process and starts creating a default profile. This log file is also created whenever the profile creation wizard or **wasprofile** command is executed.

This log file traces all the events that occur during profile creation. It is an XML log file and is best viewed by a viewer that can format XML, for example a Web browser or WordPad in Windows. The entries in this log file consist of `<record>` entries. A sample log entry that indicates an error would look something similar to the following:

```
<record>
  <date>2005-07-19T14:18:53</date>
  <millis>1121762933500</millis>
  <sequence>2984</sequence>
  <logger>com.ibm.ws.install.configmanager.ConfigManager</logger>
  <level>WARNING</level>
  <class>com.ibm.ws.install.configmanager.ConfigManager</class>
  <method>executeAllActionsFound</method>
  <thread>11</thread>
  <message>Fatal configuration action failed:
    com.ibm.ws.install.configmanager.actionengine.ANTAction
    -C:\IBM\WAS\profileTemplates\managed\actions\
    executeManagedProfileSetup.ant</message>
</record>
```

- ▶ `<WAS_install_root>/logs/log.txt`

The following log files are created during profile creation. They are located in the `<WAS_install_root>/profiles/<profile>/logs` directory. Each log might or might not exist depending on the type of profile that is created.

- ▶ `pctLog.txt`

Created only when the profile creation wizard is executed. This log is not created when using the **wasprofile** command directly or during installation of the product.

- ▶ `amjrte_config.log`

Tivoli® Access Manager configuration log for its Java™ Runtime Environment.

- ▶ `collect_metadata.log`

Collects metadata information about managed objects in the system to evaluate and prevent potential installation conflicts.

- ▶ createDefaultServer.log
A log from wsadmin recording the creation of the server1 process in the default profile.
- ▶ createshortcutforprofile.log
Windows tool log for creating menu entries and shortcuts.
- ▶ defaultapp_config.log
JACL script log from configuring default application resources.
- ▶ Service.log
Start and stop events for server1.
- ▶ Application installation and configuration logs for system and sample applications:
 - filetransfer_config.log for the file transfer application
 - ivt_config.log for the ivtAPP application
 - mejb_config.log for the ManagementEJB application
 - hamanager_config.log for the high availability application
 - query_config.log for the Query application
 - samples_config.log for the PlantsByWebSphere sample application
 - samples_install.log for the SamplesGallery and PlantsByWebSphere sample applications
 - scheduler.cal_config.log for the SchedulerCalendars application
 - webui_config.log for the administrative console application
 - defaultapp_deploy.log for the DefaultApplication application
- ▶ SIBDefineChains.log
Creation log for service integration bus endpoints, inbound channels and channel chains, outbound thread pool, and outbound channel and channel chains.
- ▶ SIBDeployRA.log
Deployment log for the service integration bus function.
- ▶ winservice_config.log
Service log for the Windows service created for server1.
- ▶ addNode.log
Log for federating a node to a cell (Custom profile).

What to look for

Messages such as INSTCONFSUCCESS, INSTCONFPARTIALSUCCESS, or INSTCONFFAILED in log.txt or pctLog.txt indicate the current status of the

installation. If you see the INSTCONFPARTIALSUCCESS or INSTCONFFAILED messages, then there should be error or warning messages preceding them.

If you do not see an entry similar to the following, then there are problems with profile creation:

```
(<Date and time stamp>), Install,  
com.ibm.ws.install.ni.ismp.actions.ISMPWSPprofileLaunchAction, msg1,  
INSTCONFSUCCESS: Post-installation configuration is successful
```

Look for an entry such as the following:

```
(<Date and time stamp>), Install,  
com.ibm.ws.install.ni.ismp.actions.ISMPWSPprofileLaunchAction, err,  
INSTCONFFAILED: Cannot complete required configuration actions after  
installation. The configuration failed. The installation is not successful.  
Refer to \install_root\logs\wasprofile\wasprofile_create_profilename.log for  
more details
```

If you see this entry, look at the wasprofile_create_<profile>.log to try to determine what task was being performed when the profile creation failed. Most tasks, such as system or sample application installation, are logged to individual log files in the <WAS_install_root>/profiles/<profile>/logs directory. If you can determine which task the profile creation was doing, collect the file for that task. For example, if you had problems creating a custom node then look at the log file <WAS_install_root>/profiles/<profile>/logs/addNode.log for any errors.

For information about common problems, see “Profile creation problems” on page 16.

Symptom: IVT fails

The IVT looks at the profile configuration for the server and looks for a server running on the server port number. Note that if a server is up and running on that port, the IVT runs against that server, even if it is not the one you just installed. If no server is running on that port, the IVT attempts to start the server. When the server has started successfully, the IVT accesses the server and runs various tests, including servlet engine verification, JSP™ verification, EJB™ verification, and so forth.

The option to run the IVT is displayed in the First Steps console after the installation completes and after every profile creation, with the exception of a custom profile creation because no server is actually created.

You should run the IVT before making any configuration changes to WebSphere Application Server. This acts as a checkpoint to see if any problems exist as the result of the installation. If the IVT runs clean and problems show up later, they

are most likely due to configuration changes done after the installation. It is recommended that all instances of WebSphere Application Server be stopped before running the IVT.

A failure in the IVT is usually because the application server fails to start. Common reasons for this include port conflicts, not enough memory, and so forth.

Data to collect

The logs most likely to be of interest are:

- ▶ `<WAS_install_root>/profiles/<profile>/logs/ivtClient.log`
This log contains messages from the IVT execution.
- ▶ The following log files created in:
`<WAS_install_root>/profiles/<profile>/logs/server1` directory
They are created as a result of the IVT and start/stop of server.
 - startServer.log - Log of start server events
 - SystemOut.log - Log of all activity within the WAS environment
 - SystemErr.log - Record system errors

What to look for

The first file to look at in case IVT has failed is `ivtClient.log`. Messages with IVTL and ADMU prefixes provide information about what the IVT application is doing and the status of each action.

Look for the following message in `ivtClient.log`:

```
ADMUXXXXX: Server servername open for e-business; process id is xxxx
```

If you find this message, then the server has started successfully, and the IVT failed while executing one of the tests. Examine the error messages in `ivtClient.log` to locate the failing process.

If another deployment manager is running with the same port, you see the following messages:

```
IVTL0110E: Log file error with  
C:\WebSphere\AppServer\profiles\Dmgr02\logs\dmgr\SystemOut.log,  
java.io.FileNotFoundException: C:\WebSphere\AppServer
```

If the server does not start, look at the `Server Port number is:` entry. This entry contains the server port number of the profile instance. Make sure that this port is not in use (see “Application server startup problems” on page 15).

If the port does not seem to be the problem, look at startServer.log, SystemErr.log, and SystemOut.log for information related to server startup, such as the following:

- ▶ Look for any error messages starting with WSVR (server runtime) or ADMU (management utility) in the startServer.log and SystemOut.log.
- ▶ Look for error messages in SystemErr.log. These messages will start with:
[Date and time stamp] 0000000a SystemErr

If you cannot identify the problem, go to “The next step” on page 17.

Analyzing problem areas

Your analysis of the data that you gathered will most likely lead you to one of the following areas. If not, see “The next step” on page 17.

Web browser requirements

If you are having problems in starting the launchpad, it is possible that you do not have a supported Web browser installed or configured properly. If this is the case:

- ▶ Verify that the latest version of a supported Web browser is installed. Mozilla and Internet Explorer are supported for configuration and installation activities.
- ▶ On UNIX platforms, ensure that the location of the supported browser is exported. For example if the Mozilla executable is located in the /usr/bin directory, then export its location as follows:

```
export BROWSER=/usr/bin/mozilla
```
- ▶ Ensure that JavaScript™ is enabled in the browser options or preferences. For example:
 - In Mozilla, select **Edit** → **Preferences** → **Advanced** → **Scripts & Plugins - Enable JavaScript for: Navigator, Allow Scripts to:** (select all boxes)
 - In Internet Explorer, select **Tools** → **Internet Options** → **Security** → **Custom Level for Internet Scripting** → **Active scripting** → **Enable**

The following link gives specific information about system readiness for installing WebSphere Application Server on RedHat Linux® Enterprise Edition 4:

<http://www-1.ibm.com/support/docview.wss?uid=swg21201306>

Application server startup problems

During profile creation, it is important that the port numbers that are specified for each of the WebSphere Application Server services are unique. The Profile creation wizard, by default, tries to define port numbers that do not conflict with other profiles in the installation. However, it is also possible that there are other applications using the same port numbers (for example, older versions of WebSphere Application Server in a co-existence environment or the unit test environment of Rational® Application Developer).

If an application server does not start during the IVT process, or later using the **startServer** command, look for the following message in startServer.log:

```
ADMYUXXXXX: an instance of the server may already be running: server1
```

This message indicate that another instance of the server is already running or another process is using the same port number.

If you have a message such as the following, you most likely have a port configuration problem:

```
WSVRXXXXX: Error occurred during startup com.ibm.ws.exception.RuntimeError:  
com.ibm.ws.exception.RuntimeError: org.omg.CORBA.INTERNAL:  
CREATE_LISTENER_FAILED_4
```

This message indicates that one of the port numbers specified in the following configuration file is in use and the listener thread cannot be created:

```
<WAS_install_root>/profiles/<profile>/config/cells/<cell>/nodes/<node>/serverin  
dex.xml
```

To resolve the problem, do the following:

- ▶ Use the **serverStatus** command to determine if the server instance that you are trying to start is already started.
- ▶ Review the ports that are required by the application server process. You can see these in:

```
<WAS_install_root>/profiles/<profile>/config/cells/<cell>/nodes/<node>/  
serverindex.xml
```

- ▶ List the ports that are currently being used by the system. One way of doing this is by issuing a **netstat -a** command in a command prompt window. If you have a port conflict, update the serverindex.xml file to use a non-conflicting port number.

Profile creation problems

The following are common problems with profile creation.

File path length errors

Windows 2000 has a length restriction of 258 characters for a command. A problem can occur that prevents the successful creation of a profile when a path is too long. The maximum length for the `<WAS_install_root>` directory is 60 characters. The maximum length for the profiles installation root directory is 80 characters.

If your log files have errors similar to `Input line is too long` then the length of the file path and node name in the command string has caused the entire command to exceed the operating system limit for command length.

This error can show up in a message box during the wizard or if using `wasprofile`, in `<WAS_install_root>/profiles/<profile>/logs/collect_metadata.log`.

Create the profile again using shorter directory paths and node names. If you are still in the installation process, consider re-installing using a shorter path for the installation root.

Host name error

If you see errors similar to `localhost is not a valid host name for remote access`, then you have entered `localhost` as the value in the host name field of the Profile creation wizard. Other machines in the network cannot reach your node using `localhost`, so you must provide a host name that can be resolved by other systems to your system's IP address.

Template path error

If in a UNIX environment you get an error similar to the following then verify the profile templates location and permissions are correct:

```
<message>Incoming command line is: { "-create" ,"-help" ,"-templatesPath"
, "/opt/WebSphere/AppServer/crso/profileTemplates/managed" }</message>
<message>Could not resolve templatePath from command line</message>
```

Custom profile error

If an error occurred creating a custom profile, look at the `addNode.log` file for any additional errors. Look for an error message similar to the following:

```
[Date and Time stamp] 0000000a AbstractNodeC E ADMU0006E: Exception creating
Deployment Manager connection:
com.ibm.websphere.management.exception.ConnectorException: ADMC0016E: The
system cannot create a SOAP connector to connect to host hostname at port 8879
```

If you see this message, it is likely that the deployment manager profile is not running. Ensure that the deployment manager profile is created and running on the specified port and host before creation of custom profile.

If neither of these messages appears and you do not see any other obvious problems, go to “The next step” on page 17.

The next step

The symptoms and problem areas included in this paper are some that you are more likely to experience. However, there are other things that can go wrong during installation.

If, after going through this process, you still have an undiagnosed problem, it is recommended that you go back to *Approach to Problem Determination in WebSphere Application Server V6* at:

<http://www.redbooks.ibm.com/redpapers/pdfs/redp4073.pdf>

Review the problem classifications to see if there are any other components that might be causing the problem.

If you are sure the problem is in the installation process, there are things that you can do before contacting IBM support. First, you should review the documentation that you have gathered for errors that were not addressed in this paper and search support sites for information or fixes. Look for current information available from IBM support on known issues and resolutions on the following IBM support page:

<http://www-1.ibm.com/support/search.wss?rs=180&tc=SSEQTP&tc1=SSCVS24>

Look also at the WebSphere Information Center documentation for additional resources for diagnosing and fixing issues:

http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp?topic=/com.ibm.websphere.base.doc/info/aes/ae/rtrb_allrfl.html

If these does not resolve your problem, then gather additional information as specified in the following MustGather document and raise a problem record with IBM:

<http://www-1.ibm.com/support/search.wss?rs=180&tc=SSEQTP&tc1=SSCVS24&q=mustgather>

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