Oracle® Enterprise Manager Cloud Control

Administrator's Guide for Oracle Autonomous Databases

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Preface

This guide describes how you can use Oracle Enterprise Manager to discover, manage, and monitor Autonomous Databases.

Topics:

- Audience
- Documentation Accessibility
- Related Resources
- Conventions

Audience

This guide is intended for Database Administrators (DBAs) who want to use Oracle Enterprise Manager to discover Autonomous Databases. It also provides high-level information on the Oracle Enterprise Manager features for Autonomous Databases.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc`.

Accessible Access to Oracle Support

Oracle customers who have purchased support have access to electronic support through My Oracle Support. For information, visit `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info` or visit `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs` if you are hearing impaired.

Related Resources

Here are links to related resources:

- For information on how to use Oracle Enterprise Manager for Oracle Databases, database concepts and features, see Oracle Database Documentation.
- For information on Oracle Cloud Infrastructure and Autonomous Databases, see:
  - Oracle Cloud Infrastructure Documentation
  - Autonomous Data Warehouse Documentation
  - Autonomous Transaction Processing Documentation

- For information on Oracle Enterprise Manager, see Oracle Enterprise Manager Documentation.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1
Use Oracle Enterprise Manager for Autonomous Databases

You can use Oracle Enterprise Manager 13.3 after applying the EM DB Plug-in Bundle Patch 13.3.2.0.190731 to discover, manage, and monitor your Autonomous Databases.

> **Note:**
>
> Oracle Enterprise Manager currently only supports the **Autonomous Transaction Processing – Dedicated** database, and the information available in this guide can only be used to discover, manage, and monitor Autonomous Transaction Processing – Dedicated databases. The use of the term "Autonomous Databases" in this guide only refers to the Autonomous Transaction Processing – Dedicated database.

Oracle Enterprise Manager is deployed either on Oracle Cloud Infrastructure Marketplace or on-premises, and using it you can:

- Discover Autonomous Databases.

- Monitor the health and performance of Autonomous Databases and perform deep diagnostics on the Performance Hub.

- Perform database administration tasks such as storage management, and schema management tasks such as creating database objects.

Note that separate licensing is not required to use Oracle Enterprise Manager for Autonomous Databases. All the supported Oracle Enterprise Manager features for Oracle Databases are bundled along with the Autonomous Database.

For information on:

- Oracle Enterprise Manager features for Autonomous Databases, see Monitoring and Administration Tasks.

- Oracle Database features in Autonomous Transaction Processing, see Using Oracle Database Features in Autonomous Transaction Processing in *Developer's Guide to Oracle Autonomous Transaction Processing Dedicated Deployments*.

Topics:

- About Autonomous Databases
- About User Accounts

About Autonomous Databases

Autonomous Databases are fully managed, preconfigured database environments that are created in Oracle Cloud Infrastructure.

Autonomous Databases are cloud databases that deliver end-to-end automation of tasks that are traditionally performed by DBAs, such as provisioning the database and monitoring security, availability, and performance. Using Autonomous Databases, you do not have to configure or manage any hardware, or install any software. After creating an Autonomous Database, you can scale the number of CPU cores or the storage capacity of the database at any time without impacting availability or performance.

> **Note:**
>
> Although this topic provides information on the different types of Autonomous Databases, currently, Oracle Enterprise Manager only supports the **Autonomous Transaction Processing – Dedicated** database.

Autonomous Databases are of the following types:

- **Autonomous Data Warehouse**: Autonomous Data Warehouse provides an easy-to-use, fully autonomous data warehouse that scales elastically, delivers fast query performance and requires no database administration. It is designed to support all standard SQL and business intelligence (BI) tools, and provides all of the performance of the Oracle Database in an environment that is tuned and optimized for data warehouse workloads. See About Autonomous Data Warehouse in *Using Oracle Autonomous Data Warehouse*.

- **Autonomous Transaction Processing**: Autonomous Transaction Processing is designed to support all standard business applications and delivers scalable query performance. Autonomous Transaction Processing provides all of the performance of the Oracle Database in an environment that is tuned and optimized for transaction processing workloads. Autonomous Transaction Processing comes with two deployment options:

    - **Autonomous Transaction Processing – Serverless**: This database is deployed on an Exadata Cloud infrastructure based on region. Oracle manages and controls all placement, patching, software versions, and isolation, thereby ensuring low cost and minimum time commitment. See About Autonomous Transaction Processing in *Using Oracle Autonomous Transaction Processing*.

    - **Autonomous Transaction Processing – Dedicated**: This database is deployed on a dedicated Exadata Cloud infrastructure, which provides complete isolation from other tenants, thereby ensuring high security, better performance, software control, and easy deployment. See About Autonomous Transaction Processing in *Using Oracle Autonomous Transaction Processing Dedicated Deployments*.

Most tasks related to Autonomous Databases are automated, however, you have to monitor, diagnose, and perform basic application-level administrative tasks. Here's where you can use Oracle Enterprise Manager and ensure:

- Alert-driven monitoring for visibility into availability and key metrics.

- In-depth application performance diagnostics and troubleshooting.

- Insight-driven utilization analysis built on aggregated monitoring, based on historical data.

About User Accounts

You must have certain Administrator accounts to use Oracle Enterprise Manager for Autonomous Databases.

The following table lists the Oracle Enterprise Manager Administrator accounts and the Autonomous Database-related tasks users assigned these can perform. For information on how to create administrators in Oracle Enterprise Manager, see Creating Roles and Administrators in *Oracle Enterprise Manager Cloud Control Getting Started Guide*.

Administrator Account	Tasks
Super Administrator (sysman)	This is the Oracle Enterprise Manager Super Administrator and is created by default when Oracle Enterprise Manager is deployed. Specific to Autonomous Databases, the Super Administrator can: • Create Oracle Enterprise Database Administrator user accounts. • Grant privileges to manage Autonomous Databases.
Database Administrator	The Database Administrator is created and assigned by the Super Administrator, and has full access to the database and can perform any operation on the database. Specific to Autonomous Databases, the Database Administrator can: • Discover or delete Autonomous Databases. • Monitor Autonomous Databases. See Creating a Database Administrator Account in *Oracle Enterprise Manager Cloud Control Security Guide*.

Other than the two Oracle Enterprise Manager administrator accounts, you must also have the user accounts listed in the following table, which are created when the Autonomous Transaction Processing – Dedicated database is created.

User Account	Tasks
Database Admin User (Admin)	This is the super user for the Autonomous Transaction Processing – Dedicated database and is required for real-time database management. **Note**: The Admin user can also perform monitoring tasks, however, it is recommended that the Monitoring User (adbsnmp) account is used for monitoring.
Monitoring User (adbsnmp)	This user is created out-of-the-box when the Autonomous Transaction Processing – Dedicated database is created in Oracle Cloud Infrastructure. This account is locked by default and you can reset the password and unlock it using Oracle Enterprise Manager or any SQL client. The adbsnmp user can: • Discover the Autonomous Transaction Processing – Dedicated database in Oracle Enterprise Manager. • Collect PDB metrics. • View the data on the Performance Overview page.

2

Discover Autonomous Databases

Autonomous Databases are created in Oracle Cloud Infrastructure and then discovered in Oracle Enterprise Manager for monitoring.

You can discover Autonomous Databases using Oracle Enterprise Manager deployed on Oracle Cloud Infrastructure Marketplace or on-premises. This chapter provides the prerequisite tasks, and the procedures to discover Autonomous Databases in Oracle Enterprise Manager using:

- Oracle Enterprise Manager Console
- EM CLI
- REST API

Topics:

- Perform Prerequisite Tasks
- Discover Autonomous Databases Using the Oracle Enterprise Manager Console
- Discover Autonomous Databases Using EM CLI
- Discover Autonomous Databases Using REST API

Perform Prerequisite Tasks

You must perform certain prerequisite tasks to set up Oracle Enterprise Manager to work with Oracle Cloud Infrastructure and discover Autonomous Databases.

You can deploy Oracle Enterprise Manager on Oracle Cloud Infrastructure Marketplace or on-premises and discover Autonomous Databases. The following topics provide an overview of the deployment scenarios and list the prerequisite tasks that must be performed in each scenario, before you discover Autonomous Databases.

> **Note:**
>
> Oracle Enterprise Manager currently only supports the **Autonomous Transaction Processing – Dedicated** database, and the information in the following topics can only be used to discover Autonomous Transaction Processing – Dedicated databases.

Topics:

- Oracle Enterprise Manager Deployed on Oracle Cloud Infrastructure Marketplace
- Oracle Enterprise Manager Deployed On-premises

Oracle Enterprise Manager Deployed on Oracle Cloud Infrastructure Marketplace
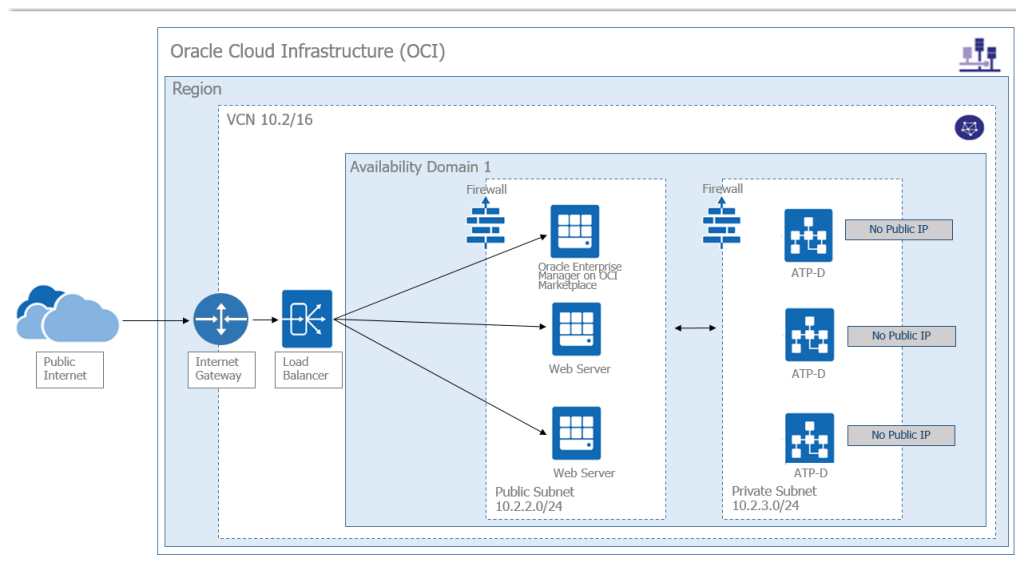
You can use Oracle Enterprise Manager deployed on Oracle Cloud Infrastructure Marketplace and discover Autonomous Transaction Processing – Dedicated databases.

Before you do so, you must:

- **Create an Autonomous Transaction Processing – Dedicated database in Oracle Cloud Infrastructure.** After you create the database, you must download the Client Credentials (Wallet) and save the client credentials wallet .zip file to provide client access to the Autonomous Transaction Processing – Dedicated database.
  For information, see:

  – Provision Autonomous Transaction Processing in *Using Oracle Autonomous Transaction Processing Dedicated Deployments*.

  – Download Client Credentials in *Using Oracle Autonomous Transaction Processing Dedicated Deployments*.

- **Configure and deploy Oracle Enterprise Manager on Oracle Cloud Infrastructure Marketplace.** You must deploy Oracle Enterprise Manager 13.3 and apply the EM DB Plug-in Bundle Patch 13.3.2.0.190731. The Enterprise Manager Oracle Management Server (OMS) includes a central Oracle Management Agent to discover Autonomous Databases, which are treated as non-host targets. The central agent is installed by default on the OMS host and must have SQL*Net access to the Autonomous Transaction Processing – Dedicated database. Although, it is recommended that you use the central agent, you also have the option of using any other agent that is deployed on an existing Oracle Cloud Infrastructure Database system.
  For information, see:

  – Installing the Enterprise Manager Cloud Control 13c Release 3 Software Binaries in Graphical Mode Along with Plug-ins in *Oracle Enterprise Manager Cloud Control Upgrade Guide*.

  – Overview of the Directories Created for an Enterprise Manager System in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

  – Setting Up Oracle Enterprise Manager 13.3 on Oracle Cloud Infrastructure tutorial.

- **Review and use the specified connectivity option to connect Oracle Enterprise Manager on Oracle Cloud Infrastructure Marketplace with the Autonomous Transaction Processing – Dedicated database.** The network path to an Autonomous Transaction Processing – Dedicated database is through a Virtual Cloud Network (VCN) and subnet defined by the dedicated infrastructure hosting the database. Usually, the subnet is defined as Private, meaning that there is no Public Internet access to the database. Oracle Enterprise Manager should be available in a Public or Private subnet in the same VCN as the Autonomous Transaction Processing – Dedicated database. Private IP addresses are used to connect Oracle Enterprise Manager with the Autonomous Transaction Processing – Dedicated database in the VCN.
  For information, see:

– About Connecting to an Autonomous Transaction Processing Instance in *Using Oracle Autonomous Transaction Processing Dedicated Deployments*.

– Private IP Addresses in Oracle Cloud Infrastructure documentation.

The following diagram provides an overview of how Oracle Enterprise Manager deployed on Oracle Cloud Infrastructure Marketplace connects with Autonomous Transaction Processing – Dedicated databases.

In the diagram:

- Oracle Enterprise Manager is deployed using a Marketplace image in a Public subnet in a VCN.
  Note that in the diagram, the other Web Servers in the Public subnet are not a part of the Oracle Enterprise Manager deployment, but a part of a sample scenario that depicts a typical Oracle Cloud Infrastructure application deployment that connects with the Autonomous Transaction Processing – Dedicated databases.

- Autonomous Transaction Processing – Dedicated databases are created in a Private subnet in the same VCN.

- Oracle Enterprise Manager connects with the Autonomous Transaction Processing – Dedicated databases using a Private IP address.

Other Prerequisite Tasks

After the major components are in place, you must perform the following prerequisite tasks to discover an Autonomous Transaction Processing – Dedicated database.

1. Create the following groups:

   - An Oracle Cloud Infrastructure Identity and Access Management (IAM) group named **EMGroup**, and add the DBA who will be managing and monitoring the Autonomous Transaction Processing – Dedicated database using Oracle Enterprise Manager to this group. Note that this DBA user must have an account in Oracle Cloud Infrastructure.

   - A dynamic group named **EM_Group**, which will be used to configure and set up Oracle Enterprise Manager on Oracle Cloud Infrastructure Marketplace.

See To create a group and To create a dynamic group in Oracle Cloud Infrastructure documentation.

2. Create the following policies for the groups created in the previous step to enforce user access and control:

- The following policies allow the DBA in **EMGroup** to manage and monitor the Autonomous Transaction Processing – Dedicated database using Oracle Enterprise Manager:

  ```
  Allow group EMGroup to manage autonomous-transaction-processing-
  family in <compartment in which the Autonomous Transaction
  Processing – Dedicated database resides>
  ```

  ```
  Allow group EMGroup to manage instance-family in <compartment where
  Oracle Enterprise Manager is set up>
  ```

  ```
  Allow group EMGroup to manage virtual-network-family in
  <compartment in which the Autonomous Transaction Processing –
  Dedicated database resides>
  ```

  ```
  Allow group EMGroup to manage volume-family in <compartment where
  Oracle Enterprise Manager is set up>
  ```

  ```
  Allow group EMGroup to manage app-catalog-listing in <compartment
  where Oracle Enterprise Manager is set up>
  ```

- The following policies for **EM_Group** configure Oracle Enterprise Manager from the Oracle Cloud Infrastructure Marketplace in the desired compartment:

  ```
  Allow dynamic-group EM_Group to manage instance-family in
  <compartment where Oracle Enterprise Manager is set up>
  ```

  ```
  Allow dynamic-group EM_Group to manage volume-family in
  <compartment where Oracle Enterprise Manager is set up>
  ```

  The dynamic group policies are required for the Oracle Enterprise Manager compute instance, which uses IAM Instance Principals, to use and mount a block storage volume where the Oracle Enterprise Manager OMS or Oracle Management Repository (OMR) data exists. For information on IAM Instance Principals, see Calling Services from an Instance in Oracle Cloud Infrastructure documentation.

  See To create a policy in Oracle Cloud Infrastructure documentation.

3. Create a security list and add the following ingress rules to ensure secure access:

- Rule for accessing Oracle Enterprise Manager from the public network, allow Transmission Control Protocol (TCP) traffic for port 7803.

- Rule for accessing Autonomous Transaction Processing – Dedicated database from Oracle Enterprise Manager subnet and VCN, allow TCP traffic for port 1521.

  See Security Lists in Oracle Cloud Infrastructure documentation.

4. Unlock the adbsnmp user, which is created out-of-the-box when the Autonomous Transaction Processing – Dedicated database is created in Oracle Cloud Infrastructure. This account is locked by default and you can reset the password and unlock it using Oracle Enterprise Manager or any SQL client.

Oracle Enterprise Manager Deployed On-premises

You can use Oracle Enterprise Manager deployed on-premises to discover Autonomous Transaction Processing – Dedicated databases.

Before you do so, you must:

- **Create an Autonomous Transaction Processing – Dedicated database in Oracle Cloud Infrastructure.** After you create the database, you must download the Client Credentials (Wallet) and save the client credentials wallet .zip file to provide client access to the Autonomous Transaction Processing – Dedicated database.
  For information, see:

  - Provision Autonomous Transaction Processing in *Using Oracle Autonomous Transaction Processing Dedicated Deployments*.

  - Download Client Credentials in *Using Oracle Autonomous Transaction Processing Dedicated Deployments*.

- **Deploy Oracle Enterprise Manager in your on-premises network.** You must deploy Oracle Enterprise Manager 13.3 and apply the EM DB Plug-in Bundle Patch 13.3.2.0.190731. The Oracle Enterprise Manager OMS includes a central Oracle Management Agent that can be used to discover Autonomous Databases, which are treated as non-host targets. The central agent is installed by default on the OMS host and must have SQL*Net access to the Autonomous Transaction Processing – Dedicated database. Note that if you have an existing on-premises database or an Oracle Cloud Infrastructure Database system in the same VCN where the Autonomous Transaction Processing – Dedicated database resides, you have the option of using the agent that monitors them, instead of the central agent.
  For information, see:

  - Installing the Enterprise Manager Cloud Control 13c Release 3 Software Binaries in Graphical Mode Along with Plug-ins in *Oracle Enterprise Manager Cloud Control Upgrade Guide*.

  - Overview of the Directories Created for an Enterprise Manager System in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.
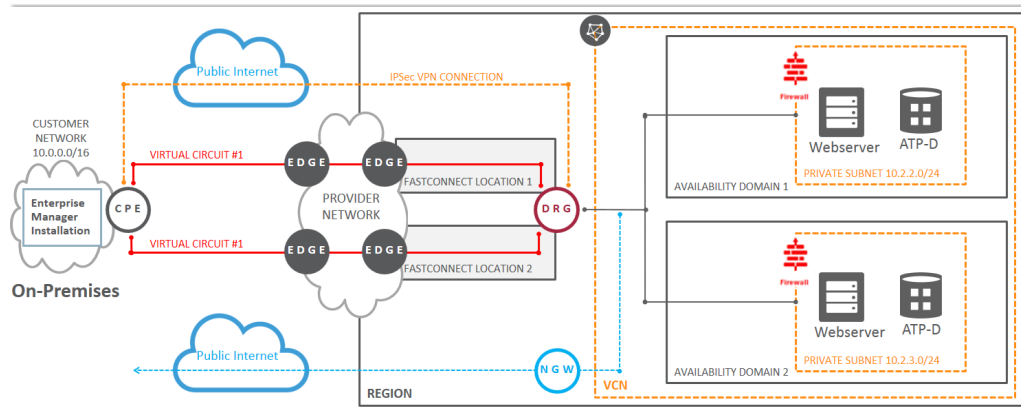
- **Review and use the specified connectivity options to connect Oracle Enterprise Manager deployed on-premises with the Autonomous Transaction Processing – Dedicated database.** Oracle Enterprise Manager on-premises connects with the Autonomous Transaction Processing – Dedicated database using a Private IP address, and you can use one of the following options to connect Oracle Enterprise Manager deployed in your on-premises network to the Autonomous Transaction Processing – Dedicated database in your VCN.

  - VPN Connect, which is an Internet Protocol Security (IPSec) VPN. IPSec VPN provides standards-based IPSec encryption over public internet. See VPN Connect in Oracle Cloud Infrastructure documentation.

  - FastConnect, which provides an easy way to create a dedicated, private connection between the on-premises network and the VCN in Oracle Cloud Infrastructure. See FastConnect in Oracle Cloud Infrastructure documentation.

  Note that you do not have host access to Autonomous Transaction Processing – Dedicated database in Oracle Cloud Infrastructure. If required, web server

instances in the Private subnet can initiate connections to the internet by way of a NAT gateway. See NAT Gateway in Oracle Cloud Infrastructure documentation.

The following diagram provides an overview of how Oracle Enterprise Manager deployed on-premises connects and interacts with Autonomous Transaction Processing – Dedicated databases in Oracle Cloud Infrastructure.

In the diagram:

- Oracle Enterprise Manager is deployed in an on-premises network.

- The Autonomous Transaction Processing – Dedicated databases are created in Private subnets in a VCN in Oracle Cloud Infrastructure.

- The two connectivity options, VPN Connect and FastConnect, are displayed to demonstrate how Oracle Enterprise Manager deployed on-premises connects with the Autonomous Transaction Processing – Dedicated databases using these options.

Other Prerequisite Tasks

After the major components are in place, you must perform the following prerequisite tasks to discover an Autonomous Transaction Processing – Dedicated database.

1. Create an Oracle Cloud Infrastructure IAM group named **EMGroup**, and add the DBA who will be managing and monitoring the Autonomous Transaction Processing – Dedicated database using Oracle Enterprise Manager to this group. Note that this DBA user must have an account in Oracle Cloud Infrastructure. See To create a group in Oracle Cloud Infrastructure documentation.

2. Create the following policy to allow the DBA in **EMGroup** to manage and monitor the Autonomous Transaction Processing – Dedicated database using Oracle Enterprise Manager:
   ```
   Allow group EMGroup to manage autonomous-transaction-processing-family
   in <compartment in which the Autonomous Transaction Processing –
   Dedicated database resides>
   ```

   See To create a policy in Oracle Cloud Infrastructure documentation.

3. Create a security list and add the following ingress rule to ensure secure access: Rule for accessing Autonomous Transaction Processing – Dedicated database in the Oracle Cloud Infrastructure VCN from Oracle Enterprise Manager deployed on-premises, allow TCP traffic for port `1521`.

   See Security Lists in Oracle Cloud Infrastructure documentation.

4. Unlock the adbsnmp user, which is created out-of-the-box when the Autonomous Transaction Processing – Dedicated database is created in Oracle Cloud Infrastructure. This account is locked by default and you can reset the password and unlock it using Oracle Enterprise Manager or any SQL client.

Discover Autonomous Databases Using the Oracle Enterprise Manager Console

Autonomous Databases are treated as non-host targets in Oracle Enterprise Manager and are discovered manually using the declarative process.

1. From the **Setup** drop-down list, select **Add Target**, and then select **Add Targets Manually**.

2. On the **Add Targets Manually** page, click **Add Target Declaratively** on the **Add Non-Host Targets Using Declarative Process** tile.

3. In the **Add Target Declaratively** dialog box, select the host on which the agent that you are using to discover the Autonomous Database is installed and running.

4. In the **Target Type** field, enter and select **Autonomous Transaction Processing Database**, and click **Add**.

   Oracle Enterprise Manager discovers this target type on the host you selected in the previous step.

5. On the **Add Database Instance: Properties** page, specify the following monitoring details:

   a. Enter a name to identify the Autonomous Database target in the **Target Name** field.

   b. Upload the client credentials wallet .zip file that contains the credentials to access data in your Autonomous Database.

      After you upload the client credentials wallet .zip file, the **Service Name**, **Monitoring Username**, **Monitoring Password**, **Role**, and **Connection Descriptor** fields are automatically populated.
      Note that you can change the **Service Name** value, however it is recommended that you keep the default value, <dbname>_tp.

   c. Enter the monitoring (adbsnmp) password. Note that if you are a first time user, you must enter a new password to reset it and unlock the adbsnmp account. See About User Accounts.

6. Click **Test Connection** to test the connection made to the Autonomous Database.

7. Click **Next** and review the displayed information.

8. Click **Submit**.

After you have discovered the Autonomous Database in Oracle Enterprise Manager, you can verify if the discovery was successful by clicking the **Targets** drop-down list > **Databases** option. The Autonomous Database you discovered should be listed on the **Databases** page.

Discover Autonomous Databases Using EM CLI

You can discover Autonomous Databases using the Oracle Enterprise Manager Command Line Interface (EM CLI) verb `add_cloud_db_target` in the Oracle Enterprise Manager 13.3 release with the EM DB Plug-in Bundle Patch 13.3.2.0.190731.

Format

```
emcli add_cloud_db_target -target_name="<target name>"
    -target_type="<oracle_cloud_atp>" -host="<agent host name>"
    -zip_file_location="<client credentials wallet .zip file location>"
    -credentials="UserName:adbsnmp;password:<password>;Role:Normal"
    -service="<dbname>_tp" -is_dedicated="true" -protocol="tcp"
```

Options

- `-target_name`: Name of the Autonomous Database.

- `-target_type`: Type of Autonomous Database. The target type value for **Autonomous Transaction Processing – Dedicated** database is `oracle_cloud_atp`.

- `-host`: Host on which the agent that you are using to discover the Autonomous Database is installed and running.

- `-zip_file_location`: Location of the downloaded client credentials wallet .zip file.

- `-credentials`: adbsnmp user credentials.

- `-service`: Preconfigured database service name, for example, `tp`, `high`, and `medium`. `tp` is the default value, for example, `<dbname>_tp`.

- `-is_dedicated`: True if it is a dedicated database.

- `-protocol`: Network communication protocol. `tcp` is the default value. For more information, see About Connecting to an Autonomous Transaction Processing Instance in *Using Oracle Autonomous Transaction Processing Dedicated Deployments*.

Example

```
emcli add_cloud_db_target -target_name="emcli_atp"
    -target_type="oracle_cloud_atp" -host="myhostname.example.com"
    -zip_file_location="/u01/oracle/atpd/wallet_ATPD1.zip"
```

```
-credentials="UserName:adbsnmp;password:adbsnmp;Role:Normal"
-service="ATPD1_tp" -is_dedicated="true" -protocol="tcp"
```

Discover Autonomous Databases Using REST API

You can discover Autonomous Databases using REST API.

Feature	Description
URL	`https://<OMS fully qualified domain host>:<EM port>/em/websvcs/restful/emws/oracle.sysman.db/v0/discovery/add_cloud_db_target`
Request Header	Content-Type: application/json

Body	<pre>'{
	"target_name": "<target name>",
	"target_type":"<target type>",
	"host": "<agent host name>",
	"credentials":"UserName:adbsnmp;password:<password>;Role:Normal",
	"zip_file_location":"<client credentials wallet .zip file location>",
	"service_name":"<dbname>_tp",
	"is_dedicated":"<true/false>",
	"protocol":"tcp"
	}'</pre> For information on the options, see Discover Autonomous Databases Using EM CLI.

Request Method	POST
Sample Response	`Successfully added target :<target name>`
Supported Since Release	EM DB Plug-in Bundle Patch 13.3.2.0.190731

3

Monitoring and Administration Tasks

After you have discovered Autonomous Databases, you can perform the following monitoring and administration tasks using Oracle Enterprise Manager for Autonomous Databases.

As you review the information available in the following table, note that:

- For Autonomous Databases, Oracle Enterprise Manager provides a subset of the features that it provides for Oracle Databases. The "more information" links in the following table currently take you to generic information on Oracle Enterprise Manager support for Oracle Databases, and all the features may not be available for Autonomous Databases.

- When you click the options in the user interface that take you to other Performance, Security, Schema, and Administration pages, the **Database Login** page is displayed and you must enter the Database Admin User credentials. These credentials can also be configured as named credentials. For information on named credentials, see Credentials Management in *Oracle Enterprise Manager Cloud Control Security Guide*.

Task	Description
Monitor the state and workload of the Autonomous Database on the Database Home page	To go to the Database Home page: 1. Click the **Targets** drop-down list > **Databases** option. 2. On the Databases page, click the name of the Autonomous Database. The Database Home page enables you to proactively monitor: - **Load and Capacity** of the Autonomous Database. - Database **Incidents** that have occurred over the last 24 hours, if any. - Active session information in the **Performance** section, which includes: – The **Activity Class** chart that shows the average number of database sessions active for the past hour. – The **Services** chart that shows the average number of database sessions active for the past hour for database services. - Resource utilization on CPU, Active Sessions, Memory, and Data Storage charts in the **Resources** section. - SQL activity in the **SQL Monitor** section. The table in this section provides information on monitored SQL statement executions. For information on: - The Database Home page, see Monitoring General Database State and Workload in *Oracle Database 2 Day DBA*. - The options available in the **Autonomous Transaction Processing** drop-down list, see Monitoring and Managing Targets in *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

Task	Description
Monitor performance and diagnose issues on the Performance Hub, SQL Monitoring, AWR, and Advisors pages	Using Oracle Enterprise Manager, you can monitor the performance of an Autonomous Database and ensure that it performs optimally. From the **Performance** drop-down list on the Database Home page, you can select one of the following options: • **Performance Hub**: View all the performance data available for a specified time period. Once a time period is selected, the performance information is collected and presented based on performance subject areas. • **SQL**: Click options such as **SQL Tuning Advisor** to examine SQL statements and obtain recommendations to improve efficiency, or **SQL Tuning Sets** to obtain a collection of SQL statements that can be used for tuning. • **AWR**: Click AWR options to enable AWR collection for the Autonomous Database, generate, and view an AWR report. • **Advisors Home**: View and use SQL advisors to optimize the Autonomous Database's performance. For information on: • Monitoring performance on the Performance Hub, see Monitoring Performance Using the Performance Hub in *Oracle Database 2 Day DBA*. • Tuning SQL statements using the SQL Tuning Advisor, see Running the SQL Tuning Advisor in *Oracle Database 2 Day DBA*.
Keep the Autonomous Databases secure	Oracle Enterprise Manager provides security features that control how a database is accessed and used. From the **Security** drop-down list on the Database Home page, you can select one of the following options: • **Users**: Create a user with a valid username and password to prevent unauthorized use. You can also associate specified privileges, roles, and so on with a user. • **Roles**: Create a role to group together privileges and other roles. This facilitates granting multiple privileges and roles to users. • **Profiles**: Create a profile, which is a set of user authorizations and privileges. If you add a user to a profile, then the authorizations and privileges defined in that profile are acquired by the user. • **Audit Settings**: Set up and adjust audit settings to monitor and record selected user database actions. • **Privilege Analysis**: Perform a dynamic analysis of privileges and roles that a user account or database uses over time. You can then revoke unused grants and make other changes to better reflect the access a user requires. • **Virtual Private Database**: Create security policies to enforce row-level security policies at the object (table, view, or synonym) level, when the standard object privileges and associated database roles are insufficient to meet application security requirements.

Task	Description
Perform Schema Management tasks	Oracle Enterprise Manager provides a comprehensive set of tools that allows you to manage all aspects of database objects such as tables, indexes, and views.
	From the **Schema** drop-down list on the Database Home page, you can select one of the following options to perform fundamental tasks such as creating, editing, and viewing schema objects:
	• **Database Objects**: Click to create and manage all aspects of database directory objects such as tables and indexes.
	• **Programs**: Click to manage the procedures, functions, triggers and so on associated with the Autonomous Database.
Perform Database Administration tasks such as Storage Management and Automated Maintenance	Oracle Enterprise Manager allows you to view and manage the storage structures of Autonomous Databases.
	From the **Administration** drop-down list on the Database Home page, you can select one of the following options:
	• **Storage**: Click **Datafiles** or **Tablespaces** to manage your datafiles and tablespaces. Click **Automatic Undo Management** to view:
	– Name and size of undo tablespace
	– Auto-extend tablespace setting
	– Auto-tuned undo retention period
	– Minimum retention period
	Note that for Autonomous Databases, you cannot configure the **Undo** setting. This is a read-only view to understand the **Undo** configuration.
	• **Oracle Scheduler**: Click **Automated Maintenance Tasks** to enable the following maintenance tasks, which are performed automatically during maintenance windows:
	– **Optimizer Statistics Gathering**: Collects optimizer statistics for all schema objects in the Autonomous Database for which there are no statistics or only stale statistics.
	– **Automatic SQL Tuning**: Examines the performance of high-load SQL statements, and makes recommendations on how to tune those statements.
	For information on:
	• Performing storage tasks, see Performing Common Database Storage Tasks in *Oracle Database 2 Day DBA*.
	• Managing automated maintenance tasks, see Managing Automated Database Maintenance Tasks in *Oracle Database Administrator's Guide*.