# **HP Backup Navigator**

**Install and Configuration Guide** 



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## **Executive summary**

HP Backup Navigator is one of three products that support HP's Adaptive Backup and Recovery solution. Adaptive Backup and Recovery is an innovative approach to data protection based on the use of operational analytics targeting the day-to-day use of the backup infrastructure. More importantly this approach adds trending capabilities and predictive algorithms enabling IT teams to make decisions about the backup and recovery process before problems surface. As a core component of the Adaptive Backup and Recovery solution, HP Backup Navigator delivers an interactive web-based reporting and analytics tool that correlates related, but often disparate, pools of information presenting the content graphically in the form of customizable dashboards, graphs, charts, summaries, trending views and detailed information concerning the backup performance, capacity utilization and daily operational details. With HP Backup Navigator, organizations have access to the following:

- Application and infrastructure backup analysis to effectively prioritize backup operations
- Infrastructure performance monitoring to identify potential conflicts associated with interconnects between the source and target, media and session throughput rates.
- "What-if" scenarios to characterize backup datasets use a common federated deduplication model to potentially curb backup capacity requirements before the space is depleted.
- Capacity trending to expose current infrastructure utilization rates in conjunction with forward-looking, or predictions, gaps in the infrastructure where the backup and recovery needs are not going to be met.
- Quickly identify root-cause analysis with correlation and causation.
- Recommend solutions to optimize backup environments, as well as tune and correct backup policies to improve business continuity within your IT environment.

This document is intended to assist backup administrators and/or the IT staff with the setup, installation and configuration of the HP Backup Navigator product.

#### **Planning and Preparation**

HP Backup Navigator is deployed on RedHat Enterprise Linux (RHEL) 6.4 (<u>rhn.redhat.com/rhn/software/downloads/</u> <u>SupportedISOs.do</u>) and relies on MariaDB version 5.5.37 (<u>www.mariadb.org</u>) and Tomcat (<u>www.tomcat.apache.org</u>) version 7. An architectural overview of HP Backup Navigator and its relationship the HP Data Protector can be seen in Figure 1 below.



Figure 1: HP Backup Navigator – Architectural Overview

To begin, allocate the physical server or virtual machine for which HP Backup Navigator will run and install the RHEL operating system.

## **Hardware Requirements**

At a minimum, the operating system, supporting components and HP's Backup Navigator software should be installed on a physical or virtual server with the following capabilities:

Criteria	Requirements	Notes
Operating system	Redhat Enterprise Linux	Version 6.4; 64 bit
Database server	MariaDB version	Version 5.5.37; non-clustered install
Web server	Apache Tomcat	Version 7
CPU	Dual Core (Physical/Virtual) Intel or AMD	2.0 Ghz or higher
Memory	16GB DDR4	64 bit; 288-Pin; 32GB recommended
Operating System hard disk space	6GB	7.2krpm SATA, 10krpm SAS or SSD
Database Server hard disk space	2GB	7.2krpm SATA, 10krpm SAS or SSD
Web Server hard disk space	500MB	7.2krpm SATA, 10krpm SAS or SSD
HP Backup Navigator hard disk space	30GB	7.2krpm SATA, 10krpm SAS or SSD; Database size will grow depending upon cyclic change rates and should be monitored for additional capacity requirements
Network	(4) 1GB Network Interface Cards	Isolated 1GB LAN segment with jumbo frame support recommended

## **Deploying RedHat Enterprise Linux**

Begin by configuring the server to boot from the RHEL 6.4 ISO image or from DVD media that has the RHEL 6.4 operating system boot image loaded on it. During the boot process, accept the default options associated with disk setup and allocation as appropriate. When presented with the installation type screen, choose Basic Server along with Red Hat Enterprise Linux as an additional repository. Finally, ensure the option Customize Now option is selected before pressing the Next button as shown in Figure 2 below:

The default installation of Red Hat Enterprise Linux is a basic server install. You can optionally select a different set of software now.		
Basic Server		
O Database Server		
O Web Server		
O Identity Management Server		=
<ul> <li>Virtualization Host</li> </ul>		
O Desktop		
<ul> <li>Software Development Workstation</li> </ul>		
- Minimal		
Please select any additional repositories that you want to use for software installation.		
High Availability		
Load Balancer		=
☑ Red Hat Enterprise Linux		
C Desiliest Channel		· ·
+ Add additional software repositories Modify repository		
You can further customize the software selection now, or after install via the software management application. Customize later Customize now	Back	Next

Figure 2: RHEL 6.4 - Package Installation Screen

Ensuring the Customize Now option is selected will modify the installation process and present a list of additional packages that can be installed. By default, the basic server installation type does not include a graphical user interface (GUI). While HP Backup Navigator does not require a GUI to operate, it is recommended that one is available to aid in the deployment and configuration of the product. To install a GUI, use the Customize Now screen, shown in Figure 3 below, choosing Desktops in the list on the left of the screen and Desktop and General Purpose Desktop options in the list on the right.



Figure 3: RHEL 6.4 - Graphical User Interface Options

Finally, to access the web-based interface of HP Backup Navigator from this server, a web browser is required. To install a web browser, select Applications in the list on the left and Internet Browser in the list on the right before pressing the Next button to complete the installation. This can be seen in Figure 4 below.

Base System	📝 🗆 Emacs	
Servers	3 Graphics Creation Tools	
Web Services	👔 🛛 Internet Browser	
Databases	🔝 🗆 TeX support	
System Management	🔊 🗆 Technical Writing	
Virtualization		
Desktops		
Applications		
Languages		
	< m	
Firefox web browser		
	Optional packages selected: 3 of 3	
	Optional packages	
	Optional packages	

Figure 4: RHEL 6.4 - Additional Application Installation

This completes the necessary input to finalize the installation of RHEL 6.4. Upon completion of the installation, the server will indicate completion with the instructions that a reboot is required. Once the server reboots, a number of configuration steps are required before installing the additional components of HP Backup Navigator.

#### **Configuring RedHat Enterprise Linux**

To ensure a successful deployment, begin by verifying that the Domain Name System (DNS) is working correctly. Perform this verification by pinging another server on the network from the newly installed RHEL 6.4 server. Additionally, ensure server resolution occurs in both directions by using a separate server to ping the newly installed RHEL 6.4 server. It is recommended that this process validate connectivity using IP addresses, host names and fully qualified domain names. If a DNS Server is not available, the /etc/hosts file must be edited to manually add the IP address and host names for the HP Backup Navigator server and the HP Data Protector Cell Managers.

HP Backup Navigator requires port 5555 for access. Opening this port can be accomplished graphically using the Firewall Configuration Wizard (system-config-firewall) or using the command line interface (CLI). An example of the CLI code to open this port is listed below:

```
[root@localhost ~]# iptables -I INPUT -p tcp --dpport 5555 -j accept
```

Alternatively, the iptables file can be edited manually by making changes to the /etc/sysconfig/iptables file. Finally, if a firewall is not required, the firewall can be disabled by running the following commands:

```
[root@localhost ~]# service iptables save
[root@localhost ~]# service iptables stop
[root@localhost ~]# chkconfig iptables off
```

This concludes the necessary configuration steps to prepare the RHEL 6.4 operating system to host HP Backup Navigator.

## **Deploying MariaDB**

HP Backup Navigator relies on the MariaDB relational database to store and correlate details of the HP Data Protector backup and recovery process. Before installing MariaDB, ensure there are no mysql libraries installed on the new RHEL 6.4 server by running the command:

```
[root@localhost ~]# rpm -qa | grep mysql
```

If the results of this command returns mysql-libs-5.1.71-1.el6.x86\_64, or some derivate of it, the package must be removed before continuing. Removing this package can be accomplished with the following command:

[root@localhost ~]# sudo yum remove mysql-libs-5.1.71-1.el6.x86 64

After ensuring that there are no instances of mysql on the new RHEL 6.4 server, it is recommended that a directory is created on the newly installed RHEL 6.4 server to store these files as they are downloaded. For example, create a root-level directory called /hp and store the files listed below in that directory.

MariaDB version 5.5.37 can be downloaded from www.mariadb.org by navigating to the Downloads page, selecting the link titled "Download 5.5.38" in the section titled "MariaDB 5.5 Series". From the list provided, selecting the "RedHat, Fedora and CentOS" RPM packages. This displays an index of the RPMs by processor type followed by subdirectories for the processor type. Select the processor type that matches the server that RHEL 6.4 was installed on. From the list of subdirectories, select RPMs and download the following files:

- MariaDB-5.5.37-centos6-x86\_64-client.rpm
- MariaDB-5.5.37-centos6-x86\_64-compat.rpm
- MariaDB-5.5.37-centos6-x86\_64-devel.rpm
- MariaDB-5.5.37-centos6-x86\_64-server.rpm

N.B. The Yellowdog Updater, Modified (YUM) service can also be used to download and install MariaDB If the newly installed RHEL 6.4 has an active internet connection. For more information on this process, refer to Appendix A.

When directly downloading the MariaDB files, change to the directory where the RPM files were downloaded and execute the following command:

[root@localhost ~]# sudo rpm -ivh MariaDB-\*

An example of the output from this command is presented in the code-block below:

```
[root@localhost ~]# cd /hp
    [root@localhost ~]# sudo rpm -ivh MariaDB-*
   Warning: MariaDB-5.5.37-centos6-x86 64-client.rpm: Header V4 DSA/SHA1 Signature, key
   ID 1bb943db: NOKEY
             Preparing...
 1. MariaDB-compat
             20%1
 2. MariaDB-common
            3. MariaDB-client
             4. MariaDB-server
             5. MariaDB-devel
[root@localhost ~]#
```

Once the MariaDB installation is complete, verify that the MariaDB configuration contains the *FederatedX Storage Engine for MySQL* by starting the mysql service and accessing the MariaDB monitor interface as shown below:

```
[root@localhost ~]# service mysql start
[root@localhost ~]# mysql
MariaDB [(none)]> show engines
```

In the results that are displayed, ensure the *FEDERATEDX* engine is installed in the list from the above command, as shown in Figure 5.

	+		•	+	+
Engine	Support	Comment	[ Transactions	I XA	Savepoints
CSV	YES	CSV storage engine	I NO	I NO	1 240
MRG_MYISAM	I YES	Collection of identical MyISAM tables	1 100	1 190	1 200
MEMORY	I YES	Hash based, stored in memory, useful for temporary tables	1 NO	1 190	1 NO
BLACKHOLE	YES	/dev/null storage engine (anything you write to it disappears)	1 140	1 NO	1 100
MyISAM	1 YES	MyISAM storage engine	1 140	1 190	1 140
InnoD®	DEFAULT	Percona-XtraDB, Supports transactions, row-level locking, and foreign keys	I YES	I YES	I YES
ARCHIVE	YES	Archive storage engine	1 NO	1 100	045 1
FEDERATED	I YES	FederatedX pluggable storage engine	I YES	1 190	I YES
PERFORMANCE_SCHEMA	I YES	Performance Schema	I NO	1 NO	1 200
Aria	YES	Crash-safe tables with NyISAM heritage	I NO	1 100	1 240

10 rows in set (0.00 sec)

Figure 5: MariaDB – Show Engines Command

If the FederatedX engine is not listed, it can be manually installed using the command:

MariaDB [(none)]> install plugin federated soname 'ha federated.so'

With the MariaDB installed and the FederatedX engine verified, the next step is to create the necessary roles within the database to support the HP Backup Navigator software.

#### **Creating MariaDB Roles for HP Backup Navigator**

HP Backup Navigator requires an administrator and additional user accounts within MariaDB. Creating this new user is done while still in the *mysql* command line context. Use the following commands to create the new user account:

```
MariaDB [(none)]> create user `root'@'%';
MariaDB [(none)]> set password for `root'@'%' =PASSWORD(`password');
```

In the example above, the user name *root* and the password *root-password* are examples and should be replaced with the appropriate userid and password that is appropriate for the IT strategy. Passwords should be in lowercase and cannot contain the @ or = character.

To elevate the new user to an administrative level, the privileges for the new user must be set. This is accomplished using the following command:

```
MariaDB [(none)]> grant all privileges on *.* to `root'@'%';
```

Finalizing the process requires an update and commit to the MariaDB tables by executing the following command:

MariaDB [(none)]> FLUSH PRIVILEGES;

Since MariaDB is installed on the same server as HP Backup Navigator, additional user accounts are required to be created in MariaDB for users accessing HP Backup Navigator to ensure role-based access and auditing can be supported. Creating the additional users is performed in a similar way as above:

MariaDB [(none)]> create user 'root'@'127.0.0.1'; MariaDB [(none)]> create user 'root'@'navigator-server-hostname'; MariaDB [(none)]> create user 'root'@'navigator-server.domainname';

In the above example, the root account is extended to associate it with the IP address of the local host, followed by the host name of the HP Backup Navigator server and then finally the fully qualified domain name of the HP Backup Navigator server. Additionally, these accounts can be created using a GUI. For more information on the GUI process, see Appendix B.

#### Updating the MariaDB Configuration File

The final step in preparing the MariaDB for use with HP Backup Navigator is to update the MariaDB configuration file. To begin, the default configuration file needs to be saved. Perform this action by renaming the existing file using the following command:

```
[root@localhost ~]# mv /etc/my.cnf /etc/my.cnf.original
```

During the setup of the MariaDB, configuration changes to the database were stored in a local configuration file that needs to be placed in the /etc directory. Perform this step by using the following command:

[root@localhost ~]# cp /usr/share/mysql/my-large.cnf /etc/my.cnf

Once the copy completes, edit the /etc/my.cnf file to add the following statements within the [mysqld] code-block of the file, as shown in Figure 6:

```
# The MariaDB server
[mysqld]
port
               = 3306
socket
                = /var/lib/mysql/mysql.sock
skip-external-locking
key_buffer_size = 256M
max_allowed_packet = 1M
table_open_cache = 256
sort_buffer_size = 1M
read_buffer_size = 1M
read_rnd_buffer_size = 4M
myisam_sort_buffer_size = 64M
thread_cache_size = 8
query_cache_size= 16M
# Try number of CPU's*2 for thread_concurrency
thread_concurrency = 8
federated
max_connections=1500
```

Figure 6: MariaDB - /etc/my.cnf File

federated max \_ connections=1500

Once changes are made to the /etc/my.cnf file, the MariaDB service must be restarted. This is accomplished with the following commands:

[root@localhost ~]# service mysql stop [root@localhost ~]# service mysql start

This completes the necessary changes and modifications to complete the MariaDB deployment for use with HP Backup Navigator. The next step is to deploy and configure Apache Tomcat.

## **Deploying Apache Tomcat**

Apache Tomcat is the web service that is required to provide access to HP Backup Navigator. Download the apachetomcat-7.0.53.tar.gz file from the apache distribution website (*archive.apache.org/dist/tomcat/tomcat-7/v7.0.53/bin/*) and move the file into the /opt directory. Use the following commands to deploy the Tomcat service:

[root@localhost ~]# ln -s /opt/apache-tomcat-7.0.53 /opt/apache-tomcat

Once this command completes, edit the *catalina.sh* file located in /opt/apache-tomcat/bin and add the following statement:

```
JAVA _ OPTS="-Djava.awt.headless=true -Dfile.encoding=UTF-8 -server -Xms3536m -Xmx3536m -
XX:MaxPermSize=1524m -XX:+DisableExplicitGC"
```

The results are shown in Figure 7 below:

:		-agentlib:jdwp=transport=\$JPDA_TRANSPORT, address=\$JPDA_ADDRESS,server=y,suspend=\$JPDA_SUSPEND
-	CATALINA_PID	(Optional) Path of the file which should contains the pid of the catalina startup java process, when start (fork) is used
	LOGGING_CONFIG	(Optional) Override Tomcat's logging config file Example (all one line) LOGGING_CONFIG="-Djava.util.logging.config.file=\$CATALINA_BASE/conf/logging.properties"
•	LOGGING_MANAGER	(Optional) Override Tomcat's logging manager Example (all one line) LOGGINS_MANAGER=*-Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager*
* -		
JAV +D1	A_OPTS="-Djava.au .sableExplicitOC"	vt.headless=true =Dfile.encoding=UTF=8 =server =Xms3536m =Xmx3536m =XX:PermSize=1524m =XX:MaxPermSize=1524m =XX:

# OS specific support. Svar \_must\_ be set to either true or false.

Figure 7: Tomcat – Modified catalina.sh File

Once modified and save, the Tomcat service should be started using the following command:

```
[root@localhost ~]# cd /opt/apache-tomcat/bin
[root@localhost ~]# ./startup.sh
```

Verify that the Tomcat service is running by opening a web browser and entering the name of the server followed by the 8080 port (i.e. <u>http://myserver:8080</u>) as shown in Figure 8.

reporter:8080				ି • ଥି 🚷	✓ tomcat	9
Home Documentation	n Configuratio	n Examples	Wiki Mailing Lists		Fi	nd Help
Apache Tomcat/	7.0.53		×	http://v	ftware Foun	dation
🕨 lf yo	u're seeing thi	s, you've su	ccessfully installed To	mcat. Congratula	tions!	
	Recommended	Reading:			Server State	JIS
	ecurity Conside	rations HOW-	<u>ro</u>		Manager Ap	pp ]
	lustering/Sessio	on Replication	ном-то		Host Manag	jer
Developer Quick Sta	rt					
Tomcat Setup	Realms &	AAA	Examples	Servlet	Specifications	
First Web Application	JDBC Data	aSources		Tomcal	Versions	
Managing Tomcat		Documer	ntation	Getting He	lp	
For security, access to the	manager	Tomcat 7.0 Documentation FAQ		FAQ and Ma	AQ and Mailing Lists	
webapp is restricted. Users	are defined in:	Tomcat 7.0 Configuration		The following	mailing lists are avail	lable:
*CALALINA_HUME/conf/toncat-u	managar	Tomcat W	ki	tomcat-annour	ice	

Figure 8: Tomcat – Modified catalina.sh File

With the MariaDB and the Tomcat service installed and running, the final step is the installation and configuration of HP Backup Navigator.

### **Deploying HP Backup Navigator**

HP Backup Navigator can be downloaded from <u>www.hp.com/go/dataprotector</u> and should be stored on the RHEL 6.4 server it will run on. Once downloaded, mount the ISO image using the following command:

[root@localhost ~]# mkdir -p /mnt/iso
[root@localhost ~]# mount -o loop navigator.iso /mnt/iso
[root@localhost ~]# cd /mnt/iso

With the image mounted, use the following command to install HP Backup Navigator:

[root@localhost ~]# rpm -ivh hp-backup-navigator-8.0-1el6.x86\_64.rpm

Following the installation of Backup Navigator, the installation process displays the user name (admin) and a randomized unique password to be used for the initial login to the application. While the password can be changed later, it is recommended that the password is written down or copied to a file for later reference. Figure 9 provides an example of this point in the installation process.

Figure 9: HP Backup Navigator - Login Credentials

During the HP Backup Navigator installation, changes are made to the MariaDB and the Tomcat installation that require these services to be shutdown and restarted for the changes to take effect. Use the following commands, in the order presented, to perform these actions:

```
[root@localhost ~]# cd /opt/apache-tomcat/bin
[root@localhost ~]# ./shutdown.sh
[root@localhost ~]# service mysql stop
[root@localhost ~]# service mysql start
[root@localhost ~]# ./startup.sh
```

Following these actions, open a web browser and connect to the server using the format *hostname:8080*, where hostname is the name of the newly installed RHEL server hosting these applications. Figure 10 demonstrates the expected results from this navigation:



Figure 10: HP Backup Navigator – Welcome Screen

Using the user id *admin* followed by the randomly generated password, created during the installation process, login to complete the setup process as show in Figure 11.



Figure 11: HP Backup Navigator – Welcome Screen

During the setup process, HP Backup Navigator will deploy the database into the MariaDB installation. Performing this action requires additional user input during installation. When prompted, the user must supply the hostname of the MariaDB server using the fully qualified domain name, the MariaDB root administrator account and password (created earlier in this document), and the name of the database that will be created to host the HP Backup Navigator data. This is demonstrated in Figure 12.



Figure 12: HP Backup Navigator – MariaDB Database Creation

Before continuing, use the Test Connection button to verify that a successful connection to the MariaDB server can be made using the credentials supplied. If a failure to connect occurs, check the hostname, username and password and try again.

If a subsequent failure occurs, ensure the MariaDB service is running on the server by using the following command:

[root@localhost ~]# service mysql status

Use the commands from the previous section to start the service if the results indicate the service is not running.

Upon successfully testing the connection, pressing the next button will complete the deployment of the database structure that HP Backup Navigator relies on. This success is displayed in the installation progress bar.

The final installation step is to create a user id for HP Backup Navigator. The admin user id, presented during the installation, is reserved and cannot be used during this step. Instead, specify a new user id and password combination (i.e. *administrator*) and use the *Create New User* button as shown in Figure 13.

D NAVIGATOR	
	^
User setup	
Create your administrator account	
Username:	
administrator	
Username admin is reserved for installation process	
Password:	=
Confirm password:	
Create new user	e e e e e e e e e e e e e e e e e e e

Figure 13: HP Backup Navigator – Create New User

This completes the installation and setup of HP Backup Navigator. Use the *Take Me to Application* button to end the setup and login to HP Backup Navigator as show in Figures 14 and 15.

MAVIGATOR	
	Welcome to installation
	Start > Database > User > Finish
	HP Backup Navigator Installation Successful
	Take me to application



Welcome	
Username	
administrator	
Password	
Login	

Figure 15: HP Backup Navigator – End of Setup

Successful login will display the default home screen of HP Backup Navigator shown in Figure 16.

O HP Backup Navigator	\$			
< 🖉 🕲 reporter:8080/	ු 🗸 😂 🕅 🖓 Google 🕴	M 🖀		
NAVIGATOR	Reports Preferences Administration	Evaluation period! 60 days left. Log Out Administrator	0	
Scope -	C Overview	🖾 Email 👪	Layout	
Find reports	None -	None -		
all Overview				
Monitoring	Select favorite report	Select favorite report		
Capacity				
Performance				
★ Favorites				
	None - Select favorite report	None - Select favorite report		

Figure 16: HP Backup Navigator – Home Page

#### **Configuring HP Backup Navigator**

With HP Backup Navigator installed, the final step is to configure the HP Data Protector Cell Manager relationship. Creating these relationships binds HP Backup Navigator to specific cells that it will begin collecting backup related information that can be used in monitoring, reporting, trending, and running simulations. To accomplish this, HP Data Protector must be updated to include the HP Backup Navigator userid and password to enable access to the internal HP Data Protector database where much of this information is stored.

As shown in Figure 17, login to the HP Data Protector interface as administrator and navigate to the Users section of Data Protector. Here, the HP Backup Navigator *Administrator* account, created during the setup process is added to the *admin* user group.



Figure 17: HP Backup Navigator – Add HP Backup Navigator Admin Account

Returning back to HP Backup Navigator, the communication with the Data Protector Cell Managers can be completed. To perform this action, use the Administration link in the title bar, as shown in Figure 18, to add the Data Protector Cells.

🍈 HP Backup Navigator	\$					
< 🖉 🕲 reporter:8080/8	administration/cell-manager			Ç~1	🕄 🛃 Google	#9 🖌
D NAVIGATOR	Reports Preferences Admini	stration		Evaluation p	eriod! 60 days left.	Log Out Administrator
🔅 Cell Managers	Cell Managers			+ New	🕑 Edit 🔳 Sto	Detach 🗶 Delete
Custom Reports	Description	Hostname	Status	DP Version	Last Data	Collection
📮 Licensing	No entries					
Database						
🛃 Mail Server						
🗭 Logging						

Figure 18: HP Backup Navigator – HP Data Protector Cell Details

To add a new HP Data Protector Cell Manager, use the *+New* button as shown in Figure 19.

() н	P Backup Navigator	\$						
٠	2 Teporter:8080/	administration/cell-mana	ger		Ç~	😂 😽 Google		#
Ø	NAVIGATOR	Reports Preferences	Administration		Evaluation p	eriod! 60 days left.	Log Out Administrato	0
*		Cell Managers			+ New	🖉 Edit 🔳 :	Stop 🕒 Detach	X Delete
2		Description	Hostname	Status	DP Version	Last D	ata Collection	
*		No entries						
=								
č.								
-								

Figure 19: HP Backup Navigator – Add New Data Protector Cell Manager

Creating a new relationship with the HP Data Protector Cell Manager requires additional inputs that include the host name, a description of the Cell Manager, the HP Backup Navigator data base details, and the timeframe and interval for collecting Data Protector details. This is shown in Figure 20 below.

(ф) н	P Backup Navigator	\$			
+	P @ reporter:80	80/administration/cell-	manager		
Ø	BACKUP NAVIGATOR	Reports Preferences	Administration	New Cell Manager	×
		Cell Managers		Cell Manager	
η.		Description		Hostname	
Ħ		No entries		dpcellmgr.dplab.local	
=				Description	
в				dpcelimgr Cell Managet	
æ				Database Settings	
				Hostname	Port
				reporter.dplab.local	3306
				Usemame	
				root	
				Password	
				Database name	
				cell_dpcellmgr	
_				Collect data from	Collection interval (min)
				01/01/2013	10

Figure 20: HP Backup Navigator – Configuring the Data Protector Cell Manager Relationship

Once configured, the list of associated Data Protector Cell Managers is updated to reflect the relationship, as shown in Figure 21 below. Perform these actions for all Data Protector Cell Managers that will be monitored by HP Backup Navigator.

() HP Backup Navig	ator				
n 🖉 🖉 🖉 🖉	ter:8080/administration/cell-manager			ା~ ଥା 👫	♥ Google
D NAVIGATOR	Reports Preferences Administration	Evaluation period	t 60 days let		
🔅 Cel Managers	Cell Managers			Conduction period 60 days left Evaluation period 60 days left New C Edit DP Version J J	
R Custon Reports	Description	Hostname	Status	DP Version	
👷 Likensing	dpcelimgr Cell Manager	dpcellingsdplab.local	Started	7	
E Database					
👩 Mai Server					
🗭 Logong					

Figure 21: HP Backup Navigator – Successful Data Protector Cell Manager Relationship

With the relationships established, the monitoring scope of HP Backup Navigator can be changed to affect the default dashboard view. To accomplish this, use the *Scope* drop down control on the HP Backup Navigator main screen as shown in Figure 22.



Figure 22: HP Backup Navigator – Scope Change

The monitoring scope can be inclusive or selective of the associated Data Protector Cell Managers. Select the option most appropriate to monitor *All* of the associated Cell Managers, or selectively choose which Cell Managers to monitor. Figure 23 demonstrates this option.



Figure 23: HP Backup Navigator – Scope Details

Once complete, HP Backup Navigator updates the reporting interface to reflect the data collected from the selected Data Protector Cell Managers, as shown in Figure 24.



Figure 24: HP Backup Navigator – Updated Reports

## Conclusion

HP Backup Navigator provides an intuitive and interactive web-based solution for correlating the details associated with HP Data Protector backup and recovery operations. Using this technical white paper, administrators can use step-by-step instructions to download and install the open source components that HP Backup Navigator relies on.

While much of this process can be seen as manual, the rules related to open source distribution are very explicit and, in this case, prevent HP from publishing Backup Navigator as a single installable form of media.

## Learn more at

www.hp.com/go/convergedsystems www.hp.com/go/3par www.hp.com/go/burasolutions www.adaptive-backup.com www.autonomy.com/products/data-protector

## **About HP Autonomy**

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## Appendix A: Deploying Maria DB via Yellowdog Updater Modified (YUM)

To use the YUM service to download the MariaDB files, follow the instructions located at <u>downloads.mariadb.org/</u> <u>mariadb/repositories/#mirror=syringa</u> using the download website to specify the distribution (RedHat), the release (Red Hat EL 6 32-bit), and the version (5.5) as shown in Figure 25.

	Downloads se	etting up MariaDB Repositories	a	
	To generate the entries select a will appear below.	n item from each of the boxes below. Once	an item is selected in each box, your customized repository configuration	
	1. Choose a Distro	2. Choose a Release	3. Choose a Version	
MariaDB	openSUSE     Arch Linux	Red Hat EL 6 (64 bit)     Red Hat EL 6 (3384)	<ul><li>10.0</li><li>10.1</li></ul>	
FOUNDATION	<ul> <li>Mageia</li> <li>Fedora</li> <li>CentOS</li> </ul>	<ul> <li>Red Hat EL 5 (64 bit)</li> <li>Red Hat EL 5 (32 bit)</li> </ul>	• 5.5	
A Home	RedHat			
About     About MariaDB     About the MariaDB Foundation	Ubuntu     Debian	$\sim$		
MariaDB Foundation Supporters				
▲ Downloads	MariaDB repo or something sim	unv repository entry for RedMat. Copy and ilar). See "Installing MariaDB with yum" for	paste it into a trie under /etc/yum.repos.d/ (we suggest naming the file detailed information.	
P Blog				
<ul> <li>Service Providers</li> </ul>	MariaDB 5.5 RedHat repo e http://mariadb.org/maria	sitory list - created 2014-07-03 20 adh/repositories/	1:14 UTC	
	[mariadb]			
SUPPORT MARIADS	came - MaciaDB			

Figure 25: MariaDB Repositories for YUM Installation

Making these choices results in the specific YUM repository entries required to install the MariaDB using this service. The results generated must be copied and pasted into a new file and stored in the /etc/yum.repos.d directory on the RHEL 6.4 server. It is recommended that the output, listed below, be placed into a file titled MariaDB.repo and must be stored in the /etc/yum.repos.d/.

```
mariadb]
name=MariaDB
baseurl=http://yum.mariadb.org/5.5/rhel6-x86
gpgkey=https://yum.mariadb.org/RPM-GPG-KEY-MariaDB
gpgcheck=1
```

Once this file is saved, the following command can be executed to initiate the install:

[root@localhost ~]# sudo yum install MariaDB-server MariaDB-client MariaDB-compat MariaDB-devel

## **Appendix B: Creating MariaDB User Account via SQLyog**

SQLyog is a graphical user interface frontend for MySql. This application can be used to create the user accounts required for HP Backup Navigator and the MariaDB service. To download this application, open a web browser and navigate to the open source communities page at code.google.com/p/sqlyog. The product will need to be installed on a Microsoft Windows server that has access to the MariaDB installation. Upon successful installation, the application opens to its default view show in Figure 26 below.

SQLyog Community - [reporter/mysql - rol	ot@192.168.1.163*) hers Tools Powerhols Window Heio							
🔊 🐁 🕥 😳 🔄 🋵 🗟 mind	E 🕹 🕄 🖏 🕼		📲 🖕 👷 🕂 🥁 🖏 🚥 🖼 💹 👘					
reporter × 🛨								
Filter tables in mysql	Form View - conveniently b	rowse th	rough your data, one row at a time : Reason #751	to upgrade				
Filter (Ctrl+Shift+B)	🐁 Query 🗶 🛄 History	+						
Import         State           Import         Import           Import	CREATE UNER "Record     CREATE UNER "Record     CREATE UNER "Record     CREATE UNER "Record	*127.0.0 *seporte *seporte	li's s.dplab.local'y					
(i) procs_priv	🔿 <u>1</u> Nessages 📑 <u>2</u> Tabl	e Data	🕈 🤰 Info					
E brows?Tess	周辰一天白黑金玉		-			Linit must First sow	NID NI	I of costs 1000
E slow_log	Heat	Ilser	Parmurd	Salact write	Insart prin	Indate priv	Delete priv	Create nr
(i) tables_priv	localheat	reat	1 de avoca	T	Y	- Y	• Y	• T
Fine zone leap second	reporter.dplab.local	EDOL		Y I	Y	- Y	• Y	• 1
E time_zone_name	127.0.0.1	reot		T I	Y	- Y	- Y	• T
E time_zone_transition	<b>D</b> ::1	reat		T	Y	* Y	* Y	* T
Itime_zone_transition_type	D localheat				N I	* 11	* 1	* 8
(i) user	O reporter dplab local			S 13	N I			1
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E Functions	- reporter	2000		0				
🛞 🜉 Triggen	1		1			* 1 H	* 3	
(8) 🔔 Events	Database and Table our							
H BI performance schema	e distance signal rable, dier							
leady			8 row(s)	Connections: 1	Upprade to	a sulvog Profe	ssignal/Enterpr	ise/Ultimate

Figure 26: SQLyog – Application Main Screen

Using this application, the user accounts, passwords and privileges are created similar to the commands presented earlier in this document. Figures 27 and 28 provide additional detail on creating the user accounts and setting their passwords.



Figure 27: SQLyog – Creating User Accounts



Figure 28: Lyog – Setting User Account Passwords

Finally, the privileges for these users must be set, which can be accomplished using the following commands:

grant all privileges on \*.\* to `root'@'127.0.0.1'; grant all privileges on \*.\* to `root'@'localhost'; grant all privileges on \*.\* to `root'@'hostname.domainname';





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