

NetBackup IT Analytics Installation and Upgrade Guide for Linux

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VERITAS™

NetBackup IT Analytics Installation and Upgrade Guide for Linux

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Veritas Services and Operations Readiness Tools (SORT) is a website that provides information and tools to automate and simplify certain time-consuming administrative tasks. Depending on the product, SORT helps you prepare for installations and upgrades, identify risks in your datacenters, and improve operational efficiency. To see what services and tools SORT provides for your product, see the data sheet:

https://sort.veritas.com/data/support/SORT_Data_Sheet.pdf

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Install the NetBackup IT Analytics Portal on a Linux server

This chapter includes the following topics:

- [Introduction](#)
- [Multi-language support and locale considerations \(Linux\)](#)
- [OVA-based deployment on VMware ESXi](#)
- [Installer-based deployment](#)
- [Supported third-party and open source products](#)
- [Uninstall the NetBackup IT Analytics Portal](#)

Introduction

You can install the Portal on a Linux server by two methods:

- OVA based deployment
- Installer-based deployment

Installing all Portal Server components requires **root** privileges.

Throughout this document, screen shots and command-line prompts and responses are used to provide a reasonable representation of the interaction you will be viewing. However, they may not display precisely the same text that you will see during the installation.

Caution: Regarding RHEL based OVA deployment: This OVA is recommended to be used for the purposes of easing deployment of Portal. Support for the RHEL Operating System distributed with this appliance is not provided by Veritas.

Veritas will be responsible for support and maintenance of only NetBackup IT Analytics components on this appliance, depending on the license entitlement.

Multi-language support and locale considerations (Linux)

Apart from English, you can perform the portal installation in Simplified Chinese, French, Korean, and Japanese. To install the portal in one of the supported languages, you need to first check if the system has multiple languages and then add the preferred language for the installation. Once you have set the language preference, the installation progress and responses appear in the preferred language. Note that this language preference setting is only confined to the installation process and has no impact on the text of the portal UI.

1. To check the current system language:

```
#locale
```

2. To check if your system has multiple languages:

```
#locale -a
```

3. To add a language, run the command `# vi /etc/profile` and go to the end of the file and add the language as follows:

- To add Simplified Chinese:

```
export LANG=zh_CN.utf8
export LC_ALL=zh_CN.utf8
```

- To add French:

```
export LANG=fr_FR.utf8
export LC_ALL=fr_FR.utf8
```

- To add Korean

```
export LANG=ko_KR.utf8
export LC_ALL=ko_KR.utf8
```

- To add Japanese

```
export LANG=ja_JP.utf8
export LC_ALL=ja_JP.utf8
```

4. Reboot the system to set your language preference for the portal installation.

Having completed the language settings, you can proceed with the installation of the NetBackup IT Analytics Portal.

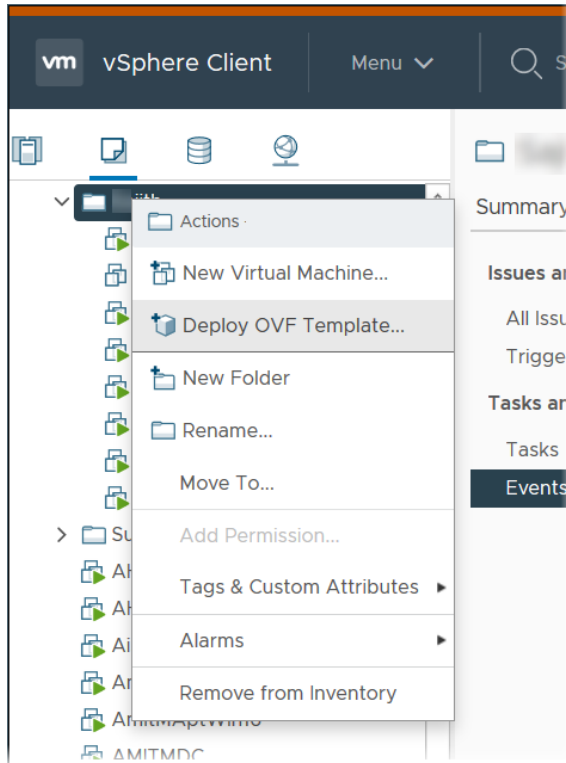
See [“Installer-based deployment”](#) on page 13.

OVA-based deployment on VMware ESXi

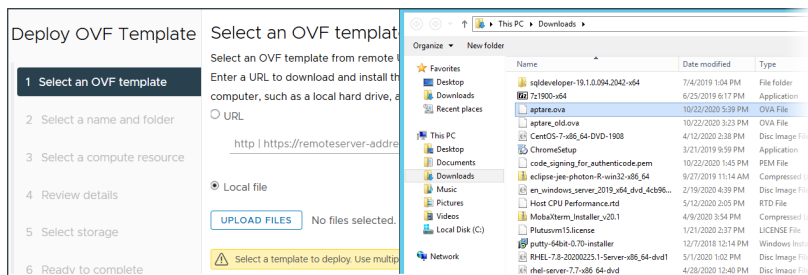
This OVA is supported with VMware ESXi 6.5 and above only. The OVA comes with CentOS operating System with 300 GB storage and 32 GB RAM.

Steps to deploy

- 1 Download the OVA from Download Centre : https://www.veritas.com/content/support/en_US/downloads.
- 2 Deploy OVA on vCenter using Deploy OVF Template option.



- 3 Login to VMware vCenter and select Deploy OVF Template.



- 4 Select a name and the Folder. Click **NEXT** to navigate to the next page.

Deploy OVF Template
Select a name and folder
✕

- 1 Select an OVF template
- 2 Select a name and folder
- 3 Select a compute resource
- 4 Review details
- 5 Select storage
- 6 Ready to complete

Specify a unique name and target location

Virtual machine name:

Select a location for the virtual machine.

- ▼ pun7lvc1.vxindia.veritas.com
 - ▼ Aptare
 - > []
 - > []
 - > []
 - > []
 - > []

CANCEL
BACK
NEXT

- 5 Review the details and click **NEXT**.

Deploy OVF Template
Review details
✕

- 1 Select an OVF template
- 2 Select a name and folder
- 3 Select a compute resource
- 4 Review details
- 5 Select storage
- 6 Select networks
- 7 Ready to complete

Verify the template details.

⚠ The OVF package contains advanced configuration options, which might pose a security risk. Review the advanced configuration options below. Click next to accept the advanced configuration options.

Publisher	No certificate present
Product	NetBackup IT Analytics is a suite of products that enable you to gain control and understanding of your IT infrastructure by delivering actionable insights and reporting across your heterogeneous IT infrastructure
Vendor	Veritas LLC
Download size	9.1 GB
Size on disk	103.6 GB (thin provisioned) 800.0 GB (thick provisioned)
Extra configuration	nvram = ovf://file/file2

CANCEL
BACK
NEXT

- 6 Select storage. To avoid getting any error, ensure that you select a Datastore that Host has access to. Click **NEXT** to navigate to the next page.

Select storage

Select the storage for the configuration and disk files

Encrypt this virtual machine (Requires Key Management Server)

Select virtual disk format: Thin Provision

VM Storage Policy: Datastore Default

Name	Capacity	Provisioned	Free	Type	Cluster
OS_Datastore_r7515-12...	95.25 GB	1.41 GB	93.84 GB	VMFS 6	
Shared-DS-03	3 TB	5.08 TB	69.26 GB	VMFS 5	
Shared_DS_001	8 TB	9.44 TB	393.45 GB	VMFS 5	
Shared_DS_002	8 TB	10.69 TB	298.75 GB	VMFS 5	
SSD_Datastore_r7515-1...	2.91 TB	1.45 GB	2.91 TB	VMFS 6	

Compatibility

✓ Compatibility checks succeeded.

CANCEL **BACK** **NEXT**

- 7 Select the network and click **NEXT**.

Select networks

Select a destination network for each source network.

Source Network	Destination Network
VM Network	VM Network

1 items

IP Allocation Settings

IP allocation: Static - Manual

IP protocol: IPv4

CANCEL **BACK** **NEXT**

- 8 Customize Network parameters for VM by providing Hostname, Domain name, IP, Netmask, gateway, and DNS details.

- 9 Click **FINISH** to complete the process.

Note: Allow approximately 10 minutes for Oracle to configure before you access the portal.

- 10 Click **LAUNCH WEB CONSOLE** to launch NetBackup IT Analytics Portal. Portal will be accessible with URL `http://itanalyticsportal.<domainname>` with default login credentials as follows:

Username: admin@<domainname>

Password: P@ssw0rd

You can login to the Virtual machine created from OVA with the following credentials:

Username: admin

Password: P@ssw0_rd

To get root privileges type `# sudo bash` and use P@ssw0_rd as password.

It is strongly recommended that you change default password for admin and root users.

After VM bootup, the NetBackup IT Analytics Portal will be re-configured with the user provided parameters for hostname, domainname and network parameters. In case of any issues while logging in to the portal, check the log file `/opt/aptare/logs/boot-time-reconfig.log` and the status of `systemctl service aptare-init.service`. The log file will have an error statement and steps to resolve the issue.

Installer-based deployment

To perform installer-based deployment of the Portal, you require root privileges.

Task 1: Portal and database deployment strategies (Linux)

If these components are to be installed on the same server, then Task 2 and Task 3 must be performed on the same machine.

Note: NetBackup IT Analytics recommends that the Portal and Database components be installed on the same server.

Installing Oracle and Portal Binaries on the Same Server

For the typical Portal installation, the installation process consists of these main tasks:

1. Verify that you have the latest binaries for the version you are installing.
2. Install Oracle application binaries.
3. Install the NetBackup IT Analytics Portal software components.
4. Create the NetBackup IT Analytics Database and load the schema objects.

Task 2: Pre-installation configuration (Linux)

1. Choose a Portal Server.

For performance reasons, avoid installing the NetBackup IT Analytics Portal software on the same server as the NetBackup IT Analytics Data Collectors. Precisely, avoid installing Data Collectors in `/opt/aptare`.

If for some reason, you require both to be on the same server, ensure that both the Portal and Data Collector software do not reside in the same directory on the server. Portal software installation tasks require root privileges.

2. For new Portal installations, the minimum server memory requirement is 32 GB. Oracle database requires a minimum of 24 GB of memory. Portal installations will fail if sufficient memory resources are not available on the Portal server.
3. The Portal Installation software checks the following resources:
 - Total physical memory (physical + virtual) must be greater than 24 GB, otherwise Oracle will fail to start. Add more physical memory to the Portal server.
 - Total temporary file system (tmpfs) memory must be 24 GB or greater, otherwise Oracle will fail to start. Increase the size of tmpfs, typically in `/etc/fstab`.
 - Shared memory (kernel.shmmax parameter) must be 12 GB or greater, otherwise Oracle will fail to start. Increase the value of the shmmax parameter, typically in `/etc/sysctl.conf`. After increasing the value for the shmmax parameter, execute: **sysctl -p**.
4. Verify the OS of the Portal Server. Check that the OS is one of the certified operating systems listed in the *Certified Configurations Guide*.

Verify that sufficient disk space exists on the designated Portal Server. For the database file systems, the amount specified is the minimum to create the database. The database grows in size over the period of time. The growth of database depends on various factors such as subsystems from which data is collected, type of systems collecting data from, retention periods for data (which is configurable), and so on.

File System/Directory	Minimum Disk Space	Recommended Disk Space	Maximum Disk Space for DB Growth	Notes
/opt	20 GiB	30 GiB	30 GiB	

File System/ Directory	Minimum Disk Space	Recommended Disk Space	Maximum Disk Space for DB Growth	Notes
/tmp	10 GiB	10 GiB	10 GiB	Both /tmp and /var/tmp must be writable by the user aptare.
/data01	50 GiB	100 GiB	780 GiB	Required for data and index tablespaces.
/data02	50 GiB	100 GiB	750 GiB	Required for data and index tablespaces.
/data03	90 GiB	250 GiB	1800 GiB	Required for data and index tablespaces.
/data04	65 GiB	65 GiB	65 GiB	Temporary table space.
/data05	45 GiB	45 GiB	45 GiB	Temporary table space (undo log).
/data06	5 GiB	5 GiB	5 GiB	Temporary table space (redo log).
Total	335 GiB	615 GiB	3495 GiB	

5. Review third-party software details.
 See [“Supported third-party and open source products”](#) on page 31.
6. If you plan to export or email reports as PDF files, to ensure proper rendering of these output formats, a graphics manager such as X Virtual Frame Buffer (Xvfb) is required. Contact your IT organization to configure this capability. See [“Configure X Virtual Frame Buffer \(Xvfb\)”](#) on page 64.

7. Verify the rpm fontconfig is installed. This is required for the Portal installer. Fontconfig is a library designed to provide system-wide font configuration, customization and application access. If the rpm fontconfig is not installed, exporting reports to XLS and PDF will fail.
8. Verify that the necessary rpms exist on your system based on the OS.
 - For RHEL 8, use the following command:

```
rpm -q perl-TermReadKey perl-Data-Dumper binutils glibc libaio
elfutils-libelf perl-Getopt-Long binutils gcc gcc-c++
glibc-devel ksh libaio-devel libgcc libstdc++ libXtst
libXrender libstdc++-devel sysstat psmisc bc make libnsl.x86_64
--qf '%{name}.%{arch}\n'|sort
```

The command returns:

- bc.x86_64
binutils.x86_64
elfutils-libelf.x86_64
gcc-c++.x86_64
gcc.x86_64
glibc-devel.x86_64
glibc.x86_64
ksh.x86_64
libaio-devel.x86_64
libaio.x86_64
libgcc.x86_64
libnsl.x86_64
libstdc++-devel.x86_64
libstdc++.x86_64
libXtst.x86_64
libXrender.x86_64
make.x86_64
perl-Data-Dumper.x86_64
perl-Getopt-Long.noarch
perl-TermReadKey.x86_64
psmisc.x86_64
sysstat.x86_64
unzip

- For RHEL 7 and CENTOS 7, use the following command:

```
rpm -q perl-TermReadKey perl-Data-Dumper binutils glibc libaio
elfutils-libelf perl-Getopt-Long compat-libcap1
compat-libstdc++-33 gcc gcc-c++ glibc-devel ksh libaio-devel
```

```
libgcc libstdc++ libXtst libXrender libstdc++-devel sysstat  
psmisc bc make --qf '%{name}.%{arch}\n'|sort
```

The command returns:

```
bc.x86_64  
binutils.x86_64  
compat-libcap1.x86_64  
compat-libstdc++-33.x86_64  
elfutils-libelf.x86_64  
gcc-c++.x86_64  
gcc.x86_64  
glibc-devel.x86_64  
glibc.x86_64  
ksh.x86_64  
libaio-devel.x86_64  
libaio.x86_64  
libgcc.x86_64  
libstdc++-devel.x86_64  
libstdc++.x86_64  
libXtst.x86_64  
libXrender .x86_64  
make.x86_64  
perl-Data-Dumper.x86_64  
perl-Getopt-Long.noarch  
perl-TermReadKey.x86_64  
psmisc.x86_64  
sysstat.x86_64  
unzip
```

- For SUSE Linux Enterprise, use the following command:

The command returns:

```
binutils.x86_64  
glibc-devel.x86_64  
glibc.x86_64  
libaio-devel.x86_64  
libaiol.x86_64  
libcap-ng-utils.x86_64  
libcap-ng0.x86_64  
libcap-progs.x86_64  
libcap1.x86_64  
libcap2.x86_64  
libelf-devel.x86_64
```

```
libgcc_s1.x86_64
libjpeg-turbo.x86_64
libjpeg62-turbo.x86_64
libjpeg62.x86_64
libpcap1.x86_64
libpcre1.x86_64
libpcre16-0.x86_64
libpng16-16.x86_64
libstdc++6.x86_64
libtiff5.x86_64
libXrender1.x86_64
libXtst6.x86_64
make.x86_64
mksh.x86_64
perl-Term-ReadKey.x86_64
pixz.x86_64
rdma-core.x86_64
smartmontools.x86_64
sysstat.x86_64
unzip
xz.x86_64
```

9. Verify that the `bc` command is available, as it is required by the database installer.
10. Download the application binaries for both the Oracle Database Installer and the Portal Installer from www.veritas.com. Use the instructions provided in the confirmation of your purchase agreement.
11. **Troubleshooting User Account Creation:** The Portal installation process will create user accounts for `aptare` and `tomcat`. If you are using non-local user management (such as LDAP or NIS) to manage the Linux user accounts, the `useradd` command may fail to execute successfully. Take the following steps to manually pre-create the required users:
 - Using your normal process for creating user accounts in LDAP, pre-create the user accounts `aptare` and `tomcat` with home directories under `/home`.

User ID	Primary Group	Supplementary Groups
aptare	aptare	dba
tomcat	tomcat	aptare

- Some environments, particularly virtualized ones using **automount**, will fail to create the home directories when the **useradd** command is used. In this situation, manually create the **/home/aptare** and **/home/tomcat** directories and **chown** them to aptare and tomcat respectively.
 - If you need additional clarification, contact the Veritas Support for details.
12. Troubleshooting script issues: A known issue associated with Security Enhanced Linux (SELinux) may arise when executing scripts that require Java. This results in a permission denied error message. To resolve this issue, configure SELinux to allow the use of shared libraries with text relocation.

The installer expects the SELinux configuration to be either disabled or permissive.
 13. Ensure ports 80/tcp, 8011, and 8017 are open in the firewall for proper functioning of the portal.
 14. Download following Oracle patches from www.veritas.com and keep them in a directory on the server where the Oracle Database will be installed.
 - p31281355_190000_Linux-x86-64.zip
 - p30565805_198000DBRU_Linux-x86-64.zipThe path for this directory will be requested by the Oracle database installer during the installation and upgrade process. The Oracle database installer will install these patches as part of installation or upgrade.
 15. Ensure that either `ss` or `netstat` command is available on the system.

Task 3: Install Oracle database application binaries (Linux)

This section covers the installation of Oracle database application binaries for both shared and non-shared service edition. Typically, the Oracle Database application binaries are installed on the same server as the Portal binaries.

See [“Task 1: Portal and database deployment strategies \(Linux\)”](#) on page 13.

Note: The NetBackup IT Analytics server cannot have any other Oracle database instances installed.

The instructions provided with the confirmation of your purchase agreement and consult Veritas Support, if you require additional assistance.

Install Oracle database binaries for non-shared service edition:

Follow this installation provided you plan to use Veritas-provided Oracle with NetBackup IT Analytics and you have a Standard edition license.

To install the Oracle database binaries for non-shared service edition:

- 1** Verify that you have the current version of the Oracle 19c Installer binaries.
- 2** Login as **root** on the server where the NetBackup IT Analytics Database will be installed. Typically, this is also the Portal server.
- 3** Place the ISO image into the `/mnt` directory.
- 4** Mount the ISO image that you downloaded.

```
mkdir /mnt/diskd
```

```
mount -o loop <itanalytics_dbinstaller_XXXXX_XXX_linux.iso>  
/mnt/diskd
```

where you substitute the relevant name of the ISO file that you downloaded.

- 5 Enter the following commands to start the installer:

```
cd /  
/mnt/diskd/install_oracle.sh
```

The command copies the Oracle binaries into **/opt/aptare/oracle**.

6 Press **Enter** to read the entire EULA license agreement and the pre- acceptance process will begin.

This takes 3-5 minutes to complete, as it installs files into /opt/aptare/oracle19c.

```
A complete log of this session is in this file
/opt/aptare/logs/install/install_oracle_XXXXXXXXXXXXXXXXXXXXX.log
*****
* NetBackup IT Analytics ORACLE Installer Version 19.3.0.0.0
*(XXXXXXXXXXXXX)
*****
To use this software you must agree to the following terms and
conditions. Press ENTER to continue:
Enter "accept" to accept these Terms and Conditions: accept
Creating group aptare ...groupadd: group 'aptare' already exists
Done.
Creating group dba ...groupadd: group 'dba' already exists
Done.
Adding user aptare to group dba ...Done.
Adding user aptare to group dba ...Done.
```

```
The Database upgrade process will install the Oracle security
patches if they are available in this system. aptare user must
have write access to the directory where these patches are
downloaded. Enter the absolute directory path where these
patches are downloaded:/tmp/ora_patches
Creating ORACLE_HOME directory in /opt/aptare/oracle ... Done.
Creating ORACLE_HOME/logs directory ...
Setting up IT Analytics database directories
/data01 /data02 /data03 /data04 /data05 /data06 ...Done.
```

```
Installing Oracle binaries in /opt/aptare/oracle ...
Extracting files ...
This process may take 3-5 minutes to complete ... Done.
.
.
creating: 31281355/etc/config/
inflating: 31281355/etc/config/actions.xml
inflating: 31281355/etc/config/inventory.xml
inflating: 31281355/README.html
```

```
inflating: PatchSearch.xml
Oracle Interim Patch Installer version 12.2.0.1.21
Copyright (c) 2020, Oracle Corporation. All rights reserved.
```

```
Oracle Home       : /opt/aptare/oracle
Central Inventory : /opt/oraInventory
                   from       : /opt/aptare/oracle/oraInst.loc
OPatch version    : 12.2.0.1.21
OUI version       : 12.2.0.7.0
Log file location : /opt/aptare/oracle/cfgtoollogs
                   /opatch/opatchxxxxxxxxxxxxxxxx.log
```

```
Verifying environment and performing prerequisite checks...
OPatch continues with these patches: 31281355
```

```
Do you want to proceed? [y|n]
Y (auto-answered by -silent)
User Responded with: Y
All checks passed.
```

```
Please shutdown Oracle instances running out of this
ORACLE_HOME on the local system.
(Oracle Home = '/opt/aptare/oracle')
```

```
Is the local system ready for patching? [y|n]
Y (auto-answered by -silent)
User Responded with: Y
Backing up files...
Applying interim patch '31281355' to OH '/opt/aptare/oracle'
```

```
Done.
```

```
A complete log of this session can be found at
/opt/aptare/logs/install/install_oracle_XXXXXXXXXXXXXXXX.log
```

Install Oracle database binaries for shared service edition:

Follow this installation provided you plan to use Oracle database that you already have licensed with NetBackup IT Analytics database.

Prerequisites for the installation:

- Download `LINUX.X64_193000_db_home.zip` from *Oracle Download Center*.
- Standard or Enterprise edition Oracle license.
- For the Enterprise Edition license, you must set the environment variable **ORACLE_LICENSE_OPTION** to **EE**

To install a shared service Oracle, you must have a Standard or Enterprise Edition Oracle license. For the Enterprise Edition license, you must set the environment variable **ORACLE_LICENSE_OPTION** to **EE**.

Task 4: Install the Portal application binaries (Linux)

This section covers the installation of the Portal application binaries. Typically, the Portal binaries are installed on the same server as the Oracle Database binaries, although in some cases, a separate server may be designated.

System: Portal Server

Note the instructions provided with your purchase agreement confirmation and consult Veritas Support, if you require additional assistance.

To install the Portal binaries

- 1 Login as **root** on the server where NetBackup IT Analytics Portal will be installed. Typically, this is the same server where you installed the Oracle binaries.
- 2 Go to the downloads section under Support at www.veritas.com and click the relevant download link.
- 3 Mount the ISO image that you downloaded.

```
mkdir /mnt/diska
```

```
mount -o loop <itanalytics_installer_xxxxx_linux.iso> /mnt/diska
```

where you substitute the relevant name of the ISO file that you downloaded.

- 4 Enter the following commands to start the installer:

```
cd /  
/mnt/diska/Itanalyticsinstaller.sh
```

5 Determine what Portal server configuration you are deploying.

```
A complete log of this session is in this file
/opt/aptare/logs/install/aptareInstaller_XXXXXXXXXXXXXXXXXXXXX.log
*****
* NetBackup IT Analytics Intaller Vers 11.1
*****
Revision 11.1.xx.XXXXXXXXXXXXXXXXXXXXXX build XXXXXXXX-XXXX
```

```
NetBackup IT Analytics requires a Web Server and a Database server.
They can be on separate machines or on same machine.
This script will only install the Web Server components.
Will this machine be the Web Server (y/n)?
```

Enter **y** if the machine is going to be the Portal web server. Otherwise, enter **n** to cancel the installation.

6 Enter **y** if you have the mounted ISO image. Otherwise, enter **n** to cancel the installation.

Ensure the ISO is labeled **IT Analytics Portal Software** and is mounted.

7 Press **Enter** to continue the installation. The End User License Agreement (EULA) is displayed.

8 Read the EULA. At the end of the EULA, the following output is displayed:

```
Please type 'accept' to accept these Terms and Conditions:
```

9 Type **accept** (all lowercase) and press **Enter**. Otherwise, type any other key and **Enter** to cancel the installation.

The installer will now copy and unzip the files. This may take several minutes depending on the performance of your system. The overall duration of the Portal installation is typically between 15 - 25 minutes.

10 Enter your domain name.

```
We need to configure machine names and IP addresses for the
NetBackup IT Analytics Portal, Agent and database server.
The portal and agent machines will be called
itanalyticportal.yourdomain and
itanalyticagent.yourdomain
Enter your domain name: (yourdomain.com)
```

If the domain name displayed in parentheses is correct, press **Enter**. Otherwise, enter the correct domain name and press **Enter**.

Note: The domain name value you enter here determines the URL that will be used to login to the NetBackup IT Analytics Web GUI. For example, if you enter companyabc.com, the URL will be <http://itanalyticportal.companyabc.com>. You must make a note of the domain value since you will be asked for this value during the installation of the Data Collection components that collect data from the servers in your enterprise.

11 Validate the system's IP address for the Portal.

```
Enter IP Address for itanalyticportal.yourdomain: (N.N.N.N)
```

If the IP Address displayed in parentheses is correct, press **Enter**. Otherwise, enter the correct IP Address and press **Enter**.

Note: Throughout these steps, yourdomain refers to the full domain, including the suffix, such as .com or .net. (Example: MyNetworkCompany.net).

12 Validate the IP address of the database server. If you installed the Database component on a separate server, be sure to supply the correct IP address of that server.

```
Enter IP Address of your database server: (N.N.N.N)
```

Note: If your database server is using an IPv6 address, enter that within square brackets. For example: [fe80::250:56FF:febc:1F]

If the IP Address displayed in parentheses is correct, press **Enter**. Otherwise, enter the correct IP Address and press **Enter**.

13 If you are installing the Database on the same server, use **localhost** for the IP address or **localhost6** for an IPv6 environment.

14 Confirm the entered IP addresses

```
You have entered:
Hostname                IP Address
itanalyticportal.yourdomain N.N.N.N
itanalyticagent.yourdomain N.N.N.N
database server         N.N.N.N
Is this correct (y/n)?
```

If the hostnames and IP addresses listed are correct, enter **y** and press **Enter**. Otherwise, enter **n** and press **Enter**.

15 Confirm changes to be automatically made to `/etc/hosts`.

```
These names will be set up in /etc/hosts.
You can remove the entries and add them
to your local DNS later.
Would you like to add them to /etc/hosts (y/n)?
```

If you would like to set up the names in **/etc/hosts**, enter **y** and press **Enter**. Otherwise, enter **n** and press **Enter**.

16 Choose whether to run the database creation script. This avoids the manual step of running `create_itanalytics_database.sh` later.

```
You can create the Database schema as a part of this
installation or create it later using
create_itanalytics_database.sh script.
Do you want to create the Database schema as a part of
this installation (y/n)?
```

17 After specifying your choice, press **Enter** .

Java and Apache software components are installed irrespective of your choice specified for the database schema. Tomcat Java Servlet Engine is installed as apart of this installation and it may take 1-2 minutes to execute.

This completes the installation of theNetBackup IT Analytics Portal. If you have not installed the database schema during the above procedure, you can proceed to install the database schema.

Task 5: Installing the database schema (Linux)

System: Database Server

This section covers the creation of the NetBackup IT Analytics database. Follow these steps on the same server you installed the Oracle application binaries.

Note: This step is required only if you have not opted to run `create_itanalytics_database.sh` as a part of the `Itanalyticsinstaller.sh` script.

1. Log in as **aptare** to your NetBackup IT Analytics Database server.
You must be logged in as a database user. If you already are logged in as root:
su - aptare
2. Run the NetBackup IT Analytics database installation script to install the NetBackup IT Analytics database objects and schema:

```
mnt/portal/create_itanalytics_database.sh
```

Note: The following dialog will only appear if you are re-installing the NetBackup IT Analytics database (e.g., after a failed attempt)

The installer launches and prompts you to enter the domain name:

```
Enter your IT Analytics Portal Domain Name: yourcompany.com
You entered the following of your IT analytics
domain name: yourcompany.com
Your IT Analytics Super User Login Account will be
admin@yourdomain
Is this the correct domain name (y/n)? y
```

3. Database files will be extracted and the database schema will be created. This step will take between 5 - 10 minutes to complete.
4. Next, the installer will load the database with Oracle packages. This step will take between 30 - 60 minutes to complete, depending on your system performance.
5. The Portal user and the database schema are now created. During this step Oracle may produce messages similar to the following:

```
mv: cannot stat
`/opt/aptare/oracle/lib/EVENT_PACKAGE__PORTAL__2.so': No such
file or directory
```

Note: These messages can be ignored. Any other exceptions or errors however indicate a potential issue with the installation.

```
Creating NetBackup IT Analytics Portal user ...
Completed creation of the NetBackup IT Analytics Portal database
  user
Creating NetBackup IT Analytics database schema tables ...
...
... (EACH STEP LOGS TO THE CONSOLE...)
...
Completed creation of the NetBackup IT Analytics base schema
tables
Creating NetBackup IT Analytics <backup product> schema tables
...
```

6. The Packages are now validated:

If you do not see the message “Successfully validated ALL Packages” at the end of this step, there is a possible problem with the install and you should save a copy of the installer log and contact the Veritas Support.

```
Validating NetBackup IT Analytics Packages...
Validating PACKAGE ADAPTOR_PACKAGE
Validating PACKAGE ADMINREP_PACKAGE
Validating PACKAGE ALL_ERROR_PKG
...
... (EACH PACKAGE IS LOGGED TO THE CONSOLE...)
...
Validating PACKAGE XML_REPORT_PKG
Package specifications have successfully been validated
...
Successfully validated ALL Packages.
```

7. The database creation is now complete.

```
Creation of NetBackup IT Analytics Database completed at
Nov 11 18:31:46 PDT 2021
A complete log of this session can be found in the file:
/opt/aptare/logs/install/create_itanalytics_database_XXXXX.log
```

Note: If the installer reports errors during the install and you are unable to resolve the problem, you should save a copy of the installer log and contact the Veritas Support.

If you do not have a NetBackup IT Analytics license, you can install a trial license which is valid for 60 days with the this command as a root user:

```
/opt/aptare/Utils/installlicenseUI.sh /mnt/portal/license.slf
```

8. Installation of the Database components is now complete.

The NetBackup IT Analytics database is a container database with the pluggable database SCDB attached to it. The data files for the tablespaces are stored in the /data01-06/oradata/scdbpdb directory.

Continue to the next section for the final step--License Key file installation.

If you have configured a custom OS user or a group for Oracle or portal, instead of the default users or groups:

- Update the OS user and group details in the environment file
`/opt/aptare/bin/aptare_env.sh.`
- Ensure environment variables for Oracle, such as ORACLE_HOME, ORACLE_SID, PATH, LD_LIBRARY_PATH are set appropriately in `/opt/aptare/bin/aptare_env.sh` and are exported correctly.

Task 6: Start the Portal services (Linux)

Prior to installing the license key, you must start the Portal services to ensure that the installation was successful. You will not be able to log into the Portal yet, because you haven't installed the license key.

As user root, at the command line, enter this command: `systemctl start aptare`

This starts all the services required for NetBackup IT Analytics that includes:

- Oracle
- TNS listener
- Kafka
- ZooKeeper
- Portal Tomcat instance
- Agent Tomcat instance
- Anomaly Tomcat instance
- Apache

Task 7: Request the license key file (Linux)

A valid license key file is required to run the NetBackup IT Analytics application. Refer to the Licensing documentation for information.

Task 8: Log into the Portal

Log into the Portal (<http://itanalyticsportal.yourcompany.com>) with your username as `<admin@yourcompany.com>`. The Portal has an initial default password **P@ssw0rd**. You must change this password after your first login.

Note: The default password contains a zero, not an uppercase O.

Task 9: Install the license key file (Linux)

A valid license key file is required to run the NetBackup IT Analytics application. Refer to the Licensing documentation for information.

Task 10: Performing a cold backup of the database (Linux)

Prior to deploying the Portal for operational use, perform a cold backup of the Oracle database. This offline, cold backup simply means that you'll physically copy or backup the files to another location. This cold backup will simplify the restore process, in the event of unanticipated data loss. With a cold backup, you simply have to restore the files and then import the most recent database export. In addition to this initial cold backup, you may consider performing a cold backup periodically--for example, after a significant software upgrade--to re-capture the database schema.

Recommended database backup process

1. Cold Backup
2. Daily Exports of the database
3. In the event of data loss, restore the database and then import the most recent database export.

Supported third-party and open source products

When you install the portal and reporting database, you install a compilation of software, which includes open source and third-party software.

For a list of open source components and licenses, see the license.txt file on the portal server.

Table 1-1 Supported third-party and open source products

Software Product	Linux	Windows
Oracle 19c	New Installation and Upgrading to 11.1 <ul style="list-style-type: none"> 19c 	New Installation and Upgrading to 11.1 <ul style="list-style-type: none"> 19c
Java	Amazon Corretto 11.0.19.7.1 64-bit	Amazon Corretto 11.0.19.7.1 64-bit
vSphere Web Services SDK	5.5, 64-bit	5.5, 64-bit
Apache HTTP Web Server	<ul style="list-style-type: none"> Apache 2.4.55 includes SafeLogic SSL for Linux environments. <p>Note: Apache 2.4.55 is supported for NetBackup IT Analytics version 11.1.06 onwards. Any previous versions supports Apache 2.4.54.</p> <ul style="list-style-type: none"> Apache Portable Runtime (APR) - v1.7.2 	<ul style="list-style-type: none"> Apache 2.4.55 includes SafeLogic SSL for Windows environments. <p>Note: Apache 2.4.55 is supported for NetBackup IT Analytics version 11.1.06 onwards. Any previous versions supports Apache 2.4.54.</p> <ul style="list-style-type: none"> Apache Portable Runtime (APR) - v1.7.2
Apache Tomcat Java Servlet Engine	9.0.60	9.0.60
Kafka	3.2.0	3.2.0

If other versions of the above components are already running on the designated NetBackup IT Analytics system, or other components are utilizing resources (such as specific ports) typically used by NetBackup IT Analytics, the product usually can be reconfigured to work around these conflicts; however, this cannot be guaranteed.

*Refer to Support for updated binaries as they become available.

Uninstall the NetBackup IT Analytics Portal

This procedure uninstalls the application and removes the Oracle database, including all the data that resides on that database. If required, you can back up the database at a different location before the uninstallation.

1. Login as **root** to the NetBackup IT Analytics server
2. From the root directory (/) stop the Portal services and run the uninstall script:

```
systemctl stop aptare  
/opt/aptare/utils/uninstall_portal.sh
```

3. Follow the prompts as required to confirm deletion of the NetBackup IT Analytics components.

Upgrade NetBackup IT Analytics Portal on Linux

This chapter includes the following topics:

- [Overview](#)
- [Upgrade path](#)
- [Before upgrading](#)
- [Upgrade NetBackup IT Analytics Portal](#)
- [Data Collector upgrades](#)
- [Troubleshoot - Manual Data Collector upgrades](#)
- [Collector updates from the NetBackup IT Analytics Portal](#)

Overview

If you are upgrading NetBackup IT Analytics Portal to 11.1 and later, you must have Oracle 19c installed. See [“Task 3: Install Oracle database application binaries \(Linux\)”](#) on page 19. Having installed Oracle 19c, you only require to upgrade the Portal. See [“Upgrade NetBackup IT Analytics Portal”](#) on page 36.

While upgrading to version 11.1 or later for the first time:

- The upgrade also succeeds using evaluation license.
- The upgrade utility can accept more than one licenses during the upgrade.
- The upgrade utility compares the used capacity with the entitled capacity of the new license. If the entitled capacity is less than the used capacity, it displays a warning, but continues with the upgrade. However, you must comply with the

Veritas licensing guidelines to access all the features of the NetBackup IT Analytics Portal.

For complete details about system requirements and upgrading, refer to the *Certified Configurations Guide*. Separate upgrade instructions are provided for Windows and Linux with the assumption that the Portal and database components are installed on the same server.

Upgrade path

The Portal must be running a minimum of NetBackup IT Analytics version 10.6.00 to upgrade to NetBackup IT Analytics 11.1. For complete details about system requirements and upgrading, refer to the *NetBackup IT Analytics Certified Configurations Guide*. In addition, Oracle 19c is required for NetBackup IT Analytics 11.1.

Before upgrading

- License mechanism has been changed in NetBackup IT Analytics 10.6 to Veritas Standard Licensing method. To upgrade to version 10.6 or later, you must obtain a new license key with matching entitlement prior to the upgrade. Ensure the new license entitlements are equal or greater than the installed license for the upgrade to succeed. See *NetBackup IT Analytics Licensing Guide* for more information.
- Ensure that you have a valid system backup. For additional information refer to the *System Administrator Guide*. Prior to executing the upgrade utility:
 - A cold backup of the Portal / Database server(s) file systems.
 - A backup of the file systems containing the Oracle database (typically /data01-06 on Linux) is only valid if it was taken while Oracle was completely shut down.
 - An export of the database.
- If you have installed any patches on your present NetBackup IT Analytics version, check the Release Notes to verify that they are included in this release. If you are uncertain, check with the Veritas Support. In most cases, previously installed patches are included in this release.
- Verify that the libXtst.so.6 libraries are installed.
- In the Portal, verify that the Data Collectors are set for automatic updates. This setting triggers the automatic download of updated application logic to the Data Collectors in your enterprise. This download is required to ensure the Data

Collectors are running with the latest compatible version. Refer to the vendor-specific Data Collector Installation Guide for additional information about Data Collectors.

See “[Data Collector upgrades](#)” on page 43.

- The Portal and Database components should be installed on the same server.
- Identify the Java Version on the Data Collector Server and ensure that a 64-bit server is used for the Data Collector Server.
- Beginning with release version 10.x.xx, Portal upgrades automatically enable privileges for newly added reports and certain features/functions, for all Administrators. This does not impact previously configured privileges. The Super User can manually revoke any Administrator privileges that have been automatically enabled.
- Before upgrading to 10.6 or later for the first time, generate a new Veritas license with `.slf` extension having equal or more entitlement than the currently installed license. This license file will be required during the upgrade.
- If upgrading to version 11.1 in a Shared Service environment, an additional database privilege should be provided using the following command.

```
su - aptare
sqlplus / as sysdba
alter session set container = scdb; or IT Analytics database Service
name if not 'scdb'
GRANT EXECUTE ON DBMS_CRYPTO TO PORTAL;
```

Note: Not providing the privilege on a limited access environment can cause upgrade failure.

Upgrade NetBackup IT Analytics Portal

Download the NetBackup IT Analytics Portal upgrade utility installer for Linux and copy it to the portal server before you proceed with the next steps.

Upgrade a shared services environment

In a shared services environment, where the connect as sysdba privilege is not present, you must provide a CREATE SYNONYM privilege to the APTARE_RO user before upgrading. APTARE_RO is a read-only user for the Portal.

Note: Unless this privilege has been deliberately revoked, this step is mandatory for an upgrade. If this privilege is not granted, errors in the upgrade script will occur and functionality within the SQL Template Designer will be impacted.

Note: If the portal is configured with non default APTARE and Tomcat users, update the users in `/opt/aptare/upgrade/ant/sc_upgrader.xml` before executing `/opt/aptare/upgrade/upgrade.sh`

1. Log in with root access.
2. Stop the portal and data receiver Tomcat services.
3. At the command line, execute the following commands:

```
su - aptare

sqlplus / as sysdba

SQL >GRANT CREATE SYNONYM TO APTARE_RO;
```

In a shared services environment, where the connect as sysdba privilege is not present, you must provide a CREATE JOB and DBMS_SCHEDULER privilege to the PORTAL user before upgrading.

Note: Unless this privilege has been deliberately revoked, this step is mandatory for an upgrade. If this privilege is not granted, errors in the upgrade script will occur and functionality for Oracle jobs will be impacted.

1. Log in with root access.
2. Stop the portal and data receiver Tomcat services.
3. At the command line, execute the following commands:

```
su - aptare

sqlplus / as sysdba

SQL > GRANT CREATE JOB TO PORTAL;

SQL > GRANT EXECUTE ON DBMS_SCHEDULER TO PORTAL;
```

Run the upgrade utility installer (Linux)

If you have configured a custom OS user or a group for Oracle or portal, instead of the default users or groups:

- Update the OS user and group details in the environment file
`/opt/aptare/bin/aptare_env.sh.`
- Ensure environment variables for Oracle, such as `ORACLE_HOME`, `ORACLE_SID`, `PATH`, `LD_LIBRARY_PATH` are set appropriately in `/opt/aptare/bin/aptare_env.sh` and are exported correctly.
- Update `/opt/aptare/upgrade/ant/sc_upgrade.xml` with appropriate values for the custom OS user or group for Oracle and portal.

If you have the portal running with shared services and Oracle parameters such as service name and port are different than the default configuration, the upgrade utility installer will detect the parameters from the portal configuration file.

The following instructions assume you have the specific upgrade installer file for just your platform. You must perform these steps as a root user on the Linux system.

To mount the utility installer ISO

- 1 Mount the ISO image that you have downloaded on the server by entering the following commands.

```
mkdir /mnt/diska
mount -o loop <sc_upgrader_xxxx_linux.iso> /mnt/diska

mkdir /mnt/diska
mount -o loop <itanalytics_upgrader_xxxx_linux.iso> /mnt/diska
```

Note: Replace `xxxx` with the relevant ISO file name.

- 2 Run the installer with the following commands:

```
cd /
/mnt/diska/portal_upgrader.sh
```

- 3 Follow the instructions to complete the installation.

Known issues

- A known issue associated with Security Enhanced Linux (SELinux) may arise when executing scripts that require Java. This results in a permission denied

error message. To resolve this issue, configure SELinux to enable Java processes to run. Consult the operating system documentation.

- When upgrading to release version 10.x.xx, the date format defaults to the Portal operating system locale, and ignores any previous configuration in the `portal.properties` file.

Run the upgrade utility

The following instructions assume that the Portal and Database components reside on the same server.

1. Verify your current NetBackup IT Analytics version. You must be currently running NetBackup IT Analytics version 10.4.00 or greater.
2. Verify that the `libXtst.so.6` libraries are installed.
3. Ensure that all NetBackup IT Analytics application services are up and running. Next, as user **root** run the following command and respond to the prompts accordingly.

```
sh /opt/aptare/upgrade/upgrade.sh
```

- While upgrading to 10.6 or later for the first time, the upgrade utility prompts for a new license file with `.slf` extension. You must have equal or more entitlement than the currently consumed license capacity. For information on license generation and installation, see *NetBackup IT Analytics Licensing Guide*.
 - If there are errors during the upgrade, the following banner is displayed:


```
#####
# WARNING WARNING WARNING WARNING WARNING #
# Possible problems were encountered during the upgrade. #
# Please check the log file /opt/aptare/upgrade/logs/upgrade.log #
# for errors and contact Customer Support if necessary. #
#####
```
4. If the upgrade process encountered any errors, save a copy of the log file for any correspondence with the Veritas Support. You can find the upgrade log file in the following location:

```
/opt/aptare/upgrade/logs/upgrade.log
```

Note that:

- If you have installed any patches on your present NetBackup IT Analytics version, please check the Release Notes to verify that they are included in this release.

If you are uncertain, please check with the Veritas Support. In most cases, previously installed patches are included in the current release.

- If your upgrade fails because of an Apache version conflict, contact Veritas Support for instructions and a link to download a new version.

After the upgrade

Clear the Portal's browser cache after upgrading. This helps avoid browser display issues after the upgrade.

Upgrade methods to incorporate enterprise objects

During a Portal upgrade to release version 10.x.xx, all Dynamic Template Designer Methods will be modified to associate a method with an enterprise object (such as an array or host), rather than the method being associated with a NetBackup IT Analytics product (such as Capacity Manager).

The upgrader automatically makes the necessary changes, which may result in the following considerations:

- If the upgrader encounters a method that could apply to multiple enterprise objects (for example, a backup method that is relevant for both a Data Domain and a Job enterprise object), the upgrader makes a copy of the method with an Upgrade label append to the method name. This new version of the method has a populated enterprise object field so that your reports won't fail. Note that the WITH clause alias in this new version will still reference the old name, but this will not cause reports to fail. You can modify this to make the method accurate, however, this modification is not required.
- Once upgraded, some methods may have a null value for the enterprise object. For example, a method that was created for Virtualization Manager does not have a corresponding supported enterprise object (Data Domain, Host, Job, or Storage Array). If such a method is found by the upgrader and the method is in use by a Dynamic Template, the upgrader implicitly assumes the enterprise object for the template is relevant and populates the enterprise object field accordingly. However, if the method currently is not in use, the enterprise object field remains null.
- Upgraded methods that result in null enterprise object values can be identified by viewing the list of methods: Tools > Templates > Method Designer.
- To use a method in a Dynamic Template, the enterprise object field must be populated. Therefore, when you modify and save a method (Save/Save as), you will be prompted to select an enterprise object.

Attribute merging during the Portal upgrade

Version 10.x.xx introduced several enhancements to attribute management.

- A new attribute type, a multi-object attribute, replaces the way that attributes functioned in previous releases. This multi-object attribute enables creation of a single attribute that will be available for all objects, such as hosts, arrays, and switches.
- Prior to Version 10.x.xx, object-specific attributes were required. For example, if you wanted a Location attribute for both host and array objects, you needed to create a separate Location attribute for each object. Now, with multi-object attributes, a single attribute can be used for all objects (for example, arrays, hosts, LUNs and switches).
- System Attributes are new to Version 10.x.xx. System attributes provide a set of popular attributes that you can populate with your own enterprise-specific values. These new system attributes are multi-object attributes with the following names: Application, Business_Unit, Data_Center, Department, Environment, Location, Organization, Owner, and Region. These system attributes cannot be deleted.
- The naming convention for attributes also has been changed in Version 10.x.xx. Attribute names must begin with an alpha character. Use only alpha, numeric, or underscore characters in the name. Spaces and special characters are not allowed. This may mean that you will need to modify attribute names after you upgrade so that you can modify and save the list of values.

Attribute Management During the Portal Upgrade

Because you may already have attributes in your database that have names that duplicate the system names introduced in Version 10.x.xx, the upgrade process must apply logic to prevent duplicate attribute names. During the Portal upgrade, the following logic is used:

- In the top-level domain, if the upgrader finds an existing attribute that has a name that is the same as a new system attribute (for example, Location) it creates the system attribute and populates it with the list of values from the existing attribute.
- For multi-tenancy environments where there are multiple domains, if an attribute is found in both a parent and child domain, the child domain will not inherit the values but instead, the values of the attribute in the child domain will remain intact. See also, Attribute Inheritance Overrides in the online technical documentation.
- If multiple attributes with the same name are encountered in the same domain (for example, a host Location attribute and an array Location attribute), the

values from all the attributes with the same name (for all objects) are merged into the system attribute.

- The upgrader will list the attributes with the list of values that will be merged into the new System Attributes. You can choose to let the upgrader merge the attributes or you can stop the upgrade and use the steps provided to rename existing attributes.
See [“Steps to Rename Duplicate Attributes”](#) on page 42.
- Merging of values ensures that all objects that have been assigned the attribute will retain this attribute with its values and therefore, reports that use the attributes will continue to work as expected.

Example of a Merge of Attribute Values

Before the upgrade:

- Location attribute exists for Hosts, with a list of values: San Diego, New York, Seattle.
- Location attribute exists for Arrays, with a list of values: Paris, London, Singapore.

After the upgrade:

- Location system attribute has been created to replace the object-specific attributes. This system attribute will contain a merged list of values (LOV): San Diego, New York, Seattle, Paris, London, Singapore.
- This list of values applies to all objects.
- Once the upgrade is successful, you may want to modify the merged list of values via the Portal: Select **Admin**> Advanced > **Attributes**.

Steps to Rename Duplicate Attributes

1. Log in to the Portal server.
2. At the command line:

```
su - aptare
```

3. At the command line, launch sqlplus:

```
sqlplus <username>/<pwd>@//localhost:1521/scdb
```

- Example: `sqlplus portal/portal@//localhost:1521/scdb`

4. To rename an attribute, execute the following SQL statements, substituting <variables> with values listed in the upgrade messages:

```
UPDATE apt_attribute
SET attribute_name = <attributeName>
WHERE attribute_id = <AttributeID>;
Commit;
```

Example:

This example renames the Location attribute so that it is not merged with the system attribute named Location.

```
UPDATE apt_attribute
SET attribute_name = 'Location1'
WHERE attribute_id = 100001;
Commit;
```

Best Practice for Attributes in Multi-Tenancy Environments

- Maintain attributes at the top-level domain so that the attributes are available to all client/child domains.
- During the Portal upgrade to Version 10.x.xx, newly introduced System Attributes will be added to the top-level domain.

Data Collector upgrades

For performance reasons, do not install Data Collectors on the same server as the NetBackup IT Analytics Portal. However, if you must have both on the same server, verify that the Portal and Data Collector software do not reside in the same directory.

Mandatory prerequisites

- Do not use `downloadlib.[sh|bat]` to upgrade the binaries on the Data Collector. Initiate the Data Collector upgrade from the NetBackup IT Analytics Portal.

Troubleshoot - Manual Data Collector upgrades

If the Data Collector fails after completing the previous requirements and prerequisites, perform the following:

On the Collector Server:

1. Kill all running NetBackup IT Analytics-related Java processes.
2. Start the Agent Service

- If it starts and continues to run, proceed to the following section.
See [“Collector updates from the NetBackup IT Analytics Portal”](#) on page 44.
- 3. If the APTARE Agent Service does not continue to run, verify no NetBackup IT Analytics-related Java processes are running. If required, kill all running NetBackup IT Analytics-related Java processes.
 - Restart the Collector Server, if the Java processes cannot be killed manually. Prior to restarting the server, disable the automatic start of the APTARE Agent Service.
- 4. Rename <APTARE_HOME>/jre to jre.old.
- 5. Copy <APTARE_HOME>/upgrade/staging/snapshot/jre to <APTARE_HOME>/
- 6. Enable the automatic start of Agent service, if you previously disabled the service.
- 7. Start the Agent Service.
See [“Collector updates from the NetBackup IT Analytics Portal”](#) on page 44.

Collector updates from the NetBackup IT Analytics Portal

1. Log in to the NetBackup IT Analytics portal, and navigate to **Admin>Data Collection>Collector Updates**.
2. Select the Data Collector that failed to upgrade.
3. Verify if either aptare.jar or Upgrade Manager failed to upgrade.
4. Click **Upgrade Both**, **Upgrade aptare.jar**, or **Update Upgrade Manager**, depending on what failed to upgrade. Allow up to an hour for completion, depending on the size of your system.
5. Contact Veritas Support for additional issues.

Oracle patches for the database server

This chapter includes the following topics:

- [Apply Oracle-recommended patches](#)
- [Apply Oracle 19c April 2023 patch application on Linux](#)

Apply Oracle-recommended patches

Oracle recommends certain patches that are applicable on the Database server. The steps to apply the patches follow:

1. Download the recommended patches from Oracle or Veritas.
2. Copy the patches to a directory on the Oracle database server. This directory will require write permission for the database user aptare.
3. Write the file name of the Oracle patches to a file. If multiple patches must be installed, verify that one patch filename is written per line with newline separated in the order of correct patch install. This file will require read permission for the operating system user aptare.
4. As aptare user run the script `/opt/aptare/utills/applyOraclepatches.sh` as follows:

```
/opt/aptare/utills/applyOraclepatches.sh <Oracle_Patch_Directory>  
<Oracle_Patch_list> [<ORACLE_HOME>]
```

Where,

Oracle_Patch_Directory: Absolute path of directory containing Oracle patch(es).

Oracle_Patch_list : Absolute path of file containing newline separated Oracle patch(es) in the correct sequence to install.

ORACLE_HOME(Optional) : Oracle Home to be used. By default, ORACLE_HOME env variable will be used.

Apply Oracle 19c April 2023 patch application on Linux

The following are the patches:

**Patch 35042068 - Database Release Update
19.19.0.0.230418**

35050341 - OJVM RELEASE UPDATE: 19.19.0.0.230418

**35004974 - UPDATE 19.0.0.0.0 DATABASE CLIENT JDK IN
ORACLE HOME TO JDK8u371**

To ensure the Oracle 19c upgrade on Linux contains all the current security updates, a patch must be installed on your system.

As part of this Oracle patch application, you need to ensure that the version of Oracle's OPatch utility is up to date, then it can be used to install the Database patch. There are Five files included in this patch.

Following are the steps:

1. Download the files and pre-install setup
2. Upgrade OPatch
3. Install the patches
4. Verify the database and OJVM patch
5. Verify JDK version update

Pre-Install setup

- 1 Log in to the virtual machine as root or Server where NetBackup IT Analytics is installed.
- 2 Download the following Five files from the product download area of the website and save them to /tmp folder.
 - xdb6.zip
 - xmlparserv2-sans-jaxp-services.zip
 - p6880880_190000_Linux-x86-64.zip

- p35058163_190000_Linux-x86-64.zip
- p35004974_190000_Linux-x86-64.zip

3 `cd /tmp`

4 Stop all services using command:

```
/opt/aptare/bin/aptare stop
```

Note: Ensure all NetBackup IT Analytics services are stopped. If services are still running, will it cause issues further during patch installation.

Note: If any of the prior Oracle patches have been already applied, the first two files from the download are not required.

5 Verify if all the required rpms are installed before applying Oracle patches. Refer the link below:

[Pre-installation configuration](#)

Note: This step is important for systems upgraded from 10.4 or earlier.

OPatch installation steps

1 As a root user, copy the `opatch` file from `/tmp` to `/opt/aptare/oracle` folder.

```
mv /tmp/p6880880_190000_Linux-x86-64.zip /opt/aptare/oracle
```

2 Set the `PATH`.

```
export PATH=$PATH:/opt/aptare/oracle/OPatch
```

3 Rename the `OPatch` folder and unzip the `opatch` file.

```
cd /opt/aptare/oracle
mv Opatch Opatch_old
unzip p6880880_190000_Linux-x86-64.zip
```

The above command will create a folder with name `OPatch` in `\opt\aptare\oracle`.

- 4 Set permission on the `opatch` folder.

```
chown -R aptare:dba /opt/aptare/oracle/OPatch
```

- 5 Execute the following command to check the OPatch version:

```
OPatch/opatch version
OPatch Version 12.2.0.1.37

OPatch succeeded.
```

Installing the patches

- 1 As a root user, copy the Oracle database combo patch and JDK bundle files from `/tmp` to `/opt/aptare/oracle` folder using the following command:

```
mv /tmp/p35004974_190000_Linux-x86-64.zip /opt/aptare/oracle
mv /tmp/p35058163_190000_Linux-x86-64.zip /opt/aptare/oracle
```

- 2 Navigate to `/opt/aptare/oracle` folder and unzip the file.

```
cd /opt/aptare/oracle
unzip p35004974_190000_Linux-x86-64.zip
```

The above command will create a `35004974` folder in `/opt/aptare/oracle` folder.

```
unzip p35058163_190000_Linux-x86-64.zip
```

The above command will create a `35058163` folder in `/opt/aptare/oracle` folder.

If the below message is displayed while you unzip the file, enter **y** in its response.

replace PatchSearch.xml? [y]es, [n]o, [A]ll, [N]one, [r]ename: is displayed.

- 3 Set permission on patch folder `35004974` and `35058163`.

```
chown -R aptare:dba 35004974
chown -R aptare:dba 35058163
```

Note: If the Oracle patch is not Veritas provided and have already installed Oracle patch, **skip the following steps from 4 through 10.**

- 4** As a root user, copy the two jar files from /tmp to /opt/aptare/oracle/sqldeveloper/sqldeveloper/lib folder.

```
cd /tmp
unzip /tmp/xdb6.zip
unzip /tmp/xmlparserv2-sans-jaxp-services.zip

mv /tmp/xdb6.jar /opt/aptare/oracle/sqldeveloper/sqldeveloper/lib
mv /tmp/xmlparserv2-sans-jaxp-services.jar /opt/aptare/oracle
/sqldeveloper/sqldeveloper/lib
```

- 5** Change the permissions on the jar files and the perl.

```
cd /opt/aptare/oracle/sqldeveloper/sqldeveloper/lib
chown -R aptare:dba xdb6.jar
chown -R aptare:dba xmlparserv2-sans-jaxp-services.jar
cd /opt/aptare/oracle
chown -R aptare:dba perl
chmod -R 775 perl
```

- 6** Check if oraInventory folder is available under /opt/. If the folder is not available, then

```
cd /opt/aptare/upgrade
cp oraInventory.zip /opt/
cd /opt
unzip oraInventory.zip
```

- 7** Check permission on /opt/oraInventory folder if it is aptare:dba else change the permission.

```
cd /opt/
chown -R aptare:dba oraInventory
```

- 8** su - aptare

9 Execute the following command to attach the Oracle home

```
$ORACLE_HOME/oui/bin/runInstaller -silent -ignoreSysPrereqs  
-invPtrLoc "/opt/aptare/oracle/oraInst.loc" -attachHome  
ORACLE_HOME="/opt/aptare/oracle" ORACLE_HOME_NAME="OraDB19c_home"  
INVENTORY_LOCATION="/opt/oraInventory"
```

If the oracle home is already attached, the message *'Oracle Home already exists at this location. Select another location'* will be displayed.

Ignore the message.

10 Follow the steps to make changes for fuser if you see the fuser error 'Missing command :fuser'.

```
cd /opt/aptare/oracle/bin/  
touch fuser  
chmod 755 fuser
```

11 Connect as aptare user, if continuing from step-3, by using the below command else go to step 12.

```
su - aptare
```

12 In this step, set the path. Make sure you set all the paths else patch application might fail.

```
export PATH=$PATH:/opt/aptare/oracle/OPatch  
export PATH=$PATH:/usr/ccs/bin  
PATH=$PATH:/opt/aptare/oracle/sqldeveloper/sqldeveloper/lib
```

13 Check for any OPatch conflicts. This step will verify for any conflicts on both the database RU patch and OJVM patches.

```
cd /opt/aptare/oracle/35058163  
/opt/aptare/oracle/OPatch/patch prereq  
CheckConflictAgainstOHWithDetail -ph ./
```

- 14** If no conflicts are detected, execute the following commands to apply database RU patch from `/opt/aptare/oracle/35058163/35042068` folder.

```
cd /opt/aptare/oracle/35058163/35042068
/opt/aptare/oracle/OPatch/opatch apply
```

```
Verifying environment and performing prerequisite checks...
```

```
OPatch continues with these patches: 35042068
```

```
Do you want to proceed? [y|n]
```

```
y
```

```
Is the local system ready for patching? [y|n]
```

```
y
```

```
Patching component oracle.jdk, 1.8.0.201.0...
```

```
Patch 35042068 successfully applied.
```

```
Sub-set patch [34777391] has become inactive due to the application of a
super-set patch [35042068]
```

```
Sub-set patch [34765931] has become inactive due to the application of a
super-set patch [35042068].
```

```
Please refer to Doc ID 2161861.1 for any possible
further required actions.
```

```
Log file location: /opt/aptare/oracle/cfgtoollogs/opatch/
opatch2023-04-28_15-54-13PM_1.log
```

```
OPatch completed with warnings.
```

Note: Ignore the warning message if it is related to rollback of patch 30565805. The message is displayed when no prior Oracle security patches were applied.

15 Run the following commands to apply OJVM patch from

`/opt/aptare/oracle/35058163/35050341` folder.

```
cd /opt/aptare/oracle/35058163/35050341
/opt/aptare/oracle/OPatch/opatch apply
Verifying environment and performing prerequisite checks...
OPatch continues with these patches: 35050341
Do you want to proceed? [y|n]
y
Is the local system ready for patching? [y|n]
y
Patching component oracle.javavm.server, 19.0.0.0.0...
Patching component oracle.javavm.server.core, 19.0.0.0.0...
.
.
Patch 35050341 successfully applied.
Sub-set patch [34786990] has become inactive due to the application of
a super-set patch [35050341].
```

```
Log file location: /opt/aptare/oracle/cfgtoollogs/opatch/
opatch2023-04-28_16-02-35PM_1.log
OPatch succeeded.
```

Ignore any warnings related to rollback of patch 30565805. This message is displayed when no pror Oracle security patches are applied.

16 Navigate to `/opt/aptare/oracle/35004974` and check for any OPatch conflicts for the JDK bundle patch.

```
cd /opt/aptare/oracle/35004974

/opt/aptare/oracle/OPatch/opatch prereq
CheckConflictAgainstOHWithDetail -ph ./
```

- 17** If no conflicts are detected, execute the following commands to apply JDK patch from `/opt/aptare/oracle/35004974` folder

```
cd /opt/aptare/oracle/35004974

/opt/aptare/oracle/OPatch/opatch apply

Verifying environment and performing prerequisite checks...
OPatch continues with these patches: 35004974
Do you want to proceed? [y|n]
y
Patching component oracle.jdk, 1.8.0.201.0...
Patch 35004974 successfully applied.
Log file location: /opt/aptare/oracle/cfgtoollogs/
opatch/opatch2023-04-28_16-09-38PM_1.log
OPatch succeeded.
```

- 18** Verify OPatch succeeded with the following commands which will display the OPatch application results for the database, OJVM, and JDK bundle patches:

Note: The commands will display the OPatch application of both the database and OJVM patches.

```
cd /opt/aptare/oracle/OPatch/opatch lsinventory -detail
.
.
.
OPatch succeeded.
```

- 19** Connect to sqlplus using the following command:

```
-bash-4.2$ sqlplus /nolog
SQL*Plus: Release 19.0.0.0.0 - Production on Fri Apr 28 16:20:21
Version 19.19.0.0.0
Copyright (c) 1982, 2022, Oracle. All rights reserved
```

- 20** Connect as sysdba.

```
SQL> connect / as sysdba
Connected to an idle instance
```

21 Start the database.

```
SQL> startup
ORACLE instance started.
:
:
Database mounted.
Database opened.
```

22 Open all pluggable database.

```
SQL> alter pluggable database all open;
Pluggable database altered.
```

23 Exit from SQL prompt.

```
SQL> quit
```

24 Run the database patch to complete the post-install SQL deployment for the patch being installed.

Run the following commands to apply the patch to the pluggable database (this may take few minutes).

```
/opt/aptare/oracle/OPatch/datapatch -verbose
Patch installation complete. Total patches installed: 9

Validating logfiles...done

Patch 34786990 rollback (pdb CDB$ROOT): SUCCESS
  logfile: /opt/aptare/cfgtoollogs/sqlpatch/34786990/25032666
/34786990_rollback_SCDBCNT_CDBROOT_2023Apr28_16_22_45.log (no errors)
Patch 35042068 apply (pdb CDB$ROOT): SUCCESS
  logfile: /opt/aptare/cfgtoollogs/sqlpatch/35042068/25183678
/35042068_apply_SCDBCNT_CDBROOT_2023Apr28_16_22_45.log (no errors)
Patch 35050341 apply (pdb CDB$ROOT): SUCCESS
  logfile: /opt/aptare/cfgtoollogs/sqlpatch/35050341/25148755
/35050341_apply_SCDBCNT_CDBROOT_2023Apr28_16_22_45.log (no errors)
Patch 34786990 rollback (pdb PDB$SEED): SUCCESS
  logfile: /opt/aptare/cfgtoollogs/sqlpatch/34786990/25032666
/34786990_rollback_SCDBCNT_PDBSEED_2023Apr28_16_23_29.log (no errors)
Patch 35042068 apply (pdb PDB$SEED): SUCCESS
  logfile: /opt/aptare/cfgtoollogs/sqlpatch/35042068/25183678
/35042068_apply_SCDBCNT_PDBSEED_2023Apr28_16_23_29.log (no errors)
Patch 35050341 apply (pdb PDB$SEED): SUCCESS
  logfile: /opt/aptare/cfgtoollogs/sqlpatch/35050341/25148755
/35050341_apply_SCDBCNT_PDBSEED_2023Apr28_16_23_29.log (no errors)
Patch 34786990 rollback (pdb SCDB): SUCCESS
  logfile: /opt/aptare/cfgtoollogs/sqlpatch/34786990/25032666
/34786990_rollback_SCDBCNT_SCDB_2023Apr28_16_23_29.log (no errors)
Patch 35042068 apply (pdb SCDB): SUCCESS
  logfile: /opt/aptare/cfgtoollogs/sqlpatch/35042068/25183678
/35042068_apply_SCDBCNT_SCDB_2023Apr28_16_23_29.log (no errors)
Patch 35050341 apply (pdb SCDB): SUCCESS
  logfile: /opt/aptare/cfgtoollogs/sqlpatch/35050341/25148755
/35050341_apply_SCDBCNT_SCDB_2023Apr28_16_23_29.log
(no errors)
SQL Patching tool complete on Fri Apr 28 16:24:17 2023
```

- 25** Check the log file in `/opt/aptare/cfgtoollogs/sqlpatch/` for errors.

The log file name includes the current timestamp:

Example: `/opt/aptare/cfgtoollogs/sqlpatch/sqlpatch_3378_2023_04_28_16_21_52/sqlpatch_invocation.log`

Validate the database and OJVM patch

- 1** As a APTARE user, connect to SQL Plus using the following command.

```
sqlplus / as sysdba
```

- 2** The following is the SQL query to verify the patch history.

```
SQL>select * from sys.registry$history;
```

- 3** The following is the SQL query to verify the installed patch.

```
SQL>select * from sys.registry$sqlpatch ;
```

4 The following is the SQL query for report out put with the patch details.

```
SQL> set serveroutput on
SQL> exec dbms_qopatch.get_sqlpatch_status;

Patch Id : 34411846
  Action : APPLY
  Action Time : 03-NOV-2022 15:33:53
  Description : OJVM RELEASE UPDATE: 19.17.0.0.221018 (34411846)
  Logfile : /opt/aptare/cfgtoollogs/sqlpatch/34411846
           /24917919/34411846_apply_SCDBCNTR_CDBROOT_2022Nov03_15_28_39.log
  Status : SUCCESS

Patch Id : 34419443
  Action : APPLY
  Action Time : 03-NOV-2022 15:33:53
  Description : Database Release Update : 19.17.0.0.221018 (34419443)
  Logfile : /opt/aptare/cfgtoollogs/sqlpatch/34419443
           /24972075/34419443_apply_SCDBCNTR_CDBROOT_2022Nov03_15_28_39.log
  Status : SUCCESS

Patch Id : 34411846
  Action : ROLLBACK
  Action Time : 06-FEB-2023 15:59:28
  Description : OJVM RELEASE UPDATE: 19.17.0.0.221018 (34411846)
  Logfile : /opt/aptare/cfgtoollogs/sqlpatch/34411846
           /24917919/34411846_rollback_SCDBCNTR_CDBROOT_2023Feb06_15_58_27.log
  Status : SUCCESS

Patch Id : 34786990
  Action : APPLY
  Action Time : 06-FEB-2023 15:59:29
  Description : OJVM RELEASE UPDATE: 19.18.0.0.230117 (34786990)
  Logfile : /opt/aptare/cfgtoollogs/sqlpatch/34786990
           /25032666/34786990_apply_SCDBCNTR_CDBROOT_2023Feb06_15_58_27.log
  Status : SUCCESS

Patch Id : 34765931
  Action : APPLY
  Action Time : 06-FEB-2023 15:59:29
  Description : DATABASE RELEASE UPDATE : 19.18.0.0.230117
(REL-JAN230131) (34765931)
  Logfile : /opt/aptare/cfgtoollogs/sqlpatch/34765931
```

/25098466/34765931_apply_SCDBCNTN_CDBROOT_2023Feb06_15_58_27.log

Status : SUCCESS

Patch Id : 34786990

Action : ROLLBACK

Action Time : 28-APR-2023 16:24:11

Description : OJVM RELEASE UPDATE: 19.18.0.0.230117 (34786990)

Logfile : /opt/aptare/cfgtoollogs/sqlpatch/34786990

/25032666/34786990_rollback_SCDBCNTN_CDBROOT_2023Apr28_16_22_45.log

Status : SUCCESS

Patch Id : 35050341

Action : APPLY

Action Time : 28-APR-2023 16:24:12

Description : OJVM RELEASE UPDATE: 19.19.0.0.230418 (35050341)

Logfile : /opt/aptare/cfgtoollogs/sqlpatch/35050341

/25148755/35050341_apply_SCDBCNTN_CDBROOT_2023Apr28_16_22_45.log

Status : SUCCESS

Patch Id : 35042068

Action : APPLY

Action Time : 28-APR-2023 16:24:12

Description : Database Release Update : 19.19.0.0.230418 (35042068)

Logfile : /opt/aptare/cfgtoollogs/sqlpatch/35042068

/25183678/35042068_apply_SCDBCNTN_CDBROOT_2023Apr28_16_22_45.log

Status : SUCCESS

Note: If previous patches are applied then those patch id will be displayed here.

5 Exit from SQL prompt.

SQL>exit

Validate the JDK version update

- ```
1 /opt/aptare/oracle/jdk/bin/java -version

java version "1.8.0_371"
Java(TM) SE Runtime Environment (build 1.8.0_371-b11)
Java HotSpot(TM) 64-Bit Server VM (build 25.371-b11, mixed mode)
```
- ```
2 /opt/aptare/oracle/OPatch/jre/bin/java -version

java version "1.8.0_371"
Java(TM) SE Runtime Environment (build 1.8.0_371-b11)
Java HotSpot(TM) 64-Bit Server VM (build 25.371-b11, mixed mode)
```

Upgrade and Migrate to a new server

This chapter includes the following topics:

- [Upgrade and migrate to a new server](#)
- [Testing](#)
- [Update Data Collector binaries \(if necessary\)](#)

Upgrade and migrate to a new server

If you are upgrading from an 8.4.02 Portal to a 9.x Portal and then to 10.x.xx, you may need to migrate your Linux server. This section covers migrating to a Linux Portal server and then migrating the NetBackup IT Analytics database to this new server.

Users must be running a minimum of version 10.3.00 to upgrade to 10.5.xx.

Note: From version 10.5 onwards, if you migrate a portal from one machine to another, apart from copying over the database, you also need to copy the `/opt/aptare/datarcvrconf/aptare.ks` file and ensure the file permissions allow writing by the 'tomcat' user. If this file is not copied to new machine, you will not be able to edit existing collector policies and data collection will stop working.

Install the latest release of NetBackup IT Analytics on the new server

1. Download the latest release and installation instructions from www.veritas.com.
2. Perform a fresh install of the database and portal on the new server.

3. The NetBackup IT Analytics Portal will be installed with evaluation license having validity of 60 days. Ensure you request a new license with appropriate entitlement. Refer the *NetBackup IT Analytics Licensing Guide* for more information.
4. Install the new license, once you receive it.

Perform an export of the database on the existing server

1. Follow the instructions for your platform in the *System Administrator Guide* to create a database export.
2. Copy/Transfer the export file to your new server.

Stop Portal and agent services on the new server

On Linux (as root):

```
Execute /opt/aptare/bin/tomcat-agent stop  
Execute /opt/aptare/bin/tomcat-portal stop
```

Drop and re-create the existing portal user on the new server

1. On Linux (as "aptare" user):
 - sqlplus / as sysdba
 - drop user portal cascade;
@/opt/aptare/database/ora_scripts/create_portal_user.plb;

Import the database onto the new server

Follow the instructions for your platform in the Importing the Oracle Database section in the *System Administrator Guide*.

Start Portal and agent services on the new server

On Linux (as root):

```
Execute /opt/aptare/bin/tomcat-agent start  
Execute /opt/aptare/bin/tomcat-portal start
```

Download, install, and execute to upgrade the database schema

If you are importing an old version database to 11.1 for your new NetBackup IT Analytics 11.1 portal, you can follow below instructions

1. Download the upgrade installer and documentation from www.veritas.com.
2. Run the upgrade installer.
See [“Run the upgrade utility installer \(Linux\)”](#) on page 38.
This installs the upgrade executable, but does not execute them.
3. In the last step of upgrader, select **Run Later** option to continue.
4. Open a command prompt and go to `/opt/aptare/upgrade`.
5. Run `db-upgrade.sh` and follow the instructions to upgrade the database.
6. After completion of `db-upgrade.sh`, you can login to portal with your admin credentials and try installing the new license.
7. Login again and access NetBackup IT Analytics portal.
8. Verify that all NetBackup IT Analytics application services are up and running.
9. As user root, run the following relevant command and respond to the prompts accordingly:

- On Linux:

```
sh /opt/aptare/upgrade/upgrade.sh
```

You will receive warnings that your current version is already up to date, proceed.

Once the script has completed, review the log file indicated to check for any errors

Testing

If desired, you can use the local host file method of IP address resolution to test the functionality of the new portal prior to any DNS cut-over from the existing server.

Update Data Collector binaries (if necessary)

Do not install on the same machine as the new portal/database server.

1. Download the Data Collector installer and documentation from www.veritas.com.
2. Follow the instructions in the documentation for your Data Collector to uninstall.

3. Re-install the Data Collector to the latest version, giving the correct URL for the new server.

X Virtual Frame Buffer

This appendix includes the following topics:

- [Configure X Virtual Frame Buffer \(Xvfb\)](#)

Configure X Virtual Frame Buffer (Xvfb)

Xvfb is a graphic manager that ensures proper rendering of the reports or emails exported as PDF files. You can perform this configuration as a part of your pre-installation steps for NetBackup IT Analytics Portal.

To configure Xvfb:

- 1 Ensure that system is configured to boot in graphical target, also known as runlevel 5.

- Check existing default target.

```
#systemctl get-default
```

- Set default target to graphical.target.

```
# systemctl set-default graphical.target
```

- 2 Use `yum` to install Xvfb.
- 3 If the OS is RHEL 8, install `rpm libXtst` if not already installed.

```
# yum install libXtst
```

- 4 Create a config file for Xvfb.

- Run `# cd /etc/init.d`
- Create a file `Xvfb_background` with this content:

```
#!/bin/sh
#chkconfig:345 20 80
# /etc/init.d/Xvfb_background
#
# Some things that run always
#touch /var/lock/Xvfb_background
# Carry out specific functions when asked to by the system
case "$1" in start)
echo "Starting script Xvfb_background"
/usr/bin/Xvfb :99 &
;;
stop)
echo "Stopping script Xvfb_background"
$ x=`pgrep Xvfb` ; sudo kill -9 $x
;;
*)
echo "Usage: /etc/init.d/Xvfb_background {start|stop}"
exit 1
;;
esac
exit 0
```

- Run the commands:

```
chmod 755 Xvfb_background
chkconfig --add Xvfb_background
./Xvfb_background start
/usr/lib/systemd/system-
generators/systemd-sysv-generator
systemctl enable Xvfb_background
```

- Confirm the Xvfb process is running on port :99 with:

```
# ps -ef | grep Xvfb
# netstat -anp | grep Xvfb
```

5 Update the Tomcat bash profile.

```
su - tomcat
```

Modify the profile file to look like the one below:

```
# vi .bash_profile
JAVA_HOME=/usr/java
JRE_HOME=
TOMCAT_HOME=/opt/tomcat
export JAVA_HOME JRE_HOME TOMCAT_HOME
STORAGE_HOME=$PORTAL_BASE
export STORAGE_HOME
APTARE_HOME=/opt/aptare
export APTARE_HOME
PORTAL_HOME=$APTARE_HOME/portal
export PORTAL_HOME
export DISPLAY=:99

JAVA_OPTS="-server -DPORTAL_HOME=/opt/aptare/portal
-DAPTARE_HOME=/opt/aptare"
export JAVA_OPTS
umask 0022
```

6 Restart NetBackup IT Analytics services.**7** Test a wide report to ensure the exported PDF appears without truncation.