Oracle® Communications Diameter Signaling Router

Network Impact Report

Release 9.1.0.0.0
G19794-01
December 2024

Oracle Communications Diameter Signaling Router Network Impact Report, Release 9.1.0.0.0

G19794-01

Contents

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What's New in This Release

This section introduces the documentation updates for release 9.1.0.0.0.

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- Added the following features in the Features and Enhancements section:
  - DSR Features
  - vSTP Features
  - VNFM Features
  - IDIH Features
- Updated the Software Requirements section.
- Updated the DSR Upgrade Paths section.
- Updated the IDIH Upgrade Path section.
- Updated the SDS Upgrade Paths section.
- Added the UDR Upgrade Paths section.
- Updated the MEAL Inserts section.
- Updated the Compatibility section.

1 Introduction

The purpose of this document is to highlight the changes of the product that may have impact on the customer network operations and should be considered by the customer during planning for this release.

This document summarizes Diameter Signaling Router Release 9.1.0.0.0 new and enhancement features as compared to the previous release, and the operations impact of these features at a high level.

1.1 Acronyms

The Table 1-1 provides information about the acronyms and the terminologies used in this document.

Table 1-1 Acronyms

Acronym/Term	Description
ASGU	Automated Server Group Upgrade
AS	Application Server
ASU	Automated Site Upgrade
AVP	Attribute Value Pair
BSBR	Binding SBR
CA	Communication Agent
CAF	Customized Application Framework
CLI	Command Line Interface
CLR	Cancel Local Request
DA-MP	Diameter Agent Message Processor
DAL	Diameter Application Layer
DCA	Diameter Custom Application Framework
DCL	Diameter Connection Layer
DEA	Diameter Edge Agent
DPC	Destination Point Code
DPL	Data Processor Library
DRMP	Diameter Routing Message Priority
DPI	Diameter Plug-in
DSA	Diameter Security Application
DoS	Denial of Service
EXGSTACK	Eagle Next Generation Stack
vEIR	Virtual Equipment Identity Register
ECR	Mobile Equipment-Identity-Check-Request
ECA	Mobile Equipment-Identity-Check-Answer
FLOBR	Flexible Link set Optional Based Routing
GUI	Graphical User Interface

Table 1-1 (Cont.) Acronyms

Acronym/Term	Description
GTT	Global title translation
GTA	Global title Address
HSS	Home Subscriber Server
HLR	Home Location Register
iLO	Integrated Lights Out
IMI	Internal Management Interface
IPv4	IPv4 address of the subscriber
IPv6	IPv6 address of the subscriber
IMSI	International Mobile Subscriber Identity
IMPU	IP Multimedia Public Identity
IMPI	IP Multimedia Private Identity
IOT	Interoperability Tests
KPI	Key Performance Indicator
LAI	Location Area Identity
LTE	Long Term Evolution
MAP	Mobile Application Part
MBR	Map Based Routing
MCC	Mobile Country Code
MEAL	Measurements, Events, Alarms, and Logging
MME	Mobility Management Entity
MMI	Man Machine Interface
MP	Message Processor
MPS	Messages per Second
MS	Mobile Station/Handset
MSU	Message signal Unit
MSISDN	Mobile Station International Subscriber Directory Number
MTC	Machine type communication
MTP	Message Transfer Part
MO	Managed Object
NE	Network Element
NGN	Next Generation Networks
NGN-PS	NGN Priority Services
NIDD	Non-IP data delivery [directly through MME/SGSN]
NMS	Network Management System
NOAM	Network Operations Administration and Maintenance
NF	Network Function
NRF	NF Repository Function
OAG	Oracle Accessibility Guidelines
OAM	Operations, Administration, Maintenance
OAM&P	Operations, Administration, Maintenance and Provisioning
OCUDR	Oracle Communications User Data Repository
OPC	Origin Point Code
PDRA	Policy Diameter Relay Agent

Table 1-1 (Cont.) Acronyms

Acronym/Term	Description
PCRF	Policy Control and Charging Rules Function
PCIMC	Per Connection Ingress Message Control
PDU	Protocol Data Unit
PDN	Packet Data Network
POR	Plan of Record
PS	Priority Service (NGN-PS)
RAN	Radio Access Network
ROS	Routing Option Set
RSA	Reset Answer
RSR	Reset Request
SBR	Session Binding Repository
SSBR	Session SBR
ScsAsId	String provided by SCS to identify itself in non-3GPP world
SCS	Service Control Server
SOAM	Site Operations Administration and Maintenance
SS7	Signaling System No. 7
STP-MP	Signaling Transfer Point Message Processor
SV	Software Version
TPD	ORACLE Platform Distribution
TCAP	Transaction Capability Part
TLTRI	T8 Long Term Transaction Reference ID
TTRI	T8 Transaction Reference ID
TOBR	TCAP Opcode Based Routing
UE	User Equipment
USBR	Universal SBR
VIP	Virtual IP Address
VNF	Virtual Network Functions
VNFM	Virtual Network Functions Manager
VPLMN	Virtual Public Land Mobile Network
VSTP	Virtual SS7 Signal Transfer Point
VEDSR	Virtualized Engineered DSR
XMI	External Management Interface
XSI	External Signaling Interface

1.2 References

- DSR Release Notes
- DSR Upgrade Guide
- IDIH Release Notes
- DSR IP Flow Document: CGBU_019284 (ORACLE Internal Document)
- Platform IP Flow Document: CGBU_PM_1112 (ORACLE Internal Document)

1.3 Compatibility

Product Compatibility

- DSR 9.1.0.0.0 is compatible with IDIH 9.1.0.0.0
- DSR 9.1.0.0.0 is compatible with VNFM 6.1.0.0.0_61.3.12
- DSR 9.1.0.0.0 is compatible with ComCOL 8.1.0.4.0-14244, AppWorks 9.9.1-100.13.0, EXGSTACK 9.9.1-100.13.0, and UDR 14.1.0.0.0_114.32.0

Product Compatibility Matrix

Table 1-2 Product Compatibility Matrix

DSR	PIC	UDR	VNFM	IDIH	ATS
OCDSR Rel 8.0	10.4, 10.4.0.3	N/A	N/A	N/A	N/A
OCDSR Rel 8.1	10.4, 10.4.0.3	N/A	N/A	IDIH 8.1	N/A
OCDSR Rel 8.1.1	Compatibility not tested with MRs and Patch releases	N/A	N/A	IDIH 8.1	N/A
OCDSR Rel 8.1.2	Compatibility not tested with MRs and Patch releases	N/A	N/A	IDIH 8.1	N/A
OCDSR Rel 8.2	10.4, 10.4.0.3	N/A	N/A	IDIH 8.2	N/A
OCDSR Rel 8.2.1	Compatibility not tested with MRs and Patch releases	N/A	N/A	IDIH 8.2	N/A
OCDSR Rel 8.3	Compatibility not tested with MRs and Patch releases	OCUDR 12.5	VNFM 2.0	IDIH 8.2.1, IDIH 8.2.2	N/A
OCDSR Rel 8.4	10.4, 10.4.0.3	OCUDR 12.5.1	VNFM 3.0	IDIH 8.2.1, IDIH 8.2.2	ATS 8.4.0.0.0
OCDSR Rel 8.4.0.1	Compatibility not tested with MRs and Patch releases	OCUDR 12.5.1	VNFM 3.0	IDIH 8.2.1, IDIH 8.2.2	N/A
OCDSR Rel 8.4.0.2	Compatibility not tested with MRs and Patch releases	OCUDR 12.5.1	VNFM 3.0	IDIH 8.2.1, IDIH 8.2.2	ATS 8.4.0.2.0, 8.4.0.2.1, 8.4.0.2.2, 8.4.0.3.0
OCDSR Rel 8.4.0.3	Compatibility not tested with MRs and Patch releases	OCUDR 12.5.2	VNFM 4.1.2	IDIH 8.2.1, IDIH 8.2.2	ATS 8.4.0.3.0, 8.4.0.3.1
OCDSR Rel 8.4.0.4	Compatibility not tested with MRs and Patch releases	OCUDR 12.5.2	VNFM 4.3	IDIH 8.2.1, IDIH 8.2.2	ATS 8.4.0.4.0, 8.4.0.4.1, 8.4.0.4.2
OCDSR Rel 8.4.0.5	Compatibility not tested with MRs and Patch releases	OCUDR 12.6	VNFM 4.4	IDIH 8.2.1, IDIH 8.2.2	ATS 8.4.0.5.0

Table 1-2 (Cont.) Product Compatibility Matrix

DSR	PIC	UDR	VNFM	IDIH	ATS
OCDSR Rel 8.4.0.6	Compatibility not tested with MRs and Patch releases	OCUDR 12.6	VNFM 4.5	IDIH 8.2.1, IDIH 8.2.2	N/A
OCDSR Rel 8.5	10.4.0.3	OCUDR 12.6.1	VNFM 5.0	IDIH 8.2.3	ATS 8.5.0.0.0
OCDSR Rel 8.5.0.1	Compatibility not tested with MRs and Patch releases	OCUDR 12.6.1	VNFM 5.1	IDIH 8.2.3	ATS 8.5.0.1.0
OCDSR Rel 8.5.0.2	Compatibility not tested with MRs and Patch releases	OCUDR 12.6.2	VNFM 5.2	IDIH 8.2.3	ATS 8.5.0.2.0
OCDSR Rel 8.5.1.0.0	Compatibility not tested with MRs and Patch releases	OCUDR 12.6.3	VNFM 5.3	IDIH 8.2.3	ATS 8.5.1.0.0
OCDSR Rel 8.6.0.0.0	Compatibility not tested with MRs and Patch releases	OCUDR 12.7.0	VNFM 5.4	IDIH 8.2.3.1	ATS 8.6.0.0.0
OCDSR Rel 8.6.0.1.0	Compatibility not tested with MRs and Patch releases	OCUDR 12.7.0	VNFM 5.4.1	IDIH 8.2.3.1	ATS 8.6.0.0.0
OCDSR Rel 8.6.0.2.0	Compatibility not tested with MRs and Patch releases	OCUDR 12.7.0.1.0	VNFM 5.4.1	IDIH 8.2.3.1	ATS 8.6.0.0.0
OCDSR Rel 8.6.0.3.0	Compatibility not tested with MRs and Patch releases	OCUDR 12.7.0.2.0	VNFM 5.4.3	IDIH 8.2.3.1	ATS 8.6.0.0.0
OCDSR Rel 8.6.0.4.0	Compatibility not tested with MRs and Patch releases	OCUDR 12.7.0.2.0	VNFM 5.4.3	IDIH 8.2.3.1	ATS 8.6.0.0.0
OCDSR Rel 8.6.0.5.0	Compatibility not tested with MRs and Patch releases	OCUDR 12.7.0.2.0	VNFM 5.4.4	IDIH 8.2.3.1	ATS 8.6.0.0.0
OCDSR Rel 9.0.0.0.0	Compatibility not tested with MRs and Patch releases	OCUDR 14.0.0.0.0	VNFM 6.0.0	IDIH 8.2.3.3	ATS 9.0.0.0.0
OCDSR Rel 9.0.1.0.0	Compatibility not tested with MRs and Patch releases	OCUDR 14.0.1.0.0	VNFM 6.0.1	IDIH 8.2.3.3	ATS 9.0.1.0.0
OCDSR Rel 9.0.2.0.0	Compatibility not tested with MRs and Patch releases	OCUDR 14.0.2.0.0	VNFM 6.0.2.0.0	IDIH 8.2.3.3	ATS 9.0.2.0.0
OCDSR Rel 9.1.0.0.0	Compatibility not tested with MRs and Patch releases	OCUDR 14.1.0.0.0	VNFM 6.1.0.0.0	IDIH 9.1.0.0.0	ATS 9.1.0.0.0

Incompatible Software and Features

The following software element is not compatible with DSR 9.0.0.0.0 and later:

- SCEF

The following features are incompatible with DSR 8.3 and later:

- Active/Standby DA-MP server architecture (1+1) redundancy model
- MAP-IWF
- Radius
- GLA
- Diameter Security Application (DSA) with Universal-SBR (USBR) is an obsolete application. Alternatively, Diameter Security Application (DSA) with UDR is introduced in DSR 8.4.0.5.0. For information about this application, refer to the *Diameter Security Application User Guide with UDR*. Customers using this application must not upgrade the DSR software to DSR 8.4.0.5.0 and must migrate to the DSA with UDR based application.
- Virtualized Engineered DSR (VEDSR) deployment, which is also known as TVOE based Fully Virtualized Rack Mount Server (FVRMS) Signaling node, is not supported from DSR 8.3 and later. The non-supported network elements of VEDSR are as follows:
  - DSR NOAM
  - DSR SOAM
  - DSR Message Processors (MP)
  - SS7 MP
  - DSR IPFE
  - DSR SBR (Session/Binding/Universal)
  - SDS NOAM
  - SDS SOAM
  - SDS QS
  - SDS DP

VEDSR networks and associated elements must be migrated to virtual DSR implementation based on KVM with or without OpenStack or VMware prior to DSR 8.3.0 or 8.4.x upgrade or installation.

> **Note:**
>
> Only configuration data can be migrated from old release to new release. Refer to *Upgrade* chapter in the *Diameter Security Application User's Guide with UDR* for procedure.

2
Features and Enhancements

This chapter describes the features and enhancements for the 9.1.0.0.0 release.

2.1 DSR Features

This chapter provides a high-level overview of DSR features that may impact OAM interfaces and activities.

For a list of all features, refer to *DSR Release Notes*.

For additional information about various features, refer to the *DSR Feature Guide*.

> **Note:**
>
> For information about upgrade planning and required procedures before the upgrade, refer to the *DSR Software Upgrade Guide*.

The following features and enhancements that are introduced in this release.

- **SDS Provisioning Capacity Uplift to 800 TPS**: The Transaction Provisioning System (TPS) is updated for subscriber database processor for address resolution and subscriber location functions. For more information, see *Oracle Communications Diameter Signaling Router Cloud Benchmarking Guide*.
- **Increase the APN Limit from 2000 to 8000**: An Access Point Name (APN) is a unique packet data network identifier. The PCA uses configured Access Point Names to validate APN entries received in Diameter signaling, and to apply appropriate stale session timeout values during database audits. For more information, see *Oracle Communications Diameter Signaling Router Policy and Charging Application User Guide*.
- **Egress Throttle limit from 128 to 512 in DRA**: An Egress Throttle Group is a collection of Diameter Connections or Peers, or both, that are logically grouped together to monitor Egress Message Rate and Pending Transactions for multiple Peers and Connections across multiple DA-MPs on a Network Element. For more information, see *Oracle Communications Diameter Signaling Router Diameter User Guide*.
- **Timeout based redirection across RGs**: DSR can re-route request to peer or connection within the same route group up to a specified number of times as defined in Max number of retry within same Route Group. When the count of reroutes attempts reaches the maximum limit, it re-routes the request to the next route group based on their priority. For more information, see *Oracle Communications Diameter Signaling Router Diameter User Guide*.
- **LDAP to support dot symbol and 30 characters username length**: If the user account name has "@" symbol, LDAP Authentication checks for the suffixed domain name in the list of configured LDAP Servers. It then connects to the first available server with a matching domain name to perform the authentication. If this server is not reachable, it proceeds to the next server with a matching domain name. For more information, see *Oracle Communications Diameter Signaling Router Operations, Administration, and Maintenance Guide*.

- **Interface Level Report**: The Interface Level Report allows the user to determine the number of total, successful, and rejected messages forwarded and received to or from DSR over a connection on a diameter interface. For more information, see *Oracle Communications Diameter Signaling Router Diameter User Guide*.and *Oracle Communications Diameter Signaling Router Measurement Reference Guide*.
- **Error codes counter peg at individual error code level**: For each Policy and Charging Site, the Diameter Error Result Code value to send to the Request initiator for policy related errors can be configured according to which condition applies. Each condition can be mapped to a different Result Code for each supported interface. For more information, see *Oracle Communications Diameter Signaling Router Measurement Reference Guide*.
- **DSR Wallaby Support**: Oracle Communications Diameter Signaling Router is supported on OpenStack Wallaby.

2.2 vSTP Features

The following vSTP features are implemented in release 9.1.0.0.0:

- **Proxy Point Code**: vSTP to home network and replacing direct connect links to a foreign network, a method must be available for seamless migration. At present, if the home network migrates links from direct connect to the vSTP, the foreign network must change the APC from the original node to the vSTP self Point Code.
  For more information, see *Oracle Communications Diameter Signaling Router Virtual Signaling Transfer Point User Guide*.
- **Support to Translation Type Mapping**: The Translation Type Mapping feature enhances the functionality of the vSTP by allowing the standardized translation type code values for internetwork applications to be mapped to intranetwork values used within any particular network as well as intranetwork values to be mapped to internetwork values. For more information, see *Oracle Communications Diameter Signaling Router Virtual Signaling Transfer Point User Guide*.
- **Point Code and CIC Translation (PCT)**: The feature enables vSTP to change the DPC, OPC, or CIC of an MTP routed message. This provides vSTP the capability to emulate a point code using other nodes in its network. For more information, see *Oracle Communications Diameter Signaling Router Virtual Signaling Transfer Point User Guide*.
- **MNP Capacity of 600-700Mn in vSTP to support India MNP**: This feature helps users to enhance from DSR 9.1 or UDR 14.1 onwards, UDR capacity for MNP, ENUM, and MNP+ENUM use cases is enhanced to support 700M subscriber. For more information see, *Oracle Communications User Data Repository Installation Guide* (Appendix G).

2.3 VNFM Features

The following VNFM features are implemented in release 9.1.0.0.0:

- **Instantiating the EIDIH VNF (VNFM - V1)** : Instantiating the EIDIH VNF (VNFM - V1) supports the dynamic and fixed IP deployment model. In order to start EIDIH deployment, it is required to instantiate a Signaling VNF. For more information, see *Oracle Communications Virtual Network Functions Manager Installation and User Guide*.
- **DNS/ENUM query Load balancer support**: Introduced load balancer for all queries over vENUM servers in the same server group. Queries are load balanced in a round robin manner, which indiscriminately sends each query to the next server that is up. For more information, see *Oracle Communications Diameter Signaling Router ENUM User Guide*.
- **Increase Compliance to ETSI SOL003 - Life Cycle Operations - Query Subscription Information (VNFM V2)**: This enhancement helps users to subscribe to notifications

related to VNF lifecycle management. For more information, see *Oracle Communications Virtual Network Functions Manager Installation and User Guide*.

2.4 IDIH Features

Enhanced IDIH 9.1 provides a refresh to the architecture of old version while retaining all of its core feature functionality. The architecture brings in latest technology and also provides enhanced User Experience.

3
Software Requirements

This chapter provides information on the software platform component changes in this release.

Supported Software

Table 3-1 Software Platform Components Details for DSR 9.1.0.0.0

Component	Release
SDS Release	9.1.0.0.0_100.17.0
TPD	8.10.1.1.0-150.4.0
COMCOL	8.1.0.4.0-14244
AppWorks	9.9.1-100.13.0
EXGSTACK	9.9.1-100.13.0
DSR	9.1.0.0.0
ATS	9.1.0.0.0-1.0.15
UDR	14.1.0.0.0_114.32.0
VNFM	6.1.0.0.0_61.3.12

> **Note:**
>
> It is recommended to upgrade SDS before DSR.

4
Upgrade Overview

This chapter provides an overview of the upgrade activities for DSR in this release.

4.1 DSR Upgrade Paths

The supported upgrade Paths for DSR 9.1.0.0.0 are listed in the following table:

Table 4-1 DSR Upgrade Paths

Source Release	Target Release
9.0.1.0.0	9.1.0.0.0
9.0.2.0.0	9.1.0.0.0
9.0.2.1.0	9.1.0.0.0

> **Note:**
>
> For further information on upgrading DSR, see *DSR Cloud Software Upgrade Guide*.

4.2 IDIH Upgrade Path

The supported upgrade paths for IDIH 9.1.0.0.0 are listed in the following table:

Table 4-2 IDIH Upgrade Paths

Source Release	Target Release
NA	9.1.0.0.0

> **Note:**
>
> - IDIH 9.1.0.0.0 supports only fresh installation.
> - IDIH 9.1.0.0.0 needs different flavour VMs and require additional resources as compared to the older IDIH.

IDIH upgrade can be scheduled prior to or by following the DSR upgrade. If IDIH upgrade is deferred until after DSR upgrades, then any newly captured elements existing within the upgraded DSR is not decoded by IDIH until after the IDIH upgrade.

4.3 SDS Upgrade Paths

The supported upgrade paths for SDS 9.1.0.0.0 are listed in the following table:

Table 4-3 SDS Upgrade Paths

Source Release	Target Release
9.0.1.0.0	9.1.0.0.0
9.0.2.0.0	9.1.0.0.0
9.0.2.1.0	9.1.0.0.0

Note:

For further information on upgrading SDS, see *SDS Software Upgrade Guide*.

Caution:

During SDS upgrade:

- If the customer deployment has only FABR features enabled, it is recommended to upgrade the SDS nodes before upgrading the DSR nodes.
- If the customer deployment has both the FABR and PCA features enabled, it is recommended to upgrade the DSR nodes before upgrading the SDS nodes.

4.4 UDR Upgrade Paths

The supported upgrade paths for UDR 9.1.0.0.0 are listed in the following table:

Table 4-4 UDR Upgrade Paths

Source Release	Target Release
14.0.0.0.0	14.1.0.0.0
14.0.1.0.0	14.1.0.0.0
14.0.1.0.1	14.1.0.0.0
14.0.2.0.0	14.1.0.0.0

4.5 Upgrade Execution

In DSR, there are multiple methods available for upgrading a site. The most efficient way to upgrade a site is the Automated Site Upgrade (ASU) feature. As the name implies, this feature upgrades an entire site (SOAMs and all C-level servers) with a minimum of user interaction. Once the upgrade is initiated, the upgrade automatically prepares the server(s), performs the upgrade, and then sequences to the next server or group of servers until all servers in the site are upgraded. The server upgrades are sequenced in a manner that preserves data integrity and processing capacity.

Automated Site Upgrade can be used to upgrade the DSR/SDS servers. However, Auto Site Upgrade cannot be used to upgrade IDIH servers at a site.

Additionally, there are separate procedures described in the upgrade procedures to support either a manual or automated approach to upgrade any particular server group. When planning upgrades the *Site Upgrade Methodology Selection* section of the upgrade procedure should be carefully reviewed. The use of the automated methods (Auto Site or Auto Server Group) for DA-MP server groups should be carefully considered regarding potential negative traffic impacts. The ASU enhancement in DSR resolves this issue. The user is now instructed to rearrange or add cycles to create a suitable upgrade plan.

4.6 Limitations

When `AppEventLog` file is full, then SOAM or NOAM becomes unstable and shows undefined behavior, such as:

- Replication and merging stops.
- GUI access stops working.

> **Note:**
>
> Upgrade fails if utilization of `/var/TKLC/rundb` partition is more than 70%, which may be true in case of larger `AppEventLog` file size (~5.5 GB in size).
> To prevent the above listed issues, we need to assign or allocate `/var/TKLC/rundb` size and `AppEventLog` file size in sync. That is the `AppEventLog` file size (plus some delta for other files like MeasStat) should be always less than 70 % of `/var/TKLC/rundb` partition size.

4.7 Migration of DSR Data

As in prior releases, the existing DSR Data is preserved during the migration.

5
MEAL Inserts

This section summarizes the changes to Alarms, Measurements, KPIs, and MIBs.

The following inserts pertain to DSR Release 9.1.0.0.0 MEAL snapshot and deltas to earlier releases:

- MEAL_DELTA_8.6.0.3.0-96.21.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_8.4.0.3.0-85.17.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_8.6.0.6.0-96.32.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_8.6.0.1.0-96.15.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_8.6.0.5.0-96.29.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_8.5.0.2.0-92.3.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_8.6.0.7.0-96.34.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_8.6.0.2.0-96.18.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_9.0.1.0.0-98.15.0_AND_9.1.0.0.0-100.17.0
- MEAL_REPORT_9.1.0.0.0-100.9.0
- MEAL_DELTA_8.5.0.0.0-90.11.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_9.0.2.0.0-99.9.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_9.0.0.0.0-97.16.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_8.5.1.0.0-94.10.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_8.6.0.0.0-95.9.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_8.6.0.4.0-96.22.0_AND_9.1.0.0.0-100.17.0
- MEAL_DELTA_8.5.0.1.0-91.17.0_AND_9.1.0.0.0-100.17.0

> **Note:**
>
> Download MEAL delta files for the above releases from MEAL DELTA.