



QuickStart: Deploying DataSynapse GridServer 5.0 on HP Clusters

1 Overview	2
2 DataSynapse: Quick Overview	2
2.1 GridServer 5.0 Grid Topology	5
2.2 The GridServer Administration Tool	5
3 Requirements	5
4 Installation	6
4.1 GridServer 5.0 Manager Initial Installation	6
4.2 GridServer 5.0 Primary Director and Primary Broker Installation	7
4.3 GridServer 5.0 Secondary Director and Failover Broker Installation	8
4.4 GridServer 5.0 Standalone Broker Installations	9
4.5 GridServer 5.0 Quarantine Broker Installation	10
4.6 GridServer 5.0 License Verification	11
4.7 GridServer 5.0 Engine Daemon Installation	11
4.8 GridServer 5.0 Client Authentication	12
4.9 GridServer 5.0 Engine Daemon Quarantine Status	13
4.10 GridServer 5.0 SDK Installation	13
5 GridServer 5.0 and NFS	14
6 Installation Verification	15
7 Troubleshooting	15
7.1 GridServer Components Communicating with the Wrong Manager	15
7.2 Routing Problems for Nodes on a Hidden Network	16
7.3 Determining the File System a Directory is Mounted on	16
References	16
For More Information	16

1 Overview

This paper describes the installation and basic verification of DataSynapse GridServer 5.0 [1]. It does not describe how to manage or use grids managed by DataSynapse GridServer 5.0. For information about using and managing GridServer 5.0 grids, see the *GridServer Administrative Guide version 5.0* [2].

The intended audience for this document is Linux administrators.

GridServer 5.0 is a highly scalable software infrastructure that allows application services to operate in a virtualized fashion, unattached to specific hardware resources. Client applications submit requests to the Grid environment and GridServer dynamically provisions services to respond to the request. Multiple client applications can submit multiple requests in parallel and GridServer can dynamically create multiple service instances to handle requests in parallel on different Grid nodes. GridServer 5.0 schedules tasks and jobs and allocates both hardware and software resources using a service-oriented environment. GridServer 5.0 is best suited to jobs that you can divide into independent tasks. GridServer 5.0 offers a rich set of features that enable administrators and developers to get high performance and high throughput.

2 DataSynapse: Quick Overview

A basic GridServer installation consists of a **Manager**, an **Engine Daemon**, an **Engine**, and a **Driver**.

An **Engine** is a single thread that processes tasks or services in a first in, first out (FIFO) queue. Typically, only a single Engine runs on a single CPU/core so that the number of Engines in a grid is the same as the number of CPUs/cores in the grid.

An **Engine Daemon** is a separate process that manages the Engines running on the same machine.

A **Driver** is the link between a service client and an Engine. A service client is any application that submits work to the grid environment.

Brokers handle higher level scheduling, driver management, communication, and resource management for the assets allocated by a Director or rules specified by a grid administrator.

A **Director** authenticates Engines, load balancing Engines to available Brokers, high-level resource management.

A GridServer **Manager** has two components a Director and a Broker. A valid GridServer 5.0 installation must have one Primary Director and one non-Failover Broker.

In Figure 1, the arrows represent a Driver between a Job and an Engine. Figures 2, 3, and 4 provide a high-level view of typical GridServer 5.0 topology and architecture. Figure 5 provides a quick overview at the GridServer Administration Tool.

Figure 1. Job and GridServer Engine Interaction.

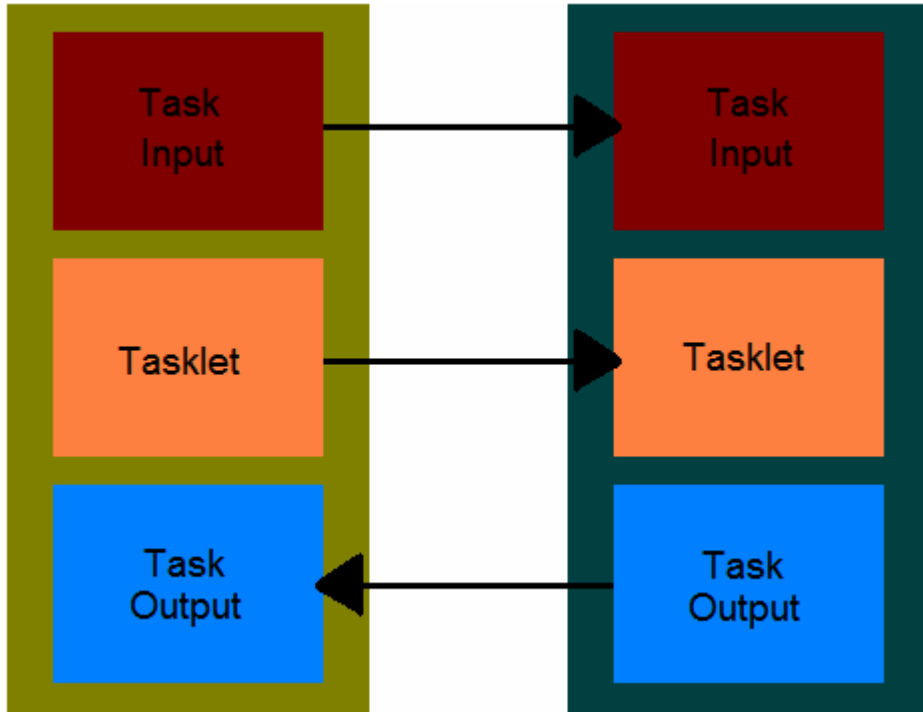


Figure 2. Basic GridServer.

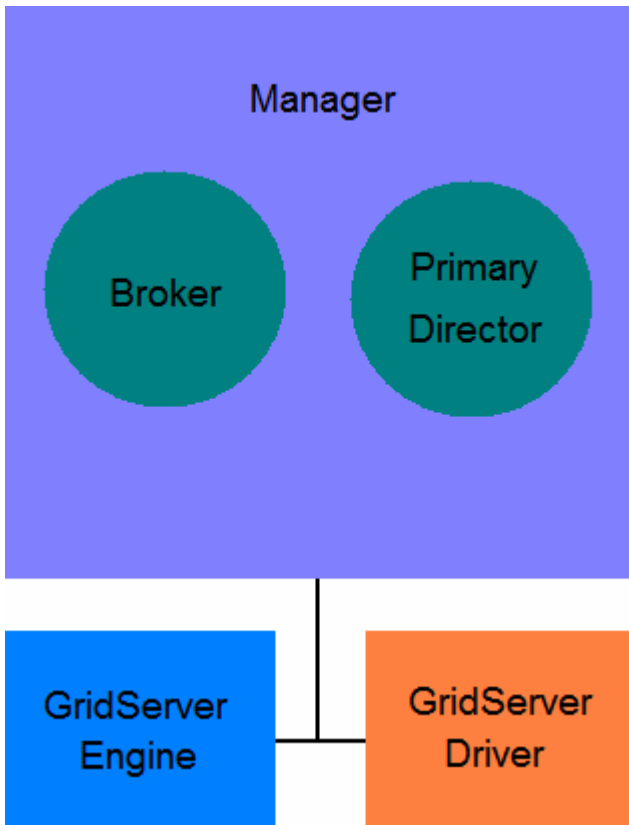


Figure 3. High Availability Scenario. Drivers are not backups of one another. The Drivers in Figure 3 denote different Driver instances submitting jobs to different Brokers.

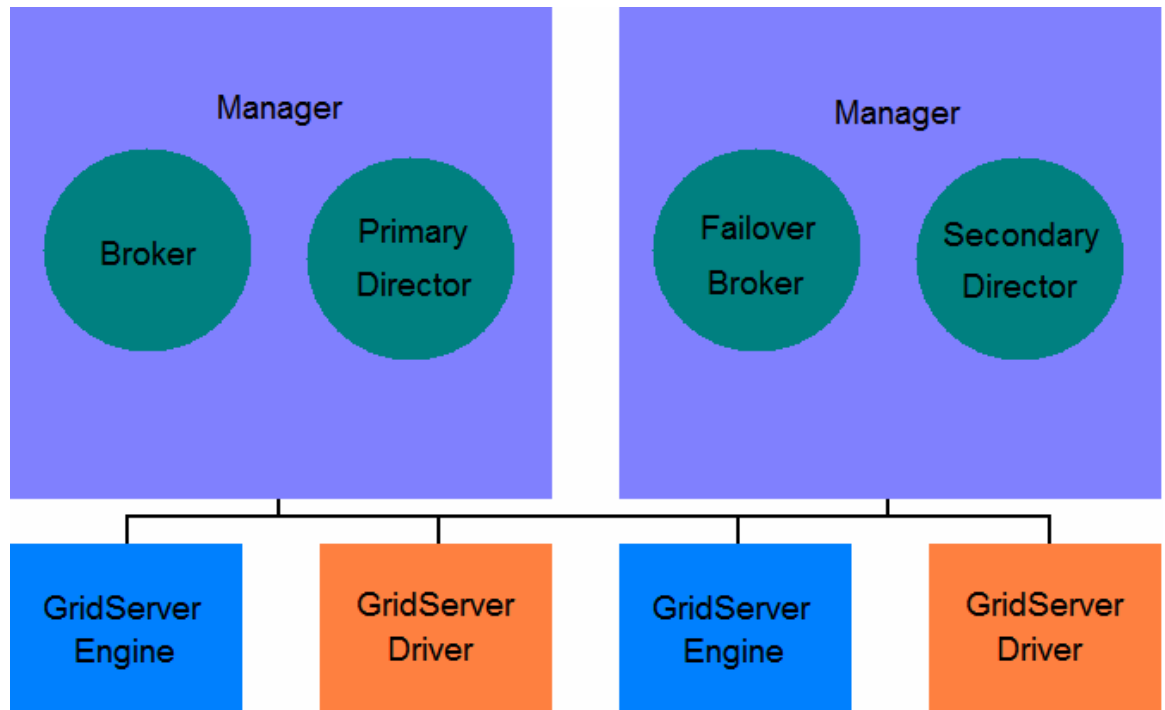
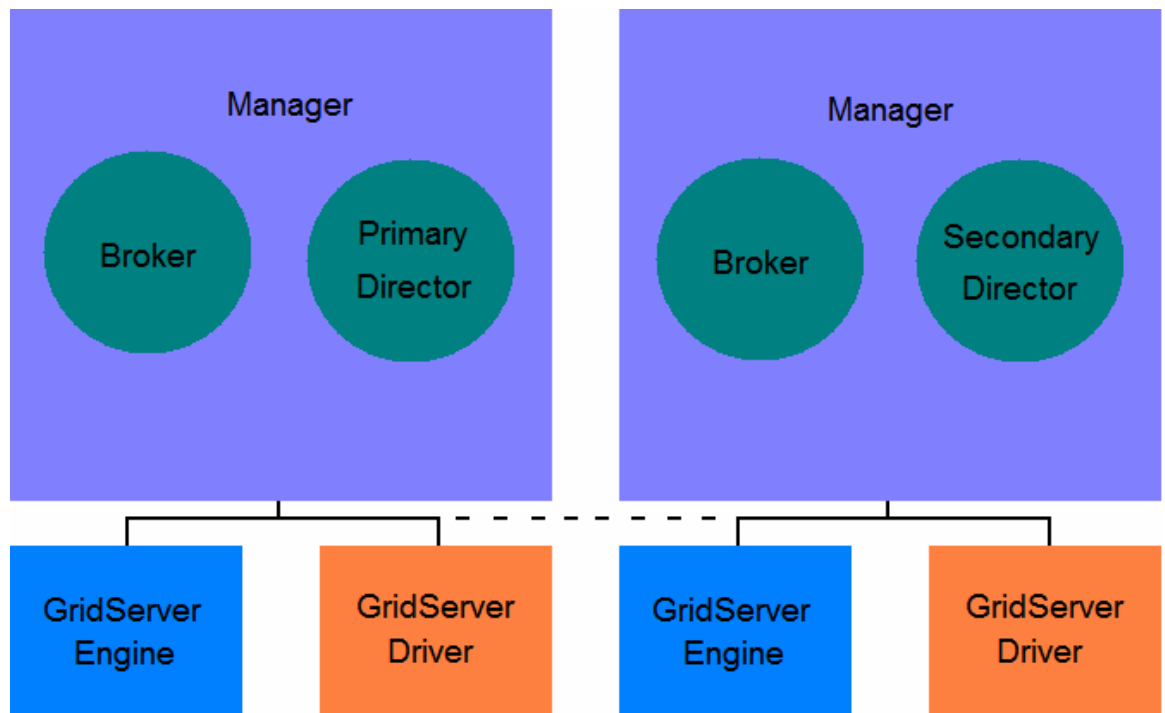


Figure 4. High Engine Volume Scenario. Multiple non-Failover Brokers can be deployed to manage large volumes of Engines.



For more information about GridServer 5.0 architecture, see [2, 3, 4].

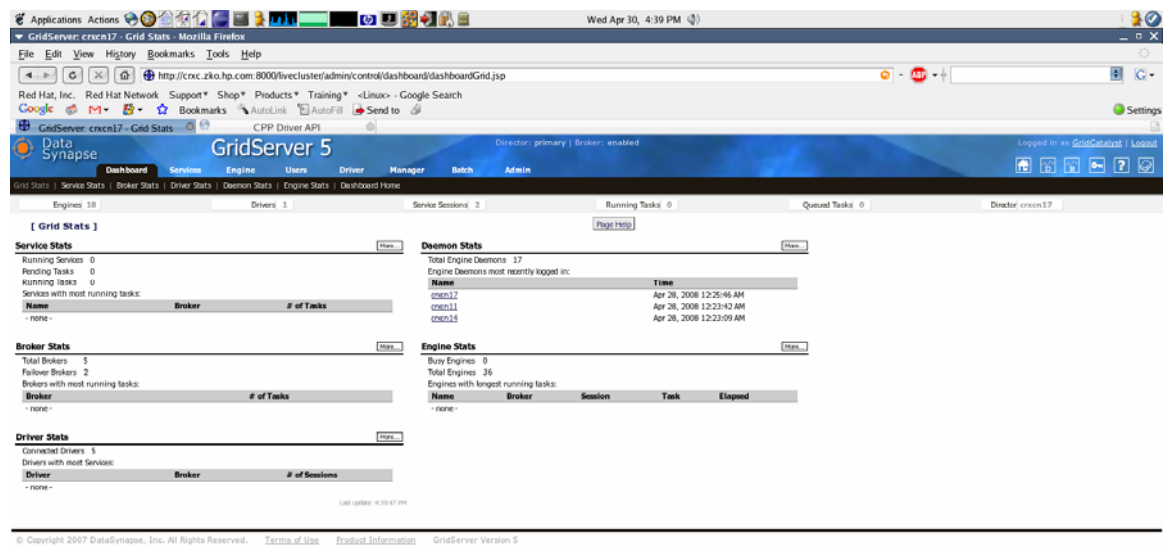
2.1 GridServer 5.0 Grid Topology

Grids running GridServer 5.0 have at least one management node and one or more dependent compute nodes. There is no limitation on whether a management node can also serve as a compute node, nor is there a limitation on the number of management nodes for each Grid group. Performance will be impacted if a single management node manages too many computes nodes. A management node hosts a GridServer 5.0 Manager. A compute node hosts a GridServer 5.0 Engine Daemon and the Engines it manages.

2.2 The GridServer Administration Tool

The GridServer Administration Tool is a Web interface that enables you to monitor and configure a Grid and its workload. The interface includes a dashboard that provides a condensed, real-time summary of Grid activity.

Figure 5. GridServer Administration Tool



3 Requirements

DataSynapse provides the *GridServer System Requirements* document [5] that outlines the minimum hardware and software requirements to deploy a GridServer 5.0 grid.

GridServer 5.0 requires Java 1.4 or higher. HP recommends a private copy of the Java™ SDK be made available for the sole use of GridServer 5.0. Run the following commands to determine which version of Java is available in the environment:

```
$ cd $JAVA_HOME/bin      # JAVA_HOME is the Java home directory
$ ./java -version
```

If Java is not installed or is not compatible with GridServer 5.0, see the website at <http://java.sun.com>.

To leverage GridServer 5.0 CPPDriver, you must use GCC 3.3 or later.

To determine which version of GCC is available in the environment run the following command:

```
$ gcc -v
```

To acquire GCC see <http://gcc.gnu.org>

To acquire the initial installation files for GridServer 5.0, contact your DataSynapse representative.

4 Installation

To administer and install GridServer 5.0 components, HP recommends the creation of a Linux and GridServer 5.0 user account, dsadmin. This method is preferred to using the root user because:

- You create a common account that all GridServer Administrators can use.
- You restrict access to files and privileges needed to administer grids managed by GridServer.

If the installation of GridServer 5.0 is performed by the root user, then only the root user can fully operate grids managed by GridServer 5.0. Logs, file locks, and other volatile files belong to and are accessible only by the root user. Users who attempt to start and stop GridServer 5.0 components run into file permission blocks and logging errors.

To create a dsadmin account, perform the following:

1. In a web browser, enter the GridServer Administration Tool web address:
2. `http://FULLY QUALIFIED DOMAIN NAME:PORT/liveGrid`
Where *FULLY QUALIFIED DOMAIN NAME* is the name of the host hosting the Manager or its IP address, which can be acquired using the alternative method in section 4.2, and where *PORT* is the port the Manager is configured to use.
3. Choose **User>Global Actions>Create New User**.
4. Fill in the appropriate values for the User Name, First Name, Last Name, and email fields.
5. Choose **Map Roles**.
6. Select all of the available roles, and then click the **Save** button.
7. In the Service Username Access field, select **all**.
8. Supply a password for the GridServer 5.0 account in the New Password field, and confirm it by retyping it in the New Confirm field.
9. Click any of the available **Submit** buttons.

4.1 GridServer 5.0 Manager Initial Installation

To install a GridServer 5.0 Manager:

1. Acquire the installation file for GridServer 5.0 Managers from Data Synapse Customer Support website: <http://customer.datasynapse.com> The installation file is a gzip tar archive file.
2. Log in to the designated Management node of the Grid as the root user.
3. Copy the gzip tar installation file into the directory.
4. Run the following command:

```
$ tar -zxvf GridServer-R5*gz
```
5. A subdirectory, datasynapse, is created.
6. By default, GridServer 5.0 requires port 8000.
7. To determine if a port conflict exists, run the following command:

```
$ netstat -a | grep 8000
```

8. If there is no output from the command, then the port is free. If the port is not free, conflicts might arise that might prevent the completion of the second phase of GridServer 5.0 Manager installation.
9. Set an environment variable, `JAVA_HOME`, that specifies the path to the home directory of the Java installation used by GridServer 5.0.
10. Export this environmental variable with the logon scripts of all clients of the GridServer.
11. To complete the installation, start GridServer 5.0 Manager with the following commands:

```
$ cd datasynape
$ ./server.sh start
```

The second phase of GridServer 5.0 Manager and Broker installation uses the GridServer Administration Tool to define the roles and configure Managers and Brokers. For information about the second phase of Manager and Broker installation, see Sections 4.2 through 4.5.

For more information, see the *DataSynapse GridServer Installation Guide* version 5.0 [4].

4.2 GridServer 5.0 Primary Director and Primary Broker Installation

This section describes the installation of a Primary Director and Primary Broker in a GridServer 5.0 Grid.

To complete this process:

1. Complete the steps in Section 4.1.
2. Ensure you are still logged in to the Management node of the Grid.
3. Run the following command:

```
$ hostname
```

4. Record the fully qualified domain name of the Management node.
5. In a web browser, enter the GridServer Administration Tool web address:

```
http://FULLY QUALIFIED DOMAIN NAME:8000/liveGrid
```

Where *FULLY QUALIFIED DOMAIN NAME* is the fully qualified domain name of the Management node.

If your browser cannot reach the web address, use the following alternate method:

1. Use the IP address of the Management node instead of the fully qualified domain name.
2. Run the following command:

```
$ ifconfig
```

The details of one or more network interfaces appear.

3. Replace *FULLY QUALIFIED DOMAIN NAME* in the above URL with the "inet addr" that is used for Internet access.

You can view the GridServer Administration Tool in your browser.

4. Select **Typical**, and then click **Next**.

This initializes the Manager to have one Primary Director and one Primary Broker. The port is 8000 by default.

To configure another port, perform a custom installation, and follow the prompts.

The GridServer Administration Tool prompts you to restart the GridServer 5.0 Manager.

5. Change directories to the directory that you created in section 4.1, and then run the following commands to restart the manager:

```
$ ./server.sh stop
```

```
$ ./server.sh start
```

6. **After restarting, login to** the GridServer Administration tool.
7. The GridServer Administration Tool prompts you to create of a user name and password. Create a user name and password that are the same as the dsadmin user.
8. To enable the GridServer 5.0 Manager, follow the steps in Section 4.6.

For more information, see the *DataSynapse Administrative Guide version 5.0*.

4.3 GridServer 5.0 Secondary Director and Failover Broker Installation

This section describes the installation of a Secondary Director and Failover broker within a GridServer 5.0 grid that provides fault tolerance and high availability.

1. Run the following command:

```
$ hostname
```

2. Record the fully qualified domain name of the node that hosts this Manager.
3. In a web browser, enter the GridServer Administration Tool web address:

```
http://FULLY QUALIFIED DOMAIN NAME:8000/liveGrid
```

Where *FULLY QUALIFIED DOMAIN NAME* is the fully qualified domain name of the Management node.

If your browser cannot reach the web address, see the alternative method in Section 4.2.

Upon success, you can see the GridServer Administration Tool in your browser.

4. Select **Custom**, and then click **Next**.

This begins initializing a GridServer 5.0 Manager to a custom configuration.

5. On a new page in your browser, select **New Manager Installation**, and then click **Next**.
6. On a new page in your browser, select **Secondary** from the list of Director configurations.
7. On a new page in your browser, select **Failover** from the list of Broker configurations.
8. Click **Next** to continue.
9. Provide the fully qualified domain name and port of the Primary Director for the GridServer 5.0 Grid.

Use either the fully qualified domain name of the Management node or the IP address of the Management mode using the alternative method in section 4.2. Do not alter the default TCP port unless you have also done so for the Primary Director of the GridServer 5.0 Grid as well.

Note: More advanced configuration of a Management node is beyond the scope of this document. For more information, see the *DataSynapse Administrative Guide version 5.0*.

10. Click **Next** until the Start Installation option appears, and then click **Start Installation**.

The GridServer Administration Tool prompts you to restart the GridServer 5.0 Manager before continuing.

11. Navigate to the directory created in section 4.1, and then run the following commands:

```
$ ./server.sh stop
```

```
$ ./server.sh start
```

12. **After restarting, login to** the GridServer Administration tool.
 13. Create a user name and password. Use the same user name and password that is the same as the dsadmin user.
 14. Follow the steps in Section 4.6 to enable the GridServer 5.0 Manager.
- For more information, see the *DataSynapse GridServer Installation Guide version 5.0* [4].

4.4 GridServer 5.0 Standalone Broker Installations

You can deploy one or more Standalone Primary Brokers to meet high volume demands. You can also deploy one or more Standalone Failover Brokers to provide greater fault tolerance against Broker failure in a GridServer 5.0 Grid. A Standalone Broker refers to a Broker in a Manager that does not contain an adjoining Director within itself. Quarantine Brokers cannot be Standalone Brokers because they require an adjoining Director in the same Manager.

1. Log in to the Manager hosting the Broker you want to configure to act as the Quarantine Broker for the Grid by visiting the following web address:

`http://FULLY QUALIFIED DOMAIN NAME:PORT/liveGrid`

Where *FULLY QUALIFIED DOMAIN NAME* is the name of the host hosting the Manager or its IP address which can be acquired using the alternative method in section 4.2, and *PORT* is the port the Manager is configured to use.

2. Select **Custom**, and then click **Next**.

This begins initializing a GridServer 5.0 Manager to a custom configuration.

3. On a new page in your browser, select **New Manager Installation**, and then click **Next**.
4. Select **None** from the list of Director configurations.
5. Select **Primary** or **Failover** from the list of Broker configurations.
6. Click **Next** to continue.
7. Provide the fully qualified domain name and port of the Primary Director for the GridServer 5.0 Grid.

Use either the fully qualified domain name of the Management node or the IP address of the Management mode using the alternative method in section 4.2. Do not alter the default TCP port unless you have also done so for the Primary Director of the GridServer 5.0 Grid as well.

Note: More advanced configuration of a Management node is beyond the scope of this document. For more information, see the *DataSynapse Administrative Guide version 5.0*.

8. Continue clicking **Next** until you have the option to Start Installation, and then click **Start Installation**.

The GridServer Administration Tool prompts you to restart the GridServer 5.0 Manager before continuing.

9. Navigate to the directory created in section 4.1, and then run the following command:

```
$ ./server.sh stop
$ ./server.sh start
```

10. **After restarting, login to** the GridServer Administration Tool.

For more information, see the *DataSynapse GridServer Installation Guide version 5.0* [4].

4.5 GridServer 5.0 Quarantine Broker Installation

This section describes the installation of a Quarantine Broker that hosts unverified Engine Daemons in a GridServer 5.0 Grid. Quarantine Brokers prevent unqualified Engines from downloading potentially secure data or running unapproved applications until an administrator grants approval. You can deploy only one Quarantine Broker for each GridServer 5.0 Grid. To install a Quarantine Broker, you must install a matching Director within the same GridServer 5.0 Manager. The Manager can be either a Primary or Secondary Director.

1. Log in to the Manager hosting the Broker you want to configure to act as the Quarantine Broker for the Grid by visiting the following web address:

`http://FULLY QUALIFIED DOMAIN NAME:PORT/liveGrid`

Where *FULLY QUALIFIED DOMAIN NAME* is the name of the host hosting the Manager or its IP address, which can be acquired using the alternative method in section 4.2 and *PORT* is the port the Manager is configured to use.

2. Select **Custom**, and then click **Next**. This begins initializing a GridServer 5.0 Manager to a custom configuration.
3. On a new page in your browser, select **New Manager Installation**, and then click **Next**.
4. Select **None** from the list of Director configurations.
5. Select **Primary** from the list of Broker configurations.
6. Click **Next** to continue.
7. Provide the fully qualified domain name and port of the Primary Director for the GridServer 5.0 Grid.

Use either the fully qualified domain name of the Management node or the IP address of the Management node using the alternative method in section 4.2. Do not alter the default TCP port unless you have also done so for the Primary Director of the GridServer 5.0 Grid as well.

Note: More advanced configuration of a Management node is beyond the scope of this document. For more information, see the *DataSynapse Administrative Guide version 5.0*.

8. Click **Next** until the option to Start Installation option appears, and then click **Start Installation**.

The GridServer Administration Tool prompts you to restart the GridServer 5.0 Manager before continuing.

9. Navigate to the directory created in section 4.1, and then run the following command:

```
$ ./server.sh stop
```

```
$ ./server.sh stop
```

10. **After restarting, login to** the GridServer Administration tool.
11. Choose **Manager>Broker Admin**.
12. Record the name of the Broker found in the Broker Name column.
13. Choose **Admin>Manager Configuration>Engines and Clients**.
14. Locate the Quarantine Broker section, enter the name of the Broker previously recorded, and then click **Save**.
15. Log in to the Primary Director and Secondary Directors if any exist in the Grid.

16. Update the Quarantine Broker section on the Engines and Clients configuration page. For more information, see the *DataSynapse Administrative Guide version 5.0* [2].

4.6 GridServer 5.0 License Verification

To activate a GridServer Manager, a valid license must be uploaded and verified with the GridServer Administration Tool.

To upload and verify a license:

1. Log in to the Primary Director of the GridServer grid.
2. In the upper right corner, click the key icon to load the license upload page.
3. Upload a valid license to activate the GridServer 5.0 Grid.

In activating the GridServer grid, the license is propagated to all secondary Directors and Brokers, so you only have to complete this task once.

For more information, see the *DataSynapse Installation Guide version 5.0* [4].

4.7 GridServer 5.0 Engine Daemon Installation

This section describes the installation of GridServer 5.0 Engine Daemons and their Engines in a GridServer environment. Engines perform all work needed to meet service requests in the grid. Engine Daemons are the first management layer over Engines.

You acquire the installation file for an Engine Daemon from the Primary Director of the GridServer against which it is deployed. Acquiring the installation file from Managers of other grids causes a faulty installation.

1. To acquire the Engine Daemon installation file, log in to the Primary Director at the following URL:

```
http://FULLY QUALIFIED DOMAIN NAME:PORT/liveGrid
```

Where *FULLY QUALIFIED DOMAIN NAME* is the name of the host hosting the Manager or its IP address which can be acquired using the alternative method in section 4.2 and *PORT* is the port the Manager was configured to use.

2. In the GridServer Administration Tool, navigate to **Engine>Engine Install**.
3. Select the appropriate installation package for the platform.
4. You can determine what platform a machine uses by running the following command:

```
$ uname -m
```

5. Place the installation file in the parent directory of where the Engine Daemon is intended to be installed, and then run the following command:

```
$ tar -zxvf FILENAME
```

Where *FILENAME* with the name of Engine Daemon installation file.

For example, DataSynapse names the installation file for x86_64 platforms **DSEngineLinux64.tar.gz**.

The installation file is a gzip tar archive file, and the command unpacks it appropriately to the current working directory subdirectory, DSEngine.

6. Change directory to DSEngine, and then run the following command:

```
$ ./configure.sh -s FULLY QUALIFIED DOMAIN NAME:PORT
```

Where *FULLY QUALIFIED DOMAIN NAME* is the fully qualified domain name of the Management node hosting the Primary Director or the IP address using the alternative method

in section 4.2. and **PORT** is the port the Engine Daemon uses to communicate with the Primary Director.

This command initializes the Engine Daemon and its Engines appropriately. You need to run it once for each Engine Daemon.

For more information, see the *DataSynapse Installation Guide version 5.0* [4].

4.8 GridServer 5.0 Client Authentication

This section describes the process by which clients of a GridServer environment authenticate themselves. By default, the client management property “Client Authentication Enables” is set to TRUE, requiring clients to authenticate themselves before their applications are serviced in the GridServer grid. Client authentication requires that a user account is created and that an appropriate Driver Profile is associated with it.

To create a User Account:

1. Log in to the GridServer Administration Tool using the Configure-role account created when you installed GridServer, or any other account with access to the User Manage feature.
2. Choose **User>User Admin**.
3. Select **Create New User** from the Global Actions list. The New User Information page opens.
4. Enter the User Name and a password, and then confirm the password.
5. Select Security Roles assigned to the account. When you click the Map Roles button next to the Roles field, a pop-up window opens, displaying all the available roles.
6. Select one or more roles, then click **Save**. If multiple roles are selected, the account can access features specified in all roles.
7. (Optional) Enter First name, Last name, and an email address for notifications.
8. If you use Driver Authentication, you can associate a Driver Profile with a user account. Drivers using the same user name as a user account also use a specified Driver Profile. Select a Driver Profile from the Driver Profile list to do this.
9. Select the users that can be viewed with this account. This user can view any Services submitted by the selected users. Services that do not specify a user default to the fully qualified domain name of the Driver and can be viewed only by setting Service Username Access to all.
10. After entering all the information for the user, click **Submit**. A notification email is sent to the address given when you create a new account.
11. When authentication is enabled, you must assign Driver Profiles to GridServer users to permit clients to log in. For example in the GridServer Administration Tool:
 1. Choose **Driver>Driver Profiles**.
 2. Create a new Driver Profile and save it.
 3. Choose **Users>User Admin**.
 4. Create a new user, and assign the profile just created to that user.

For Drivers, the username and password are assigned using the driver.properties file or the API.

NOTE: The driver.properties file resides in the conf directory of the GridServer 5.0 SDK installation directory. You must alter DSUsername and DSPassword in the file accordingly.

For more information, see the *DataSynapse Administrative Guide version 5.0* [2].

4.9 GridServer 5.0 Engine Daemon Quarantine Status

This section describes changing the Quarantine status of a GridServer 5.0 Engine Daemon.

When employing a Quarantine Broker in a GridServer environment, you must change the Quarantine Status of unverified Engine Daemons. Engine Daemons whose security status is not verified can only log in to the Quarantine Broker in a Grid and cannot access production Brokers elsewhere in the Grid. Engines managed by Engine Daemons logged in to the Quarantine Broker are restricted from being allocated to service requests in the Grid.

To change the Quarantine status of a single GridServer Engine Daemon:

1. In a web browser visit the following URL:

```
http://FULLY QUALIFIED DOMAIN NAME:PORTliveGrid
```

Where *FULLY QUALIFIED DOMAIN NAME* is the name of the host hosting the Manager or its IP address which can be acquired using the alternative method in section 4.2 and *PORT* is the port the Manager was configured to use. If your browser cannot reach the previous web address, see the alternative method in section 4.2.

2. Navigate to **Engine>Engine Daemon Admin**.
3. Select the Engine Daemon for which you want to change the Quarantine status.
4. In the Actions list, select **Edit/View Properties**.
5. Select **QuarantineStatus** from the properties column, and then enter a value of **Verified**.

Alternatively, you can set the Quarantine status of all Engine Daemons in the grid at the same time. This can be done by completing the above steps 1 and 2.

1. From the Global Actions list, select **Set Property for all Daemons on Page**.
2. From the Engine Property list, update QuarantineStatus to a value of **Verified**.

For more information, see the *DataSynapse Administrative Guide version 5.0* [4].

4.10 GridServer 5.0 SDK Installation

This section describes the installation of the GridServer 5.0 SDK. The SDK provides the Drivers that allow application developed in C++, Java, and SOAP to run on GridServer 5.0 Engines.

You **must** acquire the installation file for the SDK using the Wed Administration Tool from the Primary Director against which it will be deployed. Acquiring the installation file from Managers of other grids causes faulty installations.

To acquire the SDK installation file:

1. Log in to the Primary Director of the Grid.
2. Navigate to **Driver>SDK Download**.
3. Select the appropriate installation package for the platform.
4. Determine what platform a machine is by running the following command:

```
$ uname -m
```

5. Determine which gcc release is available with the following command:

```
$ gcc -v
```

6. Place the installation file in the parent directory of where SDK is to be installed, and then run the following command:

```
$ tar -zxvf FILENAME
```

Where *FILENAME* is the name of SDK installation file.

For example DataSynapse names this installation file **GridServerSDK-linux64-gcc34.tar.gz** for x86_64 platforms.

The installation file is a gzip tar archive file, and the above command unpacks it appropriately to the current working directory to the subdirectory, DSEngine.

7. Run the following commands:

```
$ cd GridServer*
$ cd pdriver
$ ls -l
```

8. There is a script, `setenv.sh`, located in this directory. Run the script with the following command:

```
$ ./setenv.sh
```

This script sets up the environment variables needed to leverage the Parametric Driver. This will enable clients to leverage C++, Java, Soap, and DataSynapse Parametric Driver Scripting language to develop applications for this environment.

5 GridServer 5.0 and NFS

HP recommends employing NFS when installing the GridServer components. Using an NFS exported directory eases the installation and maintenance process. Resources needed by a client service needs to be deployed to Engines before the client service session can execute on the grid. With NFS, this process only needs to be done once whereas without NFS, it will need to be repeated for every node hosting GridServer Engines.

One drawback of using NFS is when the NFS server fails then all the nodes dependent upon the GridServer 5.0 files and resources are unable to continue to operate. This problem can be alleviated by having one or more redundant NFS mounts on different nodes.

The installation process for Engine Daemons is the same, with or without NFS. However, using NFS means that you only need to install the files once. The configuration script, `configure.sh`, is only run once. In contrast, the installation process and configuration for an Engine Daemon needs to be performed on each compute node in the grid if an NFS file system is not used.

The installation process for GridServer 5.0 Managers is described below:

1. Follow the instructions from Section 4.1, but do not complete the NFS mount. This places the required files for a GridServer Manager in a location common to all nodes.
2. Create an alternate base directory for files unique to each running GridServer Manager.
3. Create a clean copy of `resin.conf` file from the `conf` directory of the GridServer Manager installation directory and copy it to the alternate base directory.
4. Set the environment variables `DS_BASEDIR` and `RESIN_CONF`, thereby specifying the alternate base directory and the location of the `resin.conf` file.

Note: This script assumes you follow the instruction in this document to install a Manager previously to running it which resides in a directory `/opt` within `dsadmin` home directory.

5. If `pdsh` is available, run the following bash shell script from `dsadmin` home directory:

```

#!/bin/bash
#make the alternate base directory
mkdir /opt/ds_manager_base_`hostname`
#copy the unaltered resin.conf to the alternate base directory
cp -p /opt/datasynapse/conf/resin.conf /opt/ds_manager_`hostname`
#generate a new script tuned to each machine which will run a GridServer 5.0 Manager
echo -e "\n#!/bin/bash\n\n\
export DS_BASEDIR=/opt/ds_manager_`hostname`\n\
export RESIN_CONF=$DS_BASEDIR/resin.conf\n\
export SERVER_SCRIPT_HOME=/opt/datasynapse\n\n\
. $SERVER_SCRIPT_HOME/server.sh $1" > ds_manager_`hostname`

```

This script performs tasks 1 through 4 described above.. A script `ds_manager_FULLY_QUALIFIED_DOMAIN_NAME` is generated, where *FULLY QUALIFIED DOMAIN NAME* is the fully qualified domain name of the machine the script was run on. This script is a simple wrapper around the `DataSynapse server.sh` shell script that is used to start and stop GridServer Managers.

6 Installation Verification

This section describes a simple test to verify that a new GridServer 5.0 grid installation is set up correctly.

1. In a web browser log in to the Management node containing the Primary Director at the following URL:

```
http://FULLY_QUALIFIED_DOMAIN_NAME:PORT/liveGrid
```

- Where *FULLY QUALIFIED DOMAIN NAME* is the name of the host hosting the Manager or its IP address, which can be acquired using the alternative method in section 4.2, and *PORT* is the port the Manager was configured to use.
2. In the GridServer Administration Tool, navigate to **Services>Service Test**.
 3. Request a Linpack Test Service Session that requests enough Engines to consume all engines on the grid. Set the duration of each request to 120 seconds.

After submitting the request, you are redirected to the Service Session Admin page. You can see the Linpack Test service session that just started.

4. In the Action column, select **View Service Session**.

This launches a Java interface that displays real-time data about the service session. If this does not work, ensure that you are running a compatible Java release on both the GridServer and the client machine.

7 Troubleshooting

7.1 GridServer Components Communicating with the Wrong Manager

There are instances where Engines, client applications, etc., cannot log in to their assigned Broker.

To fix this problem, you must download the GridServer SDK and GridServer Engine Daemon installation files from the Manager hosting the Primary Director of the grid. The SDK and Engine installation files are processed to work with the Manager they are downloaded from.

7.2 Routing Problems for Nodes on a Hidden Network

GridServer 5.0 administrators can elect to place the Management node on a public network while placing all other nodes on a private network so that they cannot be reached by the public.

Because two different network interfaces are used, routing problems might exist.

Ensure the private network IP address of the Management node is the default gateway for each of the non-management nodes with the following command:

```
$ route add default gw IPADDRESS
```

where *IPADDRESS* is the IP address of the network interface on the private network.

You might also need to alter /etc/sysconfig/network (or other appropriate file for your distribution) by appending the following to the file:

```
GATEWAY=IPADDRESS
```

where *IPADDRESS* is the IP address of the network interface for public use.

The two steps must be done for all nodes on the private network. HP recommends not to perform these two steps on the Management node.

7.3 Determining the File System a Directory is Mounted on

To determine whether a directory is mounted on an NFS file system, run the following command:

```
$ stat -f -c "%T" x
```

where *x* is the directory whose file system you want to query.

If the output is NFS, then the directory is mounted on an NFS file system.

This command is helpful in discovering an NFS-mounted directory to host GridServer 5.0 components that might be shared across all nodes.

References

- [1] DataSynapse: <http://www.datasynapse.com>
- [2] DataSynapse Administrative Guide version 5.0, admin-guide.pdf
- [3] Introducing the GridServer Platform version 5.0, introduction.pdf
- [4] DataSynapse Installation Guide version 5.0, install-guide.pdf
- [5] GridServer System Requirements, System Requirements.pdf
- [6] DataSynapse customer support site: <http://www.customer.datasynapse.com>

For More Information

For more information about DataSynapse GridServer 5.0, send inquiries to livesupport@datasynapse.com or see the DataSynapse customer support website: <http://www.customer.datasynapse.com>

For more information about deploying DataSynapse GridServer 5.0 on HP Grids, send inquiries to hpcgrid@hp.com.

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