

Working with External Database

Student Guide
S1102504GC10

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Oracle Cloud Infrastructure Database Management Service

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Get Started

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Introduction

- Database Management is a new OCI native service that will provide broad capabilities for managing and monitoring Oracle Databases.
- The service will support databases deployed **external** (on premises) and in the **Oracle Cloud (OCI)**, such as VM/BM, ExaCS, ExaCC, and Autonomous DB.
- Database Management currently supports only External Oracle Databases, which are Oracle Databases located on premises.
- The Database Management service will offer capabilities for:
 - Fleet monitoring and management
 - Database Groups
 - SQL Jobs



Oracle has been a leader in Database Management for decades, and now these unique capabilities are available in Oracle Cloud.

The new Database Management service brings the best of Oracle's industry-leading capabilities from Oracle Enterprise Manager into Oracle Cloud.

This includes fleet-wide monitoring and management for all flavors of Oracle database, whether they live on premises or in the cloud. So, if you're using Database 11, 12, 18, 19, 21, or the Autonomous Database or the Exadata Cloud, you'll be able to get a comprehensive view of the performance of your Database fleet.

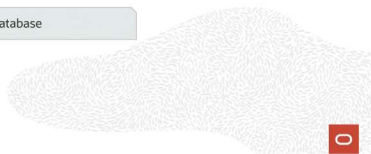
Database Management currently supports only External Oracle Databases, which are Oracle Databases located on premises.

Using Database Management, you can:

- Monitor the key performance and configuration metrics of your fleet of Oracle Databases. You can also compare and analyze database metrics over a selected period of time.
- Group your critical Oracle Databases, which reside across compartments into a Database Group, and monitor them.
- Create SQL jobs to perform administrative operations on a single Oracle Database or a Database Group.

Get Started with Database Management

- 1 Install and Configure Management Agents for Database Management
- 2 Register an Oracle Database with the External Database Service by Creating a Handle
- 3 Create Connection to the Registered External Database
- 4 Enable Database Management on the External Database



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The Oracle Cloud Infrastructure service that enables communication and data collection between Database Management Service and an External Database is the Management Agent Cloud Service. For this purpose, the Management Agent Cloud Service uses a Management Agent, which is installed on a host that has a connection to the External Oracle Database.

An Oracle Database must first be registered with the External Database service before Database Management can be enabled. We will make use of the External Database service to register your External Oracle Databases in Oracle Cloud Infrastructure.

Connectivity is established using the Management Agent Cloud Service via the agent.

Oracle Cloud Infrastructure Database Management Service

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Installing and Configuring Management Agents for
Database Management

Installing and Configuring Management Agents for Database Management



- 1 Install and Configure Management Agents for Database Management
- 2 Register an Oracle Database with the External Database Service by Creating a Handle
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Installing and Configuring Management Agents for Database Management



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In the next step, in terms of actual installation, the user needs to run the following command; do note that the actual full path of where the app zip file resides needs to be explicitly put here.

After that, the user needs to restart the Grafana Sever from the `$Grafana_Home/bin` directory.

Lastly, the user needs to log in to the Grafana UI and follow the series of steps listed here to “enable” the app.

Set Up Oracle Cloud Infrastructure for Management Agents



1

Prerequisite: Create a Dynamic Group and Policies for Agent Communication

The screenshot shows the 'DB-Mgmt' dynamic group configuration in the OCI console. At the top, there are tabs for 'Edit Dynamic Group', 'Add Tags', and 'Delete'. Below this, the 'Dynamic Group Information' section shows the group name 'DB-Mgmt', its ID, and a description: 'Dynamic group for DB Management and MACS'. The 'Matching Rules' section below it contains a single rule with the condition: 'resource-type=managementagent, resource compartment=ocw-1, compartment=1, access=to(oraclecloudmanagementgroup/managementagents)'. A note states: 'Resources that meet the criteria defined by any of these rules will be included in the dynamic group.' At the bottom right, it says 'Showing 1 matching rule' with a link to 'View All'.



To interact with the Oracle Cloud Infrastructure service end points, you must explicitly consent to let the management agents carry on the communication with the MACS. In this step, a dynamic group is created using the Identity and Access Management service from the OCI Console. This group includes all the management agents. This is a one-time setup step, as any new management agent being installed will automatically belong to this group based on resource-type matching rules definition of the dynamic group.

Set Up Oracle Cloud Infrastructure for Management Agents



1

Prerequisite: Create a Dynamic Group and Policies for Agent Communication

DB-Management-Policy

EXP FIELDS

ADD FIELD

REMOVE

Policy Information

NAME: db-management-policy (DB)

COMPARTMENT: oracle-us (DB prod)

DESCRIPTION: Policy for DB Management

CREATED: Tue, Jan 19, 2021 10:10:10 UTC

Statements

ADD Policy Statement

ALLOW ORAMA GROUP DB right TO MANAGE management agents IN COMPARTMENT DB-Management Data

ALLOW ORAMA GROUP DB right TO USE SERVICES IN COMPARTMENT DB-Management Data

ALLOW GROUP agent_admin TO MANAGE management agents IN COMPARTMENT DB-Management Data

ALLOW GROUP agent_admin TO MANAGE management agent installation IN COMPARTMENT DB-Management Data

ALLOW GROUP agent_admin TO READ SERVICES IN COMPARTMENT DB-Management Data

Showing 5 items

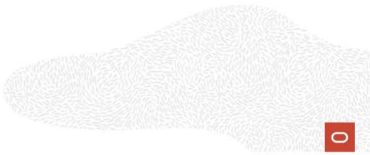
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Once the dynamic group is created, you need to create policies to allow the management agents to interact with the Management Agent service and to allow the management agents to upload data to the Oracle Cloud Infrastructure Monitoring service.

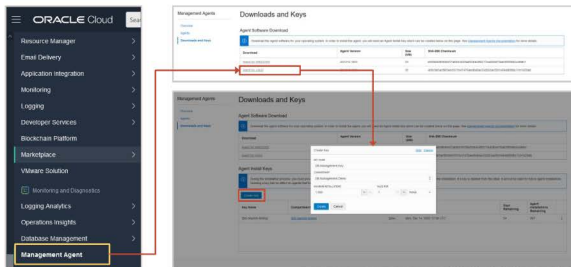
You may need to add similar policies if your service expects the management agent to deposit data to different services.

Download the Agent Software from Management Agent Cloud Service in OCI

- **1** Prerequisite: Create a Dynamic Group and Policies for Agent Communication
- **2** Download the Agent Software from Management Agent Cloud Service in OCI



Download the Management Agent Software



On the Management Agents home page, click **Downloads and Keys** from the left menu to view the Agent Software Download pane. On the Agent Software Download pane, select the operating system that the Management Agent will be installed on. For example, click **Agent for LINUX** for Linux.

The Agent Software file is now saved on your host.

You need to create an agent install key before performing the Management Agent installation.

Install the Management Agent Software

- 1 Prerequisite: Create a Dynamic Group and Policies for Agent Communication
- 2 Download the Agent Software from Management Agent Cloud Service in OCI
- 3 Install and Configure the Management Agent Software



Install and Configure the Management Agent Software

- Install Management Agent – (Agent Version [201215.1850](#) and above).

```
$ sudo rpm -ivh oracle.mgmt_agent.rpm
```

- Create a response file named `input.rsp` using a text editor under `/opt/oracle/mgmt_agent`.

```
$ sudo -u mgmt_agent sh
```

```
managementAgentInstallKey = MS4wLHVzLWFzaGJ1cm4tMSxvY2lkMS50ZW5hbmN5
CredentialWalletPassword = Passw0rd#
```

- Configure the management agent using the response file.

```
$ sudo /opt/oracle/mgmt_agent/agent_inst/bin/setup.sh opts= /opt/oracle/mgmt_agent /input.rsp
```

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The agent installation process does the following: A new user called `mgmt_agent` is created. This will be the management agent user. If `mgmt_agent` user already exists, the agent installation process will use it to install the agent software.

All agent files are copied and installed by `mgmt_agent` user. The agent install base directory is the directory where the agent is installed. The directory is created as part of the agent installation process under `/opt/oracle/mgmt_agent` directory.

The Management Agent installation script uses a response file to read the agent parameters specific to your environment.

Agent install key is required to validate the OCI region and the authenticity of the installation. For the password of the agent wallet, the user provides a custom password for the wallet to store sensitive information. Password minimum length is eight characters and must contain alphabetic characters combined with numbers or special characters.

Verify the Management Agent Software

-  1 Prerequisite: Create a Dynamic Group and Policies for Agent Communication
-  2 Download the Agent Software from Management Agent Cloud Service in OCI
-  3 Install and Configure the Management Agent Software
-  4 Verify the Management Agent Installation

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Verify the Management Agent Software

Management Agents

Agents

agent	Host	Availability	Operating System	Agent Version	Platform	Created
oci-database-management	oci-database-management	Active	Linux	3.1.0.10.0	Database	2021-01-15 10:10:10 UTC

Management agent for OCI Database Management is now set up.

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On the main Management Agents page, click **Agents** from the left menu. From the Agents list, look for the agent that was recently installed using the **Created** column, which displays the date of the agent installation, or the **Host** column, which displays the host name where the agent was installed. The Availability column would be marked as Active.

Oracle Cloud Infrastructure Database Management Service

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Register and Connect to an External Database

Register and Connect to an External Database

- 1 Install and Configure Management Agents for Database Management
- 2 Register an Oracle Database with the External Database Service by Creating a Handle
- 3 Create Connection to the Registered External Database
- 4 Enable Database Management on the External Database



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Register an Oracle Database with the External Database Service by Creating a Handle

Oracle Cloud

Block Storage

Object Storage

File Storage

Networking

Oracle Database

Overview

Autonomous Data Warehouse

Autonomous JSON Database

Autonomous Transaction Processing

Bare Metal VM and Exadata

Exadata Cloud@Customer

External Database

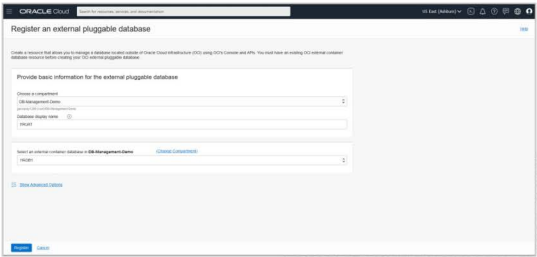
External pluggable databases in DB-Management-Demo-Compartment

Database Name	Database Oracle Name	Database Instance	Creation Time
EXALD	ORCL	EXALD1	Thu, Jan 20, 2022, 10:58:37 (UTC)
EXALD2	ORCL	EXALD2	Thu, Jan 20, 2022, 10:59:00 (UTC)
EXALD3	ORCL	EXALD3	Thu, Jan 20, 2022, 10:59:16 (UTC)

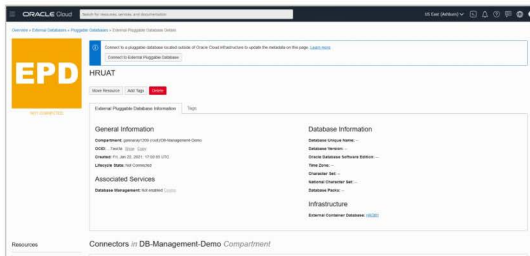
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Register an Oracle Database with the External Database Service by Creating a Handle



Register an Oracle Database with the External Database



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Register and Connect to an External Database



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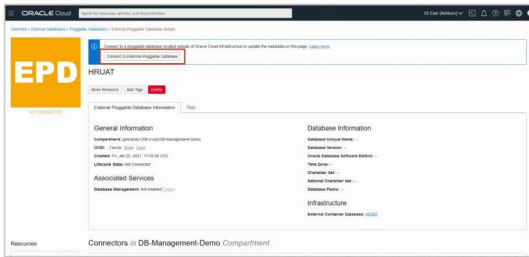
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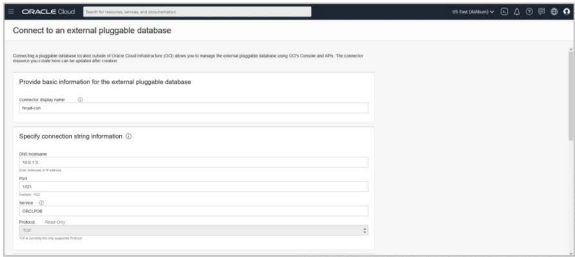
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Create Connection to the Registered External Database



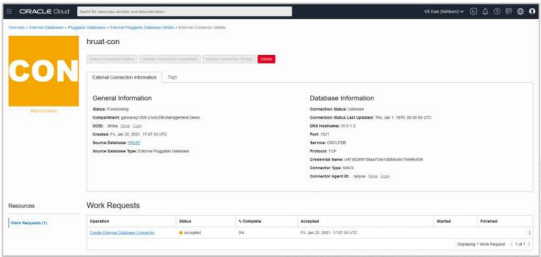
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Create Connection to the Registered External Database

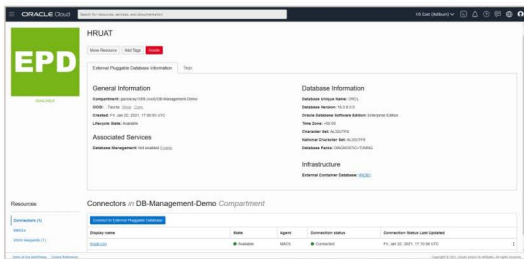


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Create Connection to the Registered External Database



Create Connection to the Registered External Database



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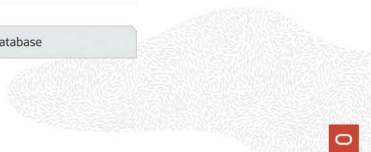
Oracle Cloud Infrastructure Database Management Service

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Enable and Use Database Management

Register and Connect to an External Database



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Use Cases

Fleet monitoring and management within a compartment:

- Overview of all my Database Fleet
- View Database Fleet dashboard to visualize the overall health of the fleet

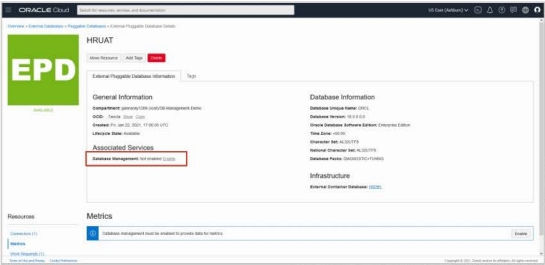
Fleet monitoring and management across compartments—Database Groups:

- Monitor and manage Database Fleet across compartments using Database Groups
- Automate database fleet management for better operational efficiency (SQL Jobs)

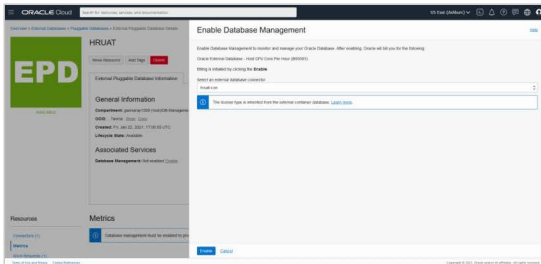
Database Monitoring and Management—Single Database:

- Database Summary: Monitor Database metrics for a specific database
- Jobs: Run SQL Jobs specific to a database

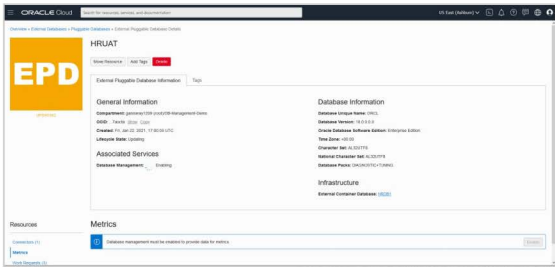
Enable Database Management on the External Database



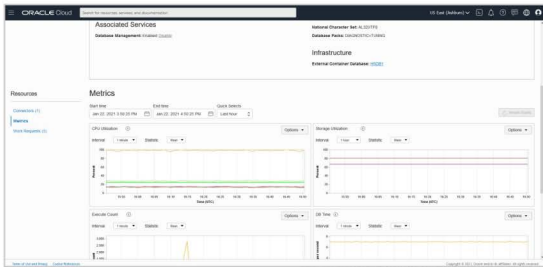
Enable Database Management on the External Database



Enable Database Management on the External Database



Enable Database Management on the External Database

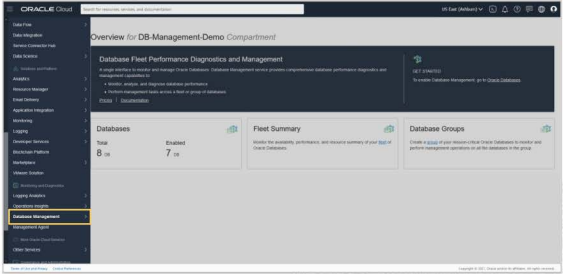


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Oracle Cloud Infrastructure Database Management Service

Fleet Monitoring and Management within a
Compartment and across compartments

Using Database Management Service



Use Cases

Fleet monitoring and management within a compartment:

- Overview of all my Database Fleet
- View Database Fleet dashboard to visualize the overall health of the fleet

Fleet monitoring and management across compartments—Database Groups

- Monitor and manage Database Fleet across compartments using Database Groups
- Automate database fleet management for better operational efficiency (SQL Jobs)

Database Monitoring and Management—Single Database

- Database Summary: Monitor database metrics for a specific database
- Jobs: Run SQL Jobs specific to a database

Fleet Monitoring and Management

- Unified NOC-style view of entire Oracle DB fleet
- Native OCI telemetry for DevOps events and monitoring
- Database Groups enable cross-compartment fleets
- Fleet-level management
 - SQL job execution

