APTARE IT Analytics Installation and Upgrade Guide for Linux

Release 10.6

VERITAS™

APTARE IT Analytics Installation and Upgrade Guide for Linux

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Documentation

Make sure that you have the current version of the documentation. Each document displays the date of the last update on page 2. The latest documentation is available on the Veritas website.

Veritas Services and Operations Readiness Tools (SORT)

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

Contents

Chapter 1

Install the APTARE IT Analytics Portal on a Linux server

This chapter includes the following topics:

Introduction

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

- OVA based deployment (with RHEL as operating system for 10.6)
- 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 APTARE IT Analytics 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 APTARE IT Analytics components on this appliance, depending on the license entitlement.

Portal installation memory requirements

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.

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. [Windows and Linux OS]
- Windows Virtual Memory must be 24 GB or greater, otherwise Oracle will fail to start. Increase the size of the virual memory if required (**Windows** > **System** > **Advanced System Settings** > **Advanced** tab > **Settings** > **Advanced** tab > click **Change**) [Windows Only]
- 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. [Linux OS only]
- 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** [Linux OS only]

Multi-language support and locale considerations (Linux)

Apart form 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 APTARE IT Analytics Portal.

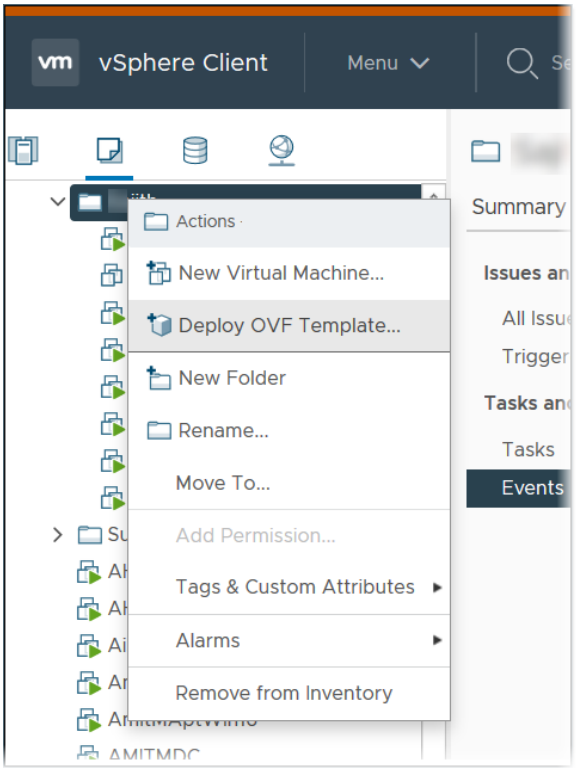
See “Installer-based deployment” on page 13.

OVA-based deployment on VMware ESXi

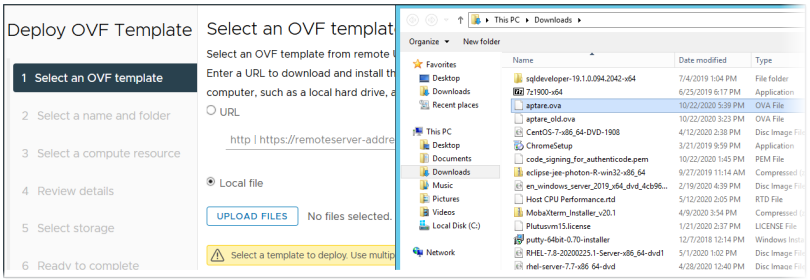
Note: This OVA is supported with VMware ESXi 6.5 and above only. The OVA comes with RHEL 7 operating System with 300GB storage and 32GB RAM

Steps to deploy

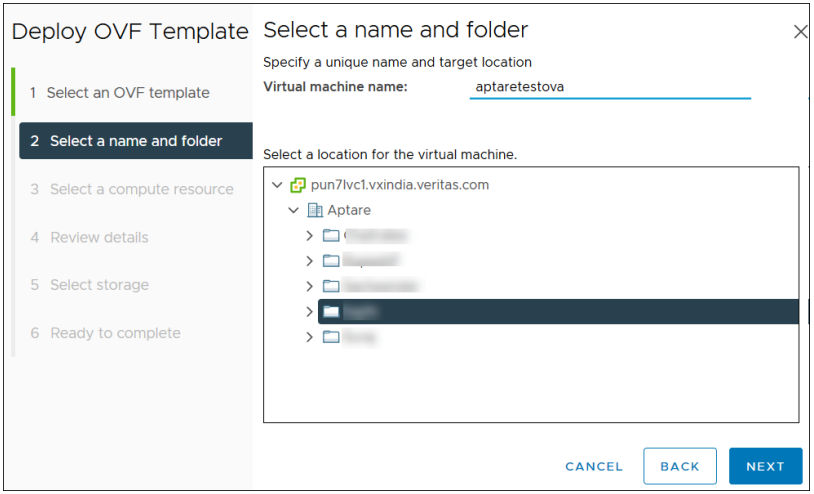
1. Download the OVA from Download Centre : https://www.veritas.com/content/support/en_US/downloads.
2. Deploy OVA on vCenter using Deploy OVF Template option.



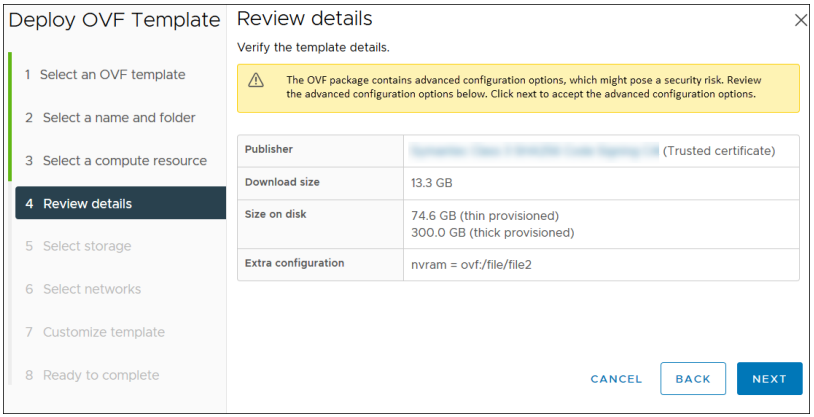
3. Login to VMware vCenter and select Deploy OVF Template.



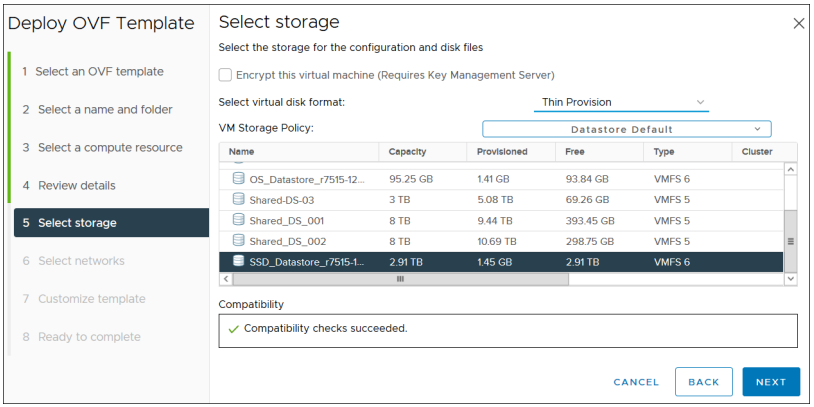
4 Select a name and the Folder. Click **NEXT** to navigate to the next page.



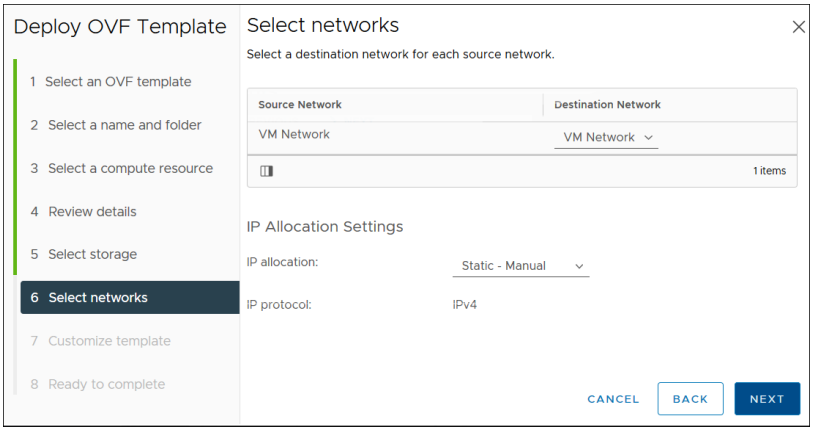
5 Review the details and click **NEXT**.



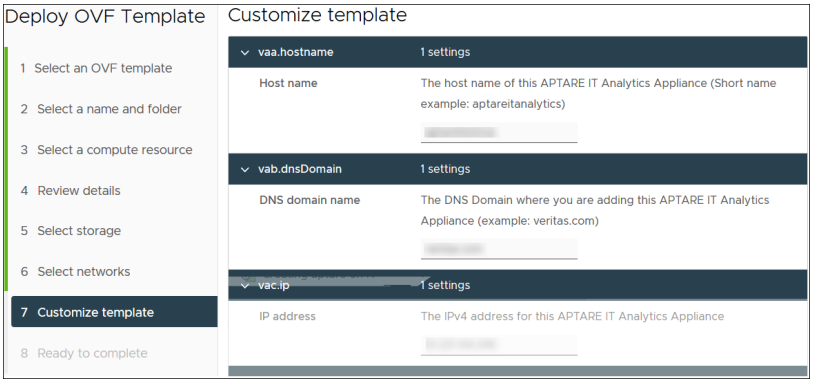
6 Select storage. To avoid getting any error, ensure that you select a Datastore that Host has access to. Click **NEXT** to navigate to the next page.



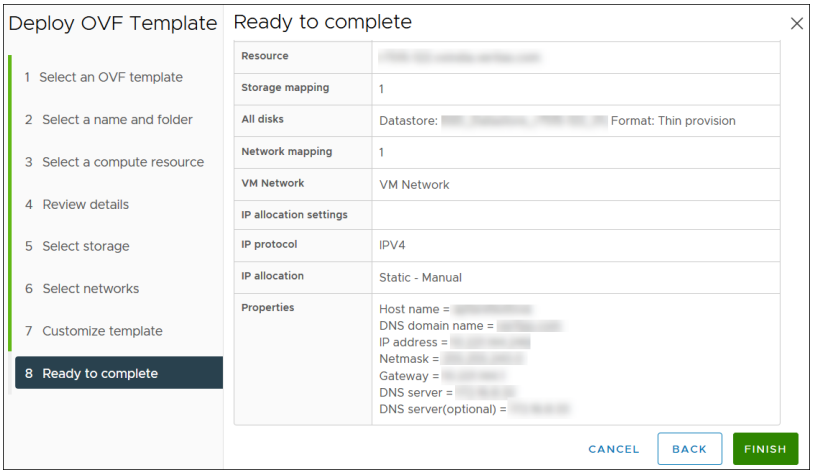
7 Select the network and click **NEXT**.



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



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



Portal will be accessible with URL http://aptareportal.<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 APTARE 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 APTARE IT Analytics 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: APTARE 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 APTARE IT Analytics Portal software components.
4. Create the APTARE 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 APTARE IT Analytics Portal software on the same server as the APTARE 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, be sure 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.

See "Portal installation memory requirements" on page 7.

2. 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 dependents 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	
/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.

File System/ Directory	Minimum Disk Space	Recommended Disk Space	Maximum Disk Space for DB Growth	Notes
/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	

3. Review third-party software details.

   See "Supported third-party and open source products" on page 30.

4. 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 65.

5. 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.

6. Verify that the necessary rpms exist on your system based on the OS.

   - For RHEL 8 and CENTOS 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++
     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
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++
  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
  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:

```
bc.x86_64
binutils.x86_64
glibc-devel.x86_64
glibc.x86_64
libaio-devel.x86_64
libaio1.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
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
```

7. Verify that the `bc` command is available, as it is required by the database installer.

8. 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.
9. **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.
10. 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.
11. Ensure ports 80/tcp, 8011, and 8017 are open in the firewall for proper functioning of the portal.
12. 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.zip

    The path for this directory will 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.
13. 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 the Oracle database application binaries. Typically, the Oracle Database application binaries are installed on the same server as the Portal binaries, although in some cases, a separate server may be designated.

See "Task 1: Portal and database deployment strategies (Linux)" on page 13.

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

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

To install the Oracle database binaries

1. Verify that you have the current version of the Oracle 19c Installer binaries.
2. Login as **root** on the server where the APTARE 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 <sc_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_xxxxxxxxxxxxxxxxxxxx.log
********************************************************************************
*  APTARE IT Analytics ORACLE Installer Version 19.3.0.0.0
(xxxxxxxxxxxx)
********************************************************************************
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/opatchxxxxxxxxxxxxxxx.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
```

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 APTARE 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 <sc_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/aptareInstaller.sh
   ```

5. Determine what Portal server configuration you are deploying.

   ```
   ************************************************************************
   * APTARE IT Analytics Vers 10.6 Installer
   ************************************************************************
   APTARE IT Analytics requires a Web Server and a Database server.
   You might want those to be separate machines or the 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.
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
APTARE IT Analytics Portal, Agent and database server.
The portal and agent machines will be called
aptareportal.yourdomain and
aptareagent.yourdomain
Please 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 APTARE IT Analytics Web GUI. For example, if you enter companyabc.com, the URL will be **http://aptareportal.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.

```
Please enter IP Address for aptareportal.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.

```
Please enter IP Address for 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
aptareportal.yourdomain 127.0.0.1
aptareagent.yourdomain 127.0.0.1
   database server      127.0.0.1
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_aptare_database.sh` later.

```
You can create the Database schema as a part of this
installation or create it later using
create_aptare_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 theAPTARE 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 APTARE 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_aptare_database.shcreate_itanalytics_database.sh` as a part of the `aptareInstaller.sh` script.

---

1. Log in as **aptare** to your APTARE 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 APTARE IT Analytics database installation script to install the APTARE IT Analytics database objects and schema:

   ```
   /mnt/diska/create_aptare_database.sh
   ```

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

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

```
Please enter your APTARE IT Analytics Portal Domain Name:
(mycompany.com)
You entered the following for your APTARE IT Analytics domain
name:
yourcompany.com
Your APTARE IT Analytics Super User Login Account will be
admin@yourcompany.com
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 APTARE IT Analytics Portal user ...
Completed creation of the APTARE IT Analytics Portal database
user
Creating APTARE IT Analytics database schema tables ...
...
... (EACH STEP LOGS TO THE CONSOLE...)
...
Completed creation of the APTARE IT Analytics base schema tables
Creating APTARE 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 APTARE 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 APTARE 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_aptare_database-xxxxx-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 APTARE 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/diska/license.slf
/opt/aptare/utils/installlicenseUI.sh /mnt/portal/license.slf
```

8. Installation of the Database components is now complete.

   The APTARE 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.

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: **`/opt/aptare/bin/aptare start`**

Task 7: Request the license key file (Linux)

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

Task 8: Log into the Portal

Log into the Portal (http://aptareportal.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 APTARE 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 software

Software Product	Linux	Windows
Oracle 19c	**New Installation and Upgrading to 10.6** ■ 19c	**New Installation and Upgrading to 10.6** ■ 19c
Java	Amazon Corretto 11.0.10.9.1 64-bit	Amazon Corretto 11.0.10.9.1 64-bit
VSphere Web Services SDK	5.5, 64-bit	5.5, 64-bit

Table 1-1 Supported software *(continued)*

Software Product	Linux	Windows
Apache HTTP Web Server	■ 2.4.46 ■ Apache 2.4.46 includes SafeLogic SSL for Linux environments.	■ 2.4.46. Verify that the C++ Redistributable for Visual Studio 2015 is installed.* ■ Apache 2.4.46 includes SafeLogic SSL for Windows environments.
	■ 2.4.48 ■ Apache 2.4.48 includes SafeLogic SSL for Linux environments. **Note:** The Apache HTTP Web Server ver 2.4.48 is available from **APTARE 10.6 P3** and above.	■ 2.4.48. Verify that the C++ Redistributable for Visual Studio 2015 is installed.* ■ Apache 2.4.48 includes SafeLogic SSL for Windows environments. **Note:** The Apache HTTP Web Server ver 2.4.48 is available from **APTARE 10.6 P3** and above.
	■ 2.4.51 ■ Apache 2.4.51 includes SafeLogic SSL for Linux environments. **Note:** The Apache HTTP Web Server ver 2.4.51 is available from **APTARE 10.6 P7** and above.	■ 2.4.51. Verify that the C++ Redistributable for Visual Studio 2015 is installed.* ■ Apache 2.4.51 includes SafeLogic SSL for Windows environments. **Note:** The Apache HTTP Web Server ver 2.4.51 is available from **APTARE 10.6 P7** and above.
	■ 2.4.52 ■ Apache 2.4.52 includes SafeLogic SSL for Linux environments. **Note:** The Apache HTTP Web Server ver 2.4.52 is available from **APTARE 10.6 P10** and above.	■ 2.4.52. Verify that the C++ Redistributable for Visual Studio 2015 is installed.* ■ Apache 2.4.52 includes SafeLogic SSL for Windows environments. **Note:** The Apache HTTP Web Server ver 2.4.51 is available from **APTARE 10.6 P10** and above.
Apache Tomcat Java Servlet Engine	9.0.52	9.0.52

If other versions of the above components are already running on the designated APTARE IT Analytics system, or other components are utilizing resources (such as specific ports) typically used by APTARE 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 APTARE 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 APTARE IT Analytics server
2. From the root directory (/) stop the Portal services and run the uninstall script:

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

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

Chapter 2

Upgrade APTARE IT Analytics Portal on Linux

This chapter includes the following topics:

Overview

If you are upgrading to v10.5 and later, you must also upgrade Oracle. Therefore, upgrading from versions lower than 10.5 is a two-step process that involves:

1. Upgrading Oracle Database Application Binaries to 19c. See “Upgrade Oracle database application binaries to 19c (Linux)” on page 36.
2. Upgrading Portal and Data Collectors (Linux). See “Upgrade APTARE IT Analytics Portal” on page 43.

While upgrading to version 10.6 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 APTARE 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 APTARE IT Analytics version 10.4.00 to upgrade to APTARE IT Analytics 10.6. For complete details about system requirements and upgrading, refer to the *Certified Configurations Guide*. In addition, Oracle 19c is required for APTARE IT Analytics 10.6.

Before upgrading

- License mechanism has been changed in APTARE 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 *APTARE 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 APTARE 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.

- Verify the rpm fontconfig is installed. Fontconfig is a library designed to provide system-wide font configuration, customization and application access. If the rpm fontconfig is not installed, the installer will not be able to load in the console or silent mode. This is a prerequisite for a Linux Portal upgrade and a Data Collector installation.
- 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 49.
- 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 10.6 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 APTARE 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 Oracle database application binaries to 19c (Linux)

Prerequisites for upgrading Oracle database application binaries (Linux)

1. Verify that the necessary rpms exist on your system based on the OS.
   - For RHEL 8 and CENTOS 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++
     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
     make.x86_64
     perl-Data-Dumper.x86_64
     perl-Getopt-Long.noarch
     perl-TermReadKey.x86_64
     psmisc.x86_64
     sysstat.x86_64
     ```

   - 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++
     ```

```
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
make.x86_64
perl-Data-Dumper.x86_64
perl-Getopt-Long.noarch
perl-TermReadKey.x86_64
psmisc.x86_64
sysstat.x86_64
```

- For SUSE Linux Enterprise, use the following command:

```
rpm -q bc
binutils glibc glibc-devel libcap-ng-utils
libcap-ng0 libcap-progs libcap1 libcap2
libelf-devel libgcc_s1 libjpeg-turbo
libjpeg62 libjpeg62-turbo libpcap1 libpcre1
libpcre16-0 libpng16-16 libstdc++6 libtiff5
libaio-devel libaio1 make mksh perl-Term-ReadKey pixz rdma-core
smartmontools sysstat xz --qf '%{name}.%{arch}\n'|sort
```

The command returns:

```
bc.x86_64
binutils.x86_64
glibc-devel.x86_64
glibc.x86_64
libaio-devel.x86_64
```

```
libaio1.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
make.x86_64
mksh.x86_64
perl-Term-ReadKey.x86_64
pixz.x86_64
rdma-core.x86_64
smartmontools.x86_64
sysstat.x86_64
xz.x86_64
```

2. Ensure you do not have symbolic links to your Oracle database directories. Oracle upgrade will fail if the installer detects symbolic links to the database directories. You must recreate the directory objects instead of symbolic links for the upgrade to succeed.

Upgrade Oracle database application binaries (Linux)

Ensure the APTARE IT Analytics server does not have any other Oracle database instances installed. Also note the instructions provided with the confirmation of your purchase agreement and consult Veritas Support, if you require additional assistance.

To upgrade the Oracle database binaries:

1 Perform a cold backup of your Oracle database. This 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.

2. Export your Oracle database. This can be done manually prior to the upgrade, or you can elect to have it done as part of the upgrade process.
3. Verify that you have the current version of the Oracle 19c Installer binaries.
4. 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.
5. Download the following Oracle patches from Veritas and keep them in a directory on the server where Oracle Database will be installed.
   - p31281355_190000_Linux-x86-64.zip
   - p30565805_198000DBRU_Linux-x86-64.zip

   The path for this directory will be required by the Oracle database installer during the upgrade process. Oracle database installer will install these patches as part of upgrade.

   Oracle installer installs only the above-listed patches. Any other patches released by Oracle must be installed manually. See "Apply Oracle-recommended patches" on page 51.
6. Verify that the Oracle Database does not have any invalid objects. The installer will verify if the Database has any invalid objects. If any invalid objects are found, the installer will prompt the user to delete them. It is recommended to consult with support before deleting the invalid objects.
7. Login as **root** on the server where the APTARE IT Analytics Database will be installed. Typically, this is also the Portal server.
8. Place the ISO image into the **/mnt** directory.
9. Mount the ISO image that you downloaded.

   ```
   mkdir /mnt/diskd

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

   where you substitute the relevant name of the ISO file that you downloaded.
10. Enter the following commands to start the installer:

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

    The command copies the ORACLE binaries into **/opt/aptare/oracle19c.**
11. Press **Enter** to read the entire EULA license agreement and accept the agreement. The upgrade process begins by detecting an existing Oracle installation and switching to upgrade mode.

12 Provide the absolute directory path where recommended Oracle patches are downloaded.

Note: aptare user must have write access to the directory where these patches are downloaded.

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.

13 Enter **PROCEED** to proceed with the upgrade.

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

```
Creating group aptare...Done.
    Creating user aptare...with default Group aptare... Done.
    Creating group dba...Done.
    Adding user aptare to group dba...Done.
   Creating ORACLE_HOME directory in /opt/aptare/oracle ... Done.

    Setting up database directories /data01 /data02 /data03
/data04
    /data05 /data06... Done.
    Installing ORACLE binaries in /opt/aptare/oracle19c ...
    Extracting files... Please wait, this process will take 3-5
minutes to complete... Done.
    Setting permissions for oracle files ... Done.
    Done.
```

14 The Oracle Database installer will install the recommended Oracle patches. Before installing the Oracle patches, Oracle installer will verify the Oracle Inventory. If any issue is observed, it will re-create the Oracle inventory.

15 After the extraction of Oracle 19c binaries, the pre-upgrade process begins. This includes:

- Acknowledgement that a cold backup was performed. As part of the upgrade process, Oracle 19c binaries will be installed to your system, upgraded using an auto upgrade utility and converted to Container-Based DB (CDB). A cold backup of the Oracle data files is required to protect against possible errors and data loss.
- Compatibility check verifies if the existing database is compatible for direct upgrade to Oracle 19c

- Database Export. This is required. As part of this process you can either verify the export or direct the upgrader to export it for you.
  - Verification of a database export: An Oracle database export is required. This export is in addition to the full Oracle filesystem cold backup. If this step was taken prior to the upgrade process you must enter **SKIP** and then enter the existing database export file name and location.
    OR
  - Export the database: An Oracle database export is required. If you did not do this prior to the upgrade, and verify it, the upgrader can export it for you. This export is in addition to the full Oracle filesystem cold backup. Enter **PROCEED** to export the database and enter a location for the upgrader to place the files. This step can require 20-30 minutes depending on the size of the database.

16 Once the pre-upgrade processes are complete the utility will complete the Oracle upgrade.

17 After the successful completion of pre-upgrade process, the database upgrade process will start using the Autoupgrade utility. During the process, the following is displayed:

```
[exec] Autoupgrade Utility Started.
    [exec] aptare
    [exec] AutoUpgrade tool launched with default options
    [exec] Processing config file ...
    [exec] +--------------------------------+
    [exec] | Starting AutoUpgrade execution |
    [exec] +--------------------------------+
    [exec] 1 databases will be processed
```

After successful completion of the process, the following is displayed:

```
[exec] Autoupgrade Utility Started.
    [exec] aptare
    [exec] AutoUpgrade tool launched with default options
    [exec] Processing config file ...
    [exec] +--------------------------------+
    [exec] | Starting AutoUpgrade execution |
    [exec] +--------------------------------+
    [exec] 1 databases will be processed
    [exec] Job 100 completed
    [exec] ------------------ Final Summary --------------------
    [exec] Number of databases            [ 1 ]
    [exec]
    [exec] Jobs finished successfully     [1]
    [exec] Jobs failed                    [0]
    [exec] Jobs pending                   [0]
    [exec] ------------- JOBS FINISHED SUCCESSFULLY -------------
    [exec] Job 100 for scdb
    [exec] Autoupgrade Utility Finished.
```

Log File Locations

Logs for entire upgrade process are located at:

```
/opt/aptare/upgrade/logs/upgrade19c/upgrade19c.log
```

Logs for the auto upgrade process are located at:

```
/opt/aptare/upgrade/logs/upgrade19c/scdb_upd_logs/
scdb/xxx/autoupgrade_<YYYYMMDD>.log
```

where <YYYYMMDD> is the creation date.

Summary logs are located at:

```
/opt/aptare/upgrade/logs/upgrade19c/global_logs/
cfgtoollogs/upgrade/auto/autoupgrade.log
```

Note: Any tuning done to Oracle configuration file `initscdb.ora` on previous version of Oracle will not be part of the `initscdb.ora` file in 19c. These changes must be applied again.

Upgrade APTARE IT Analytics Portal

Download the APTARE 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)

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
```

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 APTARE IT Analytics version. You must be currently running APTARE IT Analytics version 10.4.00 or greater.
2. Verify that the libXtst.so.6 libraries are installed.
3. Ensure that all APTARE 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 *APTARE 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 APTARE 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 APTARE 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 mult-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 48.
- 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 APTARE 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 APTARE 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 APTARE-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 APTARE IT Analytics Portal" on page 50.
3. If the APTARE Agent Service does not continue to run, verify no APTARE-related Java processes are running. If required, kill all running APTARE-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 APTARE IT Analytics Portal" on page 50.

Collector updates from the APTARE IT Analytics Portal

1. Log in to the APTARE 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.

Chapter 3

Oracle patches for the database server

This chapter includes the following topics:

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/utils/applyOraclepatches.sh as follows:

```
/opt/aptare/utils/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 July 2022 patch application on Linux

Patch 34133642 - Database release update 19.16.0.0.220719

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 four files included in this patch. Follow the following steps:

1. Download the files and pre-install setup.
2. Upgrade OPatch.
3. Patch the database.
4. Verify the database patch.

Pre-Install setup

1 Login to the virtual machine as root or Server where APTARE IT Analytics is installed.

2 Download following four files from the product download area of the website and save to `/tmp` folder.

- xdb6.jar
- xmlparserv2-sans-jaxp-services.jar
- p6880880_190000_Linux-x86-64.zip
- p34133642_190000_Linux-x86-64.zip

3 `cd /tmp`

4 Log in to the server as root.

5 Stop all services using the following command:

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

Note: If April 2022 patch has already applied, then the first two files from the download are not required.

Note: Ensure all APTARE services are stopped. If services are still running, it may cause technical issues further during patch installation.

6 Verify all the required rpms are installed before applying Oracle patches.

Refer to the hyperlink link for more details.

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

Note: If you had already installed *April 2022* Oracle patch, skip steps from 5 through 11 in **Installing the Oracle Patch**.

OPatch installation steps

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

```
mv 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 `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 12.2.0.1.32

OPatch succeeded.
```

Installing the Oracle patch

1 As a root user, copy the Oracle patch file from `/tmp` to `/opt/aptare/oracle` folder using following command:

```
mv p34133642_190000_Linux-x86-64.zip /opt/aptare/oracle
```

2 su – aptare

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

```
cd /opt/aptare/oracle
unzip p34133642_190000_Linux-x86-64.zip
```

The above command will create a 34133642 folder in `/opt/aptare/oracle` folder

During the unzip if you see the below message put ‘y’ as shown below.

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

4 Set permission on patch folder 34133642

```
chown -R aptare:dba 34133642
```

Note: If you have already installed an Oracle patch previously, skip the following steps from 5 through 11.

---

5 As root user copy the two jar files from `/tmp` to `/opt/aptare/oracle/sqldeveloper/sqldeveloper/lib` folder.

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

6 Change permissions on the jar files and 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
```

7 Check if `oraInventory` folder is available under `/opt/`. If the folder is not available, then

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

8 Check permission on `/opt/oraInventory` folder if it is aptare:dba else change the permission

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

9 Execute `su -aptare`

10 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, *Oracle Home already exists at this location. Select another location* message is displayed. Ignore this message.

---

11 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
```

12 Set 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.

```
cd /opt/aptare/oracle/34133642
/opt/aptare/oracle/OPatch/opatch prereq
CheckConflictAgainstOHWithDetail
-ph ./
```

14 If no conflicts are detected, execute the following command to apply patch from `/opt/aptare/oracle/34133642` folder.

```
/opt/aptare/oracle/OPatch/opatch apply

Verifying environment and performing prerequisite checks...
OPatch continues with these patches:   34133642
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...

Sub-set patch [33806152] has become inactive due to the
application of a super-set patch [34133642].
Please refer to Doc ID 2161861.1 for any possible further required
 actions.
Log file location:
/opt/aptare/oracle/cfgtoollogs/opatch/opatch2022-07-20_20-44-05PM_1.log
OPatch succeeded.
```

15 Verify `OPatch` succeeded with the following command:

```
/opt/aptare/oracle/OPatch/opatch lsinventory -detail
```

16 Connect to SQL Plus using following command:

```
-bash-4.2$ sqlplus /nolog

SQL*Plus: Release 19.0.0.0.0 - Production on Wed Jul 20 20:55:30
2022

Version 19.16.0.0.0

Copyright (c) 1982, 2022, Oracle. All rights reserved.
```

17 Connect as sysdba

```
SQL> connect / as sysdba

Connected to an idle instance.
```

18 Start the database.

```
SQL> startup

ORACLE instance started.

:

:

Database mounted.

Database opened.
```

19 Open all pluggable database.

```
SQL> alter pluggable database all open;

Pluggable database altered.
```

20 Exit from SQL prompt.

```
SQL> quit
```

21 Datapatch is run to complete the post-install SQL deployment for the patch being installed.

Execute the following command 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: 3

Validating logfiles...done

Patch 34133642 apply (pdb CDB$ROOT): SUCCESS
  logfile: /opt/aptare/cfgtoollogs/sqlpatch/34133642/24865470/
34133642_apply_SCDBCNTR_CDBROOT_2022Jul20_20_58_00.log (no errors)

Patch 34133642 apply (pdb PDB$SEED): SUCCESS
  logfile: /opt/aptare/cfgtoollogs/sqlpatch/34133642/24865470/
34133642_apply_SCDBCNTR_PDBSEED_2022Jul20_20_59_00.log (no errors)

Patch 34133642 apply (pdb SCDB): SUCCESS
  logfile: /opt/aptare/cfgtoollogs/sqlpatch/34133642/24865470/
34133642_apply_SCDBCNTR_SCDB_2022Jul20_20_59_00.log (no errors)
SQL Patching tool complete on Wed Jul 20 21:00:09 2022
```

22 Check the log files in `/opt/aptare/cfgtoollogs/sqlpatch/` for errors. The log file name includes the current timestamp:

Example:

```
/opt/aptare/cfgtoollogs/sqlpatch/
sqlpatch_17520_2022_07_20_20_57_17/sqlpatch_invocation.log
```

23 Start all services as root user.

```
/opt/aptare/bin/aptare start
```

Validate the Patch

1 As Aptare user connect to SQL Plus using following command:

```
sqlplus / as sysdba
```

2 Query to check registry for patch history.

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

3 Query to check registry for installed patch.

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

4 Report output with patch details.

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

5 Exit SQL prompt.

```
SQL> exit
Patch Id : 32545013
Action : APPLY
Action Time : 29-JUN-2021 14:55:04
Description : Database Release Update : 19.11.0.0.210420 (32545013)
Logfile :
/opt/aptare/cfgtoollogs/sqlpatch/32545013/24175065/
32545013_apply_SCDBCNTR_CDBROOT_2021Jun29_14_49_09.log
Status : SUCCESS

Patch Id : 32904851
Action : APPLY
Action Time : 13-OCT-2021 19:58:17
Description : Database Release Update : 19.12.0.0.210720 (32904851)
Logfile :
/opt/aptare/cfgtoollogs/sqlpatch/32904851/24343243/
32904851_apply_SCDBCNTR_CDBROOT_2021Oct13_19_56_19.log
Status : SUCCESS

Patch Id : 33192793
Action : APPLY
Action Time : 01-DEC-2021 18:02:31
Description : Database Release Update : 19.13.0.0.211019 (33192793)
Logfile :
/opt/aptare/cfgtoollogs/sqlpatch/33192793/24462514/
33192793_apply_SCDBCNTR_CDBROOT_2021Dec01_17_59_27.log
Status : SUCCESS

Patch Id : 33515361
Action : APPLY
Action Time : 21-JAN-2022 17:13:39
Description : Database Release Update : 19.14.0.0.220118 (33515361)
Logfile :
/opt/aptare/cfgtoollogs/sqlpatch/33515361/24589353/
33515361_apply_SCDBCNTR_CDBROOT_2022Jan21_17_12_30.log
Status : SUCCESS

Patch Id : 33806152
Action : APPLY
Action Time : 28-APR-2022 17:12:27
Description : Database Release Update : 19.15.0.0.220419 (33806152)
```

```
Logfile :
/opt/aptare/cfgtoollogs/sqlpatch/33806152/24713297/
33806152_apply_SCDBCNTR_CDBROOT_2022Apr28_17_10_48.log
Status : SUCCESS

Patch Id : 34133642
Action : APPLY
Action Time : 20-JUL-2022 21:00:06
Description : Database Release Update : 19.16.0.0.220719 (34133642)
Logfile : /opt/aptare/cfgtoollogs/sqlpatch/34133642/24865470/
34133642_apply_SCDBCNTR_CDBROOT_2022Jul20_20_58_00.log
Status : SUCCESS
```

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

Validating JDK version update

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

   ```
   java version "1.8.0_331"
   Java(TM) SE Runtime Environment (build 1.8.0_331-b09)
   Java HotSpot(TM) 64-Bit Server VM (build 25.331-b09, mixed mode)
   ```

2. `/opt/aptare/oracle/OPatch/jre/bin/java -version`

   ```
   java version " 1.8.0_341"
   Java(TM) SE Runtime Environment (build 1.8.0_341-b10)
   Java HotSpot(TM) 64-Bit Server VM (build 25.341-b10, mixed mode)
   ```

Chapter 4

Upgrade and Migrate to a new server

This chapter includes the following topics:

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 APTARE 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 APTARE 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. 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 10.6 for your new APTARE IT Analytics 10.6 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 44.

   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 APTARE IT Analytics portal.
8. Verify that all APTARE 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.

Appendix A

X Virtual Frame Buffer

This appendix includes the following topics:

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 APTARE 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 or CentOS 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 APTARE services.

7 Test a wide report to ensure the exported PDF appears without truncation.