Oracle Utilities Network Management Business Intelligence

Metric Reference Guide

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Preface

This document describes the Oracle Utilities Network Management Business Intelligence metrics (such as dashboards, analyses, and subject areas) available in Oracle Utilities Advanced Spatial and Operational Analytics, Release 2.4.0 Service Pack 4. These metrics are used in the pre-built analyses, and/or available for customers to use via Oracle Answers in building new analyses or extending existing analyses.

Audience

This guide is intended for all users of Oracle Utilities Network Management Business Intelligence.

Related Documents

For more information, see the following documents:

- *Oracle Utilities Advanced Spatial and Operational Analytics Installation Guide*
- *Oracle Utilities Advanced Spatial and Operational Analytics Quick Install Guide*
- *Oracle Utilities Advanced Spatial and Operational Administration Guide*
- *Oracle Utilities Advanced Spatial and Operational Analytics Release Notes*
- *Oracle Utilities Advanced Spatial and Operational Analytics User's Guide*

Oracle Utilities Business Intelligence Documentation Library:

- *Oracle Utilities Business Intelligence Quick Install Guide*
- *Oracle Utilities Business Intelligence Installation Guide*
- *Oracle Utilities Business Intelligence DBA Guide*
- *Oracle Utilities Business Intelligence User's Guide*

See Also:

- *Oracle Utilities Business Intelligence V2.4.0 Server Administration Guide*
- *Oracle Utilities Application Framework V4.1 Business Process Guide*
- *Oracle Utilities Application Framework V4.1 Administration Guide*
- Oracle Utilities Network Management System Documentation Library

Notational Conventions

The following notational conventions are used in this document:

Notation	Indicates
boldface	Graphical user interface elements associated with an action, terms defined in text, or terms defines in the glossary
italic	Book titles, emphasis, or placeholder variables for which you supply particular values
monospace	Commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter

Chapter 1

Dashboard Content Reference

This chapter describes the Oracle Utilities Network Management Business Intelligence dashboard content. The dashboards are grouped by the following analytics:

- **Distribution Analytics**
- **Outage Analytics**

Distribution Analytics

This section describes the metrics available in Distribution Analytics of Oracle Utilities Advanced Spatial and Operational Analytics. The analytics enable the Utilities' customers to monitor and measure network distribution management.

The Distribution dashboard provides various analytics about the feeders and their performance.

Oracle Utilities Network Management Business Intelligence provides the Distribution Analytics content in the following dashboard pages:

- **Feeder Load (Composite)**
- **Feeder Performance**

Click **Dashboards**, expand **Distribution Analytics**, and then click **Distribution** to access this dashboard.

Feeder Load (Composite)

The Feeder Load (Composite) dashboard page displays the statistics about the feeder load in the Oracle Utilities Network Management System model.

Feeder Load

This analysis shows the average feeder load on a monthly basis. It helps you to understand if the feeder is handling the load as per its capacity or it is being overloaded.

Property	Value
Source Object	Feeder Delivered Load Snapshot Fact
Measure	Average KVA

Feeder Load Detail

This analysis displays the maximum daily feeder load details for the previous month, helping in monitoring and observing the peaks in the load.

Property	Value
Source Object	Feeder Delivered Load Snapshot Fact
Measure	Maximum KVA, Maximum kw, Maximum KVAR, Maximum Amp, Maximum Voltage

Greatest Feeder Peak Load Detail

This analysis shows the feeders that experienced the maximum peak load. It also shows where the heaviest load exists within the distribution network. These feeders may need monitoring to ensure the overload conditions do not occur.

Property	Value
Source Object	Feeder Delivered Load Snapshot Fact
Measure	Maximum KVa

Smallest Feeder Capacity Margin

This analysis displays the breaker capacity for each feeder that helps to determine the feeders having the smallest remaining margin before overloads may occur, possibly resulting in a breaker lock-out.

Property	Value
Source Object	Feeder Delivered Load Snapshot Fact
Measure	Capacity Margin, Maximum Amp, Maximum Breaker Amp Limit

Feeder Performance

The Feeder Performance dashboard page gives you a snapshot of the overall health of the feeders, such as worst performing feeders. This can alert the businesses to take preventive action in advance.

Feeder Performance

This analysis displays the reliability indices for company, region, branch, substation, and feeder level, along with number of customers served per control zone.

Property	Value
Source Object	Control Zone Outage Fact
Measure	SAIDI, SAIFI, ASAI, CMI, CAIDI, CAIFI

Worst Performing Feeders

This analysis displays the feeders sorted by their SAIDI numbers. Worst performing feeders are shown at the top of the table. This also shows how each feeder contributes to total SAIDI value and the rank of each feeder.

Property	Value
Source Object	Control Zone Outage Fact
Measure	SAIDI, % of Total, Rank of SAIDI, Previous SAIDI Rank

Consecutive Worst Performing Feeders

This analysis displays the feeders that are consecutively performing badly, to help identify any feeder issues. Previous month's SAIDI is also displayed to compare the current and previous period's performance. This shows whether the feeder performance is better or worse than the last period.

Property	Value
Source Object	Control Zone Outage Fact
Measure	SAIDI, % of Total, Rank of SAIDI, Previous SAIDI Rank, Previous SAIDI

Outage Analytics

This chapter describes the metrics available in Outage Analytics of Oracle Utilities Advanced Spatial and Operational Analytics. The analytics enable the Utilities' customers to monitor and measure outage management system.

Oracle Utilities Network Management Business Intelligence provides the Outage Analytics content in the following dashboards:

- **Overview**
- **Current Outages**
- **Historical Outages**
- **Reliability**

Overview

The Overview dashboard provides a high-level overview of the near real-time information about outages. The near real-time period can be configured.

Click **Dashboards**, expand **Outage Analytics**, and then click **Overview** to access this dashboard.

Overview provides the following dashboard pages:

- **Current Outages Map**
- **Unrestored Outages**
- **Restoration Status**

Current Outages Map

The Current Outages Map dashboard page provides a snapshot of the current outages based on the near real-time data extracted from the Oracle Utilities Business Intelligence schema.

Outage Map

This analysis provides a spatial representation of the customers impacted and minutes interrupted in a region. The map also provides the following details:

- Outage locations are represented by green, yellow, and red dots on the map. The severity of these outages is based on number of customers impacted. Click on any outage location for more information about the outage.
- Crews that are working on the outages are represented by yellow working hats.
- Postal codes are color coded based on the number of customers that are impacted by those outages.
- A heat map shows where the intensity of an issue is highest, as in the longest outage durations.

Click the **Customers Impacted** drop down to display the data by average outage duration, customer minutes interrupted, and customers impacted. The table shows the event details, the outage duration, and the estimated restoration time.

Property	Value
Source Object	NMS - NRT Overview
Measure	<no measures>

Unrestored Outages

The Unrestored Outages dashboard page provides an overview of the current outages which are not yet restored.

Outage Summary

This analysis shows the summary of the total number of outage events, total number of customers interrupted, average outage duration, and the estimated restoration duration.

Property	Value
Source Object	NMS - NRT Overview
Measure	<no measures>

Unresolved Customer Events

This analysis displays the number of customer calls received corresponding to a given outage event, grouped by the event status.

Note: A single outage event can have an impact on multiple customers.

Property	Value
Source Object	NMS - NRT Overview
Measure	Number of Calls

Critical Customers

This analysis displays a list of all critical customers affected by the current outages. It also displays the customers' account information and the criticality type.

Click the **Account ID** table link to drill down to the **Customer** dashboard page for a granular view of customer details.

Property	Value
Source Object	NMS - NRT Overview
Measure	<no measures>

Restoration Status

The Restoration Status dashboard page provides an hourly summary of the number of customers interrupted, the number of customers restored, along with the total number of calls received every hour.

This page gives an overview of the overall restoration progress, analyzing if more crews need to be introduced to improve the overall strategy planning.

Restoration Status

This analysis shows the customers currently in outage and the customers who have been restored. At some point, the lines (in the graph) representing the customers out and the customers restored should converge.

Property	Value
Source Object	NMS - NRT Overview
Measure	Number of Calls, Number of Customers Out, Number of Customers Restores

Estimated Number of Restorations

This analysis shows the number of customers restored at various time intervals.

Property	Value
Source Object	NMS - NRT Overview
Measure	Number of Calls, Number of Customers Out, Number of Customers Restores

Restored Customers

This pie chart shows the percentage of customers still not restored when compared to total number of customers affected by all outage events. The table shows the number of restored and unrestored customers by the Control Zone hierarchy.

Property	Value
Source Object	NMS - NRT Overview
Measure	Restored Customer, Not Restored Customer

Wire Down Overview

This analysis provides an overview of all the events, the number of customer calls, and the total number of customers affected due to the wire downs. It also shows the measures across the control zone hierarchy.

Property	Value
Source Object	NMS - NRT Overview
Measure	Number of Events, Customers Interrupted, Number of Calls

Current Outages

The Current Outages dashboard provides a snapshot of the outages happened.

Click **Dashboards**, expand **Outage Analytics**, and then click **Current Outages** to access this dashboard.

Current Outages provides the following dashboard pages:

- **Current Outages**
- **Customer**
- **Crew**
- **Wire Downs**

Current Outages

The Current Outages dashboard page provides a replay of all outage events.

Current Outages

This map replays all outage events that are within near real-time range. The playback is based on an hourly summary of all outage events. This is typically used to analyze how quickly outages are restored during a storm.

Click the color-coded area of the map for specific details about the outage events in that region. Click the **Legend** drop down to display the data by average outage duration, customer minutes impacted, customers impacted, and number of momentary interruptions.

Property	Value
Source Object	NMS - NRT Overview
Measure	<no measures>

Customer

The Customer dashboard page provides a snapshot of the customers currently experiencing outages.

Customers Impacted

This analysis provides a spatial representation of customers currently experiencing outages.

Click the color-coded area on the map to display the postal code of that geographical region, and also the customers impacted, the average outage duration, and the customer minutes interrupted in that region.

Click the postal code link to view the master detail implementation in the table. The table displays the customer details and the outage duration.

Property	Value
Source Object	NMS - NRT Overview
Measure	<no measures>

Customer Details

This analysis displays a list of all customers currently experiencing outages. They are grouped by events, which helps in analyzing the number of customers out due to each event.

Property	Value
Source Object	NMS - NRT Overview
Measure	Call Time

Crew

The Crew dashboard page provides details about how quickly crews are allocated and are responding to the current outages.

Crew Assignment Summary

This analysis displays a list of all crew assignments for the current outages. The list includes information, such as crew ID, crew type, and number of assignments for every crew. These details provide an overview of how the crews are assigned with the tasks.

Property	Value
Source Object	NMS - NRT Overview
Measure	<no measures>

Onsite Crew List

This analysis displays a list of all crews, along with the assignment time, en route time, and onsite time. These crews represent all the resources that are actively working on restoring the current outages.

Property	Value
Source Object	NMS - NRT Overview
Measure	Number of Events Completed

Wire Downs

The Wire Downs dashboard page displays the near real-time events associated with all wire downs.

Events with Wire Down Calls

This analysis displays the number of events associated with active wire downs on a calendar day. The graph shows the status of events, thus helping to understand the trend of number of events.

Click the graph for more specific details.

Call Summary

This analysis shows the call summary by hour, which helps in monitoring the progress of outage restoration. Decrease in the number of calls may indicate that the restoration is in progress.

Property	Value
Source Object	NMS - NRT Overview
Measure	Number of Calls

Active Wire Down Calls

This analysis displays a list of all wire down calls that are associated with active events only. The event number and caller information are also displayed to help take immediate action on those calls.

Property	Value
Source Object	NMS - NRT Overview
Measure	<no measures>

Historical Outages

The Historical Outages dashboard provides historical information showing trends that help plan for future actions. The historical data can be filtered by date range, storm name, control zone, etc.

Click **Dashboards**, expand **Outage Analytics**, and then click **Historical Outages** to access this dashboard.

Historical Outages provides the following dashboard pages:

- **Historical Outage Map**
- **Event Trend**
- **Event Detail**

Historical Outage Map

The Historical Outage Map dashboard page provides a geographical representation of the outage details.

Historical Monthly Outage Playback

Replay on this map can be played using historical data that could span over several years. The entire data for the result set is shown on the map.

Click the color-coded area on the map to display the postal code of that geographical region, and also the customers impacted and minutes interrupted in that region.

Property	Value
Source Object	NMS - Historical Overview Fact
Measure	<no measures>

Events by Device Type

This analysis shows the number of outage events by device type. It helps you to identify which device types are majorly causing the outage events.

Property	Value
Source Object	NMS - NRT Overview Fact
Measure	Number of Events

Event Trend

The Event Trend dashboard page provides a snapshot of all the events that happened throughout the year, along with how these events impacted the customers.

Yearly Summary

This analysis displays the number of events against the impacted customers, aggregated by year. It shows a trend of whether the number of events are increasing or decreasing over the years.

Clicking the graph shows quarter-wise details in the selected year. If you further click the quarter-wise graph, monthly details in the selected quarter are displayed.

Property	Value
Source Object	Control Zone Outage Fact
Measure	Number of Events, Customer Interrupted

Estimated Versus Actual Restoration Time

This analysis shows how well the restoration times were estimated in the past. If there is a large difference between the estimated and the actual restorations times, businesses may need to change their estimation methods.

Property	Value
Source Object	NMS - Historical Overview Fact
Measure	Average Difference Between ERT, Restore Time

Outage Causes

This analysis shows the number of events by each outage cause per the selected calendar date. It helps to plan the current outage restorations to prevent any outages in the future.

Click either the table link or the pie chart to drill down to the **Event Detail** dashboard page for more specific details.

Event Detail

The Event Detail dashboard page provides a summary of all events.

Event Detail

This analysis shows a summary of all the events happened in the selected month. It also displays details about the outage duration, the number of customers impacted, the estimated restoration time, etc.

Property	Value
Source Object	NMS - NRT Overview Fact
Measure	Restoration Time Deviation, Customer Interrupted, Number of Calls

Reliability

The Reliability dashboard provides a summary of the feeder performance and also the following IEEE performance metrics:

- SAIDI (System Average Interruption Duration Index)
- SAIFI (System Average Interruption Frequency Index)
- CAIDI (Customer Average Interruption Duration Index)
- MAIFI (Momentary Average Interruption Frequency Index)

These indices represent customer satisfaction and how quickly the outages are restored.

Click **Dashboards**, expand **Outage Analytics**, and then click **Reliability** to access this dashboard.

Reliability provides the following dashboard pages:

- **Reliability**
- **Feeder Performance**

Reliability

The Reliability dashboard page provides a summary of the reliability indices calculated for each city and control zone.

Reliability by City

This analysis displays the reliability indices that are calculated for each city and are color coded on the map based on the indices, for the selected month. The regions can also be color coded based on the number of customers interrupted in each region.

Property	Value
Source Object	NMS - NRT Overview Fact
Measure	<no measure>

Reliability by Control Zone

This analysis displays the reliability indices that are calculated for each control zone, for the selected month. The table also shows the customers impacted, number of events, number of calls, and customers served details.

Property	Value
Source Object	Control Zone Outage Fact
Measure	SAIDI, SAIFI, CAIDI, CMI

Feeder Performance

The Feeder Performance dashboard page provides a snapshot of the overall health of the feeders, including those performing worse. This can alert the businesses to take action well in advance.

Feeder Performance for Sustained Interruptions

This analysis shows the feeder performance of interruptions occurring for a considerable period in the selected year. It enables you to identify the customers impacted in a specific control zone.

Property	Value
Source Object	Control Zone Outage Fact
Measure	SAIDI, SAIFI, ASAI, CMI, CAIDI, CAIFI

Feeder Performance for Momentary Interruptions

This analysis shows the feeder performance for momentary interruptions in the selected year. It enables you to identify the customers impacted in a specific control zone.

Property	Value
Source Object	Control Zone Outage Fact
Measure	MAIFI, MAIFIE, Number of Momentary Interruptions, Number of Customer Served

Worst Performing Feeders

This analysis displays the feeders sorted by their SAIDI numbers, showing the top N worst performing feeders for the selected month. It also shows how each feeder contributes to the total SAIDI value.

Enter the value of N in the **Rank** field to view the top N worst performing feeders in the table.

Property	Value
Source Object	Control Zone Outage Fact
Measure	SAIDI, % of Total, Rank of SAIDI, Previous SAIDI Rank

Consecutive Worst Performing Feeders

This analysis displays feeders that were in the worst performing feeder list for the past two months. It means that these feeders are consecutively performing badly, and any issues need to be identified.

Previous month's SAIDI is also displayed to compare the current and previous period's performance. This shows whether the feeder performance is better or worse than the last month.

Enter the value of N in the **Rank** field to view the top N worst performing feeders in the table.

Property	Value
Source Object	Control Zone Outage Fact
Measure	SAIDI, % of Total, Rank of SAIDI, Previous SAIDI Rank, Previous SAIDI

Additional Information

The Licensing and Packaging Guide contains valuable information on the features and data structures available in Oracle Utilities Network Management Business Intelligence. The guide is provided as an Excel spreadsheet, Oracle Utilities Advanced Spatial and Operational Analytics v2.4.0.4 Licensing and Packaging Guide.xls. Content includes:

- A list of all of the available Oracle Utilities Business Intelligence products.
- Installer Options - the required extractors and schemas for each product.
- Subject Areas, Facts, and Dimensions.
- Dashboards and Answers - the standard dashboards available and the associated Answers along with the Answer path.