

# Oracle® Enterprise Manager Cloud Control

## Oracle Grid Infrastructure Metric Reference Manual



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# Preface

This manual is a compilation of the Oracle Grid Infrastructure metrics provided in Oracle Enterprise Manager.

In addition to this manual, information on the Oracle Database and database-related target metrics is available in the following manuals:

- *Oracle Database Metric Reference Manual*
- *Oracle Engineered Systems Metric Reference Manual*

## Audience

This document is intended for Oracle Enterprise Manager users interested in Oracle Grid Infrastructure metrics.

## 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>.

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## Related Resources

For more information, see the documents and other resources in [Oracle Enterprise Manager Documentation Sets and Other Resources](#).

## Conventions

The following text conventions are used in this document:

| Convention      | Meaning  |
|-----------------|--|
| <b>boldface</b> | Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary. |
| <i>italic</i>   | Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.                  |

| <b>Convention</b>      | <b>Meaning</b>   |
|------------------------|--|
| <code>monospace</code> | Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter. |

# How to Use This Manual

The *Oracle Enterprise Manager Oracle Grid Infrastructure Metric Reference Manual* (hereafter referred to as the *Oracle Grid Infrastructure Reference Manual*) lists the Oracle Grid Infrastructure metrics that Enterprise Manager monitors.

To collect and monitor Oracle Grid Infrastructure metrics, the Oracle Database plug-in must be deployed to an agent. The Oracle Database plug-in depends on the EM Platform plug-in.

For information on plug-ins, see Plug-ins Included In This Release in *Enterprise Manager Cloud Control Release Notes*.

This preface describes:

- [Structure of the Metric Reference Manual](#)
- [About Metrics, Thresholds, and Alerts](#)

## Structure of the Metric Reference Manual

The metrics in each chapter are in alphabetical order according to category.

## Metric Information

Where available, each metric includes the following information:

- **Description**  
Explanation following the metric name. This text defines the metric and, where available, provides additional information pertinent to the metric.
- **Metric Summary Table**  
Where available, this table lists the target version, default collection frequency, default warning threshold, default critical threshold, and alert text for the metric.
- **Data Source**  
How the metric is calculated. In some metrics, data source information is not available.
- **User Action**  
Suggestions of how to solve the problem causing the alert.

## Examples of Metric Summary Tables

This section provides examples of Metric Summary tables that you will see in the *Oracle Grid Infrastructure Metric Reference Manual*.

When default thresholds are not defined for a metric, only the target version and default collection frequency are available.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All versions   | Every 15 minutes     |

The following table shows a metric where the server evaluation frequency is the same as the collection frequency.

| Target Version | Evaluation and Collection Frequency |
|----------------|-------------------------------------|
| All versions   | Every 10 minutes                    |

## Definitions of Columns in Metric Summary Tables

As previously mentioned, the Metric Summary table is part of the overall metric information. The following table provides descriptions of columns in the Metric Summary table.

| Column Header                       | Column Definition   |
|-------------------------------------|---|
| Target Version                      | Version of the target, for example, 18c.  |
| Evaluation and Collection Frequency | The rate at which the metric is collected and evaluated to determine whether it has crossed its threshold. The evaluation frequency is the same as the collection frequency.  |
| Collection Frequency                | The rate at which the Management Agent collects data. The default collection frequency for a metric comes from the Enterprise Manager default collection file for that target type.   |
| Default Warning Threshold           | Value that indicates whether a warning alert should be initiated. If the evaluation of the warning threshold value returns a result of TRUE for the specified number of consecutive occurrences defined for the metric, an alert triggers at the warning severity level.    |
| Default Critical Threshold          | Value that indicates whether a critical alert should be initiated. If the evaluation of the critical threshold value returns a result of TRUE for the specified number of consecutive occurrences defined for the metric, an alert triggers at the critical severity level. |
| Alert Text                          | Message indicating why the alert was generated. Words that display between percent signs (%) denote variables.  |

## Abbreviations and Acronyms

To reduce the page count in this document, the following abbreviations and acronyms are used:

| Abbreviation/Acronym | Name                    |
|----------------------|-------------------------|
| Agent                | Oracle Management Agent |
| Listener             | Oracle Listener         |

## About Metrics, Thresholds, and Alerts

A metric is a unit of measurement used to determine the health of a target. It is through the use of metrics and associated thresholds that Enterprise Manager sends out alerts notifying you of problems with the target.



Thresholds are boundary values against which monitored metric values are compared.

When a threshold is reached, Enterprise Manager generates an alert. An alert is an indicator signifying that a particular condition has been encountered and is triggered when one of the following conditions is true:

- A threshold is reached.
- An alert has been cleared.
- The availability of a monitored service changes. For example, the availability of an application server changes from up to down.
- A specific condition occurs. For example, an alert is triggered whenever an error message is written to a database alert log file.

Alerts are detected through a polling-based mechanism by checking for the monitored condition from a separate process at regular, predefined intervals.

## Accessing Metrics

To access metrics from the Cloud Control Console, use the All Metrics page:

1. From the Cloud Control Console, choose the target.
2. From the target's home page, select the target type name, then **Monitoring**, and then **All Metrics**.

## Editing Metrics

Out of the box, Enterprise Manager comes with default thresholds for critical metrics. Enterprise Manager generates alerts when warning and critical thresholds are reached, letting you know of impending problems so that you can address them in a timely manner.

To better suit the monitoring needs of your organization, you can edit the thresholds provided by Enterprise Manager and define new thresholds.

When defining thresholds:

- Choose acceptable values to avoid unnecessary alerts, while still being notified of issues in a timely manner.
- Adjust your metric thresholds based on metric trends. One of the more important actions you can perform with your monitoring system is to track metric trends for some period of time so you can make informed decisions about what metrics are important as well as what levels your thresholds should be set at.
- Set the number of occurrences appropriately. If some events occur only once or twice, for example, you might not need to be notified of them. You can set the number of occurrences of a metric that must be reached before you are notified.

To modify metric thresholds:

1. From the Cloud Control console, right-click the target name, select **Monitoring**, and then **All Metrics**.
2. From the **All Metrics** page, select the metric that you want to modify.
3. Click **Modify Thresholds**.
4. In the Modify Thresholds window, you can set values for settings such as:

- Warning Threshold
- Critical Threshold
- Occurrences Before Alert

 **Note:**

You must have at least OPERATOR privilege on the target to make changes. Without OPERATOR privilege, the content of the Metric Threshold table is read-only.

5. Click **Save Thresholds** to upload the new metric settings to the Management Repository.

## Specifying Multiple Thresholds

The Specifying Multiple Thresholds functionality enables you to define various subsets of data that can have different thresholds. By specifying multiple thresholds, you can refine the data used to trigger alerts, which are one of the key benefits of using Enterprise Manager. The key in specifying multiple thresholds is to determine how the comparison relates to the metric threshold as a whole, and what benefit will be realized by defining a more stringent or lax threshold for that particular device, mount point, and so on.

# 1

## Cluster

This chapter provides information about the Cluster metrics. For each metric, it provides the following information:

- Description
- Metric table

The metric table can include some or all of the following: target version, default collection frequency, default warning threshold, default critical threshold, and alert text.

## Clusterware

The metrics in this metric category provide an overview of the clusterware status for this cluster, how many nodes in this cluster have problems, and the Cluster Verification (CLUVFY) utility output for all the nodes of this cluster. Generally, the clusterware is up if the clusterware on at least one host is up.

## Cluster Verification Output

This metric shows the CLUVFY output of clusterware for all nodes of this cluster.

### Data Source

The following command is data source for metric where node1, node2 is the node list for the cluster:

```
cluvfy comp crs -n node1, node2 ...
```

### User Action

Search for the Cluster Verification (CLUVFY) utility in the *Oracle Clusterware Administration and Deployment Guide*.

## Clusterware Status

This metric shows the overall clusterware status for this cluster. The clusterware is up if the clusterware on at least one host is up.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11g, 12c | Every 5 Minutes                     | 2                         | 0                          | Clusterware has problems on the master agent host %CRS_output% |

### Data Source

The following command is the data source for metric where node1 and node2 is the node list for the cluster:

```
cluvfy comp crs -n node1, node2 ...
```

### User Action

Search for the Cluster Verification (CLUVFY) utility in the *Oracle Clusterware Administration and Deployment Guide*.

## Alert Log Metrics

The metrics in this metric category provide details about the Cluster Alert Log metrics.

There are two Alert Log Metric groups in this category:

- **Alert Log Error:** This metric group de-duplicates the recurring errors over a period of time and raises a single alert for the same underlying issue. It is enabled by default.
- **Clusterware Alert Log:** This metric group is an old way of collecting data and raises alerts with every occurrence. It is disabled by default.



### Note:

Both Alert Log Error and Clusterware Alert Log metric groups use the same source path of the Alert log destination.

| Target Version | Alert Log File                                  |
|----------------|---|
| 10gR2, 11gR1   | %OracleHome%/log/%NodeName%/alert%NodeName%.log |
| 11gR2          | %OracleHome%/log/%NodeName%/alert%NodeName%.log |
| 12c, 12cR2     | %AdHome%/trace/alert.log                        |

## Alert Log Error

The metrics in this metric category provide details about the Alert Log Error metrics.

## Clusterware Service Alert Log Error

This metric collects certain error messages in the CRS alert log at the cluster level.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11gR1   | Every 5 Minutes                     | CRS-1601                  | Not Defined                | %clusterwareErrStack%<br>See %alertLogName% for details. |
| 11gR2, 12c     | Every 5 Minutes                     | CRS-(8011 8013 8014 8015) | Not Defined                | %clusterwareErrStack%<br>See %alertLogName% for details. |

**Note:**

Do *not* modify the default warning and critical thresholds for this metric.

## Node Configuration Alert Log Error

This column collects CRS-1607, 1802, 1803, 1804, and 1805 messages from the CRS alert log at the cluster level, and issues alerts based on the error code.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10gR2, 11gR1   | Every 5 Minutes                     | CRS-180(2 3 4 5)          | CRS-1607                   | %nodeErrStack%<br>See %alertLogName% for details. |
| 11gR2, 12c     | Every 5 Minutes                     | Not Defined               | CRS-1607                   | %nodeErrStack%<br>See %alertLogName% for details. |

**Note:**

Do *not* modify the default warning and critical thresholds for this metric.

## OCR Alert Log Error

This column collects CRS-1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1010, and 1011 messages from CRS alert log at the cluster level, and issue alerts based on the error code.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                                       |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11gR1   | Every 5 Minutes                     | CRS-100(1 2 3 4 5 7)      | CRS-(1006 1008 1010 1011)  | %ocrErrStack%<br>See %alertLogName% for details. |

**Note:**

Do *not* modify the default warning and critical thresholds for this metric.

## Voting Disk Alert Log Error

This column collects CRS-1607, 1802, 1803, 1804, and 1805 messages from the CRS alert log at the cluster level, and issues alerts based on the error code.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10gR2, 11gR1   | Every 5 Minutes                     | Not Defined               | CRS-160(4 5 6)             | %votingErrStack%<br>See %alertLogName% for details. |
| 11gR2, 12c     | Every 5 Minutes                     | Not Defined               | CRS-160(4 5 6)             | %votingErrStack%<br>See %alertLogName% for details. |

**Note:**

Do *not* modify the default warning and critical thresholds for this metric.

## Clusterware Alert Log Metric

The metrics in this metric category provide details about the Cluster Alert Log metrics.

### Clusterware Service Alert Log Error

This metric collects certain error messages in the CRS alert log at the cluster level.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11gR1   | —                                   | CRS-1601                  | Not Defined                | %clusterwareErrStack%<br>See %alertLogName% for details. |
| 11gR2, 12c     | —                                   | CRS-(8011 8013 8014 8015) | Not Defined                | %clusterwareErrStack%<br>See %alertLogName% for details. |

**Note:**

Do *not* modify the default warning and critical thresholds for this metric.

### Node Configuration Alert Log Error

This column collects CRS-1607, 1802, 1803, 1804, and 1805 messages from the CRS alert log at the cluster level, and issues alerts based on the error code.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                                       |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11gR1   | —                                   | CRS-180(2 3 4 5)          | CRS-1607                   | %nodeErrStack%<br>See %alertLogName for details. |

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11gR2,<br>12c  | —                                   | Not Defined               | CRS-1607                   | %nodeErrStack%<br>See %alertLogName% for details. |

**Note:**

Do *not* modify the default warning and critical thresholds for this metric.

## OCR Alert Log Error

This column collects CRS-1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1010, and 1011 messages from CRS alert log at the cluster level, and issue alerts based on the error code.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold        | Alert Text                                       |
|-----------------|-------------------------------------|---------------------------|-----------------------------------|--|
| 10gR2,<br>11gR1 | —                                   | CRS-100(1 2 3 <br>4 5 7)  | CRS-(1006 <br>1008 1010 <br>1011) | %ocrErrStack%<br>See %alertLogName% for details. |

**Note:**

Do *not* modify the default warning and critical thresholds for this metric.

## Voting Disk Alert Log Error

This column collects CRS-1607, 1802, 1803, 1804, and 1805 messages from the CRS alert log at the cluster level, and issues alerts based on the error code.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|-----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10gR2,<br>11gR1 | —                                   | Not Defined               | CRS-160(4 5 6)             | %votingErrStack%<br>See %alertLogName% for details. |
| 11gR2,<br>12c   | —                                   | Not Defined               | CRS-160(4 5 6)             | %votingErrStack%<br>See %alertLogName% for details. |

**Note:**

Do *not* modify the default warning and critical thresholds for this metric.

## QoS Events

The metrics in this metric category provide information about the Quality of Service (QoS) events.

### Compliance State

For a database to be managed by Oracle Database QoS Management, the database must be compliant.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 11gR2, 12c     | -                                   | Not Defined               | NOT_COMPLIANT              | Server pool %wlm_entity_name% has a violation. Refer to the Grid Operations Manager log for details. |

### Memory Pressure Analysis Risk State

Oracle Database QoS Management detects memory pressure on a server in real time and redirects new sessions to other servers to prevent using all available memory on the stressed server.

This metric indicates that the database server is experiencing memory pressure.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11gR2, 12c     | -                                   | RED                       | Not Defined                | Server %wlm_server% is under elevated memory pressure and services on all instances on this server will be stopped. |

### QoS State Change

This metric displays the reason for a change in the Oracle Database QoS Management state.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11gR2, 12c     | -                                   | USER_DISABLED             | EXCEPTION_DISABLED         | QoSM service is disabled due to %wlm_qosm_state%. |

### Resource State

The metrics in this metric category provide information about the Cluster Resource State (CRS).



## State Change

This is the CRS resource status change metric.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold  | Default Critical Threshold                                 | Alert Text   |
|----------------|-------------------------------------|--|--|--|
| 11gR2, 12c     | Every 24 Hours                      | COMPLETE_INTE<br>RMEDIATE <br>PARTIALLY_UNK<br>NOWN <br>PARTIALLY_OFF<br>LINE <br>PARTIALLY_INT<br>ERMEDIATE | COMPLETE_UN<br>KNOWN <br>COMPLETE_OF<br>FLINE ADD <br>DOWN | %crs_entity_name% has<br>%resource_status_alert_count%<br>instances in<br>%resource_status_alert_state% State<br>%resource_status_additional_mesg% |

# 2

## Automatic Storage Management

This chapter provides information about the Automatic Storage Management (ASM) metrics.

### Alert Log

The metrics in this category signify that the ASM target being monitored has generated errors to the ALERT log file since the last sample time. The ALERT log file is a special trace file containing a chronological log of messages and errors.

Critical Alerts are generated for different type of failure, for example: archiver error, data block corrupted, and Media failure are found in the alert log with the following error code (ORA-00257, 16038, 01157,01578,27048). The metric shows you the line number and time when the error occurred.

Warning alerts are also generated when Session Terminated Error Stack (ORA- 00603) are present in the alert log. Many other critical alerts also occur when the Ora-15130 (Disk Group is being dismounted), Ora-15050 (Disk contains errors) and Ora-15051 (File contains errors) are present in alert log.

You can edit the metric threshold and change the value of error you want to collect under a different head. Also, you can modify the warning and critical alert values.

This metric is collected at a time interval of 15 minutes. You can change the threshold limit as per your requirements.

### Alert Log Error Stack

This metric contains the information about different ORA- errors present in the alert log file. It ignores error patterns like ORA-0\*(54|1142|1146) present in the alert log file and generate a warning alert when ORA-0\*600x, ORA-07445, ORA-04 [0-9][0-9][0-9]][^0-9] errors are present.

Edit the metric threshold and change the value of the ORA- error to generate the warning and critical alert for a different set of ORA- errors.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold                | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|--|----------------------------|--|
| 10g, 11g, 12c  | Every 5 Minutes                     | ORA-0*(600? 7445 4[0-9][0-9][0-9]][^0-9] | Not Defined                | ORA-error stack (%errCodes%) logged in %alertLogName%. |

#### Multiple Thresholds

For this metric column you can set different warning and critical threshold values for each for each Timestamp/LineNumber object.

If warning or critical threshold values are currently set for any Timestamp/LineNumber object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Timestamp/LineNumber object, use the Edit Thresholds page.

#### Data Source

The data comes from Alert Log Files. It is collected using the perl script `$ORACLE_HOME/sysman/admin/scripts/alertlog.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent. The alert log file is scanned for the ORA- errors ignoring the patterns like `ORA-0*(54|1142|1146)`.

#### User Action

Examine the ALERT log for additional information.

## Alert Log Error Stack Trace File Name

This metric provides information about the trace file name in which ORA- errors are present. It provides the detail of the trace file name and the line at which the error has occurred.

| Target Version | Evaluation and Collection Frequency |
|----------------|-------------------------------------|
| 10g, 11g, 12c  | Every 5 Minutes                     |

#### Data Source

The data comes from the Alert Log files. It is collected using the perl script `$ORACLE_HOME/sysman/admin/scripts/alertlog.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

#### User Action

No user action is required.

## Alert Log Name

This metric provides information about the alert log file in which ORA- errors are present. It displays the file name and the line at which the error has occurred.

| Target Version | Evaluation and Collection Frequency |
|----------------|-------------------------------------|
| 10g, 11g, 12c  | Every 5 Minutes                     |

#### Data Source

The data comes from Alert Log Files. It is collected using the perl script `$ORACLE_HOME/sysman/admin/scripts/alertlog.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

#### User Action

Examine the ALERT log for additional information.

## Archive Error Stack

This metric contains the information about different ORA- errors, which indicate the presence of Archive Error in the alert log files. The errors ORA-00257 and ORA-16038

in the alert log indicates an archive-hung problem. This also generates a critical alert when these problems are found in alert logs.

You can edit the metric threshold and change the value of the error you want to collect under a different head. Also, the warning and critical alert values can be modified or set.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10g, 11g, 12c  | Every 5 Minutes                     | Not Defined               | ORA-                       | The archiver error at time/line number:%timeLine%. |

#### Multiple Thresholds

For this metric column you can set different warning and critical threshold values for each for each Timestamp/LineNumber object.

If warning or critical threshold values are currently set for any Timestamp/LineNumber object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Timestamp/LineNumber object, use the Edit Thresholds page.

#### Data Source

The data comes from Alert Log Files. It is collected using the perl script `ORACLE_HOME/sysman/admin/scripts/alertlog.pl` where `ORACLE_HOME` refers to the home of the Oracle Management Agent. Alert log file is scanned for the ORA-00257 and ORA-16038 error.

#### User Action

Examine the ALERT log for additional information.

## Data Block Corruption Error Stack

This metric contains the information about different ORA- errors, which indicate the presence of Data Block Corruption errors in the alert log files. The errors ORA- 01157, ORA-01578, and ORA-27048 in the alert log indicates Data Block Corruption problems. This also generates a critical alert when these problems are found in alert logs.

You can edit the metric threshold and change the value of the error you want to collect under a different head. Also, the warning and critical alert values can be modified or set.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10g, 11g, 12c  | Every 5 Minutes                     | Not Defined               | ORA-                       | The data block was corrupted at time/line number: %timeLine%. |

#### Multiple Thresholds

For this metric column you can set different warning and critical threshold values for each for each Timestamp/LineNumber object.

If warning or critical threshold values are currently set for any Timestamp/LineNumber object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Timestamp/LineNumber object, use the Edit Thresholds page.

#### Data Source

The data comes from Alert Log Files. It is collected using the perl script `$ORACLE_HOME/sysman/admin/scripts/alertlog.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent. Alert log file is scanned for the ORA- 01157, ORA-01578, and ORA-27048 error.

#### User Action

Examine the ALERT log for additional information.

## Media Failure Error Stack

This metric contains the information about different ORA- errors, which indicate the presence of Media Failure Errors in the alert log files. The errors ORA-15130, ORA-15049, ORA-15050 and ORA-15051 in the alert log indicates Media Failure Error problems. This generates a critical alert when these problems are found in alert logs.

You can edit the metric threshold and change the value of the error you want to collect under a different head. You can also set or modify the warning and critical alert values.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10g, 11g, 12c  | Every 5 Minutes                     | Not Defined               | ORA-                       | Media failure was detected at time/line number: %timeLine%. |

#### Multiple Thresholds

For this metric column you can set different warning and critical threshold values for each for each Timestamp/LineNumber object.

If warning or critical threshold values are currently set for any Timestamp/LineNumber object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Timestamp/LineNumber object, use the Edit Thresholds page.

#### Data Source

The data comes from Alert Log Files. It is collected using the perl script `$ORACLE_HOME/sysman/admin/scripts/alertlog.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent. Alert log file is scanned for the ORA- 15130, ORA-15049, ORA-15050 and ORA-15051 error.

#### User Action

Examine the ALERT log for additional information.

## Session Terminated Error Stack

This metric contains the information about different ORA- errors, which indicate the presence of Session Terminated problems in the alert log files. The ORA- 00603 error

in the alert log indicates Session Terminated problems. This also generates a warning alert when these problems are found in alert logs.

You can edit the metric threshold and change the value of the error you want to collect under a different head. Also, the warning and critical alert values can be modified or set.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10g, 11g, 12c  | Every 5 Minutes                     | ORA-                      | Not Defined                | A session was terminated at time/line number: %timeLine%. |

### Multiple Thresholds

For this metric column you can set different warning and critical threshold values for each for each Timestamp/LineNumber object.

If warning or critical threshold values are currently set for any Timestamp/LineNumber object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Timestamp/LineNumber object, use the Edit Thresholds page.

### Data Source

The data comes from Alert Log Files. It is collected using the perl script \$ORACLE\_HOME/sysman/admin/scripts/alertlog.pl where \$ORACLE\_HOME refers to the home of the Oracle Management Agent. The alert log file is scanned for the ORA- 00603 error.

### User Action

Examine the ALERT log for additional information.

## Alert Log Error Status

The metrics in this category display the number of times an Alert has been generated for the Alert log metric. It provides information about the current status of different errors present in the alert log file.

This Metric is part of 10g Release 2 and generates a warning alert with any occurrence of ORA- Error [excluding ORA-0\*(54|1142|1146)]. It also generates a Warning alert when it detects an Archiver Error, Data Block Corruption Error, Media Failure Error and Session Terminated Error.

This metric is collected with the help Alert Log Metric, and the time interval for collection 5 Minutes. You can change the threshold limit count for the Warning alert and critical alert as required.

## Archiver Error Alert Log Error Status

This metric signifies the number of times the Archiver Error (ORA-00257 and ORA-16038) has been generated in the Alert log metric. It gives you an idea about the current status of the Archiver Error present in the alert log file. This also generates a warning alert when this count is greater than zero.

You can edit the metric threshold and change the value of the error you want to collect under a different head. You can also set or modify the warning and critical alert values.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10g, 11g, 12c  | Every 5 Minutes                     | 0                         | Not Defined                | Archiver errors have been found in the alert log. |

**Data Source**

This metric is calculated based on the Archive Error Stack Metric rollup.

**User Action**

Examine the ALERT log for additional information. **Note:** This event does not automatically clear because there is no automatic way of determining when the problem has been resolved. Therefore, you need to manually clear the event after the problem is fixed.

## Data Block Corruption Alert Log Error Status

This metric signifies the number of times the Data Block Corruption error (ORA- 01157, ORA-01578, and ORA-27048) has been generated in the Alert log metric. It gives you an idea about the current status of Data Block Corruption errors present in the alert log file. This also generates a warning alert when this count is greater than zero.

You can edit the metric threshold and change the value of the error you want to collect under a different head. You can also set or modify the warning and critical alert values.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10g, 11g, 12c  | Every 5 Minutes                     | 0                         | Not Defined                | Data block corruption errors have been found in the alert log. |

**Data Source**

This metric is calculated based on the Data Block Corruption Error Stack Metric rollup.

**User Action**

Examine the ALERT log for additional information. **Note:** This event does not automatically clear because there is no automatic way of determining when the problem has been resolved. Therefore, you need to manually clear the event after the problem is fixed.

## Generic Alert Log Error Status

This metric signifies the number of times the Generic Alert error (ORA-0\*600x, ORA-07445, ORA-04 [0-9][0-9][0-9][^0-9]) has been generated in the Alert log metric. It gives you an idea about the current status of the Generic Alert (ORA-) error present in the alert log file. This also generates a warning alert when this count is greater than zero.

You can edit the metric threshold and change the value of the error if you want to collect data under a different heading. You can also set or modify the warning alert and critical alert values.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10g, 11g, 12c  | Every 5 Minutes                     | 0                         | Not Defined                | %value% distinct types of ORA- errors have been found in the alert log. |

**Data Source**

This metric is calculated based on the Generic Alert Error Stack Metric rollup.

**User Action**

Examine the ALERT log for additional information.

## Media Failure Alert Log Error Status

This metric signifies the number of times the Media Failure Alert error (ORA-15130,ORA-15049, ORA-15050and ORA-15051) has been generated in the Alert log metric. It gives the user an idea about the current status of Media Failure Alert (ORA-) error present in the alert log file. This also generates a warning alert when this count is greater than zero.

You can edit the metric threshold and change the value of the error you want to collect under a different head. You can also set or modify the warning and critical alert values.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10g, 11g, 12c  | Every 5 Minutes                     | 0                         | Not Defined                | Media failure errors have been found in the alert log. |

**Data Source**

This metric is calculated based on the Media Failure Alert Error Stack Metric rollup.

**User Action**

Examine the ALERT log for additional information. **Note:** This event does not automatically clear because there is no automatic way of determining when the problem has been resolved. Therefore, you need to manually clear the event after the problem is fixed.

## Session Terminated Alert Log Error Status

This metric signifies the number of times the Session Terminated Alert error (ORA- 00603) has been generated in the Alert log metric. It gives you an idea about the current status of Session Terminated Alert (ORA-) error present in the alert log file. This also generates a warning alert when this count is greater than zero.

You can edit the metric threshold and change the value of the error you want to collect under a different head. You can also set or modify the warning and critical alert values.



| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10g, 11g, 12c  | Every 5 Minutes                     | 0                         | Not Defined                | Session terminations have been found in the alert log. |

### Data Source

This metric is calculated based on the Session Terminated Alert Error Stack Metric rollup.

### User Action

Examine the ALERT log for additional information. **Note:** This event does not automatically clear because there is no automatic way of determining when the problem has been resolved. Therefore, you need to manually clear the event after the problem is fixed.

## ASM Alert Log

The metrics in this category signify that the ASM target being monitored has generated errors to the ALERT log file since the last sample time. The ALERT log file is a special trace file containing a chronological log of messages and errors.

Critical Alerts are generated for different type of failure, for example: archiver error, data block corrupted, and media failure are found in the alert log with the following error code (ORA-00257, 16038, 01157,01578,27048). The metric shows you the line number and time when the error occurred.

Warning alerts are also generated when Session Terminated Error Stack (ORA-00603) are present in the alert log. Many other critical alerts also occur when the Ora-15130 (Disk Group is being dismantled), Ora-15050 (Disk contains errors) and Ora-15051 (File contains errors) are present in alert log.

You can edit the metric threshold and change the value of error you want to collect under a different head. Also, you can modify the warning and critical alert values.

This metric is collected at a time interval of 15 minutes. You can change the threshold limit as per your requirements.

## Alert Log Error Stack

This metric contains the information about different ORA- errors present in the alert log file. It ignores error patterns like ORA-0\*(54|1142|1146) present in the alert log file and generate a warning alert when ORA-0\*600x, ORA-07445, ORA-04 [0-9][0-9][0-9][^0-9] errors are present.

Edit the metric threshold and change the value of the ORA- error to generate the warning and critical alert for a different set of ORA- errors.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold                | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|--|----------------------------|--|
| 10g, 11g, 12c  | Every 5 Minutes                     | ORA-0*(600? 7445 4[0-9][0-9][0-9])[^0-9] | Not Defined                | ORA-error stack (%errCodes%) logged in %alertLogName%. |

### Multiple Thresholds

For this metric column you can set different warning and critical threshold values for each for each Timestamp/LineNumber object.

If warning or critical threshold values are currently set for any Timestamp/LineNumber object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Timestamp/LineNumber object, use the Edit Thresholds page.

### Data Source

The data comes from Alert Log Files. It is collected using the perl script \$ORACLE\_HOME/sysman/admin/scripts/alertlog.pl where \$ORACLE\_HOME refers to the home of the Oracle Management Agent. The alert log file is scanned for the ORA- errors ignoring the patterns like ORA-0\*(54|1142|1146).

### User Action

Examine the ALERT log for additional information.

## Alert Log Error Stack Trace File Name

This metric provides information about the trace file name in which ORA- errors are present. It provides the detail of the trace file name and the line at which the error has occurred.

| Target Version | Evaluation and Collection Frequency |
|----------------|-------------------------------------|
| 10g, 11g, 12c  | Every 5 Minutes                     |

### Data Source

The data comes from the Alert Log files. It is collected using the perl script \$ORACLE\_HOME/sysman/admin/scripts/alertlog.pl where \$ORACLE\_HOME refers to the home of the Oracle Management Agent.

### User Action

No user action is required.

## Alert Log Name

This metric provides information about the alert log file in which ORA- errors are present. It displays the file name and the line at which the error has occurred.

| Target Version | Evaluation and Collection Frequency |
|----------------|-------------------------------------|
| 10g, 11g, 12c  | Every 5 Minutes                     |

**Data Source**

The data comes from Alert Log Files. It is collected using the perl script \$ORACLE\_HOME/sysman/admin/scripts/alertlog.pl where \$ORACLE\_HOME refers to the home of the Oracle Management Agent.

**User Action**

Examine the ALERT log for additional information.

## Archive Error Stack

This metric contains the information about different ORA- errors, which indicate the presence of Archive Error in the alert log files. The errors ORA-00257 and ORA-16038 in the alert log indicates an archive-hung problem. This also generates a critical alert when these problems are found in alert logs.

You can edit the metric threshold and change the value of the error you want to collect under a different head. Also, the warning and critical alert values can be modified or set.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10g, 11g, 12c  | Every 5 Minutes                     | Not Defined               | ORA-                       | The archiver error at time/line number:%timeLine%. |

**Multiple Thresholds**

For this metric column you can set different warning and critical threshold values for each for each Timestamp/LineNumber object.

If warning or critical threshold values are currently set for any Timestamp/LineNumber object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Timestamp/LineNumber object, use the Edit Thresholds page.

**Data Source**

The data comes from Alert Log Files. It is collected using the perl script ORACLE\_HOME/sysman/admin/scripts/alertlog.pl where ORACLE\_HOME refers to the home of the Oracle Management Agent. Alert log file is scanned for the ORA-00257 and ORA-16038 error.

**User Action**

Examine the ALERT log for additional information.

## Data Block Corruption Error Stack

This metric contains the information about different ORA- errors, which indicate the presence of Data Block Corruption errors in the alert log files. The errors ORA- 01157, ORA-01578, and ORA-27048 in the alert log indicates Data Block Corruption problems. This also generates a critical alert when these problems are found in alert logs.

You can edit the metric threshold and change the value of the error you want to collect under a different head. Also, the warning and critical alert values can be modified or set.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10g, 11g, 12c  | Every 5 Minutes                     | Not Defined               | ORA-                       | The data block was corrupted at time/line number: %timeLine%. |

### Multiple Thresholds

For this metric column you can set different warning and critical threshold values for each for each Timestamp/LineNumber object.

If warning or critical threshold values are currently set for any Timestamp/LineNumber object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Timestamp/LineNumber object, use the Edit Thresholds page.

### Data Source

The data comes from Alert Log Files. It is collected using the perl script \$ORACLE\_HOME/sysman/admin/scripts/alertlog.pl where \$ORACLE\_HOME refers to the home of the Oracle Management Agent. Alert log file is scanned for the ORA- 01157, ORA-01578, and ORA-27048 error.

### User Action

Examine the ALERT log for additional information.

## Media Failure Error Stack

This metric contains the information about different ORA- errors, which indicate the presence of Media Failure Errors in the alert log files. The errors ORA- 15130, ORA-15049, ORA-15050 and ORA-15051 in the alert log indicates Media Failure Error problems. This generates a critical alert when these problems are found in alert logs.

You can edit the metric threshold and change the value of the error you want to collect under a different head. You can also set or modify the warning and critical alert values.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10g, 11g, 12c  | Every 5 Minutes                     | Not Defined               | ORA-                       | Media failure was detected at time/line number: %timeLine%. |

### Multiple Thresholds

For this metric column you can set different warning and critical threshold values for each for each Timestamp/LineNumber object.

If warning or critical threshold values are currently set for any Timestamp/LineNumber object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Timestamp/LineNumber object, use the Edit Thresholds page.

**Data Source**

The data comes from Alert Log Files. It is collected using the perl script `$ORACLE_HOME/sysman/admin/scripts/alertlog.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent. Alert log file is scanned for the ORA- 15130,ORA-15049, ORA-15050and ORA-15051 error.

**User Action**

Examine the ALERT log for additional information.

## Session Terminated Error Stack

This metric contains the information about different ORA- errors, which indicate the presence of Session Terminated problems in the alert log files. The ORA- 00603 error in the alert log indicates Session Terminated problems. This also generates a warning alert when these problems are found in alert logs.

You can edit the metric threshold and change the value of the error you want to collect under a different head. Also, the warning and critical alert values can be modified or set.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10g, 11g, 12c  | Every 5 Minutes                     | ORA-                      | Not Defined                | A session was terminated at time/line number: %timeLine%. |

**Multiple Thresholds**

For this metric column you can set different warning and critical threshold values for each for each Timestamp/LineNumber object.

If warning or critical threshold values are currently set for any Timestamp/LineNumber object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Timestamp/ LineNumber object, use the Edit Thresholds page.

**Data Source**

The data comes from Alert Log Files. It is collected using the perl script `$ORACLE_HOME/sysman/admin/scripts/alertlog.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent. The alert log file is scanned for the ORA- 00603 error.

**User Action**

Examine the ALERT log for additional information.

## ASM Cluster File System

The metrics in the ASM Cluster File System metric category show the space used by all of the ASM Cluster File Systems. These metrics are used to collect information about the ASM Cluster File System space usage and are used to show the trend of ASM Cluster File System space usage in the application. These metrics collect information for both mounted and dismounted ASM Cluster File Systems. This

information is used to determine the following metrics for space usage: Allocated Space (GB), Size (GB), Free (GB), Used (GB), and Used (%). These metrics also collect information about whether the ASM Cluster File System is corrupt. For dismantled ASM Cluster File Systems, 0 is returned for the Free (GB), Used (GB), and Used (%) metrics.

These metrics only collect information about the ASM Cluster File System that is not specific to a node in a cluster. They collect space usage information which is the same across all nodes in the cluster. Information such as the state and availability of the ASM Cluster File System can be different across the nodes in a cluster and is collected by the ASM Cluster File System State metrics.

These metrics generate a warning alert if the ASM Cluster File System is 85% used and a critical alert if 97% used. These metrics also generate a critical alert if the ASM Cluster File System has sections that are corrupt.

These metrics are collected at a time interval of 30 minutes and the metrics will be collected at the cluster level if the target is Cluster ASM otherwise they will be collected at the instance level as a part of the ASM target type metrics. You can change the threshold limit as required.

## ASM Cluster File System Corrupt

This metric shows if the mounted ASM Cluster File System has sections that are corrupt. A value of TRUE for this metric indicates that there are sections that are corrupt and therefore the Check and Repair operation should be run on the ASM Cluster File System to fix it. For dismantled ASM Cluster File Systems, it returns a value of Null for this metric.

This metric generates a warning alert if the ASM Cluster File System is dismantled on a given host. The metric also generates a critical alert if the mounted ASM Cluster File System is not available on a host.

This metric is collected at a time interval of 30 minutes. You can change the threshold limit as required.

This metric is collected with the help of a SQL query which queries the V\$ASM\_FILESYSTEM, V\$ASM\_VOLUME, V\$ASM\_ACFSVOLUMES views.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 11gR2, 12c     | Every 30 Minutes                    | Not Defined               | TRUE                       | The ASM Cluster File System using volume device %ofs_volume_device% has sections that are corrupt. Run check and repair operation on the file system to fix the issue. |

### Multiple Thresholds

For this metric column you can set different warning and critical threshold values for each unique combination of volume device and disk group objects.

If warning or critical threshold values are currently set for any unique combination of volume device and disk group objects, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each unique combination of volume device and disk group objects, use the Edit Thresholds page.

**Data Source**

This metric is collected from the column CORRUPT in the V\$ASM\_FILESYSTEM view for mounted ASM Cluster File Systems. For Dismounted File Systems, a value of Null is returned for this metric.

**User Action**

Run Check and Repair on the ASM Cluster File System to fix the corrupted sections.

## ASM Cluster File System Used (%)

This metric shows the percent of the ASM cluster file system that is used.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 11gR2, 12cR1   | Every 30 Minutes                    | Not Defined               | TRUE                       | The ASM Cluster File System using volume device %ofs_volume_device% is %ofs_used_pct%% full. Resize the file system to add more space. |

**Multiple Thresholds**

For this metric column you can set different warning and critical threshold values for each unique combination of volume device and disk group objects.

If warning or critical threshold values are currently set for any unique combination of volume device and disk group objects, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each unique combination of volume device and disk group objects, use the Edit Thresholds page.

## Allocated Space (GB)

This metric shows the space allocated from the disk group for this ASM Cluster File System in GB.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 30 Minutes     |

**Data Source**

This metric is collected from the column SPACE in the V\$ASM\_FILE view.

**User Action**

No user action is required.

## Free (GB)

This metric shows the unused capacity of the ASM Cluster File System in gigabytes. It gives an indication of the free space available in the ASM Cluster File System. For dismounted ASM Cluster File Systems, a value of 0 is returned for this metric.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 30 Minutes     |

**Data Source**

This metric is collected from the column TOTAL\_FREE in the V\$ASM\_FILESYSTEM view. For dismounted ASM Cluster File Systems, a value of 0 is returned.

**User Action**

Consider resizing the ASM Cluster File System if there is not enough Free Space available.

## Size (GB)

This metric shows the size in GB of the ASM Cluster File System.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 30 Minutes     |

**Data Source**

This metric is collected from the column TOTAL\_SIZE in the V\$ASM\_FILESYSTEM view for mounted file systems and from the column SIZE\_MB in the view V\$ASM\_VOLUME for dismounted file systems.

**User Action**

Consider resizing the ASM Cluster File System to add space.

## Snapshot Space Used (MB)

This metric shows the percentage of snapshot space that is used on the ASM Cluster File System. For dismounted ASM Cluster File Systems, a value of 0 is returned for this metric.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 30 Minutes     |

## Used (GB)

This metric shows the space in GB that is used on the mounted ASM Cluster File System. For dismounted ASM Cluster File Systems, a value of 0 is returned for this metric.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 30 Minutes     |

**Data Source**

This metric is calculated from the columns TOTAL\_SIZE and TOTAL\_FREE in the V\$ASM\_FILESYSTEM view. This metric is calculated using the following formula:

TOTAL\_SIZE - TOTAL\_FREE



For dismounted ASM Cluster File Systems, a value of 0 is returned for this metric.

**User Action**

Consider resizing the ASM Cluster File System to add more space.

## Volume Name

This metric shows the volume name of the volume device used to create the ASM Cluster File System.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 30 Minutes     |

**Data Source**

This metric is collected from the column VOLUME\_NAME in the V\$ASM\_VOLUME view.

**User Action**

No user action is required.

## ASM Cluster File System State

The metrics in the ASM Cluster File System State metric category show the state of the ASM Cluster File System, whether it is MOUNTED or DISMOUNTED on a given host.

## ASM Cluster File System Availability

This metric shows if the mounted ASM Cluster File System is available on a given host in a cluster. For dismounted ASM Cluster File System's this metric returns a value of NULL.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11gR2, 12c     | Every 15 Minutes                    | Not Defined               | Not Available              | The ASM Cluster File System %ofs_mount_point% is not available on host %ofs_host% |

**Multiple Thresholds**

For this metric you can set different warning and critical threshold values for each unique combination of volume device and host objects.

If warning or critical threshold values are currently set for any unique combination of volume device and host objects, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each unique combination of volume device and host objects, use the Edit Thresholds page.

**Data Source**

This metric is collected from the column STATE in the V\$ASM\_FILESYSTEM view.

#### User Action

No user action is required.

## ASM Cluster File System Available Time

This metric shows the time since the mounted ASM Cluster File System has been available on a given host in a cluster. For dismounted ASM Cluster File Systems this metric returns a value of NULL.

| Target Version | Collection Frequency | Alert Text   |
|----------------|----------------------|--|
| 11gR2, 12c     | Every 15 Minutes     | The volume device %volume_device% is dismounted on host %ofs_host% |

#### Data Source

This metric is collected from the column AVAILABLE\_TIME in the V\$ASM\_FILESYSTEM view.

#### User Action

No user action is required.

## Mount Point

This metric shows the mount point of the ASM Cluster File System on a given host in a cluster. The same ASM Cluster File System could be mounted on different mount points, on different hosts in a cluster. For dismounted ASM Cluster File Systems it will return NULL if the OFS has never been mounted on the host or it will return the last mount point if it was mounted and then dismounted on the host.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

#### Data Source

For mounted file systems this metric is collected from the column FS\_NAME in the V\$ASM\_FILESYSTEM view. For dismounted file systems this metric is collected from the column MOUNTPATH in the V\$ASM\_VOLUME view.

#### User Action

No user action is required.

## ASM Cluster File System Mount State

This metric shows the state of the ASM Cluster File Systems, whether it is mounted or dismounted on a given host. In a cluster environment the ASM Cluster File System could be mounted only on specific hosts.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 11gR2, 12c     | Every 15 Minutes                    | Dismounted                | Not Defined                | The volume device %volume_device% is dismounted on host %ofs_host% |

### Multiple Thresholds

If warning or critical threshold values are currently set for any unique combination of volume device and host objects, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each unique combination of volume device and host objects, use the Edit Thresholds page.

### Data Source

An ASM Cluster File System is mounted if the usage of the volume\_device is ACFS and the volume\_device exists in the V\$ASM\_ACFSVOLUMES view and the mount path exists in the V\$ASM\_FILESYSTEM view.

An ASM Cluster File System is dismounted if the usage of the volume\_device is ACFS and the volume\_device does not exist in the V\$ASM\_ACFSVOLUMES view and the mount path does not exist in the V\$ASM\_FILESYSTEM view.

### User Action

Mount the ASM Cluster File System on the given host in the cluster.

## ASM File Group

The metrics in this configuration metrics category collects information related file groups in a flex disk group. The default collection time is every 24 hours.

### File Group

This metric indicates the name of the file group.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

### Data Source

The source of this metric is the v\$asm\_filegroup.name view.

### Disk Group

This metric indicates the name of the disk group to which the file group belongs.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

**Data Source**

The source of this metric is the v\$asm\_diskgroup.name view.

## Quota Group

This metric indicates the name of the quota group to which the file group belongs.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

**Data Source**

The source of this metric is the v\$asm\_quotagroup.name view.

## Client Type

This metric indicates the type of the client. For example, Database, Cluster or Volumes.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

**Data Source**

The source of this metric is the v\$asm\_filegroup.client\_type view.

## Client Name

This metric indicates the name of the client whose files are grouped together to form this file group.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

**Data Source**

The source of this metric is the `v$asm_filegroup.client_name` view.

## ASM Volumes

The metrics in the ASM Volumes metric category show information about the volumes created on a disk group. An ASM volume file is a file created on the disk group to provide storage for an ASM Cluster File System or a third-party file system. This is used to determine the following metrics for ASM volumes: Volume Name, Status, Usage, Mount Point, Size (GB), Allocated Space (GB), and Redundancy.

These metrics are collected with the help of the `V$ASM_VOLUME` and `GV$ASM_DISKGROUP` views. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

### Allocated Space (GB)

This metric shows the space in MB allocated to the ASM Cluster File System on a given host in a cluster.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 24 hours       |

#### Data Source

The source of this metric is the `MOUNTPATH` column in the `V$ASM_VOLUME` view.

#### User Action

No user action is required.

### Redundancy

This metric returns the redundancy for the ASM volume file. The ASM volume file can use whatever redundancy (external, normal=2-way mirror, high=3-way mirror) is available to the ASM disk group where the ASM volume file is created.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 24 hours       |

#### Data Source

The source of this metric is the `REDUNDANCY` column in the `V$ASM_VOLUME` view.

#### User Action

No user action is required.

### Size (GB)

This metric returns the size of the ASM volume in GB. The volume size is always created in multiples of the volume allocation unit.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 24 hours       |

**Data Source**

The source of this metric is the column SIZE\_MB from the V\$ASM\_VOLUME view.

**User Action**

No user action is required.

## Usage

This metric returns a string indicating what the ASM volume is used for: ACFS, EXT3, null. A value of null means that the usage of the volume is Unknown.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 24 hours       |

**Data Source**

This metric returns a string indicating what the ASM volume is used for: ACFS, EXT3, null. A value of null means the usage of the volume is Unknown.

**User Action**

No user action is required.

## Volume Name

This metric returns the name of the ASM volume. This is the name entered when the user creates the ASM volume on the disk group.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 24 hours       |

**Data Source**

The source of this metric is the VOLUME\_NAME column in the V\$ASM\_VOLUME view.

**User Action**

No user action is required.

## Database Disk Group Usage

The metrics in this category show the detail of the disk group space used by a database. With the help of this metric, you can know the space used in a disk group by different database instances. The metrics will be collected at cluster level if the target is Cluster ASM else they will be collected at instance level as a part of Automatic Storage Management target type metrics.

## Total Bytes

This metric shows the total bytes of the disk group space used by a database. With the help of this metric one can know the space used in a disk group by different database instance.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 15 Minutes     |

### Data Source

This metric is calculated by taking the space used by a file using the V\$ASM\_FILE view and joining it with the V\$ASM\_ALIAS and V\$ASM\_DISKGROUP views for 10g Release 1 and the V\$ASM\_ALIAS, V\$ASM\_DISKGROUP\_STAT views for 10g Release 2 to get the disk group space used by a database instance.

### User Action

No user action is required.

## Database Sparse Disk Group Usage

This metric category uploads the physical usage of sparse disk groups by snap cloned databases.

This metric category is enabled when ASM stores on Oracle Exdata. It is not applicable for any other systems.

## Database Name

This metric provides the name of the database.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 12cR2          | Every 24 Hours       |

### Data Source

v\$asm\_diskgroup, v\$asm\_alias

## Disk Group Name

This metric provides the sparse disk group name.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 12cR2          | Every 24 Hours       |

### Data Source

v\$asm\_diskgroup, v\$asm\_alias

## Total Physical Bytes

This metric provides the total number of physical bytes allocated to the database.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 12cR2          | Every 24 Hours       |

### Data Source

v\$asm\_diskgroup, v\$asm\_alias

## Disk Group Imbalance Status

The metrics in the Disk Group Imbalance Status metric category check if any disk groups are out of balance. Under normal operations, ASM automatically rebalances disk groups. These metrics detect conditions where manual rebalances may be required or the power level of a rebalance in progress may need to be raised to give it the necessary resources to complete faster. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

## Actual Imbalance (%)

Actual Imbalance (%) measures the difference in space allocated to the fullest and emptiest disks in the disk group. The comparison is in percent full because ASM tries to keep all disks equally full as a percent of their size. The imbalance is relative to the space allocated not the space available. An imbalance of a couple percent is reasonable.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 minutes     |

### Data Source

This metric is calculated using the following formula:

$$100 * (\max((\text{total\_mb} - \text{free\_mb}) / \text{total\_mb}) - \min((\text{total\_mb} - \text{free\_mb}) / \text{total\_mb})) / \max((\text{total\_mb} - \text{free\_mb}) / \text{total\_mb})$$

where total\_mb and free\_mb are columns in V\$ASM\_DISK\_STAT

### User Action

An imbalance of more than a couple percent may signal the need to initiate a manual rebalance of the disk group.

## Actual Minimum Percent Free

The Actual Minimum Percent Free metric lists the amount of free disk space on the fullest disk as a percentage of the disk size. If the imbalance is zero, then this represents the total free space. Because all allocations are performed evenly across all disks, the minimum free space limits how much space can be used.

If one disk has only one percent free, then only one percent of the space in the disk group is really available for allocation, even if the rest of the disks are only half full.



| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 minutes     |

#### Data Source

The metric is calculated as  $100 * (\min(\text{FREE\_MB} / \text{TOTAL\_MB}))$ , where FREE\_MB and TOTAL\_MB are columns in the \$ASM\_DISK\_STAT view.

#### User Action

If the actual minimum percent free is a low number, a configuration change may be required to provide an even distribution of file extents and space usage across all disks in a disk group.

## Disk Count

The Disk Count metric reports the number of disks in the disk group which gives a sense of how widely files can be spread.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 minutes     |

#### Data Source

Disk count is calculated using count(\*) on all disks (V\$ASM\_DISK\_STAT) in a disk group (V\$ASM\_DISKGROUP\_STAT).

#### User Action

No user action is required.

## Disk Group Percent Imbalance

The Disk Group Percent Imbalance (metric is used to determine if a disk group requires rebalance. Temporary imbalances (caused by a rebalance in progress) are ignored.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11g, 12c | Every 15 Minutes                    | 10                        | Not Defined                | Disk Group %diskGroup% requires rebalance because the space usage imbalance between disks is high. |

#### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each disk group object.

If warning or critical threshold values are currently set for any disk group object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each disk group object, use the Edit Thresholds page.

#### Data Source

If a rebalance operation is not in progress, the value of the Disk Group Imbalance (%) without Rebalance metric is the same value as the value of the Actual Imbalance (%) metric, otherwise the value is 0.

#### User Action

A warning alert is generated if the value of the Disk Group Imbalance (%) without Rebalance metric is greater than or equal to 10%. In this case, a rebalance is necessary because the space usage imbalance between disks is high. You should manually initiate a rebalance operation.

## Disk Maximum Used (%) with Rebalance

The Disk Maximum Used (%) with Rebalance metric is used to determine if a rebalance in progress needs a power boost to complete in a timely manner and prevent other errors from occurring due to space constraints.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|-----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10gR2, 11g, 12c | Every 15 Minutes                    | Not Defined               | 95                         | Increase the rebalance power for Disk Group %diskGroup% because at least one disk is critically low on space. |

#### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each disk group object.

If warning or critical threshold values are currently set for any disk group object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each disk group object, use the Edit Thresholds page.

#### Data Source

If a rebalance is in progress and the power value is greater than 0, then the value of the Disk Maximum Used (%) with Rebalance metric is calculated as (100 - Actual Minimum Percent Free), otherwise the value is 0.

#### User Action

A critical alert is generated if the value of the Disk Maximum Used (%) with Rebalance metric is greater than or equal to 95%. In this case the rebalance power for the disk group must be increased because at least one disk is critically low on space. Increase the rebalance power (maximum power level is 11).

## Disk Minimum Free (%) without Rebalance

The Disk Minimum Free (%) without Rebalance metric is used to determine if a disk group requires rebalance. Temporary imbalances (caused by a rebalance in progress) are ignored.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11g, 12c | Every 15 Minutes                    | 20                        | 10                         | Disk Group %diskGroup% requires rebalance because at least one disk is low on space. |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each disk group object.

If warning or critical threshold values are currently set for any disk group object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each disk group object, use the Edit Thresholds page.

### Data Source

If a rebalance operation is not in progress, the value of the Disk Minimum Free (%) without Rebalance metric is the same as the value of the Actual Minimum Percent Free metric, otherwise the value is 100.

### User Action

A warning alert will be generated if Disk Minimum Free (%) without Rebalance is less than or equal to 20%. In this case a rebalance is necessary because at least one disk is low on space. You should manually initiate a rebalance operation.

## Rebalance In Progress

The Rebalance In Progress metric returns Yes if a rebalance operation is in progress, No otherwise.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 Minutes     |

### Data Source

The value of the Rebalance In Progress metric is retrieved from the operation column of the V\$ASM\_OPERATION.view

### User Action

No user action is required.

## Resync In Progress

The Resync In Progress metric returns Yes if a resync operation is in progress, No otherwise.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 Minutes     |

## Disk Group Status

This configuration metric category collects ASM disk group status information.

### State

This metric shows the state of the ASM disk group.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

### Disk Group Name

This metric shows the disk group name.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

#### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Disk Group Name object.

If warning or critical threshold values are currently set for any Disk Group Name object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Disk Group Name object, use the Edit Thresholds page.

#### Data Source

This metric is collected from the column `FREE_MB` in the view `V$ASM_DISKGROUP` for 10g Release 1 and the `V$ASM_DISKGROUP_STAT` view for 10g Release 2.

#### User Action

Consider adding more disks to the disk group or deleting existing files in the disk group.

## Disk Group Usage

The metrics in this category show the space used by all the disk groups having the state as 'MOUNTED'. These metrics are used to collect information about the disk usage and is used to show the trend of disk group space usage in the application. This information is used to determine the following metrics: Free MB, Total MB, Total Safely Usable MB, Type, Safely Usable File MB, Used %, and Disk Group Used % of Safely Usable of a disk group for 10g Release 2 and Free MB, Total MB, Type, and Used % for 10g Release 1.

These metrics generate a warning alert if the disk group is 75% used and a critical warning if 90% used. The thresholds for the Disk Group Usage alert should *not* be fixed at 75% and 90%, because the value depends on the redundancy. In version 10g Release 2, these metrics use the `USABLE_FILE_MB` column of the `V$ASM_DISKGROUP_STAT` view to indicate

usable mirrored free space. This column displays the amount of free space that can be safely utilized taking mirroring into account, and yet is able to restore redundancy after disk failure.

Enterprise Manager issues alerts for the following:

- Critical alert when `USABLE_FILE_MB <= 0`
- Warning alert when `USABLE_FILE_MB < 0.1 * REQUIRED_MIRROR_FREE_MB`

This metric is collected at a time interval of 15 minutes. You can change the threshold limit as required.

This metric is collected with the help of a SQL query which queries the `V$ASM_DISKGROUP` view for 10g Release 1 and the `V$ASM_DISKGROUP_STAT` view for 10g Release 2. The metrics will be collected at cluster level if the target is Cluster ASM else they will be collected at instance level as a part of Automatic Storage Management target type metrics.

## Disk Group Name

This metric shows the unused capacity of the disk group in megabytes. It gives an indication of the free space available in a disk group.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10g, 11g, 12cR1 | Every 15 Minutes                    | Not Defined               | Not Defined                | Total free size for Disk Group %dg_name% has fallen to %value% (MB). |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Disk Group Name object.

If warning or critical threshold values are currently set for any Disk Group Name object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Disk Group Name object, use the Edit Thresholds page.

### Data Source

This metric is collected from the column `FREE_MB` in the view `V$ASM_DISKGROUP` for 10g Release 1 and the `V$ASM_DISKGROUP_STAT` view for 10g Release 2.

### User Action

Consider adding more disks to the disk group or deleting existing files in the disk group.

## Disk Group Free (MB)

This metric shows the unused capacity of the disk group in megabytes. It gives an indication of the free space available in a disk group.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10g, 11g, 12cR1 | Every 15 Minutes                    | Not Defined               | Not Defined                | Total free size for Disk Group %dg_name% has fallen to %value% (MB). |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Disk Group Name object.

If warning or critical threshold values are currently set for any Disk Group Name object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Disk Group Name object, use the Edit Thresholds page.

### Data Source

This metric is collected from the column FREE\_MB in the view V\$ASM\_DISKGROUP for 10g Release 1 and the V\$ASM\_DISKGROUP\_STAT view for 10g Release 2.

### User Action

Consider adding more disks to the disk group or deleting existing files in the disk group.

## Disk Group Usable (MB)

This metric shows the capacity of the disk group based on the type of the disk group. This column indicates the amount of free space that can be safely utilized taking mirroring into account, and yet is able to restore redundancy after disk failure.

| Target Version    | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|-------------------|-------------------------------------|---------------------------|----------------------------|---|
| 10gR2, 11g, 12cR1 | Every 15 Minutes                    | Not Defined               | Not Defined                | Usable free size for Disk Group %dg_name% has fallen to %value% (MB). |

### Data Source

This metric is collected using the V\$ASM\_DISKGROUP\_STAT view.

Total Safely Usable MB = (total\_mb - required\_mirror\_free\_mb)/redundancy\_factor

Where *total\_mb* and *required\_mirror\_free\_mb* come from the view column, and *redundancy\_factor* is 1 for External Redundancy Disk Group, 2 for Normal Redundancy Disk Group, and 3 for High Redundancy Disk Group.

### User Action

Consider adding more disks to the disk group or removing existing files from the disk group

## Disk Group Usable Free (MB)

The usable free space of a disk group depends on the redundancy, so in 10g Release 2 it uses the `USABLE_FILE_MB` column of the `V$ASM_DISKGROUP_STAT` view to indicate usable mirrored free space. This column indicates the amount of free space that can be safely utilized taking mirroring into account, and yet is able to restore redundancy after disk failure. This column is used to determine the usable free megabytes of a disk group.

| Target Version    | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|-------------------|-------------------------------------|---------------------------|----------------------------|---|
| 10gR2, 11g, 12cR1 | Every 15 Minutes                    | Not Defined               | Not Defined                | Usable free size for Disk Group %dg_name% has fallen to %value% (MB). |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Disk Group Name object.

If warning or critical threshold values are currently set for any Disk Group Name object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Disk Group Name object, use the Edit Thresholds page.

### Data Source

This metric is collected from the column `USABLE_FILE_MB` in the `V$ASM_DISKGROUP_STAT` view for 10g Release 2.

### User Action

Consider adding more disks to the disk group or removing existing files from the disk group.

## Disk Group Used %

This metric shows the percentage of space used by a disk group. It generates a warning alert if the disk group is 75% used and a critical warning if 90 % used. The threshold limit can be changed to generate alerts at different values.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                             |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10g, 11g, 12cR1 | Every 15 Minutes                    | 75                        | 90                         | Disk Group %dg_name% is %value%% used. |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Disk Group Name object.

If warning or critical threshold values are currently set for any Disk Group Name object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Disk Group Name object, use the Edit Thresholds page.

### Data Source

This metric is collected from the V\$ASM\_DISKGROUP view for 10g Release 1 and the V\$ASM\_DISKGROUP\_STAT view for 10g Release 2.

Used % = (total\_mb-free\_mb)/total\_mb\*100

### User Action

New disks can be added in a disk group to avoid the alerts. Go to the Disk Group general page and click Add to add a new disk to a disk group. Also, you can remove existing files from the disk group.

## Redundancy

This metric shows the Redundancy Type of the disk group. It can be one of the three values: External, Normal, and High. This property determines the restore redundancy after disk failure.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 15 Minutes     |

### Data Source

This metric is collected from the column TYPE in the V\$ASM\_DISKGROUP view for 10g Release 1 and the V\$ASM\_DISKGROUP\_STAT view for 10g Release 2.

### User Action

No user action is required.

## Size (MB)

This metric shows the total capacity of the disk group in megabytes. It gives an indication of the size or the space used by the disk group.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 15 Minutes     |

### Data Source

This metric is collected from the column TOTAL\_MB in the V\$ASM\_DISKGROUP view for 10g Release 1 and the V\$ASM\_DISKGROUP\_STAT view for 10g Release 2.

### User Action

Consider adding more disks to the disk group.



## Disk Group Used % of Safely Usable

This metric shows the percentage of safely usable space used by a disk group. Usable free space of a disk group depends on the redundancy. In 10g Release 2, it uses the `USABLE_FILE_MB` column of the `V$ASM_DISKGROUP_STAT` view to indicate usable mirrored free space. This column displays the amount of free space that can be safely utilized taking mirroring into account and restores redundancy after disk failure. This column is used to determine the Disk Group Used % of Safely Usable for a disk group.

This metric generates a warning alert if the disk group is using 90% of the safely usable space and critical warning for 100%. The threshold limit can be changed to generate an alert at different values.

| Target Version    | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-------------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11g, 12cR1 | Every 15 Minutes                    | 75                        | 90                         | Disk group %dg_name% has used %value%% of safely usable free space (space that can be allocated while still having enough space to recover from failure group failures). |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Disk Group Name object.

If warning or critical threshold values are currently set for any Disk Group Name object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Disk Group Name object, use the Edit Thresholds page.

### Data Source

This metric is collected from the `V$ASM_DISKGROUP_STAT` view for 10g Release 2.

```
Used % of Safely Usable = 100 - (usable_file_mb/usable_total_mb)*100
```

```
Where usable_total_mb = total_mb - required_mirror_free_mb)/redundancy_factor
```

*total\_mb* and *required\_mirror\_free\_mb* are derived from the view column and *redundancy\_factor* is 1 for External Redundancy Disk Group, 2 for Normal Redundancy Disk Group, and 3 for High Redundancy Disk Group.

### User Action

New disks can be added in a disk group to avoid the alerts. Go to the Disk Group general page and click Add to add a new disk to a disk group. Also, you can remove existing files from the disk group.

## Disk Path

This configuration metric category collects ASM disk path.

## Disk Name

This metric shows the name of the ASM disk.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 24 hours       |

## Disk Path

This metric shows the path of the ASM disk.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 24 hours       |

## Group Name

This metric shows the group name of the ASM disk.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 24 hours       |

## Disk Status

This configuration metric category collects ASM disk status information.

## Disk Mode Status

This metric shows the disk mode status of the ASM disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 15 minutes     |

## Disks

The metrics in this category collect ASM Disk configuration data such as disk group name. Default collection time is 24 hours and the metrics will be collected at cluster level if the target is Cluster ASM else they will be collected at instance level as a part of Automatic Storage Management target type metrics.

## Cell IP

This metric shows the IP address of the Exadata cell.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

This metric is collected from V\$ASM\_DISK\_STAT view.

**User Action**

No user action is required.

## Disk

This metric shows the disk name of the ASM disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the NAME column in the V\$ASM\_DISK\_STAT view.

**User Action**

No user action is required.

## Disk Creation Date

This metric shows the disk creation date of the ASM disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the CREATE\_DATE column in the V\$ASM\_DISK\_STAT view.

**User Action**

No user action is required.

## Disk Group

This metric shows the disk group name of the ASM disk.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g,11g, 12cR1 | Every 24 hours       |

**Data Source**

This metric is collected from V\$ASM\_DISKGROUP\_STAT view.

**User Action**

No user action is required.

## Disk Path

This metric shows the disk path of the ASM disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the PATH column in the V\$ASM\_DISK\_STAT view.

**User Action**

No user action is required.

## Failure Group Name

This metric shows the failure group name of the ASM disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the SPACE column in the V\$ASM\_DISK\_STAT view.

**User Action**

No user action is required.

## Failure Group Type

This metric shows the failure group type, REGULAR or QUORUM.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the FAILUREGROUP column in the V\$ASM\_DISK\_STAT view.

**User Action**

No user action is required.

## Redundancy

This metric shows the hardware redundancy of the disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the REDUNANCY column in the V\$ASM\_DISK\_STAT view.

**User Action**

No user action is required.

## Size (MB)

This metric shows the disk size in MB of the ASM disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the TOTAL\_MB column in the V\$ASM\_DISK\_STAT view.

**User Action**

No user action is required.

## Failure Group Imbalance Status

The metrics in the Failure Group Imbalance Status metric category check how even failure group disks are laid out for ASM disk groups. ASM strives for an even distribution of file extents and space usage across all disks in a disk group. It accomplishes this through rebalancing. If the disks are different sizes or the failure groups are different sizes then effective rebalancing cannot be achieved. In this situation, configuration changes are required.

These metrics only apply to disk groups with normal or high redundancy. These metrics will not return data for disk groups with external redundancy, because failure groups are not used in this configuration. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

## Disk Count Imbalance Variance

Failure groups are used to store mirror copies of data: two copies for normal redundancy, three copies for high redundancy. The Disk Count Imbalance Variance metric reports the difference in the failure group disk count for the disk in the disk group with the highest failure group disk count and the disk with the lowest.

It may not be possible for every disk to have the same failure group disk count even when all the failure groups are the same size. However an imbalance of more than one indicates that the failure groups are different sizes.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11g, 12c | Every 15 Minutes                    | 2                         | Not Defined                | Disk Group %diskGroup% has failure groups with different numbers of disks which may lead to suboptimal space usage. Changing the configuration may alleviate this problem. |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each disk group object.

If warning or critical threshold values are currently set for any disk group object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each disk group object, use the Edit Thresholds page.

### Data Source

The value of the Disk Count Imbalance Variance metric is calculated using the V\$ASM\_DISKGROUP\_STAT and V\$ASM\_DISK\_STAT views, along with some internal ASM fixed tables.

### User Action

A warning alert is generated when the Disk Count Imbalance Variance value is greater than 1 (the default value). Disk groups that have failure groups with different numbers of disks may lead to suboptimal space usage. To alleviate this problem, try changing the configuration.

## Disk Size Imbalance (%)

Disk Size Imbalance (%) checks whether some disks have more space in their failure group disks than others. The space is calculated as a ratio between the size of a disk and the sum of the sizes of its active failure group disks. This ratio is compared for all the disks. The difference in the highest and lowest failure group disk space is reported as a percentage. An imbalance of 10% is acceptable.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11g, 12c | Every 15 Minutes                    | 10                        | Not Defined                | Disk Group %diskGroup% has failure groups with disks of different sizes which may lead to suboptimal space usage. Changing the configuration may alleviate this problem. |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each disk group object.

If warning or critical threshold values are currently set for any disk group object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each disk group object, use the Edit Thresholds page.

#### Data Source

The value of the Disk Size Imbalance metric is calculated using the V\$ASM\_DISKGROUP\_STAT and V\$ASM\_DISK\_STAT views, along with some internal ASM fixed tables.

#### User Action

A warning alert is generated when the Disk Size Imbalance (%) is greater than 10% (the default). Disk groups that have failure groups with disks of different sizes may lead to suboptimal space usage. To alleviate this problem, try changing the configuration.

## Failure Group Count

Failure Group Count reports the number of failure groups per disk group.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 Minutes     |

#### Data Source

The value of the Failure Group Count metric is retrieved from a calculation involving the V\$ASM\_DISKGROUP\_STAT and V\$ASM\_DISK\_STAT views, and some internal ASM fixed tables.

#### User Action

No user action is required.

## Failure Group Status

The metrics in the Failure Group Status metric category check to see if all of the member disks of any failure group are offline. This is an undesirable condition which risks data loss, because mirror copies of data cannot be stored.

These metrics only apply to disk groups with normal or high redundancy. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

## Available Disks

The Available Disks metric reports the number of disks in the failure group that are online.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 Minutes     |

#### Data Source

The value of the Available Disks metric is calculated by subtracting the number of offline disks in the failure group from the number of total disks.

**User Action**

No user action is required.

## Disk Count

The Disk Count metric reports the number of disks in the failure group.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 Minutes     |

**Data Source**

The value of the Total Disks metric is retrieved from the V\$ASM\_DISKGROUP\_STAT and V\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Online Disk Count for Failure Group with More than 1 Disk

This metric shows the online disk count for failure group with more than one disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 15 minutes     |

## File Group Usage

File group usage metric collects information related to file groups in a flex disk group. The default collection time is every 30 minutes.

## Quota Limit Used (MB)

This metric indicates the space used by file group from the quota in a quota group.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 30 minutes                    | Not defined               | Not defined                | Not applicable |

## Incident

The metrics in this category represent incidents, for example, generic internal error, access violation, and so on as recorded in the ASM alert log file. Incidents refer to problems for which Automatic Diagnostic Repository (ADR) incidents are created. These type of problems usually require investigation, diagnostic data to be collected, and perhaps require interaction with Oracle Support for resolution. The alert log file has a chronological log of messages and errors.



Each metric signifies that the ASM being monitored has detected a critical error condition about the ASM and has generated an incident to the alert log file since the last sample time. The Support Workbench in Enterprise Manager contains more information about each generated incident.

 **Note:**

For more information about Incident metrics and Operational Error metrics, sign in to My Oracle Support and search for the following Oracle Support Note:

*Database Alert log monitoring in 12c explained (Doc ID 1538482.1)*

<https://support.oracle.com/>

### Setting Thresholds for Incident Metrics

To edit the thresholds for any of the following metrics, from the Cloud Control UI, right-click the target name, select **Monitoring**, then **Metric and Collection Settings**. The following settings provide examples of some of the possible settings:

- Warning Threshold: **Not Defined**; Critical Threshold: **.\***  
In this case, the Management Agent generates a critical error alert in Enterprise Manager when the incident occurs.
- Warning Threshold: **.\***; Critical Threshold: **Not Defined**  
In this case, the Management Agent generates a warning alert in Enterprise Manager when the incident occurs.
- Warning Threshold: **Not Defined**; Critical Threshold: **Not Defined**  
In this case, the Management Agent does *not* generate an alert in Enterprise Manager when the incident occurs.

## Access Violation

This metric signifies that the ASM has generated an incident due to some memory access violation. This type of incident is typically related to Oracle Exception messages such as ORA-3113 and ORA-7445. The ASM can also generate this type of incident when it detects a SIGSEGV or SIGBUS signals.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11g, 12cR1     | Every 5 Minutes                     | Not Defined               | <sup>1</sup>               | An access violation detected in %alertLogName% at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

#### Data Source

The data comes from the alert log files. It is collected using the Perl script `$ORACLE_HOME/sysman/admin/scripts/alertlogAdr.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

#### User Action

Use Support Workbench in Enterprise Manager to examine the details of the incident.

## Alert Log Error Trace File

This metric is the name of the trace file (if any) associated with the logged incident.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12cR1     | Every 5 Minutes      |

#### Data Source

The data comes from the alert log files. It is collected using the Perl script `$ORACLE_HOME/sysman/admin/scripts/alertlogAdr.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

#### User Action

No user action is required.

## Alert Log Name

This metric is the name of the alert log file.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12cR1     | Every 5 Minutes      |

#### Data Source

The data comes from the alert log files. It is collected using the Perl script: `$ORACLE_HOME/sysman/admin/scripts/alertlogAdr.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

#### User Action

No user action is required.

## ASM Block Corruption

ASM Block corruption can happen due to many reasons over lifetime (for example head misalignment, dust spec, and so on). If the disk groups are mirrored, ASM automatically repairs the corrupted blocks from the mirror.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 11g, 12cR1     | Every 5 Minutes                     | Not Defined               | .1                         | An ASM data block was corrupted at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

### Data Source

The source of this metric is the Incident metric.

### User Action

You can execute check and remap commands which have been implemented in Enterprise Manager.

#### 1. Check

This checks the consistency of disk group metadata and logs the result in alert log and may repair depending upon repair/norepair option provided. In case of corruptions, the result would look like: cache read a corrupted block group=NORM3 fn=1 blk=0 from disk 0 and so on.

#### 2. Remap

This repairs a range of physical blocks that maps to a valid ASM file.

In addition, you can use Support Workbench in Enterprise Manager to examine the details of the incidents.

## Cluster Error

This metric signifies that the ASM has generated an incident due to a member evicted from the group by a member of the cluster database. This type of incident is typically related to Oracle Exception message ORA-29740.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11g, 12cR1     | Every 5 Minutes                     | Not Defined               | .1                         | A cluster error detected in %alertLogName% at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

### Data Source

The data comes from the alert log files. It is collected using the Perl script \$ORACLE\_HOME/sysman/admin/scripts/alertlogAdr.pl where \$ORACLE\_HOME refers to the home of the Oracle Management Agent.

### User Action

Use Support Workbench in Enterprise Manager to examine the details of the incident.

## Deadlock

This metric signifies that the ASM has generated an incident due to a deadlock detected while trying to lock a library object. This type of incident is typically related to Oracle Exception message ORA-4020.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 11g, 12cR1     | Every 5 Minutes                     | Not Defined               | .1                         | A deadlock error detected in %alertLogName% at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

**Data Source**

The data comes from the alert log files. It is collected using the Perl script \$ORACLE\_HOME/sysman/admin/scripts/alertlogAdr.pl where \$ORACLE\_HOME refers to the home of the Oracle Management Agent.

**User Action**

Use Support Workbench in Enterprise Manager to examine the details of the incident.

## ECID

The Execution Context ID (ECID) tracks requests as they move through the application server. This information is useful for diagnostic purposes because it can be used to correlate related problems encountered by a single user attempting to accomplish a single task.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12c       | Every 5 Minutes      |

**Data Source**

The ECID is extracted from the database alert log.

**User Action**

Diagnostic incidents usually indicate software errors and should be reported to Oracle through the Enterprise Manager Support Workbench. When you package problems using Support Workbench, the Support Workbench uses ECID to correlate and include any additional problems in the package.

## File Access Error

This metric signifies that the ASM has generated an incident due to failure to read a file at the time.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11g, 12cR1     | Every 5 Minutes                     | Not Defined               | . <sup>1</sup>             | A file access error detected in %alertLogName% at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

**Multiple Thresholds**

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

**Data Source**

The data comes from the alert log files. It is collected using the Perl script \$ORACLE\_HOME/sysman/admin/scripts/alertlogAdr.pl where \$ORACLE\_HOME refers to the home of the Oracle Management Agent.

**User Action**

Use Support Workbench in Enterprise Manager to examine the details of the incident.

## Generic Incident

This metric signifies that the ASM has generated an incident due to some error.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11g, 12cR1     | Every 5 Minutes                     | Not Defined               | .1 <sup>1</sup>            | Incident (%errCodes%) detected in %alertLogName% at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

**Multiple Thresholds**

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

**Data Source**

The data comes from the alert log files. It is collected using the perl script \$ORACLE\_HOME/sysman/admin/scripts/alertlogAdr.pl where \$ORACLE\_HOME refers to the home of the Oracle Management Agent.

**User Action**

Use Support Workbench in Enterprise Manager to examine the details of the incident.

## Generic Internal Error

This metric signifies that the ASM has generated an incident due to an internal ASM error. This type of incident is typically related to Oracle Exception message ORA-600 or ORA-0060\*.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11g, 12cR1     | Every 5 Minutes                     | Not Defined               | .1 <sup>1</sup>            | Internal error (%errCodes%) detected in %alertLogName% at time/line number: %timeLine%. |

- <sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

### Data Source

The data comes from the alert log files. It is collected using the perl script `$ORACLE_HOME/sysman/admin/scripts/alertlogAdr.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

### User Action

Use Support Workbench in Enterprise Manager to examine the details of the incident.

## Impact

This metric reports the impact of an incident. For a Generic Internal Error incident, the impact describes how the incident may affect the ASM.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12cR1     | Every 5 Minutes      |

### Data Source

The data comes from the alert log files. It is collected using the Perl script `$ORACLE_HOME/sysman/admin/scripts/alertlogAdr.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

### User Action

No user action is required.

## Incident ID

This metric is a number identifying an incident. The Support Workbench in Enterprise Manager uses this ID to specify an incident.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12cR1     | Every 5 Minutes      |

### Data Source

The data comes from the alert log files. It is collected using the Perl script `$ORACLE_HOME/sysman/admin/scripts/alertlogAdr.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

### User Action

No user action is required.

## Internal SQL Error

This metric signifies that the ASM has generated an incident due to an internal SQL error. This type of incident is typically related to Oracle Exception message ORA-604.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11g, 12cR1     | Every 5 Minutes                     | Not Defined               | .1                         | An internal SQL error detected in %alertLogName% at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

### Data Source

The data comes from the alert log files. It is collected using the Perl script \$ORACLE\_HOME/sysman/admin/scripts/alertlogAdr.pl where \$ORACLE\_HOME refers to the home of the Oracle Management Agent.

### User Action

Use Support Workbench in Enterprise Manager to examine the details of the incident.

## Out of Memory

This metric signifies that the ASM has generated an incident due to failure to allocate memory. This type of incident is typically related to Oracle Exception message ORA-4030 or ORA-4031.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11g, 12cR1     | Every 5 Minutes                     | Not Defined               | .1                         | Out of memory detected in %alertLogName% at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.



If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

#### Data Source

The data comes from the alert log files. It is collected using the Perl script `$ORACLE_HOME/sysman/admin/scripts/alertlogAdr.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

#### User Action

Use Support Workbench in Enterprise Manager to examine the details of the incident.

## Redo Log Corruption

This metric signifies that the ASM has generated an incident due to an error with the redo log. This type of incident is typically related to Oracle Exception message ORA-353, ORA-355, or ORA-356.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11g            | Every 5 Minutes                     | Not Defined               | .1 <sup>1</sup>            | A data block was corrupted at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

#### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

#### Data Source

The data comes from the alert log files. It is collected using the Perl script `$ORACLE_HOME/sysman/admin/scripts/alertlogAdr.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

#### User Action

Use Support Workbench in Enterprise Manager to examine the details of the incident.

## Session Terminated

This metric contains the information about different ORA- errors, which indicate the presence of Session Terminated problems in the alert log files. The ORA- 00603 error in the alert log indicates Session Terminated problems. This also generates a warning alert when these problems are found in alert logs.

You can edit the metric threshold and change the value of the error you want to collect under a different head. Also, the warning and critical alert values can be modified or set.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11g            | Every 5 Minutes                     | Not Defined               | .1                         | A session termination detected in %alertLogName% at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

### Data Source

The data comes from the alert log files. It is collected using the Perl script \$ORACLE\_HOME/sysman/admin/scripts/alertlogAdr.pl where \$ORACLE\_HOME refers to the home of the Oracle Management Agent. The alert log file is scanned for the ORA- 00603 error.

### User Action

Use Support Workbench in Enterprise Manager to examine the details of the incident.

## Instance Disk Performance

The metrics in this category collect ASM instance disk performance data.

### Bytes Read

This metric shows the number of bytes read.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

### Bytes Written

This metric shows the number of bytes written.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## I/O Response Time (MS)

This metric shows the I/O response time in milliseconds.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Last Read Errors

This metric shows the last read errors.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Read Errors

This metric shows the number of read errors.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Read Response Time (MS)

This metric shows the read response time in milliseconds.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Read Time (MS)

This metric shows the read time in milliseconds.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Total I/O Time (MS)

This metric shows the total I/O time in milliseconds.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Write Errors

This metric shows the write errors.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Write Response Time (MS)

This metric shows the write response time in milliseconds.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Write Time (MS)

This metric shows the write time in milliseconds.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Instance Diskgroup Database Performance

The metrics in this category collect ASM instance disk group database performance data.

## Bytes Read

This metric shows the number of bytes read.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Bytes Written

This metric shows the number of bytes written.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Read Time (MS)

This metric shows the read time in milliseconds.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Reads

This metric shows the number of reads.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Writes

This metric shows the number of writes.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Write Time (MS)

This metric shows the write time in milliseconds.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Instance Diskgroup Performance

The metrics in this category collect ASM instance disk group performance data.

## Bytes Read

This metric shows the number of bytes read.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Bytes Written

This metric shows the number of bytes written.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Read Time (MS)

This metric shows the read time in milliseconds.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Reads

This metric shows the number of reads.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Write Time (MS)

This metric shows the write time in milliseconds.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Writes

This metric shows the number of writes.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Offline Disk Count

The metrics in this category collect ASM offline disk count information.

### Offline Disk Count

This metric collects ASM offline disk count information.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 minutes     |

## Operational Error

The metrics in this category represent errors that may affect the operation of the ASM, for example, data block corruption, media failure, and so on as recorded in the ASM alert log file. These errors are not triggered by ADR incidents but are day to day issues which you can

handle without interaction with Oracle Support. The alert log file has a chronological log of messages and errors.

Each metric signifies that the ASM being monitored has detected a critical error condition that may affect the normal operation of the ASM and has generated an error message to the alert log file since the last sample time.

 **Note:**

For more information about Incident metrics and Operational Error metrics, sign in to My Oracle Support and search for the following Oracle Support Note:

*Database Alert log monitoring in 12c explained (Doc ID 1538482.1)*

<https://support.oracle.com/>

## Setting Thresholds for Operational Error Metrics

To edit the thresholds for any of the following metrics, from the Cloud Control UI, right-click the target name, select **Monitoring**, then **Metric and Collection Settings**. The following settings provide examples of some of the possible settings:

- Warning Threshold: **Not Defined**; Critical Threshold:  
In this case, the Management Agent generates a critical error alert in Enterprise Manager when the error occurs.
- Warning Threshold: Critical Threshold: **Not Defined**  
In this case, the Management Agent generates a warning alert in Enterprise Manager when the error occurs.
- Warning Threshold: **Not Defined**; Critical Threshold: **Not Defined**  
In this case, the Management Agent does *not* generate an alert in Enterprise Manager when the error occurs.

## Alert Log Error Trace File

This metric is the name of the trace file (if any) associated with the logged error.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12c       | Every 5 Minutes      |

### Data Source

The data comes from the alert log files. It is collected using the Perl script `$ORACLE_HOME/sysman/admin/scripts/alertlogAdr.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

### User Action

No user action is required.

## Alert Log Name

This metric is the name of the alert log file.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12c       | Every 5 Minutes      |

### Data Source

The data comes from the alert log files. It is collected using the Perl script `$ORACLE_HOME/sysman/admin/scripts/alertlogAdr.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

### User Action

No user action is required.

## Data Block Corruption

This metric signifies that the ASM being monitored has generated a corrupted block error (ORA-01157 or ORA-27048) to the alert file since the last sample time. The alert file is a special trace file containing a chronological log of messages and errors. An alert event is triggered when data block corrupted messages are written to the alert file.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11g, 12cR1     | Every 5 Minutes                     | Not Defined               | .1 <sup>1</sup>            | A data block was corrupted at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page. See Editing Thresholds for information on accessing the Edit Thresholds page.

### Data Source

The data comes from the alert log files. It is collected using the Perl script `$ORACLE_HOME/sysman/admin/scripts/alertlogAdr.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

### User Action

Use Support Workbench in Enterprise Manager to examine the details of the error.



## Generic Operational Error

This metric signifies that the ASM being monitored has generated some error that may affect the normal operation of the ASM to the alert file since the last sample time. The alert file is a special trace file containing a chronological log of messages and errors. An alert event is triggered when data block corrupted messages are written to the alert file.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 11g, 12cR1     | Every 5 Minutes                     | Not Defined               | .1 <sup>1</sup>            | Operational error (%errCodes%) detected in %alertLogName% at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page. See Editing Thresholds for information on accessing the Edit Thresholds page.

### Data Source

The data comes from the alert log files. It is collected using the Perl script \$ORACLE\_HOME/sysman/admin/scripts/alertlogAdr.pl where \$ORACLE\_HOME refers to the home of the Oracle Management Agent.

### User Action

Use Support Workbench in Enterprise Manager to examine the details of the error.

## Media Failure

This metric signifies that the ASM being monitored has generated a media failure error (ORA-01242 or ORA-01243) to the alert file since the last sample time. The alert file is a special trace file containing a chronological log of messages and errors. An alert event is triggered when data block corrupted messages are written to the alert file.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11g, 12cR1     | Every 5 Minutes                     | Not Defined               | .1 <sup>1</sup>            | Media failure detected in %alertLogName% at time/line number: %timeLine%. |

<sup>1</sup> After an alert is triggered for this metric, it must be manually cleared.

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page. See Editing Thresholds for information on accessing the Edit Thresholds page.

### Data Source

The data comes from the alert log files. It is collected using the Perl script `$ORACLE_HOME/sysman/admin/scripts/alertlogAdr.pl` where `$ORACLE_HOME` refers to the home of the Oracle Management Agent.

### User Action

Use Support Workbench in Enterprise Manager to examine the details of the error.

## Response

The metrics in this category show the status of the Automatic Storage Management (ASM) instance. It shows whether the instance is up or down. The check is performed every five minutes and returns the status of the connection as successful or it displays the ORA error for connection failure. This generates a critical alert if the ASM instance is down.

## Status

This metric shows the status of the Automatic Storage Management (ASM) instance. It displays whether the instance is up or down. This check is performed every five minutes and returns the status of the connection as successful or it displays the ORA error for connection failure. This generates a critical alert if the ASM instance is down.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                                  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| All Versions   | Every 5 Minutes                     | Not Defined               | 0                          | Failed to connect to ASM instance %oraerr%. |

### Data Source

You can establish a connection to the ASM instance with instance properties, and if the connection succeeds then the status is shown as Up, otherwise it displays as Down. It may also display as Down if there is an error in the metric collection.

### User Action

Perform one of the following:

- Check that the configuration property saved for the ASM instance is correct.
- If it displays as Down, the ASM instance is down. Try to reestablish the connection using the startup/shutdown feature using the Enterprise Manager application. Alternately, you can restart the application manually.

## Sparse Disk Group Usage

This metric category uploads the following metrics: physical usage, physical used percentage, and physical free of sparse disk groups.

This metric category is enabled when ASM stores on Oracle Exdata. It is not applicable for any other systems.

### Disk Group Physical Free (MB)

This metric provides the physical free size in MB of the sparse disk group.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 12cR2 and later | Every 30 Minutes                    | Not Defined               | Not Defined                | Physical free size for Sparse Disk Group %dg_name% has fallen to %value% (MB). |

#### Data Source

v\$asm\_diskgroup\_sparse, v\$asm\_diskgroup\_stat

#### User Action

Add disks.

### Disk Group Physical Used (%)

This metric provides the physical used percentage of the sparse disk groups.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                                    |
|-----------------|-------------------------------------|---------------------------|----------------------------|---|
| 12cR2 and later | Every 30 Minutes                    | 75                        | 90                         | Sparse Disk Group %dg_name% is %value%% used. |

#### Data Source

v\$asm\_diskgroup\_sparse, v\$asm\_diskgroup\_stat

#### User Action

Add disks.

### Physical Size (MB)

This metric provides the size of physical usage in MB of the sparse disk groups.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 12cR2 and later | Every 30 Minutes     |

## Sparse Disks

This configuration metrics group collects information related to physical size of the grid disks. The default collection time is every 24 hours.

### Disks

This metric indicates the name of the disk.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 12c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

### Disk Group

This metric indicates the name of the disk group to which the disk belongs.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 12c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

### Physical Size (MB)

This metric indicates the physical size of the sparse disk group that has been used.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 12c and later  | Every 30 minutes                    | Not defined               | Not defined                | Not applicable |

## Quota Group Usage

This metrics collects information related to quota group usage. The default collection time is every 30 minutes.

### Quota Limit (MB)

This metric indicates the quota limit that the file group inside this quota group can add up to.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 30 minutes                    | Not defined               | Not defined                | Not applicable |

**Data Source**

v\$asm\_quotagroup.quota\_limit\_mb

## Quota Limit Used (MB)

This metric indicates the current space in MB that has been allocated to the client.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 30 minutes                    | Not defined               | Not defined                | Not applicable |

**Data Source**

v\$asm\_quotagroup.quota\_limit\_mb

## Quota Limit Used (%)

This metric indicates the percentage of quota limit that has been currently allocated.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 13c and later  | Every 30 minutes                    | 75%                       | 90%                        | Quota for quota group %qg_name% is %value%%% used. |

**Data Source**

v\$asm\_quotagroup.quota\_limit\_mb and v\$asm\_quotagroup.used\_quota\_mb

# 3

## Cluster ASM Metrics

This chapter provides information about the Cluster Automatic Storage Management (ASM) metrics.

### ASM Cardinality

This metric category collects the number of ASM instances that are part of Cluster ASM. The default collection time is every 24 hours.

### Open Instance Count

This metric shows the ASM open instance count.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All versions   | Every 24 hours       |

#### Data Source

The data source is the status column in the gv\$instance view.

#### User Action

No user action is required.

### ASM Cluster File System

The metrics in the ASM Cluster File System metric category show the space used by all of the ASM Cluster File Systems. These metrics are used to collection information about the ASM Cluster File System space usage and are used to show the trend of ASM Cluster File System space usage in the application. These metrics collect information for both mounted and dismounted ASM Cluster File Systems. This information is used to determine the following metrics for space usage: Allocated Space (GB), Size (GB), Free (GB), Used (GB), and Used (%). These metrics also collect information about whether the ASM Cluster File System is corrupt. For dismounted ASM Cluster File Systems, 0 is returned for the Free (GB), Used (GB), and Used (%) metrics.

These metrics only collect information about the ASM Cluster File System that is not specific to a node in a cluster. They collect space usage information which is the same across all nodes in the cluster. Information such as the state and availability of the ASM Cluster File System can be different across the nodes in a cluster and is collected by the ASM Cluster File System State metrics.

These metrics generate a warning alert if the ASM Cluster File System is 85% used and a critical alert if 97% used. These metrics also generate a critical alert if the ASM Cluster File System has sections that are corrupt.

These metrics are collected at a time interval of 30 minutes and the metrics will be collected at the cluster level if the target is Cluster ASM otherwise they will be collected at the instance level as a part of the ASM target type metrics. You can change the threshold limit as required.

## ASM Cluster File System Corrupt

This metric shows if the mounted ASM Cluster File System has sections that are corrupt. A value of TRUE for this metric indicates that there are sections that are corrupt and therefore the Check and Repair operation should be run on the ASM Cluster File System to fix it. For dismounted ASM Cluster File Systems, it returns a value of Null for this metric.

This metric generates a warning alert if the ASM Cluster File System is dismounted on a given host. The metric also generates a critical alert if the mounted ASM Cluster File System is not available on a host.

This metric is collected at a time interval of 30 minutes. You can change the threshold limit as required.

This metric is collected with the help of a SQL query which queries the V\$ASM\_FILESYSTEM, V\$ASM\_VOLUME, V\$ASM\_ACFSVOLUMES views.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 11gR2, 12c     | Every 30 Minutes                    | Not Defined               | TRUE                       | The ASM Cluster File System using volume device %ofs_volume_device% has sections that are corrupt. Run check and repair operation on the file system to fix the issue. |

### Multiple Thresholds

For this metric column you can set different warning and critical threshold values for each unique combination of volume device and disk group objects.

If warning or critical threshold values are currently set for any unique combination of volume device and disk group objects, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each unique combination of volume device and disk group objects, use the Edit Thresholds page.

### Data Source

This metric is collected from the column CORRUPT in the V\$ASM\_FILESYSTEM view for mounted ASM Cluster File Systems. For Dismounted File Systems, a value of Null is returned for this metric.

### User Action

Run Check and Repair on the ASM Cluster File System to fix the corrupted sections.

## ASM Cluster File System Used (%)

This metric shows the percent of the ASM cluster file system that is used.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 11gR2, 12cR1   | Every 30 Minutes                    | Not Defined               | TRUE                       | The ASM Cluster File System using volume device %ofs_volume_device% is %ofs_used_pct%% full. Resize the file system to add more space. |

### Multiple Thresholds

For this metric column you can set different warning and critical threshold values for each unique combination of volume device and disk group objects.

If warning or critical threshold values are currently set for any unique combination of volume device and disk group objects, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each unique combination of volume device and disk group objects, use the Edit Thresholds page.

## Allocated Space (GB)

This metric shows the space allocated from the disk group for this ASM Cluster File System in GB.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 30 Minutes     |

### Data Source

This metric is collected from the column SPACE in the V\$ASM\_FILE view.

User Action

No user action is required.

## Free (GB)

This metric shows the unused capacity of the ASM Cluster File System in gigabytes. It gives an indication of the free space available in the ASM Cluster File System. For dismounted ASM Cluster File Systems, a value of 0 is returned for this metric.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 30 Minutes     |

### Data Source

This metric is collected from the column TOTAL\_FREE in the V\$ASM\_FILESYSTEM view. For dismounted ASM Cluster File Systems, a value of 0 is returned.

User Action

Consider resizing the ASM Cluster File System if there is not enough Free Space available.



## Size (GB)

This metric shows the size in GB of the ASM Cluster File System.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 30 Minutes     |

### Data Source

This metric is collected from the column `TOTAL_SIZE` in the `V$ASM_FILESYSTEM` view for mounted file systems and from the column `SIZE_MB` in the view `V$ASM_VOLUME` for dismounted file systems.

### User Action

Consider resizing the ASM Cluster File System to add space.

## Snapshot Space Used (MB)

This metric shows the percentage of snapshot space that is used on the ASM Cluster File System. For dismounted ASM Cluster File Systems, a value of 0 is returned for this metric.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 30 Minutes     |

## Used (GB)

This metric shows the space in GB that is used on the mounted ASM Cluster File System. For dismounted ASM Cluster File Systems, a value of 0 is returned for this metric.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 30 Minutes     |

### Data Source

This metric is calculated from the columns `TOTAL_SIZE` and `TOTAL_FREE` in the `V$ASM_FILESYSTEM` view. This metric is calculated using the following formula:

```
TOTAL_SIZE - TOTAL_FREE
```

For dismounted ASM Cluster File Systems, a value of 0 is returned for this metric.

### User Action

Consider resizing the ASM Cluster File System to add more space.

## Volume Name

This metric shows the volume name of the volume device used to create the ASM Cluster File System.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 30 Minutes     |

### Data Source

This metric is collected from the column VOLUME\_NAME in the V\$ASM\_VOLUME view.

### User Action

No user action is required.

## ASM Cluster File System State

The metrics in the ASM Cluster File System State metric category show the state of the ASM Cluster File System, whether it is mounted or dismounted on a given host. In a cluster environment, the ASM Cluster File System could be mounted only on specific hosts. If the ASM Cluster File System is mounted on a given host, the metrics also reports whether the system is available and the time since it was available. This is used to determine the following metrics: Mount Point, Mount State, Availability, and Available Time.

These metrics generate a warning alert if the ASM Cluster File System is dismounted on a given host. These metrics also generate a critical alert if the mounted ASM Cluster File System is not available on a host.

These metrics are collected with the help of a SQL query which queries the V\$ASM\_FILESYSTEM, V\$ASM\_VOLUME, V\$ASM\_ACFSVOLUMES views. If the target is Cluster ASM the metrics will be collected at cluster level, otherwise they will be collected at instance level as a part of ASM target type metrics.

## ASM Cluster File System Availability

This metric shows if the mounted ASM Cluster File System is available on a given host in a cluster. For dismounted ASM Cluster File System's this metric returns a value of NULL.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 11gR2, 12c     | Every 15 Minutes                    | Not Defined               | Not Available              | The ASM Cluster File System %ofs_mount_point% is not available on host %ofs_host% |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each unique combination of volume device and host objects.

If warning or critical threshold values are currently set for any unique combination of volume device and host objects, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each unique combination of volume device and host objects, use the Edit Thresholds page.

**Data Source**

This metric is collected from the column STATE in the V\$ASM\_FILESYSTEM view.

**User Action**

No user action is required.

## ASM Cluster File System Available Time

This metric shows the time since the mounted ASM Cluster File System has been available on a given host in a cluster. For dismounted ASM Cluster File Systems this metric returns a value of NULL.

| Target Version | Collection Frequency | Alert Text   |
|----------------|----------------------|--|
| 11gR2, 12c     | Every 15 Minutes     | The volume device %volume_device% is dismounted on host %ofs_host% |

**Data Source**

This metric is collected from the column AVAILABLE\_TIME in the V\$ASM\_FILESYSTEM view.

**User Action**

No user action is required.

## Mount Point

This metric shows the mount point of the ASM Cluster File System on a given host in a cluster. The same ASM Cluster File System could be mounted on different mount points, on different hosts in a cluster. For dismounted ASM Cluster File Systems it will return NULL if the OFS has never been mounted on the host or it will return the last mount point if it was mounted and then dismounted on the host.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

**Data Source**

For mounted file systems this metric is collected from the column FS\_NAME in the V\$ASM\_FILESYSTEM view. For dismounted file systems this metric is collected from the column MOUNTPATH in the V\$ASM\_VOLUME view.

**User Action**

No user action is required.

## ASM Cluster File System Mount State

This metric shows the state of the ASM Cluster File Systems, whether it is mounted or dismounted on a given host. In a cluster environment the ASM Cluster File System could be mounted only on specific hosts.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 11gR2, 12c     | Every 15 Minutes                    | Dismounted                | Not Defined                | The volume device %volume_device% is dismounted on host %ofs_host% |

### Multiple Thresholds

If warning or critical threshold values are currently set for any unique combination of volume device and host objects, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each unique combination of volume device and host objects, use the Edit Thresholds page.

### Data Source

An ASM Cluster File System is mounted if the usage of the volume\_device is ACFS and the volume\_device exists in the V\$ASM\_ACFSVOLUMES view and the mount path exists in the V\$ASM\_FILESYSTEM view.

An ASM Cluster File System is dismounted if the usage of the volume\_device is ACFS and the volume\_device does not exist in the V\$ASM\_ACFSVOLUMES view and the mount path does not exist in the V\$ASM\_FILESYSTEM view.

### User Action

Mount the ASM Cluster File System on the given host in the cluster.

## Disks

The metrics in this configuration metric category collect ASM disk configuration data such as the disk group name. The default collection time is 24 hours and the metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

## Cell IP

This metric shows the IP address of the Exadata cell.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

### Data Source

This metric is collected from V\$ASM\_DISK\_STAT view.

**User Action**

No user action is required.

## Disk

This metric shows the disk name of the ASM disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the NAME column in the V\$ASM\_DISK\_STAT view.

User Action

No user action is required.

## Disk Creation Date

This metric shows the creation date of the ASM disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the CREATE\_DATE column in the V\$ASM\_DISK\_STAT view.

User Action

No user action is required.

## Disk Group

This metric shows the disk group name of the ASM disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

This metric is collected from V\$ASM\_DISKGROUP\_STAT view.

User Action

No user action is required.

## Disk Path

This metric shows the disk path of the ASM disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the PATH column in the V\$ASM\_DISK\_STAT view.

User Action

No user action is required.

## Fail Group Type

This metric shows the failure group type, REGULAR or QUORUM.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the FAILUREGROUP column in the V\$ASM\_DISK\_STAT view.

User Action

No user action is required.

## Failure Group Name

This metric shows the failure group name of the ASM disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the SPACE column in the V\$ASM\_DISK\_STAT view.

User Action

No user action is required.

## Redundancy

This metric shows the hardware redundancy of the disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the REDUNANCY column in the V\$ASM\_DISK\_STAT view.

**User Action**

No user action is required.

## Size (MB)

This metric shows the disk size in MB of the ASM disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 24 hours       |

**Data Source**

The source for this metric is the TOTAL\_MB column in the V\$ASM\_DISK\_STAT view.

User Action

No user action is required.

## ASM File Group

The metrics in this configuration metrics category collect information related file groups in a flex disk group. The default collection time is every 24 hours.

### File Group

This metric indicates the name of the file group.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

**Data Source**

The source of this metric is the v\$asm\_filegroup.name view.

### Disk Group

This metric indicates the name of the disk group to which the file group belongs.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

**Data Source**

The source of this metric is the v\$asm\_diskgroup.name view.

## Quota Group

This metric indicates the name of the quota group to which the file group belongs.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

### Data Source

The source of this metric is the `v$asm_quotagroup.name` view.

## Client Type

This metric indicates the type of the client. For example, Database, Cluster or Volumes.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

### Data Source

The source of this metric is the `v$asm_filegroup.client_type` view.

## Client Name

This metric indicates the name of the client whose files are grouped together to form this file group.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

### Data Source

The source of this metric is the `v$asm_filegroup.client_name` view.

## ASM Volumes

The metrics in the ASM Volumes metric category show information about the volumes created on a disk group. An ASM volume file is a file created on the disk group to provide storage for an ASM Cluster File System or a third-party file system. This is used to determine the following metrics for ASM volumes: Volume Name, Status, Usage, Mount Point, Size (GB), Allocated Space (GB), and Redundancy.



These metrics are collected with the help of the V\$ASM\_VOLUME and GV\$ASM\_DISKGROUP views. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

## Allocated Space (GB)

This metric shows the space in MB allocated to the ASM Cluster File System on a given host in a cluster.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 24 hours       |

### Data Source

The source of this metric is the MOUNTPATH column in the V\$ASM\_VOLUME view.

### User Action

No user action is required.

## Mount Point

This metric shows the mount point of the ASM Cluster File System on a given host in a cluster.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 24 hours       |

### Data Source

The source of this metric is the MOUNTPATH column in the V\$ASM\_VOLUME view.

### User Action

No user action is required.

## Redundancy

This metric returns the redundancy for the ASM volume file. The ASM volume file can use whatever redundancy (external, normal=2-way mirror, high=3-way mirror) is available to the ASM disk group where the ASM volume file is created.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 24 hours       |

### Data Source

The source of this metric is the REDUNDANCY column in the V\$ASM\_VOLUME view.

### User Action

No user action is required.

## Size (GB)

This metric returns the size of the ASM volume in GB. The volume size is always created in multiples of the volume allocation unit.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 24 hours       |

### Data Source

The source of this metric is the column SIZE\_MB from the V\$ASM\_VOLUME view.

### User Action

No user action is required.

## Usage

This metric returns a string indicating what the ASM volume is used for: ACFS, EXT3, null. A value of null means that the usage of the volume is Unknown.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 24 hours       |

### Data Source

This metric returns a string indicating what the ASM volume is used for: ACFS, EXT3, null. A value of null means the usage of the volume is Unknown.

### User Action

No user action is required.

## Volume Name

This metric returns the name of the ASM volume. This is the name entered when the user creates the ASM volume on the disk group.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 24 hours       |

### Data Source

The source of this metric is the VOLUME\_NAME column in the V\$ASM\_VOLUME view.

### User Action

No user action is required.

## Database Disk Group Usage

### Data Source

v\$ASM\_DISKGROUP\_STAT, v\$ASM\_ALIAS, v\$ASM\_FILE

## Total Bytes

This metric shows the total bytes of the disk group space used by a database. With the help of this metric you can determine the space used in a disk group by different database instance.

| Target Version | Collection Frequency | Alert Text   |
|----------------|----------------------|--|
| 10g, 11g, 12c  | Every 30 Minutes     | Usable total size for Disk Group %dg_name% has fallen to %value% (MB). |

### Data Source

This metric is calculated by taking the space used by a file using the V\$ASM\_FILE view and joining it with the V\$ASM\_ALIAS and V\$ASM\_DISKGROUP views for 10g Release 1 and the V\$ASM\_ALIAS, V\$ASM\_DISKGROUP\_STAT views for 10g Release 2 to get the disk group space used by a database instance.

### User Action

No user action is required.

## Database Sparse Disk Group Usage

This metric category uploads the physical usage of sparse disk groups by snap cloned databases.

This metric category is enabled when ASM stores on Oracle Exdata. It is not applicable for any other systems.

## Database Name

This metric provides the name of the database.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 12cR2          | Every 24 Hours       |

### Data Source

v\$asm\_diskgroup, v\$asm\_alias

## Disk Group Name

This metric provides the sparse disk group name.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 12cR2          | Every 24 Hours       |

### Data Source

v\$asm\_diskgroup, v\$asm\_alias

## Total Physical Bytes

This metric provides the total number of physical bytes allocated to the database.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 12cR2          | Every 24 Hours       |

### Data Source

v\$asm\_diskgroup, v\$asm\_alias

## Disk Groups

The metrics in this configuration metric category collect ASM disk group configuration data such as member disk count, and redundancy. The default collection time is 24 hours and the metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

## Allocation Unit (MB)

This metric shows the allocation unit size in MB of the ASM disk group.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All versions   | Every 24 hours       |

### Data Source

The source for this metric is the ALLOCATION\_UNIT\_SIZE column in the V\$ASM\_DISK\_STAT view.

### User Action

No user action is required.

## Contains Voting Files

This metric shows whether there are voting files present.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All versions   | Every 24 Hours       |

### Data Source

The source for this metric is the VOTING\_FILES column in the V\$ASM\_DISKGROUP\_STAT view.

### User Action

No user action is required.

## Disk Count

This metric shows the number of disks in the ASM disk group.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All versions   | Every 24 Hours       |

### Data Source

The source for this metric is the COUNT\_OF\_DISK column in the V\$ASM\_DISK\_STAT view.

### User Action

No user action is required.

## Disk Group

This metric shows the disk group name of the ASM disk group.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All versions   | Every 24 Hours       |

### Data Source

The source for this metric is the NAME column in the V\$ASM\_DISKGROUP\_STAT view.

### User Action

No user action is required.

## Redundancy

This metric shows the level of redundancy of the ASM disk group.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All versions   | Every 24 Hours       |

### Data Source

The source for this metric is the TYPE column in the V\$ASM\_DISKGROUP\_STAT view.

### User Action

No user action is required.

## Size (GB)

This metric shows the ASM disk group size in GB.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All versions   | Every 24 Hours       |

**Data Source**

The source for this metric is the TOTAL\_MB column in the V\$ASM\_DISKGROUP\_STAT view.

**User Action**

No user action is required.

## Disk Group Attributes

The metrics in this configuration metric category collect ASM disk group Attribute data such as file access control, cell scan capability etc. The default collect time is 24 hours and the metrics will be collected at cluster level if the target is Cluster ASM, else they will be collected at instance level as a part of the ASM target type metrics.

### Disk Group

This metric shows the ASM disk group name.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12cR1     | Every 24 Hours       |

**Data Source**

The source for this metric is the NAME column in the V\$ASM\_DISKGROUP\_STAT view.

**User Action**

No user action is required.

### Attribute Name

This metric shows the ASM disk group attribute name.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12cR1     | Every 24 Hours       |

**Data Source**

The source for this metric is the NAME column in the V\$ASM\_ATTRIBUTE view.

**User Action**

No user action is required.

### Value

This metric shows the ASM disk group value.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12cR1     | Every 24 Hours       |

**Data Source**

The source for this metric is the VALUE column in the V\$ASM\_ATTRIBUTE view.

**User Action**

No user action is required.

## Disk Group Imbalance Status

The metrics in the Disk Group Imbalance Status metric category check if any disk groups are out of balance. Under normal operations, ASM automatically rebalances disk groups. These metrics detect conditions where manual rebalances may be required or the power level of a rebalance in progress may need to be raised to give it the necessary resources to complete faster. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

### Actual Imbalance (%)

Actual Imbalance (%) measures the difference in space allocated to the fullest and emptiest disks in the disk group. The comparison is in percent full because ASM tries to keep all disks equally full as a percent of their size. The imbalance is relative to the space allocated not the space available. An imbalance of a couple percent is reasonable.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 minutes     |

**Data Source**

This metric is calculated using the following formula:

```
100 * (max((total_mb - free_mb) / total_mb) - min((total_mb - free_mb) / total_mb)) / max((total_mb - free_mb) / total_mb)
where total_mb and free_mb are columns in V$ASM_DISK_STAT
```

**User Action**

An imbalance of more than a couple percent may signal the need to initiate a manual rebalance of the disk group.

### Actual Minimum Percent Free

The Actual Minimum Percent Free metric lists the amount of free disk space on the fullest disk as a percentage of the disk size. If the imbalance is zero, then this represents the total free space. Because all allocations are performed evenly across all disks, the minimum free space limits how much space can be used.

If one disk has only one percent free, then only one percent of the space in the disk group is really available for allocation, even if the rest of the disks are only half full.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 minutes     |

#### Data Source

The metric is calculated as  $100 * (\min(\text{FREE\_MB} / \text{TOTAL\_MB}))$ , where FREE\_MB and TOTAL\_MB are columns in the \$ASM\_DISK\_STAT view.

#### User Action

If the actual minimum percent free is a low number, a configuration change may be required to provide an even distribution of file extents and space usage across all disks in a disk group.

## Disk Count

The Disk Count metric reports the number of disks in the disk group which gives a sense of how widely files can be spread.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 minutes     |

#### Data Source

Disk count is calculated using count(\*) on all disks (V\$ASM\_DISK\_STAT) in a disk group (V\$ASM\_DISKGROUP\_STAT).

#### User Action

No user action is required.

## Disk Group Percent Imbalance

The Disk Group Percent Imbalance (metric is used to determine if a disk group requires rebalance. Temporary imbalances (caused by a rebalance in progress) are ignored.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11g, 12c | Every 15 Minutes                    | 10                        | Not Defined                | Disk Group %diskGroup% requires rebalance because the space usage imbalance between disks is high. |

#### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each disk group object.

If warning or critical threshold values are currently set for any disk group object, those thresholds can be viewed on the Metric Detail page for this metric.



To specify or change warning or critical threshold values for each disk group object, use the Edit Thresholds page.

#### Data Source

If a rebalance operation is not in progress, the value of the Disk Group Imbalance (%) without Rebalance metric is the same value as the value of the Actual Imbalance (%) metric, otherwise the value is 0.

#### User Action

A warning alert is generated if the value of the Disk Group Imbalance (%) without Rebalance metric is greater than or equal to 10%. In this case, a rebalance is necessary because the space usage imbalance between disks is high. You should manually initiate a rebalance operation.

## Disk Maximum Used (%) with Rebalance

The Disk Maximum Used (%) with Rebalance metric is used to determine if a rebalance in progress needs a power boost to complete in a timely manner and prevent other errors from occurring due to space constraints.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|-----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10gR2, 11g, 12c | Every 15 Minutes                    | Not Defined               | 95                         | Increase the rebalance power for Disk Group %diskGroup% because at least one disk is critically low on space. |

#### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each disk group object.

If warning or critical threshold values are currently set for any disk group object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each disk group object, use the Edit Thresholds page.

#### Data Source

If a rebalance is in progress and the power value is greater than 0, then the value of the Disk Maximum Used (%) with Rebalance metric is calculated as (100 - Actual Minimum Percent Free), otherwise the value is 0.

#### User Action

A critical alert is generated if the value of the Disk Maximum Used (%) with Rebalance metric is greater than or equal to 95%. In this case the rebalance power for the disk group must be increased because at least one disk is critically low on space. Increase the rebalance power (maximum power level is 11).

## Disk Minimum Free (%) without Rebalance

The Disk Minimum Free (%) without Rebalance metric is used to determine if a disk group requires rebalance. Temporary imbalances (caused by a rebalance in progress) are ignored.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11g, 12c | Every 15 Minutes                    | 20                        | 10                         | Disk Group %diskGroup% requires rebalance because at least one disk is low on space. |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each disk group object.

If warning or critical threshold values are currently set for any disk group object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each disk group object, use the Edit Thresholds page.

### Data Source

If a rebalance operation is not in progress, the value of the Disk Minimum Free (%) without Rebalance metric is the same as the value of the Actual Minimum Percent Free metric, otherwise the value is 100.

### User Action

A warning alert will be generated if Disk Minimum Free (%) without Rebalance is less than or equal to 20%. In this case a rebalance is necessary because at least one disk is low on space. You should manually initiate a rebalance operation.

## Disk Size Variance (%)

The Disk Size Variance (%) metric lists the percentage difference in size between the largest and smallest disks in the disk group. This is zero if best practices have been followed and all disks are the same size.

Small differences in size are acceptable. Large differences can result in some disks getting much more I/O than others. With normal or high redundancy disk groups, a large size variance can make it impossible to reduce the percent imbalance to a small value.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 Minutes     |

### Data Source

Disk Size Variance (%) is calculated as  $100 * (\max(\text{total\_mb}) - \min(\text{total\_mb})) / \max(\text{total\_mb})$ , where total\_mb is a column in V\$ASM\_DISK\_STAT

### User Action

A large size variance may require a configuration change to provide an even distribution of file extents and space usage across all disks in a disk group.

## Rebalance In Progress

The Rebalance In Progress metric returns Yes if a rebalance operation is in progress, No otherwise.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 Minutes     |

### Data Source

The value of the Rebalance In Progress metric is retrieved from the operation column of the V\$ASM\_OPERATION.view

### User Action

No user action is required.

## Resync In Progress

The Resync In Progress metric returns Yes if a resync operation is in progress, No otherwise.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 Minutes     |

## Disk Group Target Component

This configuration metric category collects ASM disk group target component information.

### Disk Group Name

This metric shows the disk group target component name.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 30 minutes     |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Disk Group Name object.

If warning or critical threshold values are currently set for any Disk Group Name object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Disk Group Name object, use the Edit Thresholds page.

### Data Source

This metric is collected from the column `FREE_MB` in the view `V$ASM_DISKGROUP` for 10g Release 1 and the `V$ASM_DISKGROUP_STAT` view for 10g Release 2.

#### User Action

Consider adding more disks to the disk group or deleting existing files in the disk group.

## Disk Count

The Disk Count metric reports the number of disks in the disk group which gives a indication of how widely files can be spread.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 30 minutes     |

#### Data Source

Disk count is calculated using `count(*)` on all disks (`V$ASM_DISK_STAT`) in a disk group (`V$ASM_DISKGROUP_STAT`).

#### User Action

No user action is required.

## Disk Group Usage

The metrics in the Disk Group Usage metric category show the space used by all of the disk groups in the mounted state. These metrics are used to collect information about the disk usage and are used to show the trend of disk group space usage in the application. This information is used to determine the following metrics: Free MB, Total MB, Total Safely Usable MB, Type, Safely Usable File MB, Used %, and Disk Group Used % of Safely Usable of a disk group for 10g Release 2 and Free MB, Total MB, Type, and Used % for 10g Release 1.

These metrics generate a warning alert if the disk group is 75% used and a critical warning if 90% used. The thresholds for the Disk Group Usage alert should *not* be fixed at 75% and 90%, because the value depends on the redundancy. In version 10g Release 2, these metrics use the `USABLE_FILE_MB` column of the `V$ASM_DISKGROUP_STAT` view to indicate usable mirrored free space. This column displays the amount of free space that can be safely utilized taking mirroring into account, and yet is able to restore redundancy after disk failure.

Enterprise Manager issues alerts for the following:

- Critical alert when `USABLE_FILE_MB <= 0`
- Warning alert when `USABLE_FILE_MB < 0.1 * REQUIRED_MIRROR_FREE_MB`

This metric is collected every 15 minutes. You can change the threshold limit as required.

This metric is collected with the help of a SQL query which queries the `V$ASM_DISKGROUP` view for 10g Release 1 and the `V$ASM_DISKGROUP_STAT` view for 10g Release 2. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

## Disk Group Free (MB)

This metric shows the unused capacity of the disk group in megabytes. It gives an indication of the free space available in a disk group.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10g, 11g, 12c  | Every 30 Minutes                    | Not Defined               | Not Defined                | Total free size for Disk Group %dg_name% has fallen to %value% (MB). |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Disk Group Name object.

If warning or critical threshold values are currently set for any Disk Group Name object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Disk Group Name object, use the Edit Thresholds page.

### Data Source

This metric is collected from the FREE\_MB column in the V\$ASM\_DISKGROUP view for 10g Release 1 and the V\$ASM\_DISKGROUP\_STAT view for 10g Release 2.

### User Action

Consider adding more disks to the disk group or deleting existing files in the disk group.

## Disk Group Usable (Free MB)

The usable free space of a disk group depends on the redundancy, so in 10g Release 2 it uses the USABLE\_FILE\_MB column of the V\$ASM\_DISKGROUP\_STAT view to indicate usable mirrored free space. This column indicates the amount of free space that can be safely utilized taking mirroring into account, and yet is able to restore redundancy after disk failure. This column is used to determine the usable free megabytes of a disk group.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|-----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10gR2, 11g, 12c | Every 30 Minutes                    | Not Defined               | Not Defined                | Usable free size for Disk Group %dg_name% has fallen to %value% (MB). |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Disk Group Name object.

If warning or critical threshold values are currently set for any Disk Group Name object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Disk Group Name object, use the Edit Thresholds page.

#### Data Source

This metric is collected from the column `USABLE_FILE_MB` in the `V$ASM_DISKGROUP_STAT` view for 10g Release 2.

#### User Action

Consider adding more disks to the disk group or removing existing files from the disk group.

## Disk Group Usable (MB)

This metric shows the capacity of the disk group based on the type of the disk group. This column indicates the amount of free space that can be safely utilized taking mirroring into account, and yet is able to restore redundancy after disk failure.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|-----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10gR2, 11g, 12c | Every 30 Minutes                    | Not Defined               | Not Defined                | Usable free size for Disk Group %dg_name% has fallen to %value% (MB). |

#### Data Source

This metric value is calculated as follows, using the `V$ASM_DISKGROUP_STAT` view:

$$\text{Total Safely Usable MB} = (\text{total\_mb} - \text{required\_mirror\_free\_mb}) / \text{redundancy\_factor}$$

In the preceding formula, `total_mb` and `required_mirror_free_mb` come from the view column, and `redundancy_factor` is 1 for External Redundancy Disk Group, 2 for Normal Redundancy Disk Group, and 3 for High Redundancy Disk Group.

#### User Action

Consider adding more disks to the disk group or removing existing files from the disk group.

## Disk Group Used %

This metric shows the percentage of space used by a disk group. It generates a warning alert if the disk group is 75% used and a critical warning if it is 90% used. The threshold limit can be changed to generate alerts at different values.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                               |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10g, 11g, 12c  | Every 30 Minutes                    | 75                        | 90                         | Disk Group %dg_name% is %value%% % used. |

#### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Disk Group Name object.

If warning or critical threshold values are currently set for any Disk Group Name object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Disk Group Name object, use the Edit Thresholds page.

#### Data Source

This metric value is calculated as follows, using the V\$ASM\_DISKGROUP view for 10g Release 1 and the V\$ASM\_DISKGROUP\_STAT view for 10g Release 2.

$$\text{Used \%} = (\text{total\_mb} - \text{free\_mb}) / \text{total\_mb} * 100$$

#### User Action

New disks can be added in a disk group to avoid the alerts. Go to the Disk Group general page and click **Add** to add a new disk to a disk group. You can also remove existing files from the disk group.

## Redundancy

This metric shows the redundancy type of the disk group. It can be one of the three values: External, Normal, and High. This property determines how redundancy is restored after disk failure.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 30 Minutes     |

#### Data Source

This metric is collected from the column TYPE in the V\$ASM\_DISKGROUP view for 10g Release 1 and the V\$ASM\_DISKGROUP\_STAT view for 10g Release 2.

#### User Action

No user action is required.

## Size (MB)

This metric shows the total capacity of the disk group in megabytes. It gives an indication of the size or the space used by the disk group.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 30 Minutes     |

#### Data Source

This metric is collected from the column TOTAL\_MB in the V\$ASM\_DISKGROUP view for 10g Release 1 and the V\$ASM\_DISKGROUP\_STAT view for 10g Release 2.

#### User Action

Consider adding more disks to the disk group.

## Disk Group Used % of Safely Usable

This metric shows the percentage of safely usable space used by a disk group. Usable free space of a disk group depends on the redundancy. In 10g Release 2, it uses the `USABLE_FILE_MB` column of the `V$ASM_DISKGROUP_STAT` view to indicate usable mirrored free space. This column displays the amount of free space that can be safely utilized taking mirroring into account and restores redundancy after disk failure. This column is used to determine the Disk Group Used % of Safely Usable for a disk group.

This metric generates a warning alert if the disk group is using 90% of the safely usable space and critical warning for 100%. The threshold limit can be changed to generate an alert at different values.

| Target Version    | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-------------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11g, 12cR1 | Every 30 Minutes                    | 75                        | 90                         | Disk group %dg_name% has used %value%% of safely usable free space (space that can be allocated while still having enough space to recover from failure group failures). |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Disk Group Name object.

If warning or critical threshold values are currently set for any Disk Group Name object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Disk Group Name object, use the Edit Thresholds page.

### Data Source

This metric is calculated from the `V$ASM_DISKGROUP_STAT` view for 10g Release 2 using the following formula:

$$\text{Used \% of Safely Usable} = 100 - (\text{usable\_file\_mb} / \text{usable\_total\_mb}) * 100$$

In this formula, `usable_total_mb` is derived as follows:

$$\text{total\_mb} - \text{required\_mirror\_free\_mb} / \text{redundancy\_factor}$$

`total_mb` and `required_mirror_free_mb` are derived from the view column and `redundancy_factor` is 1 for External Redundancy Disk Group, 2 for Normal Redundancy Disk Group, and 3 for High Redundancy Disk Group.

### User Action

New disks can be added in a disk group to avoid the alerts. Go to the Disk Group general page and click **Add** to add a new disk to a disk group. Also, you can remove existing files from the disk group.



## Disk Path

The metrics in the Disk Path metric category show the disk name and disk path of all the disks. This information is collected at a time interval of 24 hours.

These metrics are collected using data from the V\$ASM\_DISK view for 10g Release 1 and the V\$ASM\_DISK\_STAT view for 10g Release 2. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

### Disk Name

This metric reports the name of the disk path.

|                       |                 |
|-----------------------|-----------------|
| <b>Target Version</b> | 10gR2, 11g, 12c |
|-----------------------|-----------------|

#### Data Source

The source of this metric is the NAME column in the V\$ASM\_DISK\_STAT and V\$ASM\_DISK views.

#### User Action

No user action is required.

### Disk Path

This metric is the physical path of the disk.

|                       |                 |
|-----------------------|-----------------|
| <b>Target Version</b> | 10gR2, 11g, 12c |
|-----------------------|-----------------|

#### Data Source

For databases prior to 10g Release 2, this metric uses the PATH column in the GV\$ASM\_DISK view. For databases 10g Release 2 and higher, this metric uses the PATH column in the GV\$ASM\_DISK\_STAT view.

#### User Action

No user action is required.

### Group Name

This metric provides the name of the group.

|                       |                 |
|-----------------------|-----------------|
| <b>Target Version</b> | 10gR2, 11g, 12c |
|-----------------------|-----------------|

#### Data Source

For databases prior to 10g Release 2, this metric uses the PATH column in the GV\$ASM\_DISK view. For databases 10g Release 2 and higher, this metric uses the PATH column in the GV\$ASM\_DISK\_STAT view.

**User Action**

No user action is required.

## Disk Status

The metrics in the Disk Status metric category provide disk mode status (offline and online). A critical warning alert is generated if any of the disks are offline.

This metric is collected every 15 minutes. You can change the time limit and threshold limit as required. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

## Disk Mode Status

This metric displays disk mode status (offline and online). A critical warning alert is generated if any of the disks go offline.

You can change the threshold limit.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                             |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| All Versions   | Every 15 Minutes                    | Not Defined               | OFFLINE                    | Disk %dg_name%.%disk_name% is offline. |

**Multiple Thresholds**

For this metric you can set different warning and critical threshold values for each unique combination of Disk Group Name and Disk Name objects.

If warning or critical threshold values are currently set for any unique combination of Disk Group Name and Disk Name objects, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each unique combination of Disk Group Name and Disk Name objects, use the Edit Thresholds page.

**Data Source**

This metric is collected from the GV\$ASM\_DISK view for 10gRelease 1 and GV\$ASM\_DISK\_STAT view for 10g Release 2.

**User Action**

Try to bring the disk online. Currently Enterprise Manager does not support this feature.

## Failure Group Imbalance Status

The metrics in the Failure Group Imbalance Status metric category check how even failure group disks are laid out for ASM disk groups. ASM strives for an even distribution of file extents and space usage across all disks in a disk group. It accomplishes this through rebalancing. If the disks are different sizes or the failure groups are different sizes then effective rebalancing cannot be achieved. In this situation, configuration changes are required.

These metrics only apply to disk groups with normal or high redundancy. These metrics will not return data for disk groups with external redundancy, because failure groups are not used in this configuration. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

## Disk Count Imbalance Variance

Failure groups are used to store mirror copies of data: two copies for normal redundancy, three copies for high redundancy. The Disk Count Imbalance Variance metric reports the difference in the failure group disk count for the disk in the disk group with the highest failure group disk count and the disk with the lowest.

It may not be possible for every disk to have the same failure group disk count even when all the failure groups are the same size. However an imbalance of more than one indicates that the failure groups are different sizes.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11g, 12c | Every 15 Minutes                    | 2                         | Not Defined                | Disk Group %diskGroup% has failure groups with different numbers of disks which may lead to suboptimal space usage. Changing the configuration may alleviate this problem. |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each disk group object.

If warning or critical threshold values are currently set for any disk group object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each disk group object, use the Edit Thresholds page.

### Data Source

The value of the Disk Count Imbalance Variance metric is calculated using the V\$ASM\_DISKGROUP\_STAT and V\$ASM\_DISK\_STAT views, along with some internal ASM fixed tables.

### User Action

A warning alert is generated when the Disk Count Imbalance Variance value is greater than 1 (the default value). Disk groups that have failure groups with different numbers of disks may lead to suboptimal space usage. To alleviate this problem, try changing the configuration.

## Disk Size Imbalance (%)

Disk Size Imbalance (%) checks whether some disks have more space in their failure group disks than others. The space is calculated as a ratio between the size of a disk and the sum of the sizes of its active failure group disks. This ratio is compared for all

the disks. The difference in the highest and lowest failure group disk space is reported as a percentage. An imbalance of 10% is acceptable.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11g, 12c | Every 15 Minutes                    | 10                        | Not Defined                | Disk Group %diskGroup% has failure groups with disks of different sizes which may lead to suboptimal space usage. Changing the configuration may alleviate this problem. |

### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each disk group object.

If warning or critical threshold values are currently set for any disk group object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each disk group object, use the Edit Thresholds page.

### Data Source

The value of the Disk Size Imbalance metric is calculated using the V\$ASM\_DISKGROUP\_STAT and V\$ASM\_DISK\_STAT views, along with some internal ASM fixed tables.

### User Action

A warning alert is generated when the Disk Size Imbalance (%) is greater than 10% (the default). Disk groups that have failure groups with disks of different sizes may lead to suboptimal space usage. To alleviate this problem, try changing the configuration.

## Failure Group Count

Failure Group Count reports the number of failure groups per disk group.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 Minutes     |

### Data Source

The value of the Failure Group Count metric is retrieved from a calculation involving the V\$ASM\_DISKGROUP\_STAT and V\$ASM\_DISK\_STAT views, and some internal ASM fixed tables.

### User Action

No user action is required.

## Failure Group Status

The metrics in the Failure Group Status metric category check to see if all of the member disks of any failure group are offline. This is an undesirable condition which risks data loss, because mirror copies of data cannot be stored.

These metrics only apply to disk groups with normal or high redundancy. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

### Available Disks

The Available Disks metric reports the number of disks in the failure group that are online.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 Minutes     |

#### Data Source

The value of the Available Disks metric is calculated by subtracting the number of offline disks in the failure group from the number of total disks.

#### User Action

No user action is required.

### Online Disk Count for Failure Group with More than 1 Disk

The Disk Count for Alerts metric has the same value as Available Disks metric if there is more than one disk in the failure group. If there is exactly one disk in the failure group, the value of Disk Count for Alerts is 1, regardless of whether or not that one disk is offline. The reason for this is to avoid duplicate alerts being generated for the same root cause. The disk\_status metric generates a critical alert when a disk goes offline.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10gR2, 11g, 12c | Every 15 Minutes                    | Not Defined               | 0                          | Failure Group %diskGroup%.%failureGroup% is offline. |

#### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each unique combination of Disk Group and Failure Group objects.

If warning or critical threshold values are currently set for any unique combination of Disk Group and Failure Group objects, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each unique combination of Disk Group and Failure Group objects, use the Edit Thresholds page.

#### Data Source

The value of the Disk Count for Alerts metric is set to 1 if there is only one disk in the disk group, otherwise it is set to the value of the Available Disks metric.

#### User Action

A critical alert is generated if all disks comprising a failure group are taken offline. In this situation, data is not being mirrored despite the disk group having been configured with normal or high redundancy. Action must be taken to bring some of the disks in the failure group back online, or to add more disks to the disk group and assign them to that failure group.

## Disk Count

The Disk Count metric reports the number of disks in the failure group.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10gR2, 11g, 12c | Every 15 Minutes     |

#### Data Source

The value of the Total Disks metric is retrieved from the V\$ASM\_DISKGROUP\_STAT and V\$ASM\_DISK\_STAT views.

#### User Action

No user action is required.

## Online Disk Count for Failure Group with More than 1 Disk

This metric shows the online disk count for failure group with more than one disk.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 15 minutes     |

## File Group Usage

File group usage metric collects information related to file groups in a flex disk group. The default collection time is every 30 minutes.

## Quota Limit Used (MB)

This metric indicates the space used by file group from the quota in a quota group.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 30 minutes                    | Not defined               | Not defined                | Not applicable |

## Initialization Parameters

The metrics in this configuration metric category collect initialization parameters for the ASM instance. The default collection time is 24 hours and the metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

### Name

This metric shows the name of the initialization parameter.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12cR1   | Every 24 Hours       |

#### Data Source

The source for this metric is the NAME column in the V\$PARAMETER view.

#### User Action

No user action is required.

### Value

This metric shows the value for the initialization parameter.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12cR1   | Every 24 Hours       |

#### Data Source

The source for this metric is the VALUE column in the V\$PARAMETER view.

#### User Action

No user action is required.

### Default

This metric indicates if the parameter is set to default value or not.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12cR1   | Every 24 Hours       |

**Data Source**

The source for this metric is the ISDEFAULT column in the V\$PARAMETER view.

**User Action**

No user action is required.

## Instance Disk Performance

The metrics in the Instance Disk Performance metric category indicate the performance of the disks present in an ASM instance. These metrics report the disk performance parameters for all of the disks mounted on an ASM Instance.

These metrics are used to collect information, for example, total I/O and read/write requests, total I/O and read/write time, and the total number of bytes read/written to the disk. These metrics also report the response of the disk for read, write, and I/O throughput. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

**Note:**

Upload is disabled by default.

## Bytes Read

This metric reports the total number of bytes read from the disk.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Bytes Written

This metric reports the total number of bytes written to the disk.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.



**User Action**

No user action is required.

## Last Read Errors

This metric shows the most recent number of read errors for the disk.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 10g, 11g, 12c  | Every 15 Minutes     |

## Read Errors

This metric shows the total read errors for the disk.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Read Response Time (MS)

This metric shows the total read response time in milliseconds for the disk.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Read Time (MS)

This metric shows the total I/O time (in seconds) for read requests for the disk if the TIMED\_STATISTICS initialization parameter is set to true, or 0 if set to false.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Write Errors

This metric shows the detail of the total number of failed writes for the disk. This provides information about the total number of failed attempts of writes for the disk.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|-----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10g, 11g, 12cR1 | Every 15 Minutes                    | Not Defined               | 0                          | Disk %dg_name%.%disk_name% has %value% Read/Write errors. |

**Multiple Thresholds**

For this metric you can set different warning and critical threshold values for each unique combination of Instance ID, Disk Group Name, and Disk Name objects.

If warning or critical threshold values are currently set for any unique combination of Instance ID, Disk Group Name, and Disk Name objects, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each unique combination of Instance ID, Disk Group Name, and Disk Name objects, use the Edit Thresholds page.

**Data Source**

This metric is calculated using the GV\$ASM\_DISKGROUP and GV\$ASM\_DISK views for 10g Release 1 and the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views for 10g Release 2. From these views, the total number of failed read/writes for the disk is added to calculate the read write errors detail.

**User Action**

Investigate the issues behind read/write errors.

## Reads

This metric shows the total number of I/O read requests for the disk.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## I/O Response Time (MS)

This metric shows the disk response time.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 15 Minutes     |

## Total I/O Time (MS)

This metric shows the total I/O time in milliseconds.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 10g, 11g, 12cR1 | Every 15 Minutes     |

## Write Response Time (MS)

This metric shows the total write response time in milliseconds.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

### Data Source

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

### User Action

No user action is required.

## Write Time (MS)

This metric shows the total I/O time (in seconds) for write requests for the disk if the TIMED\_STATISTICS initialization parameter is set to true, or 0 if set to false.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

### Data Source

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

### User Action

No user action is required.

## Writes

This metric shows the total number of I/O write requests for the disk.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

### Data Source

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

V\$asm\_disk write\_time/no. of writes will show the actual I/O Response Time metric (ms) in OEM.

### User Action

No user action is required.

## Instance Disk Group Database Performance

The metrics in the Instance Disk Group Database Performance metric category report the performance of the disk group database present in an ASM instance. These metrics report the disk group database performance parameters for all of the disk groups in an ASM Instance.

## Bytes Read

This metric reports the total number of bytes read from the disk group database.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12c       | Every 15 Minutes     |

### Data Source

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

### User Action

No user action is required.

## Bytes Written

This metric reports the total number of bytes written to the disks in the database disk group.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g 12c        | Every 15 Minutes     |

### Data Source

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Read Time (MS)

This metric shows the total I/O time (in seconds) for read requests for the disks in the disk group database if the TIMED\_STATISTICS initialization parameter is set to true, or 0 if set to false.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Reads

This metric shows the total number of I/O read requests for the disks in the disk group database.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12c       | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Write Time (MS)

This metric shows the total I/O time (in seconds) for write requests for the disks in the disk group database if the TIMED\_STATISTICS initialization parameter is set to true, or 0 if set to false.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12c       | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Writes

This metric shows the total number of I/O write requests for the disks in the disk group database.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12c       | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Instance Disk Group Performance

The metrics in the Instance Disk Group Performance metric category indicate the performance of the disk group present in an ASM instance. These metrics report the disk group performance parameters for all of the disk groups in an ASM Instance.

The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of ASM target type metrics.

## Bytes Read

This metric reports the total number of bytes read from the disk.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12c       | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Bytes Written

This metric reports the total number of bytes written to the disks in the disk group.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g 12c        | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Read Time (MS)

This metric shows the total I/O time (in seconds) for read requests for the disks in the disk group if the TIMED\_STATISTICS initialization parameter is set to true, or 0 if set to false.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11gR2, 12c     | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Reads

This metric shows the total number of I/O read requests for the disks in the disk group.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12c       | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Write Time (MS)

This metric shows the total I/O time (in seconds) for write requests for the disks in the disk group if the TIMED\_STATISTICS initialization parameter is set to true, or 0 if set to false.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12c       | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Writes

This metric shows the total number of I/O write requests for the disks in the disk group.

| Target Version | Collection Frequency |
|----------------|----------------------|
| 11g, 12c       | Every 15 Minutes     |

**Data Source**

This metric is calculated using the data from the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views.

**User Action**

No user action is required.

## Offline Disk Count

The metrics in the Offline Disk Count metric category report the number of disks with the mode status offline. The metrics are collected at the cluster level if the target is Cluster ASM. Otherwise, they are collected at the instance level as a part of the ASM target type metrics.

You can change the time limit and threshold limit.

## Offline Disk Count

This metric provides the number of disks with mode status offline. A critical alert is generated if the offline disk count changes or any of the disks go offline.

You can change the time limit and threshold limit as required.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                         |
|----------------|-------------------------------------|---------------------------|----------------------------|------------------------------------|
| All Versions   | Every 15 Minutes                    | Not Defined               | 0                          | %offline_count% disks are offline. |

**Data Source**



This metric is collected with the help of Disk Status metric which in turn collects data from the GV\$ASM\_DISKGROUP and GV\$ASM\_DISK views for 10g Release 1 and the GV\$ASM\_DISKGROUP\_STAT and GV\$ASM\_DISK\_STAT views for 10g Release 2.

#### User Action

Try to bring the disk online. Currently Enterprise Manager does not support this administration feature so it needs to be done manually.

## Response

The Response metric category for Cluster ASM is a repository side metric. It displays whether Cluster ASM is up or down. A Cluster ASM is considered up if any one of the member instances is up and reachable. The check is performed every 5 minutes on each member instance. If the connection is successful on any instance, the status of Cluster ASM is updated as up.

## Status

This metric shows the status of the Cluster ASM instance. It displays whether the instance is up or down. This check is performed every five minutes and returns the status of the connection as successful or it displays the ORA error for connection failure. An alert is generated for an individual ASM instance that is down.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                                  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| All Versions   | Every 5 Minutes                     | Not Defined               | 0                          | Failed to connect to ASM instance %oraerr%. |

#### Data Source

You can establish a connection to the ASM instance with instance properties, and if the connection succeeds then the status is shown as Up, otherwise is displays as Down. It may also display as Down if there is an error in the metric collection.

#### User Action

Perform one of the following:

- Check that the configuration property saved for the ASM instance is correct.
- If it displays as Down, the ASM instance is down. Try to reestablish the connection using the startup/shutdown feature using the Enterprise Manager application. Alternately, you can restart the application manually.

## Sparse Disk Group Usage

This metric category uploads the following metrics: physical usage, physical used percentage, and physical free of sparse disk groups.

This metric category is enabled when ASM stores on Oracle Exdata. It is not applicable for any other systems.

## Disk Group Physical Free (MB)

This metric provides the physical free size in MB of the sparse disk group.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 12cR2 and later | Every 30 Minutes                    | Not Defined               | Not Defined                | Physical free size for Sparse Disk Group %dg_name% has fallen to %value% (MB). |

### Data Source

v\$asm\_diskgroup\_sparse, v\$asm\_diskgroup\_stat

### User Action

Add disks.

## Disk Group Physical Used (%)

This metric provides the physical used percentage of the sparse disk groups.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                                     |
|-----------------|-------------------------------------|---------------------------|----------------------------|--|
| 12cR2 and later | Every 30 Minutes                    | 75                        | 90                         | Sparse Disk Group %dg_name% is %value%%% used. |

### Data Source

v\$asm\_diskgroup\_sparse, v\$asm\_diskgroup\_stat

### User Action

Add disks.

## Physical Size (MB)

This metric provides the size of physical usage in MB of the sparse disk groups.

| Target Version  | Collection Frequency |
|-----------------|----------------------|
| 12cR2 and later | Every 30 Minutes     |

## Sparse Disks

This configuration metrics group collects information related to physical size of the grid disks. The default collection time is every 24 hours.

## Disks

This metric indicates the name of the disk.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 12c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

## Disk Group

This metric indicates the name of the disk group to which the disk belongs.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 12c and later  | Every 24 hours                      | Not defined               | Not defined                | Not applicable |

## Physical Size (MB)

This metric indicates the physical size of the sparse disk group that has been used.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 12c and later  | Every 30 minutes                    | Not defined               | Not defined                | Not applicable |

## Quota Group Usage

This metrics collects information related to quota group usage. The default collection time is every 30 minutes.

## Quota Limit (MB)

This metric indicates the quota limit that the file group inside this quota group can add up to.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 30 minutes                    | Not defined               | Not defined                | Not applicable |

**Data Source**

v\$asm\_quotagroup.quota\_limit\_mb

## Quota Limit Used (MB)

This metric indicates the current space in MB that has been allocated to the client.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text     |
|----------------|-------------------------------------|---------------------------|----------------------------|----------------|
| 13c and later  | Every 30 minutes                    | Not defined               | Not defined                | Not applicable |

### Data Source

v\$asm\_quotagroup.quota\_limit\_mb

## Quota Limit Used (%)

This metric indicates the percentage of quota limit that has been currently allocated.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 13c and later  | Every 30 minutes                    | 75%                       | 90%                        | Quota for quota group %qg_name% is %value%%% used. |

### Data Source

v\$asm\_quotagroup.quota\_limit\_mb and v\$asm\_quotagroup.used\_quota\_mb

# 4

## Oracle High Availability Service

This chapter provides information about the Oracle High Availability Service metrics. For each metric, it provides the following information:

- Description
- Metric table

The metric table can include some or all of the following: target version, default collection frequency, default warning threshold, default critical threshold, and alert text.

### CRS nodeapp Status

The metric in this category monitors the status of the Oracle Cluster Ready Services (CRS) node applications (nodeapps), Virtual Internet Protocol (IP), Global Services Daemon (GSD), and Oracle Notification System (ONS).

#### nodeapp Status

This metric monitors the status of the nodeapps, IP, GSD, and ONS. A critical alert is raised for the nodeapp if its status is OFFLINE NOT RESTARTING. A warning alert is raised for the nodeapp if its status is either UNKNOWN or OFFLINE.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                          |
|----------------|-------------------------------------|---------------------------|----------------------------|-------------------------------------|
| 10g, 11gR1     | Every 5 minutes                     | UNKNOWN   OFFLINE         | OFFLINE NOT RESTARTING     | CRS resource %nodeapps% is %status% |

#### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each nodeapp object.

If warning or critical threshold values are currently set for any nodeapp object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each nodeapp object, use the Edit Thresholds page.

#### Data Source

Not available.

#### User Action

Refer to the *Real Application Clusters Administration and Deployment Guide* for node applications startup and troubleshooting information.

## CRS Virtual IP Relocation Status

The metrics in this category provide information about whether there is a Virtual IP relocation taking place. When a Virtual IP is relocated from the host (node) on which it was originally configured, a critical alert is generated.

### Virtual IP Relocated

This metric shows whether the Virtual Internet protocol has relocated from the host (node) where it was originally configured. The value is TRUE if relocation occurred. Otherwise it is FALSE. When the value is TRUE, a critical alert is raised.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 10g, 11gR1     | Every 5 minutes                     | Not Defined               | TRUE                       | CRS resource %vip% was relocated to %current_node% |

#### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Virtual IP Name object.

If warning or critical threshold values are currently set for any Virtual IP Name object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Virtual IP Name object, use the Edit Thresholds page.

#### Data Source

Not available.

#### User Actions

The required actions are specific to your site.

## Incident

This metrics category provides information about the Incident target.

### Alert Log Error Trace File

The alert log error trace file is the name of an associated server trace file generated when the problem causing this incident occurred. If no additional trace file was generated, this field is blank.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All Versions   | Every 5 Minutes      |

#### Data Source

The alert log error trace file name is extracted from the database alert log.

**User Action**

Examine the alert log error trace file for more information about the problem that occurred.

## Alert Log Name

This metric contains the fully specified name of the current XML alert log file (including directory path).

| Target Version | Collection Frequency |
|----------------|----------------------|
| All Versions   | Every 15 Minutes     |

**Data Source**

This name is retrieved by searching the `OMS_ADR_HOME/alert` directory for the most recent (current) log file.

**User Action**

Examine the alert log file for more information about the problem that occurred.

## ECID

The Execution Context ID (ECID) tracks requests as they move through the application server. This information is useful for diagnostic purposes because it can be used to correlate related problems encountered by a single user attempting to accomplish a single task.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All Versions   | Every 15 Minutes     |

**Data Source**

The ECID is extracted from the database alert log.

**User Action**

Diagnostic incidents usually indicate software errors and should be reported to Oracle through the Enterprise Manager Support Workbench. When you package problems using Support Workbench, the Support Workbench uses ECID to correlate and include any additional problems in the package.

## Impact

This metric provides an optional field that reports the impact of the problem that occurred. It may be empty.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All Versions   | Every 15 Minutes     |

**Data Source**

The impact is extracted from the database alert log.

**User Action**

This field is informational. Diagnostic incidents usually indicate software errors and should be reported to Oracle using the Enterprise Manager Support Workbench.

## Incident ID

This metric reports the incident ID, a number that uniquely identifies a diagnostic incident (a single occurrence of a problem).

| Target Version | Collection Frequency |
|----------------|----------------------|
| All Versions   | Every 15 Minutes     |

**Data Source**

The incident ID is extracted from the database alert log.

**User Action**

Diagnostic incidents usually indicate software errors and should be reported to Oracle using the Enterprise Manager Support Workbench. A problem is one or more occurrences of the same incident. If you use Support Workbench, the incident ID can be used to select the correct problem to package and send to Oracle. If you use the command line tool ADRCI, you can use the Show Incident command with the incident ID to retrieve details about the incident.

## Generic Incident

This metric reports the number of Generic Incident type incidents observed the last time that Oracle Enterprise Manager scanned the alert log.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 12c            | Every 5 minutes                     | Not Defined               | .*                         | Incident (%adr_problemKey%) detected in %alertLogName% at time/line number: %timeLine%. |

**Data Source**

The source for this metric is the Incident metric.

**User Action**

Use Support Workbench in Enterprise Manager to examine the details of the incidents.

## Generic Internal Error

This metric reflects the number of Generic Internal Error incidents observed the last time Enterprise Manager scanned the alert log.



| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| 12c            | Every 5 minutes                     | Not Defined               | .*                         | Internal error (%adr_problemKey%) detected in %alertLogName% at time/line number: %timeLine%. |

**Data Source**

The source for this metric is the Incident metric.

**User Action**

Use Support Workbench in Enterprise Manager to examine the details of the incidents.

## Operational Error

This metric category contains metrics representing errors that might affect the operation of the database as recorded in the database alert log file. The alert log file has a chronological log of messages and errors.

### Generic Operational Error

This metric reports the number of generic operation errors observed the last time Enterprise Manager scanned the alert log file.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 12c            | Every 5 minutes                     | Not Defined               | .*                         | Operational error (%errorCodes%) detected in %alertLogName% at time/line number: %timeLine%. |

### User-Defined Error

This metric reports the number of user-defined errors observed the last time Enterprise Manager scanned the alert log file.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 12c            | Every 5 minutes                     | Not Defined               | Not Defined                | Error (%errorCodes%) detected in %alertLogName% at time/line number: %timeLine%. |

### User-Defined Warning

This metric reflects the number of user-defined warnings witnessed the last time Enterprise Manager scanned the alert log file.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text   |
|----------------|-------------------------------------|---------------------------|----------------------------|--|
| 12c            | Every 5 minutes                     | Not Defined               | Not Defined                | Warning (%errorCodes%) detected in %alertLogName% at time/line number: %timeLine%. |

## Oracle High Availability Service Alert Log

The metrics in this category provide information about the Oracle high availability service alert log.

### Alert Log Name

This metric reports the name and full path of the CRS alert log.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All Versions   | Every 5 Minutes      |

#### Data Source

Not available.

#### User Action

The required actions are specific to your site.

### CRS Resource Alert Log Error

This resource collects CRS-1203, CRS-1205 and CRS-1206 messages in the CRS alert log at the host level and issues CRS Resource Alert Log Error alerts at a critical level.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold                    | Alert Text   |
|----------------|-------------------------------------|---------------------------|---|--|
| 10gR2, 11gR1   | Every 5 minutes                     | Not Defined               | CRS-120(3   5   6)                            | %resourceErrStack% See %alertLogName% for details. |
| 11gR2, 12c     | Every 5 Minutes                     | CRS-(2765   2878)         | CRS-120(3   5   6)   CRS-(2768   2769   2771) | %resourceErrStack% See %alertLogName% for details. |



#### Note:

After an alert is triggered for this metric, it must be manually cleared.

#### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

#### Data Source

Not available.

#### User Action

The required actions are specific to your site.

## OCR Alert Log Error

This metric collects CRS-1009 messages in the CRS alert log at the host level and issues OCR Alert Log Error type alerts. OCR refers to Oracle Cluster Registry.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold                              | Alert Text                                    |
|----------------|-------------------------------------|---------------------------|---|---|
| 10gR2, 11gR1   | Every 5 Minutes                     | CRS-100(1 2 3 4 5 7)      | CRS-(1006 1008 1010 1011 1009)                          | %ocrErrStack% See %alertLogName% for details. |
| 11gR2, 12c     | Every 5 Minutes                     | CRS-(1021 1022)           | CRS-(1006 1009 1011 1013 1015 1016 1017 1018 1019 1021) | %ocrErrStack% See %alertLogName% for details. |



#### Note:

After an alert is triggered for this metric, it must be manually cleared.

#### Multiple Thresholds

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

#### Data Source

Not available.

#### User Action

The required actions are specific to your site.

## OLR Alert Log Error

The Oracle Local Registry (OLR) Alert Log Error metric collects certain CRS error messages and issues OLR Alert Log Error type alerts.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                                    |
|-----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10gR2, 11g, 12c | Every 5 Minutes                     | CRS-(2106)                | -*                         | %olrErrStack% See %alertLogName% for details. |

## Oracle High Availability Service Alert Log Error


This metric collects CRS-1012, CRS-1201, CRS-1202 and CRS-1401, CRS-1402, CRS-1602, and CRS-1603 messages in the CRS alert log at the host level.

CRS-1201, CRS-1401, CRS-1012, alert log messages trigger warning alerts.

CRS-1202, CRS-1402, CRS-1602, and CRS-1603 alert log messages trigger critical alerts.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold       | Default Critical Threshold             | Alert Text  |
|----------------|-------------------------------------|---------------------------------|--|---|
| 10gR2, 11gR1   | Every 5 Minutes                     | CRS-(1601   1201   1401   1012) | CRS-(1202   1402   1602   1603   1604) | %clusterwareErrStack% See %alertLogName% for details. |

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold  | Default Critical Threshold   | Alert Text  |
|----------------|-------------------------------------|--|--|---|
| 11gR2, 12c     | Every 5 Minutes                     | CRS-(2412 8000 8001 8002 8003 8004 8005 8006 8007 8009 80010 8016 8018 8019 8020 1601) | CRS-(2402 2406 2413 2414 1202 1207 1208 1209 1210 1212 1213 1214 1215 1216 1217 1218 1219 1220 1221 1223 1229 1231 1232 1233 1234 1235 1236 1237 1238 1239 1305 1306 1307 1308 1308 1310 1339 1402 1403 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 5601 10100 10101 10102 10103 1602 1603 1604) | %clusterwareErrStack% See %alertLogName% for details. |

 **Note:**  
After an alert is triggered for this metric, it must be manually cleared.

**Multiple Thresholds**

For this metric you can set different warning and critical threshold values for each Time/Line Number object.

If warning or critical threshold values are currently set for any Time/Line Number object, those thresholds can be viewed on the Metric Detail page for this metric.

To specify or change warning or critical threshold values for each Time/Line Number object, use the Edit Thresholds page.

**Data Source**

Not available.

**User Action**

The required actions are specific to your site.

## Oracle High Availability Service Alert Log Error

This metric category provides information about node-specific alerts that are obtained by mining the CRS alert file on that node. The mined alerts are for the categories of node-specific Oracle High Availability/Clusterware Stack, CRS Resource, OCR, OLR, Node Configuration.

### Alert Log Name

This metric reports the name and full path of the CRS alert log.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All Versions   | Every 5 Minutes      |

### Alert Time

This is the timestamp of the alert in the CRS Alert log file.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All Versions   | Every 5 Minutes      |

### OCR Alert Log Error

This metric collects CRS-1009 messages in the CRS alert log and issues OCR Alert Log Error type alerts. OCR refers to Oracle Cluster Registry.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold     | Alert Text                                    |
|----------------|-------------------------------------|---------------------------|--------------------------------|---|
| 10gR2, 11gR1   | Every 5 Minutes                     | CRS-100(1 2 3 4 5 7)      | CRS-(1006 1008 1010 1011 1009) | %ocrErrStack% See %alertLogName% for details. |

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold  | Alert Text                                    |
|----------------|-------------------------------------|---------------------------|---|---|
| 11gR2, 12c     | Every 5 Minutes                     | CRS-(1021   1022)         | CRS-(1006   1009   1011   1013   1015   1016   1017   1018   1019   1021) | %ocrErrStack% See %alertLogName% for details. |

## OLR Alert Log Error

The Oracle Local Registry (OLR) Alert Log Error metric collects certain CRS error messages and issues OLR Alert Log Error type alerts.

| Target Version  | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text                                    |
|-----------------|-------------------------------------|---------------------------|----------------------------|---|
| 10gR2, 11g, 12c | Every 5 Minutes                     | Not Defined               | CRS-(2106)                 | %olrErrStack% See %alertLogName% for details. |

## CRS Resource Alert Log Error

This resource collects CRS-1203, CRS-1205 and CRS-1206 messages in the CRS alert log and issues CRS Resource Alert Log Error alerts at a critical level.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold                    | Alert Text   |
|----------------|-------------------------------------|---------------------------|---|--|
| 10gR2, 11gR1   | Every 5 minutes                     | Not Defined               | CRS-120(3   5   6)                            | %resourceErrStack% See %alertLogName% for details. |
| 11gR2, 12c     | Every 5 Minutes                     | CRS-(2765   2878)         | CRS-120(3   5   6)   CRS-(2768   2769   2771) | %resourceErrStack% See %alertLogName% for details. |

## Oracle High Availability Service Alert Log Error

This metris displays the node-specific Oracle High Availability/Clusterware Stack errors from the CRS Alert log file.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold       | Default Critical Threshold             | Alert Text  |
|----------------|-------------------------------------|---------------------------------|--|---|
| 10gR2, 11gR1   | Every 5 Minutes                     | CRS-(1601   1201   1401   1012) | CRS-(1202   1402   1602   1603   1604) | %clusterwareErrStack% See %alertLogName% for details. |

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold  | Default Critical Threshold   | Alert Text   |
|----------------|-------------------------------------|--|--|--|
| 11gR2,<br>12c  | Every 5 Minutes                     | CRS-(2412 8000 <br>8001 8002 <br>8003 8004 <br>8005 8006 <br>8007 8009 <br>80010 8016 <br>8018 8019 <br>8020 1601) | CRS-(2402 <br>2406 2413 <br>2414 1202 <br>1207 1208 <br>1209 1210 <br>1212 1213 <br>1214 1215 <br>1216 1217 <br>1218 1219 <br>1220 1221 <br>1223 1229 <br>1231 1232 <br>1233 1234 <br>1235 1236 <br>1237 1238 <br>1239 1305 <br>1306 1307 <br>1308 1308 <br>1310 1339 <br>1402 1403 <br>2301 2302 <br>2303 2304 <br>2305 2306 <br>2307 2308 <br>2309 2310 <br>2311 2312 <br>2313 2314 <br>2315 2316 <br>2317 2318 <br>2319 2320 <br>2321 2322 <br>2323 <br>2324 2325 <br>2326 2327 <br>2330 2331 <br>2332 2333 <br>2334 2335 <br>2336 2337 <br>2338 2339 <br>2340 2341 <br>2342 5601 <br>10100 10101 <br>10102 10103 <br>1602 1603 <br>1604) | %clusterwareErrStack% See<br>%alertLogName% for details. |

## Witnessed Error Codes

This metric displays the node-specific Oracle High Availability/Clusterware Stack errors from the CRS Alert log file.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All Versions   | Every 5 Minutes      |



## Node Configuration Alert Log Error

This metric displays the node-specific node configuration errors from the CRS Alert log file.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold                | Default Critical Threshold                                   | Alert Text                                     |
|----------------|-------------------------------------|--|--|--|
| 10gR2, 11gR1   | Every 5 Minutes                     | CRS-180(2 3 4 5)                         | CRS-1607   | %nodeErrStack% See %alertLogName% for details. |
| 11gR2, 12c     | Every 5 Minutes                     | CRS-(1801 1802 1803 1804 1113 1121 1123) | CRS-(1110 1111 1112 1116 1117 1118 1119 1805 1806 1807 1809) | %nodeErrStack% See %alertLogName% for details. |

## Time/Line Number

This metric displays the timestamp and the line number of the alert in the CRS Alert log file of that alert.

| Target Version | Collection Frequency |
|----------------|----------------------|
| All Versions   | Every 5 Minutes      |

## Resource State

This metric category provides information about resources changing states.

## State Change

This metric tracks and raises an alert when a resource changes to a state defined in the thresholds.

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold  | Default Critical Threshold                                 | Alert Text   |
|----------------|-------------------------------------|--|--|--|
| 11gR2, 12c     | Every 30 Minutes                    | COMPLETE_INTE<br>RMEDIATE <br>PARTIALLY_UNK<br>NOWN <br>PARTIALLY_OFF<br>LINE <br>PARTIALLY_INT<br>ERMEDIATE | COMPLETE_UN<br>KNOWN <br>COMPLETE_OF<br>FLINE ADD <br>DOWN | %crs_entity_name% has<br>%resource_status_alert_count%<br>instances in<br>%resource_status_alert_state% State<br>%resource_status_additional_mesg% |

## Response

The metrics in this category report the status of the host (whether it is up or down).

## Status

This metric indicates whether or not the host is reachable. A host can be unreachable for various reasons, for example, when the network is down or the Management Agent on the host is down (which can be because the host itself is shut down).

| Target Version | Evaluation and Collection Frequency | Default Warning Threshold | Default Critical Threshold | Alert Text  |
|----------------|-------------------------------------|---------------------------|----------------------------|---|
| All Versions   | Every 30 Minutes                    | Not Defined               | 0                          | Oracle High Availability Service has problems on this host %CRS_output% |