

Federal Student Aid (FSA) Enterprise Portal – Release 1

Troubleshooting Guide



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1 Introduction

This guide is provided to assist the operations team in troubleshooting environment related problems for the Enterprise Portal (Students and Financial Partners) application. This document provides assistance to the data center command center and the operations team in defining troubleshooting procedures for the Enterprise Portal (Students and Financial Partners).

1.1. Purpose

This document lists the basic troubleshooting procedures that should be performed by the operations team whenever a trouble call is received. These procedures are not meant to be inclusive of every possible troubleshooting method but rather outline a first level of problem resolution and correction that can be followed. At a minimum, these procedures will resolve minor problems that are software product specific, such as a hung process, an exception not handled gracefully, etc. These procedures will provide the first level of problem identification prior to escalating to level 2 or level 3 support.

1.2. Audience

This document is intended for use by the VDC and the operation team to troubleshoot the Enterprise Portal (Students and Financial Partners) application.

1.3. Scope

This document covers the basic troubleshooting steps. This document does not cover every possible scenario and troubleshooting method. When the operation team receives a trouble call it should check to make sure the network dispatcher, web servers, and the application servers are running correctly. For example, if the user does not see the index page the chances are the web server is not running. This document only covers troubleshooting procedures for the Network Dispatcher, Web Servers, and the Application Servers. This document also provides tips for identifying and resolving problems.



2 Enterprise Portal - Server Configuration

This section includes tables depicting the oracle databases, web servers, and application servers that are used for the Enterprise Portal (Students and Financial Partners).

2.1. Server Software Configuration

Table 1 – Enterprise Portal Database Server Configurations

Machine	IP Address	Logical Name	SIDS Installed
HPV1	4.20.14.59 4.20.15.59	Dev/Test Database Server	Development databases: PORTLDEV Test databases: PORTLIST
HPV2	4.20.14.40 4.20.15.40	Production Database Server	PORTL

Table 2 – Enterprise Portal Server Configurations

Machine	IP Address	Environment	Application Software
Sun E3500 – SU35E2	4.20.14.132 4.20.15.132	Enterprise Portal (Students and Financial Partners) Development and Test Application Server	WebSphere Advance Edition 3.5.3
Sun E3500 – SU35E1	4.20.14.131 4.20.15.131	Enterprise Portal (Students and Financial Partners) Development, and Test Interwoven Server	IHS 1.3.6
Sun E3500 – SU35E10	198.77.163.144 4.20.17.144	Enterprise Portal (Students and Financial Partners) Production Web Server	IBM HTTP Server 1.3.12.2
Sun E3500 – SU35E12	198.77.163.146 4.20.17.146	Enterprise Portal (Students and Financial Partners) Production Web Server	IBM HTTP Server 1.3.12.2
Sun E3500 – SU35E9	198.77.163.143 4.20.17.143	Enterprise Portal (Students and Financial Partners) Production Application Server	WebSphere Advance Edition 3.5.3
Sun E3500 – SU35E13	198.77.163.147 4.20.17.147	Enterprise Portal (Students and Financial Partners) Production Application Server	WebSphere Advance Edition 3.5.3
Sun E3500 – SU35E7	198.77.163.141 4.20.17.141	Enterprise Portal (Students and Financial Partners) Production Autonomy Primary	



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Machine	IP Address	Environment	Application Software
Sun E3500 – SU35E15	198.77.163.149 4.20.17.149	Enterprise Portal (Students and Financial Partners) Production Autonomy Failover	
SU22E4	198.77.163.140 4.20.17.140	Failover load balance server (Sun) for Production	Network Dispatcher
SU22E3	198.77.163.145 4.20.17.145	Primary load balance server for Production	Network Dispatcher

2.2 Enterprise Portal Production Diagram

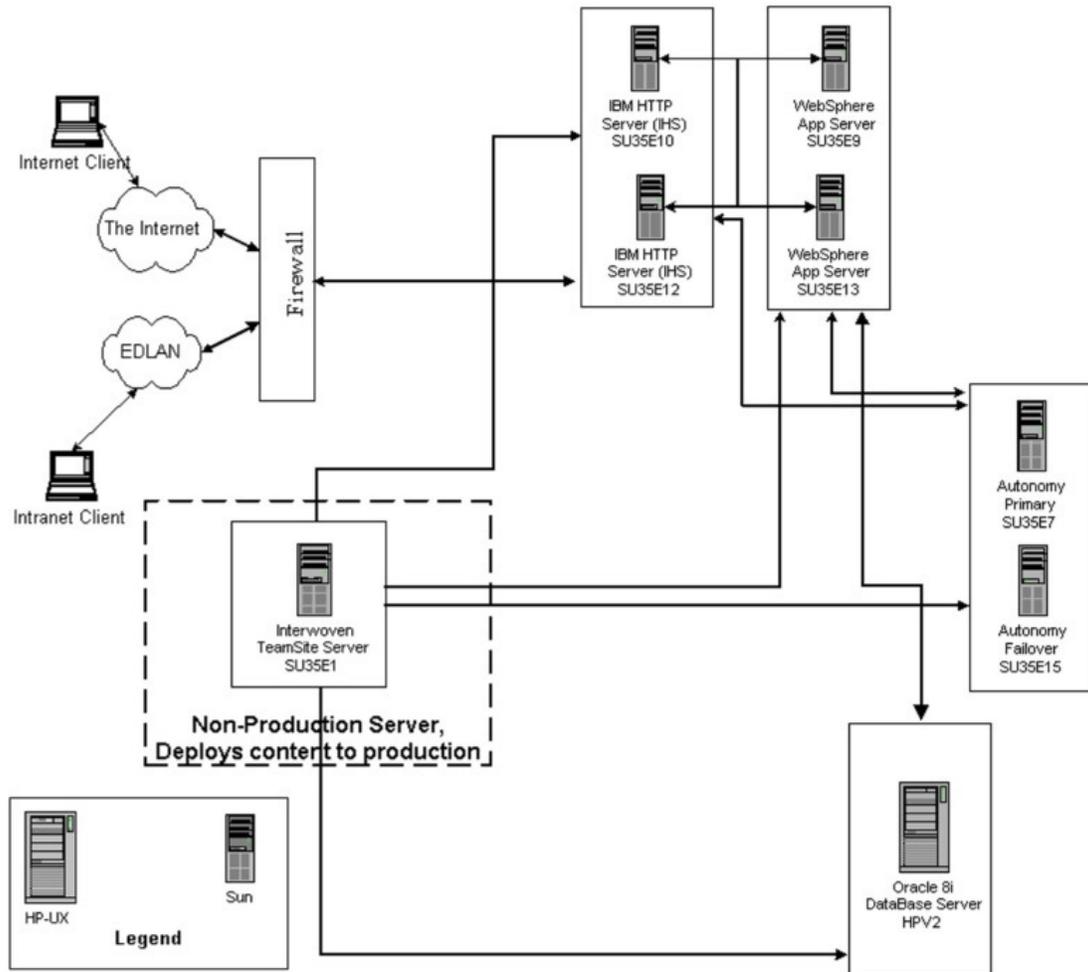


Figure 1 –Enterprise Portal Production Diagram



3 Software Product Troubleshooting Guidelines

3.1 eNetwork Dispatcher (ND)

Problem: Cluster is not working through browser

Step 1: Try to duplicate the problem.

If it works, there is no problem. If the same problem occurs, continue to Step 2.

Step 2: Make sure the ND Primary machine is up.

Try to telnet to or ping the Primary machine (198.77.163.140, 4.20.17.140)

If the machine is not up, continue to Step 3. If the machine is up, continue to Step 4.

Step 3: Make sure the ND Failover machine is up.

Try to telnet to or ping the Failover (Standby) machine (198.77.163.145, 4.20.17.145)

If both the Primary and Standby the machines are not up, contact the appropriate team to troubleshoot the hardware or possible network failure. If the machine is up, continue to Step 4.

Step 4: Make sure the applications are running on the clustered machines

Cluster	198.77.163.175
---------	----------------

If the applications are not running, start them. If the applications are running, continue to Step 5.

Step 5: Ping the cluster address

If the cluster address is not pingable, there is a network problem. Contact the appropriate team. If the cluster address is pingable, continue to Step 6.

Step 6: Ping the clustered machine addresses

If the clustered machine addresses are not pingable, there is a network problem. Contact the appropriate team. If the clustered machine addresses are pingable, continue to Step 7.

Step 7: *Verify the ND is running on the Primary Machine*

At the UNIX command prompt on the ND Primary Machine, type the following command:

```
ps -ef | grep java
```

The output should be similar to the below:

```
root 9184 9180 0 14:20:37 pts/0 0:00 grep java
root 715 1 0 11:53:30 pts/0 0:05 /usr/j2se/bin../bin/sparc/native
/bin/./java/bin/./bin/sparc/ native_threads/jre -cp /opt/nd/dispatcher/lib/ibm
```

If you do not see the process:

```
/bin/./java/bin/./bin/sparc/native_threads/jre -cp /opt/nd/dispatcher/lib/ibm
```

continue to Step 8. If you see this process, continue to Step 11.

Step 8: *Verify the ND is running on the Standby Machine*

At the UNIX command prompt on the ND Standby Machine, type the following command:

```
ps -ef | grep java
```

The output should be similar to the below:

```
root 9184 9180 0 14:20:37 pts/0 0:00 grep java
root 13422 1 0 Oct 05 ? 81:28 /bin/./java/bin/./bin/sparc/ native_threads/jre -cp
/opt/nd/dispatcher/lib/ibm
```

If you do not see the process

```
/bin/./java/bin/./bin/sparc/native_threads/jre -cp /opt/nd/dispatcher/lib/ibm
```

continue to Step 9. If you see this process, continue to Step 12.

Step 9: *Start ND on the Primary Machine*

At the UNIX command prompt on the ND Primary machine, type the following command as root:

```
/etc/init.d/nd start
```

Wait approximately 3 to 5 minutes. Then, type the following command as root:

```
ndcontrol status
```

You should see something like the following output:

Executor has started

Manager has started

Table 3 – Network Dispatcher (Primary) Port/Timeout Settings

Advisor	Run	Timeout
http	80	unlimited
Ssl	443	unlimited
Connect	10000	unlimited

If you see the above, ND has started, continue to Step 11. If you receive a message stating that the Executor has not started, wait a few minutes and try again. After 5-7 minutes, if you are still receiving the message, ND has not started, continue to Step 10.

Step 10: Start ND on the Standby Machine

At the UNIX command prompt on the ND Standby machine, type the follow command as root:

`/etc/init.d/nd start`

Wait approximately 3 to 5 minutes. Then, type the following command as root:

`ndcontrol status`

You should see something like the following output:

Executor has started

Manager has started

Table 4 – Network Dispatcher (Secondary) Port/Timeout Settings

Advisor	Run	Timeout
http	80	unlimited
Ssl	443	unlimited
Connect	10000	unlimited

If you see the above, ND has started, continue to Step 12. If you receive a message stating that the Executor has not started, wait a few minutes and try again. After 5-7 minutes, if you still receive the above message then ND has not started.



Step 11: *Verify the ND is active on the Primary machine*

At the UNIX command prompt on the ND Primary machine, type the following command as root:

ndcontrol higha status

You should see something like the following output:

```
High Availability Status:
-----
Role .....primary
Strategy ..... auto
State ..... Active
Sub-State..... Synchronized
Port .....60005
Preferred Target..... 198.77.203.212
Heartbeat Status:
-----
Count .....1
Source/Destination ... 198.77.203.212/198.77.203.211
Reachability Status:
-----
Count ..... 1
Address ..... 198.77.163.131
```

If the State is Active, ND is running and is active, continue to Step 13. If the State is InActive, verify that ND is running on the Standby machine and then continue to Step 12.

Step 12: *Verify the ND is active on the Standby machine*

At the UNIX command prompt on the ND Standby machine, type the following command as root:

ndcontrol higha status

You should see something like the following output:

```
High Availability Status:
-----
Role .....standby
Strategy ..... manual
State ..... Active
Sub-State..... Synchronized
Port .....60005
Preferred Target..... 198.77.203.212
Heartbeat Status:
-----
Count .....1
Source/Destination ... 198.77.203.210/198.77.203.212
Reachability Status:
-----
Count ..... 1
Address ..... 198.77.203.212
```



If the State is Active, ND is running and is active on the Standby machine, continue to Step 13. If the State is Inactive, return to Step 7 and repeat the process. After 2 attempts, contact the Tech Arch team.

Step 13: Verify the status of the cluster

From the UNIX command prompt on the ND Primary machine, type the following command as root:

ndcontrol server status <cluster ip>:80:

You should see something like the following output:

```
Server Status:
-----
Server address .....<clustered machine ip>
Port number .....80
Cluster address .....<cluster ip>
Server up?.....Y
Weight .....9
Remote server?.....N
Router address.....0.0.0.0

Server Status:
-----
Server address .....<clustered machine ip>
Port number .....80
Cluster address .....<cluster ip>
Server up?.....Y
Weight .....9
Remote server?.....N
Router address.....0.0.0.0
```

... This information is repeated for each clustered machine.

Is the Server up? If “Y”, try to duplicate the problem, everything should be working fine. If there is still a problem, the problem does not lie with ND. Is the Server up? If “N” for all of the servers in the cluster, contact the Tech Arch team.

3.1.1. Additional Commands

The easiest and most direct way to interact with ND is from the command line interface. The procedures in this guide assume the use of the command line. From the ND Primary machine (198.77.163.140, 4.20.17.140) or the ND Standby machine (198.77.163.144, 4.20.17.144), type the command **ndcontrol** as the root user at the UNIX system prompt.

ndcontrol help – display or print help for this command

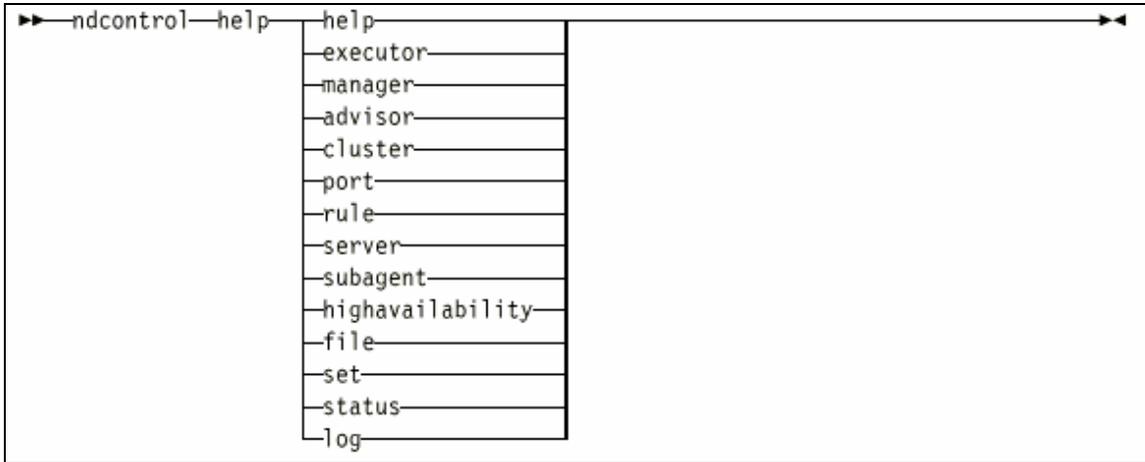


Figure 2 – ndcontrol Command Options

Examples

To get help on the ndcontrol command type the following at the UNIX system prompt as root on one of the ND machines:

ndcontrol help

This command produces output similar to:

```

HELP COMMAND ARGUMENTS:
-----
Usage: help <help option>
Example: help cluster

help - print complete help text
executor - help on executor command
manager - help on manager command
advisor - help on advisor command
cluster - help on cluster command
port - help on port command
rule - help on rule command
server - help on server command
subagent - help on subagent command
highavailability - help on high availability command
file - help on file command
set - help on set command
status - help on status command
log - help on log command
  
```

Notice that parameters within <> are variables.

To get more detail on a particular command type the following as root:

ndcontrol help *command*

For example, to get detailed information, including options, for the status command type:

ndcontrol help status

ndcontrol highavailability – control high availability

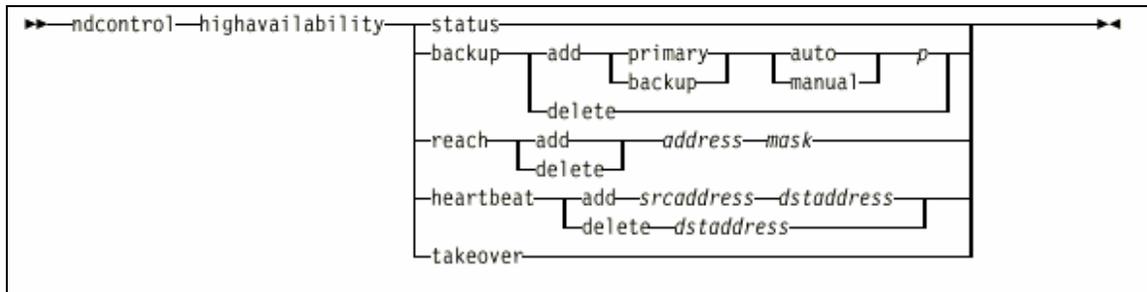


Figure 3 – ndcontrol highavailability Command Options

Status

Return a report on high availability. Machines are identified as having one of three status conditions or states:

- *Active* - A given machine (either a primary or backup) is routing packets.
- *Standby* - A given machine (either a primary or backup) is not routing packets; it is monitoring the state of an *active* Dispatcher.
- *Idle* - A given machine is routing packets, and is not trying to establish contact with its partner Dispatcher.

In addition, the *status* keyword returns information about various substates:

- *Synchronized* - A given machine has established contact with another Dispatcher.
- *Other substates* - This machine is trying to establish contact with its partner Dispatcher but has not yet succeeded.

Backup

Specifies information for either the primary or backup machine.

- *Add* - Defines the high availability functions for this machine.
 - *Primary* - Identifies the Dispatcher machine that has a *primary* role.
 - *Backup* - Identifies the Dispatcher machine that has the backup role.



- *Auto* - Specifies an automatic recovery strategy, in which the primary machine will resume routing packets as soon as it comes back into service.
 - *Manual* - Specifies a manual recovery strategy, in which the primary machine does not resume routing packets until the administrator issues a takeover command.
 - *p[ort]* - An unused Transmission Control Protocol (TCP) port on both machines, to be used by the Dispatcher for its heartbeat messages. The port number must be the same for both the primary and backup machines.
- *Delete* - Removes this machine from high availability, so that it will no longer be used as a backup or primary machine.

Reach

Add or delete target address for the primary and backup Dispatchers, the reach advisor send out *pings* from both the backup and the primary Dispatchers to determine if the targets are reachable.

- *Add* - Adds a target address for the reach advisor.
- *Delete* - Removes a target address from the reach advisor.

Address - Internet Protocol (IP) address (dotted-decimal or symbolic) of the target node.

Mask - A subnet mask.

Heartbeat

Defines the communication session between the primary and backup Dispatcher machines.

- *Add* - Tells the source Dispatcher the address of its partner (destination address).
- *Delete* - Removes the destination address from the heartbeat information.

Srcaddress - Source address. The address (IP or symbolic) of this Dispatcher machine.

Dstaddress - Destination address. The address (IP or symbolic) of the other Dispatcher machine.

Takeover

Instruct a standby Dispatcher to become active and to begin routing packets, forcing the currently active Dispatcher to become standby. This command must be issued on the standby machine and works only when the strategy is *manual*.

Notes: Note that the roles of the two machines (*primary* and *backup*) do not change. Only their relative status (*active* or *standby*) changes. There are three possible takeover scripts: *goActive*, *goStandby*, and *goInOp*.

Examples

To check the high availability status of a machine input one of the following commands as root:

ndcontrol higha status

Output:

```
High Availability Status:
-----
Role .....primary
Strategy ..... manual
State ..... Active
Sub-State..... Synchronized
Port .....60005
Preferred Target..... 198.77.163.145
Heartbeat Status:
-----
Count .....1
Source/Destination ... 198.77.163.140/198.77.163.145
Reachability Status:
-----
Count ..... 1
Address ..... 198.77.163.131
```

To tell the standby Dispatcher to become active and force the active machine to become standby input the following command:

ndcontrol higha takeover

Note: This command should be issued from the ND machine that you want to become the active machine and must be executed as root.

3.1.2. Useful Commands

Some commands that are particularly useful for troubleshooting are:

- To see if the ND Primary machine is active:

ndcontrol higha status

- To see cluster status:

ndcontrol cluster status

3.2 IBM HTTP Server and WebSphere

3.2.1. To check if IHS is running

Table 5 – Verify IHS is Running

Step	Description	Action	Comment
From a UNIX telnet / xterm session			
1.	At a command prompt issue the following command:	ps -ef grep httpd	This command should return at least one process that looks like the line below.
	/opt/<sys>/HTTPServer/bin -d...		
2.	If no processes are displayed, IHS is not running. See the Server start up procedure to start the web server.		

3.2.2. To check if Website is up

Type the following URL(s) in your browser. You need to set up a host file if the URL is not using standard port (port 80).

Table 6 – Verify site is up

Environment	URL	URL Port	Admin Port
Development	http://dev.portals.sfa.ed.gov	8531	
	http://dev.portals.sfa.ed.gov		
Test	http://test.fsaportals.ed.gov	8532	
	http://test.fsaportals.ed.gov		
Production	http://fp.ed.gov	80	80
	http://studentaid.ed.gov		

3.2.3. To check if WebSphere is up

Table 7 – Verify WebSphere is running

Step	Description	Action	Comment
From a Browser			

Step	Description	Action	Comment
1.	Check for the Current Servlet Engine Configuration Page. In a browser, type:	<p>http://<url>:<port>/PORTALSWebApp/viewform.jsp</p> <p>(Where the <url> and the <url port> are defined for each system in the table above (table 6))</p> <p>NOTE: Port 80 is not needed when that is the port that is being used</p> <p>viewform.jsp page should exist in the application server</p>	If the test page is displayed, WebSphere is running.
From the command line			
2.	Grep for a process that involves java to show that WebSphere is running	<pre>ps -ef grep java</pre> <p>At a command prompt issue the following command:</p> <pre>cd /opt/<env>WebSphere/AppServer/bin</pre> <pre>ps -ef grep java</pre> <p>If the websphere is up then you should see at least one of the bolded line with a process id.</p> <pre>root 1397 640 0 13:37:17 pts/td 0:27 /opt/WebSphere/AppServer/java/bin/./bin/PA_RISC2.0/native_t</pre> <pre>root 16321 19788 13:37:18 pts/ta 0:31 grep java</pre>	

3.2.4. Commands for starting up the servers

In order to restart the WebSphere run the following commands from the command line.

Table 8 – Command for starting the servers

Step	Description	Action	Comment
From the command line			
1.	Start WebSphere	<pre>cd /opt/<sys>/WebSphere/ AppServer/bin</pre> <pre>./wasstart</pre>	This command starts the WebSphere
2.	Start HIS	<pre>cd /opt/<sys>/HTTPServer/bin</pre> <pre>./apachectl start</pre>	This command starts the web server (IHS).

3.2.5. Commands for stopping the servers

In order to stop WebSphere run the following commands from the command line.

Table 9 – Commands for stopping the servers



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Step	Description	Action	Comment
From the command line			
1.	Stop WebSphere	cd /opt/<sys>/WebSphere/AppServer/bin ./wasstop	This command stops the WebSphere
2.	Stop IHS	cd /opt/<sys>/HTTPServer/bin ./apachectl stop	This command stops the web server (IHS).

4 Application Troubleshooting Guidelines

4.1. Missing message for key <key name>

Problem: Key name not found in Resource.Properties

Step 1: Check to see if key is in Resource.properties file in /www/portals/servlets/ on Application Server

Step 2: If exists restart application then retry

Step 3: If problem persists contact support

4.2. Add Bookmark Error

Problem: SQL error: Violation of Primary Key

Step 1: Check to see if bookmark sequence is there and has not reached limit

Step 2: If problem persists contact support

4.3. Java error: Illegal target of jump or branch

Problem: JSP servlet method is too large when compiled.

Step 1: Recompile removing the compiled JSP or verify WAS configurations

Step 2: If problem persists call support

4.4. Survey Submission Failure

Problem: SQL error: Violation of Primary Key

Step 1: Check to see if survey sequence is there and has not reached limit

Step 2: If problem persists call support