



IBM Software Group

# SW5706

## Application server start failures



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This module describes diagnosing application server start failures.

## Unit objectives

After completing this unit, you should be able to:

- Detect a server start failure
- Determine the root cause of the application server start failure
- Resolve the server start failure issue

After completing this unit, you should be able to detect a server start failure, determine the root cause of the application server start failure, and resolve the server start failure issue.

## Detecting a failed server start (1 of 2)

- An application server failure during the start process is reported as an error message in the server start panel.
- Further details on the error are logged as an exception in the `startServer.log`, the `SystemErr.log`, or the `SystemOut.log`.
- If the application server is being started through the administrative console of the deployment manager, then the error can be viewed through the **Troubleshooting -> Runtime Message -> Error -> Runtime Events** panel in some, but not all, cases.
- If the application server is started using the `wsadmin` script interpreter, the `startServer.bat` (Windows) or the `startServer.sh` (UNIX) script, the error message will be printed to the console.



An application server failure during the start process is reported as an error message in the server start panel, `startServer.log`, `SystemErr.log`, and `SystemOut.log`. If the server is being started through the administration console, the error can be viewed under the Troubleshooting heading. If the server is started using the `wsadmin` script, or `startServer`, the error message is printed to the console.

## Detecting a failed server start (2 of 2)

- It is important to point out that a server start failure, when performed from the administrative console, might not create enough trace to detect or determine the type of error that occurred. As an example, forcing an error by changing the WAS\_INSTALL\_ROOT and USER\_INSTALL\_ROOT variables of the server node resulted in no output files being produced and a console message of:
  - ▶ **Message Originator:** com.ibm.ws.console.core.mbean.MBeanHelper
  - ▶ **Message:** Could not invoke an operation on object: WebSphere:platform=common,cell=rallanCell01,version=6.0.2.3,name=NodeAgent,mbeanIdentifier=NodeAgent,type=NodeAgent,node=rallanNode01,process=nodeagent because of an mbean exception: com.ibm.websphere.management.exception.AdminException: Process failed to launch: server1
- This is not enough information to debug the nature of the problem. Therefore, this unit assumes that the **startServer.[bat | sh]** script was used to start the application server in most cases.



On a successful application server start, the message Server is open for e-business is displayed. If the server start fails, the message displayed will depend on the cause of the failure.

## Determining server start issues (1 of 2)

- Determining the root cause of an application start issue begins with investigation of the log files to locate any exceptions that have occurred.
- The detection of failure and the typical exception that will occur during a server start failure was discussed.
  - ▶ Usually, there are multiple exceptions that occur during a server start failure.
  - ▶ The initial failure will be the general exception that failure has occurred which is (hopefully) accompanied by a more detailed exception regarding the actual cause of the failure.
- The root cause of the problem will be one or more of the following issues:
  - ▶ System State
  - ▶ Security
  - ▶ Connectivity
  - ▶ Configuration

Determining the root cause of an application start issue begins with investigating the log files for exceptions. There may be multiple exceptions that occur, but the initial failure will be the general exception accompanied by a more detailed exception. The root cause will be one or more of a problem with system state, security, connectivity, or configuration.

## Determining server start issues (2 of 2)

- The application server can be started with the trace option specified on the command line.
- The command `startServer.[bat | sh] <server name> -trace` will stream start information to the `startServer.log` file that would not otherwise be available.
- The `startServer.log` file is very important in the server start failure determination process because some failures occur prior to the `SystemOut.log` and `SystemErr.log` trace streams being initialized.
  - ▶ It is not uncommon to see server failure occur and the `SystemOut.log` and `SystemErr.log` files to have a size of 0 bytes.
- Using the `-trace` option is the same as setting the startup trace state to `com.ibm.*=all`



The application server can be started with the trace option specified on the command line, which will stream start information to the `startServer.log` file. It is not uncommon to seeing an error in the trace file without an error in the `SystemOut` or `SystemErr` files; therefore, this option is an invaluable tool is diagnosing server start issues.

## Resolving server start issues (1 of 3)

- Once the root cause of a server start failure has been determined, the resolution occurs by performing one or more of the following activities:
  - ▶ Restore the system to a correct state
    - If any orphaned processes are locking ports or other resources, use the **ps -ef** command on Unix or the Task Manager on Windows to determine what they are, and terminate them with the **kill** command on Unix or by highlighting them and clicking the End Process button in the Windows Task Manager.
  - ▶ Update or correct any user credentials
    - If global security is enabled and the user registry is Local OS, a change to the password on the host machine will stop the application server from starting correctly.
  - ▶ Correct any connectivity parameters that are incorrect
    - In a deployment manager scenario, communication occurs between the deployment manager, the node agent, and the application server. Verify that the host name and port numbers being used for this communication are correct.

Once the root cause of a server start failure has been determined, one or more of the following activities should occur. You may restore the system to a correct state by killing stray or old server processes. You may also need to update or correct user credentials that are being used. Finally, you may need to correct connectivity parameters such as port numbers that may already be in use.

## Resolving server start issues (2 of 3)

- In order to resolve the application server start failure issue, you are going to resolve one or more of the following four categories where the problem resides:
  1. Connectivity
  2. Configuration
  3. System State
  4. Security
- These categories are closely related and could depend on one or more of the following activities taking place in order to resolve them:
  1. Update the current configuration with correct connectivity parameters
  2. Update the current configuration with correct system path information
  3. Specify correct credentials to satisfy security constraints
  4. Purge orphan processes from the system to unlock ports



Application server start failures are either due to connectivity issues, configuration, system state or security. Updating the current configuration, specifying the correct credentials, or purging orphan processes may together fix server start issues. Telnet is useful in debugging firewall and port issues.



## Resolving server start issues (3 of 3)

- Repair any configuration parameters or references that are prohibiting the application server from starting correctly
- During an application install, a change to the cell, or a maintenance upgrade some action has caused one or more configuration parameters to be incorrect. Use the exception information to resolve the issue.
- Most configuration level issues can be resolved through the WebSphere Application Server V6 administrative console
- If this is a simple WebSphere Express or standalone base server, it might be necessary to change the configuration files directly until the application server is able to start



Configuration parameters or references changed improperly, or leftover from a migration or maintenance upgrade may be causing server start issues. Use the exception information to resolve these types of issues. Most configuration issues can be resolved through the WebSphere Application Server administrative console.

## Unit summary

Having completed this unit, you should be able to:

- Detect a server start failure
- Determine the root cause of the server start failure
- Resolve the server start failure

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