

vMTAS Network Impact Report from 1.12.0 to 1.15.0

MTAS

NETWORK IMPACT REPORT

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1 Introduction

This Network Impact Report (NIR) describes how vMTAS 1.15.0, with new and enhanced features and corrections, affects vMTAS 1.12.0. The NIR also describes the impact on the overall network, including all affected products and functions.

This document covers the following new and enhanced features:

New Features

- 5G TADS adaptation
- Announcement according to Reason header
- Communication event logging
- Forking Interworking Function (F-IWF)
- MTAS call success rate and drop rate per PLMN
- Multi-Persona on CS
- Protection against endpoints not including SDP in 200OK
- Removal of multiple AS invocation in co-location scenarios
- Reporting Ro CCR(Terminate) failure over Rf interface
- Support CAP call forwarding indication in MTAS
- Support hardware watchdog for Intel 6300 ESB
- Unified roaming determination correction and support for domestic roaming in multiple services
- vMTAS Workflow enhancement when used with Ericsson Orchestrator
- vMTAS tool for faster and easier handling of subscriber and software trace

Enhanced Features

- Adding date to Call Return Announcement for calls older than two days
- Call Type Validation for the destination number provisioned for Abbreviated Dialing
- Communication-barring enhancements
- EM-driven instantiation
- EM-driven scaling



- Graceful locking from vMRF
- Improved Number Table Handling
- Increased number of Rating Centers in Number Analysis
- Mid-call Renegotiation Request Retry
- MTAS barring program enhancements
- Multi-X: Active persona device selection (former Multi-X: Hunting on persona)
- Network Announcement triggered by specific SIP header
- Network-based handling of non-authorized international calls
- Realignment of TCO: Health check output
- Remove Service-Interact-Info Header
- Ro Announcement for errors without Announcement AVP
- Ro Announcement for errors without Announcement AVP (Phase 2)
- Ro Announcement for errors without Announcement AVP (Phase 3)
- Supplementary Service support for multi-persona in IMS/VoLTE
- Support for ANSI network (CAP)
- Support of IMRN in National Format for SDS
- Time-based auto-scale
- vMTAS improved resilience to network disturbances
- vMTAS improved serviceability success rate during in-service scaling

For more information on the changed features, see Section 5 on page 39.

1.1 Terms of Phasing Out Features

The following terms are used when phasing out and removing features from the product:

Deprecated

A feature that is deprecated means that the feature is still there and usable, but is now substituted by another feature, and is subject to be made obsolete or be deleted after one year. During the time from deprecation to making a feature obsolete or deleted, all use of the deprecated feature needs to be migrated to the new feature.

**Obsolete**

Making a feature obsolete means, that the feature or parts of it might be still part of the product (for technical reasons) but are not supported anymore. Use of these features is not possible.

Deleted

Deletion means that the feature is deleted as such, it is not visible and there is no way to use it any more, from the current Release and onwards.





2 General Impact

This section describes the general impact owing to the introduction of vMTAS 1.15.0.

2.1 Backward Compatibility

vMTAS 1.15.0 is backward compatible and unless stated otherwise, legacy behavior is preserved.

2.1.1 Interoperable Network Elements

The interoperable Network Elements for vMTAS 1.15.0 are described in Table 1.

Table 1 Supported Versions of Network Elements

Network Element	Earliest Supported Versions
MRS	14A
CSCF	14A
HSS	14A
OSS-RC	<p>O16A:</p> <p>Upgrade for OSS-RC is only needed when new parameters and counters are introduced in MTAS and are to be used.</p> <p>Up to O18B:</p> <p>The vMTAS 1.15 is backward compatible except synchronizing Number Normalization, Number Analysis and Carrier Select configuration. The same function level exists, but the method for synchronizing the configuration is changed. Respective Table EditAction and CommitAction commands need to be executed before and after the configuration change.</p>
EMA	7.0 CP2
SBG	15B
vENM	<p>vMTAS Lifecycle Management requires 17.15(-3.6.8) version of VNF-LCM; therefore use the 18A release of ENM.</p> <p>Up to ENM 19.1:</p> <p>The vMTAS 1.15 is backward compatible except synchronizing Number Normalization, Number Analysis and Carrier Select configuration. The same function level exists, but the method for synchronizing the configuration is changed. Respective Table EditAction and CommitAction commands need to be executed before and after the configuration change.</p>

2.2 Capacity and Performance

2.2.1 Subscriber Capacity

The subscriber capacity is not affected by the introduction of vMTAS 1.15.0.



The number of half call establishments and releases per second determines the need of processing resources. Processing capacity is the limiting factor for the MMTel, SCC, Conf, NW, and SIP Trunking AS.

2.2.2 Network Performance and Traffic Capacity

Between release 1.12.0 and 1.13.0, the following degradations are applicable, according to our measurements:

AS	HW Concept	PLs	vCPUs	RefCap Delta (in % Baseline Release Capacity)
MMTel AS	GEP5	2	4	-25.0
MMTel AS	GEP5	2	8	-16.9
MMTel AS	GEP5	2	16	-10.7
MMTel AS	GEP5	10	16	-10.8
MMTel AS	GEP7	10	24	-5.8
MMTel AS	GEP7	22	24	-5.7
SCC AS	GEP5	2	16	-13.4
SCC AS	GEP7	10	24	-9.8

Between vMTAS release 1.13.0 and 1.14.0, there is approximately a 5–7% capacity improvement.

Between vMTAS release 1.14.0 and 1.15.0, Capacity can be considered roughly aligned with 1.14.0 release for SCC AS, MMTel AS and NW AS.

This leads to the overall capacity change between release 1.12.0 and 1.15.0 being the sum of the above changes.

2.2.3 License Handling

It is mandatory to use Network License Server (NeLS) product with vMTAS 1.15.0.

For more information, refer to [MTAS Licenses](#).



3 Licenses

This section lists the new and changed license codes added in vMTAS 1.15.0. For a list of (v)MTAS licenses, refer to [MTAS Licenses](#).

3.1 New Licenses

The new licenses are shown in Table 2.

Table 2 New Licenses

Name	Identity	Version
Forking Interworking Function	vMtasForkingIwf	CXC 401 2293
Multi-Persona	vMtasMultiPersona	CXC 401 2309

3.2 Changed Licenses

The changed licenses are shown in Table 3.

Table 3 Changed Licenses

Name	Description of Changes
-	-

3.3 Deprecated Licenses

The deprecated licenses are shown in Table 4.

Table 4 Deprecated Licenses

Name	Description of Changes
-	-

3.4 Deleted Licenses

The deleted licenses are shown in Table 5.

Table 5 Deleted Licenses

Name	Description of Changes
-	-





4 Interfaces

This section describes interface changes between the existing and new revisions of the product.

4.1 Inter-Node Interfaces

The changes to the inter-node interfaces are described in Table 6.

The description of impact is as follows:

- **No Impact** - New version can be installed without affecting other nodes.
- **Minor Impact** – There are changes, but with extra configuration the previous behavior can be kept.
- **Major Impact** – The change has made an interface backward incompatible.
- **New Interface** – The interface did not exist in the previous revision.
- **Obsolete** – The interface no longer exists.

Table 6 Changed Inter-Node Interfaces

Interface	Protocol	Impact	Description of Changes
ICS	SIP	No impact	Retry of relayed mid-dialog renegotiation request on receiving 500 error response with retry-after header. This enhancement can be controlled with the <code>mtasMmtMidCallRenegotiationRetryAfterSupport</code> CM attribute.
ISC	SIP	No Impact	The parsing of the Call-ID header has changed. Until this release MTAS produced a CA and dropped the call if the Call-ID in any SIP message contained certain string literals, for example, "M:". Now this behavior is corrected. See TR HW98411.
ISC, Ma	SIP	No Impact	When a reliable provisional response is received after the final response, MTAS will send PRACK for it and handle the subsequent PRACK ACCEPT accordingly. See HW92831.
OAM MIP	TCP	Major Impact	New firewall rules have been introduced. Some of these rules are responsible to protect SCs against flood attack with limiting the maximum number of TCP sessions toward the OAM MIP. If this limit is exceeding from an IP then that IP will be banned. In normal usage this limit won't be exceed but if a scripted machine to machine communication is in place then it is possible to activate this protection mechanism. In this case it is highly recommended to revise the communication and if it is possible reduce the number of used sessions. If this is not possible then the firewall rules need to be changed accordingly. For this, please refer to the MTAS Security Guide . See HW42027.
CEL	SIP	New Interface	New "Communication Event Logging (CEL)" I/F is introduced where communication event is reported through PUBLISH message for a successful or unsuccessful call attempts. A PUBLISH Request is sent with "call-event-info" XML to event server whose address is configured in <code>mtasCelEventServerName</code> .
MP	H248	No Impact	MTAS supports new service change method: graceful reason: 908. After the arrival of the service change, new connections will not be allowed, but the established connections are not affected. New CM has been introduced to represent this state, called <code>mtasMrfpNodeOperState</code> .



Table 6 Changed Inter-Node Interfaces

Interface	Protocol	Impact	Description of Changes
Rf	DIAMETER	No impact	New Supplementary-Service-Identity AVP value added – UNSUCCESSFUL_MP_CS_SELECTION. This AVP will be populated by Multi-Persona service in Originating Call with Multi-Persona on CS Access use case, when MPCN from incoming INVITE could not be recognized by the service, what leads to unsuccessful call setup.
ISC	SIP	No impact	The following new cases of SIP MESSAGE usage are added: MESSAGE received outside an existing dialog carrying application specific information on an established SIP Control Channel (for example, MCMP) MESSAGE is sent as an acknowledgement of reception and processing of the request from the previous paragraph on an established SIP Control Channel (for example, MCMP) MESSAGE is sent as a result of an application specific condition on an established SIP Control Channel (for example, MCMP). MTAS is rejecting not expected MESSAGE events with 606 Not Acceptable and Warning string "Not Acceptable Here"
SIPCC	SIP	New interface	New control channel interface between MMTel AS and the VoLTE UE used for persona selection when being attached to CS.
ISC	SIP	Minor impact	One-time SUBSCRIBE message includes P-Charging-Vector header if the REGISTER or the initial INVITE contains it. See HX29660.
CAP, MAP	M3-IETF	Minor impact	Default retransmit behavior in M3-IETF is changed. Applications that use zero values (default values) of retransmit buffer and retransmit timer in M3-IETF configuration should be prepared to new M3-IETF behavior. The new behavior is that there will be no data retransmit between M3-IETF and SCTP layers in congestion situation. The reason is to prevent a retransmit loop of the same message causing high CPU load. To have a more stable retransmit handling the parameters should have other values than zero.
ISC	SIP	No impact	When multiple AS roles are invoked that is controlled by IFC configuration: One ISC triggering can invoke the co-located roles in MTAS for SIP signaling on AS generic SIP port. The order of invoked AS roles is specified in the Route header "as=" parameter in the initial SIP request from S-CSCF to MTAS. The invoked AS name is added to P-Ericsson.Invocation-History header of related SIP requests and responses for trouble shooting.
CAP	CAP	No impact	Previously ITU standard and Global Title was hardcoded for the CAP interface. Now support for configuration of standard (ITU or ANSI) used on the CAP signaling network is added. Configuration can be done with the mtasCsiCapSccpStandard CM attribute.
COM	CLI, NETCONF	Major Impact	The vMTAS 1.14 is backward compatible except synchronizing Number Normalization, Number Analysis and Carrier Select configuration. The same function level exists, but the method for synchronizing the configuration is changed. Respective Table EditAction and CommitAction commands need to be executed before and after the configuration change.
ISC	SIP	Minor Impact	When received BYE message, with transport, specified in request URI, MTAS uses this transport for outgoing BYE transaction. TR HX43449.
SH	Diameter	Minor Impact	If NPLI request is sent with InitiateActiveLocationRetrieval current-location value, then the received location information is accepted even if the CurrentLocationRetrieved indication is missing from the answer. (TR HX51849)
ISC	SIP	Minor Impact	When mtasRbtSendonlySdp is set to any value except 0, It's pre-requisite to support 100rel in initial INVITE for RBT service to trigger tone. (TR HX36395)
Rf	Diameter	Minor Impact	New ACR[Event] with Ro failure information is sent over Rf interface
ISC	SIP	Minor Impact	If the SDP answer has been provided in an unreliable provisional response and there is no SDP body in the received 200 OK response to the initial INVITE request, MTAS will reject the call initiation if mtasSipOfferAnswerExchangeControl =1.



Table 6 Changed Inter-Node Interfaces

Interface	Protocol	Impact	Description of Changes
Sh	Diameter	Minor Impact	When error response is received for INVITE in SCC Terminating or SCC Terminating Unregistered session, if served user location is not available and mtasSccNpliTerminatingOnInviteReject is enabled, MTAS will trigger NPLI query to obtain the location information.
Mp	H.248	Minor Impact	Newly introduced, supported H.248 error codes returned by vMRF or native MRFP: <ul style="list-style-type: none"> • 403 (Syntax error in transaction request) • 410 (Incorrect identifier) • 442 (Syntax Error in Command) • 449 (Unsupported or Unknown Parameter or Property Value) • 502 (Not ready) • 503 (Service Unavailable) • 531 (Permanent Network failure) • 533 (Response exceeds maximum transport PDU size) (TR HX51034)
Mr	SIP	Minor Impact	For HX31478 we introduced a new parameter called MtasMrfcNodePriority. Nodes with "Primary" priority value will be preferred over nodes with "Backup" priority value, with the exception when the nodes with primary value are not working in the current selection group.
Mr	SIP	Minor Impact	If mtasMrControllerMrfcNodeRecoveryTimer is set to 0, then none of the configured MRFCs will be marked as "NOT_RESPONDING". (TR HX52510)
Ut, CAI3G	XCAP, CAI3G	Minor Impact	Tomcat is updated 8.5.37 version and JRE/JDK is updated 8u202 version.
ISC, Ma	SIP	Major Impact	<p>MMTel AS and SCC AS are starting to use the AS generic SIP port instead of using dedicated SIP ports for each session case and registration state.</p> <p>The use of the AS generic SIP port requires that the application server trigger in HSS includes the AS name in the trigger. The AS name is added in the Route header in the "as=" parameter.</p> <p>Example for MMTel AS:</p> <p>Route:< sip:mtas.operator.net; as=MMTelAS; lr ></p> <p>and for SCC AS:</p> <p>Route:< sip:mtas.operator.net; as=SCC AS; lr ></p> <p>To be able to determine the session case and reg state, the P-Served-User header must be included in the SIP request.</p> <p>The AS generic SIP port is also handling the PSI functionality over the MA interface. In this case, the AS name must not be included in the Route header.</p> <p>The currently used AS choosing algorithm, based on the configured ports, is deprecated from the 1.10 release.</p>

4.2 Operation and Maintenance

This section describes changes to attributes, alarms, triggers, and performance measurement counters.



4.2.1 Provisioning

This section describes new, changed, deprecated, obsolete and deleted provisioning attributes.

4.2.1.1 New Provisioning Attributes

The new provisioning attributes are listed in Table 7.

Table 7 New Provisioning Attributes

Interface	Protocol	Description of Changes
CAI3G	CAI3G	New service element “communication-event-logging” is added in MTAS for CAI3G information model
CAI3G	CAI3G	New elements introduced in Multi-Persona Service: <ul style="list-style-type: none">• Supplementary-service identity code (not supported in this LSV)• User default identity (used by a user to set default persona within a mobile subscription)User usage (used by a user to set persona policy)
CAI3G	CAI3G	New element introduced in Mobile subscription list: SIP CC impi, (used when registering a sip control channel).
CAI3G	HTTP	New MO Type MMTelContext is introduced with MMTel Context Identity. CAI3G MMTel context Create/Set/Get /Delete is supported. MMTel Context has MMTel <context-identity> element. It must be present always. 2 new lists are introduced in Multi Persona service: public-identity-list and subscription-identity-mapping-list.
Sh	Diameter	MMT_SERVICE_CONFIG service document is appended with zero or more MMTel Context data. 2 new lists are introduced in Multi Persona service: public-identity-list and subscription-identity-mapping-list.

4.2.1.2 Changed Provisioning Attributes

The changed provisioning attributes are listed in Table 8.

Table 8 Changed Provisioning Attributes

Interface	Protocol	Impact	Description of Changes
-	-	-	-

4.2.1.3 Deprecated Provisioning Attributes

The deprecated provisioning attributes are listed in Table 9.

Table 9 Deprecated Provisioning Attributes

Interface	Protocol	Description of Changes
-	-	-



4.2.1.4 Obsolete Provisioning Attributes

The obsolete provisioning attributes are listed in Table 10.

Table 10 Obsolete Provisioning Attributes

Interface	Protocol	Description of Changes
-	-	-

4.2.1.5 Deleted Provisioning Attributes

The deleted provisioning attributes are listed in Table 11.

Table 11 Deleted Provisioning Attributes

Interface	Protocol	Description of Changes
-	-	-

4.2.2 Configuration

This section describes new, changed, deprecated, obsolete, and deleted configuration attributes.

For more information on attributes and parameters, refer to vMTAS Master Parameter Value List.

4.2.2.1 New Configuration Attributes

The new configuration attributes are listed in Table 12.

Table 12 New Configuration Attributes

Attribute Name	Description
CarSelCarrierTableSyncState	Added and supported
carSelDialedStringAnalysisTableSyncState	Added and supported
genericThresholdAlarmEnable	Added and supported
interval_timeout	Added and supported
mtasAbDialCallTypeValidation	Now supported
mtasAsIwInviteHeaderFilter	Added but not supported
mtasAsIwInviteHeaderFilterSessionCase	Added but not supported
MtasBNumberType	Added but not supported
MtasBNumberTypeList	Added but not supported
mtasBNumberTypeTrunkContext	Added but not supported
mtasBNumberTypeTrunkGroup	Added but not supported
MtasCallType	Added but not supported



Attribute Name	Description
MtasCallTypeList	Added but not supported
mtasCallTypeTrunkContext	Added but not supported
mtasCallTypeTrunkGroup	Added but not supported
MtasCel	Now supported
mtasCelAdministrativeState	Now supported
mtasCelEventServerName	Now supported
mtasCelReportingFilterList	Now supported
mtasCelReportingHeaderFilter	Now supported
mtasChargingProfileEnhancedReportRoFailureOverRf	Added but not supported
mtasChargingProfileEnhancedReportRoFailureOverRf	Now supported
mtasChargingProfileReportServedPersona	Added but not supported
mtasChargingProfileRoReject	Added but not supported
mtasChargingProfileRoRejectAnn	Added and supported
mtasChargingProfileRoRejectDefaultAnnRemoteUser	Now supported
mtasChargingProfileRoRejectDefaultAnnServedUser	Now supported
mtasChargingProfileRoRejectGa	Added but not supported
MtasComCcmMccDestinationMapping	Added and supported
mtasComCcmMccDestinationMappingMappedValue	Added and supported
MtasComCcmMccMnc	Added and supported
mtasComCcmMccMncHome	Added and supported
mtasConfLastMovedParticipantRemovalEnabled	Added and supported
MtasCsiCap	Added and supported
mtasCsiCapCdEs	Added and supported
mtasCsiCapCdGti	Added and supported
mtasCsiCapCdNai	Added and supported
mtasCsiCapCdNp	Added and supported
mtasCsiCapCdTt	Added and supported
mtasCsiCapCgEs	Added and supported
mtasCsiCapCgGti	Added and supported
mtasCsiCapCgNai	Added and supported
mtasCsiCapCgNp	Added and supported
mtasCsiCapCgTt	Added and supported
mtasCsiCapSccpStandard	Added and supported
mtasCsiRelayScfAddress	Added but not supported
mtasCsiRelayScfSubsystemNumber	Added but not supported
mtasCwVersion	Added but not supported
mtasDenVersion	Added and supported
mtasFoIwAdministrativeState	Now supported



Attribute Name	Description
mtasFoIwInvocationHeaderHandling	Now supported
mtasFoIwInvocationHeaderName	Now supported
mtasFoIwInvocationHeaderValue	Now supported
mtasFoIwMode	Now supported
mtasFunctionMmtAsName	Added and supported
mtasFunctionNwFoIwAsName	Added and supported
mtasFunctionNwPrIwAsName	Added and supported
mtasFunctionScalingTerminateWaitTime	Added and supported
mtasFunctionSccAsName	Added and supported
mtasGaAnnSessionProgressReason	Added and supported
mtasIdPresOipDisplayNameFiltering	Added but not supported
mtasMmtDomesticRoaming	Added and supported
mtasMmtMidCallRenegotiationRetryAfterSupport	Added and supported
mtasMmtNpliAccessDomainBasedOnUpli	Added but not supported
mtasMmtNpliOriginatingCSLocationInformation	Added and supported
mtasMmtSipccIdentification	Now supported
mtasMmtVersion	Added but not supported
mtasMmtVersion	Now supported
mtasMrfcNodePriority	Added and supported
mtasMrfpNodeOperState	Now supported
mtasMultiPersonaAdministrativeState	Now supported
mtasMultiPersonaCapableFeatureTag	Added but not supported
mtasMultiPersonaEnhancement	Now supported
mtasMultiPersonaInviteDelay	Now supported
mtasMultiPersonaMpcnMaxLifetime	Added and supported
MtasMultiPersonaMpcnRange	Added and supported
mtasMultiPersonaMpcnRangeFirst	Added and supported
mtasMultiPersonaMpcnRangeLast	Added and supported
mtasMultiPersonaOrigPolicyRejectionAnnName	Added but not supported
MtasNaAnnCauseT	Added and supported
mtasNaAnnCauseTAnnName	Added and supported
mtasNaAnnCauseTRejectCode	Added and supported
mtasNaAnnCauseTRejectReason	Added and supported
MtasNaRaSipHeader	Added and supported
mtasNaRaSipHeaderGaAnnId	Added and supported
mtasNaRaSipHeaderName	Added and supported
mtasNaRaSipHeaderRejectCode	Added and supported
mtasNaRaSipHeaderRejectReason	Added and supported



Attribute Name	Description
mtasNaRaSipHeaderValue	Added and supported
mtasNumNormLocalnessExceptionListBehaviour	Added but not supported
mtasNumNormLocalnessInterLataAdjBehaviour	Added but not supported
MtasScaling	Added and supported
mtasScalingScaleIn	Added and supported
mtasScalingScaleOut	Added and supported
mtasScalingTimeBasedScalingEnabled	Added and supported
mtasSccNpliAccessDomainBasedOnUpli	Added but not supported
mtasSccNpliTerminatingOnInviteReject	Added and supported
mtasSdsConditionalGlobalTitle	Added but not supported
mtasSdsConditionalServiceKey	Added but not supported
mtasSdsConditionalServiceKeys	Added but not supported
mtasSdsConditionalTermCall	Added but not supported
mtasSdsImrnNai	Added and supported
mtasSipOfferAnswerExchangeControl	Added and supported
mtasSipTransparentTelContact	Added but not supported
mtasSrvccAlertAckFallbackTime	Added and supported
mtasSrvccPreconditionTime	Added and supported
mtasSrvccPreconditionTime	Now supported
MtasSscMultiPersona	Added but not supported
mtasSscMultiPersonaEnforceSscSubscribe	Added but not supported
mtasSscMultiPersonaNegInvAnnPersonaSel	Added but not supported
mtasSscMultiPersonaSyntInvPersonaSel	Added but not supported
mtasTadsSuppressCsRetryWhen5G	Added and supported
MtasTrunkGroup	Added but not supported
mtasTrunkGroupAddLataForTollFree	Added but not supported
mtasTrunkGroupAdministrativeState	Added but not supported
numAnaLocalCallTableSyncState	Added and supported
numberNormalisationTableSyncState	Added and supported
shutdown_timeout	Added and supported
VtasCallTypeList	Added but not supported
VtasCel	Now supported
vtasCelAdministrativeState	Now supported
vtasCelDropBack	Now supported
vtasCelEventServerName	Now supported
vtasCelReportingFilterList	Now supported
vtasCelReportingHeaderFilter	Now supported
vtasConfLastMovedParticipantRemovalEnabled	Added and supported



Attribute Name	Description
vtasCwVersion	Added but not supported
VtasDnm	Added but not supported
vtasDnmAdministrativeState	Added but not supported
vtasDnmAnnLocalFormatDialingFailure	Added but not supported
vtasDnmAnnPreventedAccessTypeWifi	Added but not supported
vtasDnmAnnRejectInvalidDialedNumberLength	Added but not supported
vtasDnmAnnRejectInvalidNPA	Added but not supported
vtasDnmAnnRejectLocalFormatNbr	Added but not supported
vtasDnmAnnRejectLocalFormatNbrRestriction	Added but not supported
vtasDnmAnnRejectShortCodeNbr	Added but not supported
vtasDnmAnnShortCodeFailure	Added but not supported
vtasDnmAnnTransitionArea	Added but not supported
vtasDnmAnnWarningLongDistance	Added but not supported
vtasDnmDropback	Added but not supported
vtasDnmFixedDeviceSupport	Added but not supported
vtasDnmFixedDeviceSupportApplicableForLocalness	Added but not supported
vtasDnmNationalAfterLocal	Added but not supported
vtasGaAnnSessionProgressReason	Added and supported
vtasIdPresOipDisplayNameFiltering	Added but not supported
vtasMmtDomesticRoaming	Added but not supported
vtasMmtDomesticRoaming	Now supported
vtasMmtMidCallRenegotiationRetryAfterSupport	Added and supported
vtasMmtSipccIdentification	Now supported
vtasMmtVersion	Added but not supported
vtasMmtVersion	Now supported
vtasMultiPersonaAdministrativeState	Now supported
vtasMultiPersonaCapableFeatureTag	Added but not supported
vtasMultiPersonaEnhancement	Now supported
vtasMultiPersonaInviteDelay	Now supported
vtasMultiPersonaMpcnMaxLifetime	Added and supported
VtasMultiPersonaMpcnRange	Added and supported
vtasMultiPersonaMpcnRange	Now supported
vtasMultiPersonaMpcnRangeFirst	Added and supported
vtasMultiPersonaMpcnRangeLast	Added and supported
vtasMultiPersonaOrigPolicyRejectionAnnName	Added but not supported
VtasNaAnnCauseT	Added and supported
vtasNaAnnCauseTAnnName	Added and supported
vtasNaAnnCauseTRejectCode	Added and supported



Attribute Name	Description
vtasNaAnnCauseTRejectReason	Added and supported
VtasNaRaSipHeader	Added and supported
vtasNaRaSipHeaderGaAnnId	Added and supported
vtasNaRaSipHeaderName	Added and supported
vtasNaRaSipHeaderRejectCode	Added and supported
vtasNaRaSipHeaderRejectReason	Added and supported
vtasNaRaSipHeaderValue	Added and supported
VtasSscMultiPersona	Added but not supported
vtasSscMultiPersonaEnforceSscSubscribe	Added but not supported
vtasSscMultiPersonaNegInvAnnPersonaSel	Added but not supported
vtasSscMultiPersonaSyntInvPersonaSel	Added but not supported
VtasTrunkGroup	Added but not supported
vtasTrunkGroupAddLataForTollFree	Added but not supported
vtasTrunkGroupAdministrativeState	Added but not supported
vtasTrunkGroupDropBack	Added but not supported
VtasTrunkGroupForVoiceMail	Added but not supported
vtasTrunkGroupForVoiceMailRetrievalOrDeposit	Added but not supported
vtasTrunkGroupForVoiceMailTrunkContext	Added but not supported
vtasTrunkGroupForVoiceMailTrunkGroup	Added but not supported
watchdog_timeout	Added and supported

4.2.2.2

Changed Configuration Attributes

The changed configuration attributes are shown in Table 13.

Table 13 Changed Configuration Attributes

Attribute Name	Description of Changes
DN mmasMemoryMonitoringId=1,mmasMonitoringId=1,mmasId=1 "enabled"	enabled is set to false ensuring that the alarm will not come anymore. For more information, see section Deleted Alarms.
mtasCbVersion	ENUM 3 = VERSION_3. When it is set to 3 (VERSION_3), Outgoing Communication Barring service reports 141 (INTERNATIONAL_TOLL_RESTRICTION) in charging event when call is barred because of International or International-exHC condition in barring rules.
mtasChargingProfileRoRejectAnn	new Pattern supported: ^\$ ^([0-9]{4})\ ann=[a-zA-Z0-9_]+\$
mtasCrLastCallInfoType	New enum value 3: INDEPENDENT_OF_INTERROGATION_TIME_RELATIVE_FULL_DATE
mtasCsiMapSccpStandard	Corrected the dependency statement to "Can be set to ANSI (0) if mtasCsiMapCdGti and mtasCsiMapCgGti are NO_GT (0), GT_TT (2) or GT_TT_NP_ES (3) and if mtasCsiMapCdTt and mtasCsiMapCgTt is less than 255". See HX37396.



Attribute Name	Description of Changes
mtasImrnRangeFirst	Can be in national format.
mtasImrnRangeLast	Can be in national format.
mtasMmtAsName	The attribute default value is changed from "MMTelAS" to "mmt".
mtasMrControllerMrfcNodeRecoveryTimer	Range changed from 10–7200 to 0–7200. 0 means that the timer is not started, and the MrfcNode is not put to blacklist at all. See HX52510.
MtasNaAnnCause	Changed Description to indicate, that the configuration is for the originating side.
mtasNaAnnCauseAnnName	Changed Description to indicate, that the configuration is for the originating side.
mtasNaAnnCauseRejectCode	Changed Description to indicate, that the configuration is for the originating side.
mtasNaAnnCauseRejectReason	Changed Description to indicate, that the configuration is for the originating side.
mtasOcbBCatNumBarred	Support of wildcard "^" character in number matching pattern
mtasOcbBCatNumExempted	Support of wildcard "^" and fixed length limiter "\$" in number matching pattern
mtasOcbOpBCatNumBarred	Support of wildcard "^" character in number matching pattern
mtasOcbOpBCatNumExempted	Support of wildcard "^" and fixed length limiter "\$" in number matching pattern
mtasSccAsName	The attribute default value is changed from "SCCAS" to "scc".
mtasStodCallPullPolicyRoaming	New enum value: 3: SAME_NETWORK. Pull from roaming device is allowed when target device and pulling device are roaming in same network. Device (mobile/fixed) in home network can always pull the call.
MtasTestAnnNumbers	According our documentation for MtasTestAnnNumbers, the maximum number is 255. This number was not checked before, now this fault is fixed. See HX47949.
vDicosLogRecordSize	Based on MTASNC-4430 the vDicos variable defined with the value of 0 to avoid extra spaces from MTASAplogs.
vtasCbVersion	New enum value 3 = VERSION_3. When it is set to 3 (VERSION_3), Outgoing Communication Barring service reports 141 (INTERNATIONAL_TOLL_RESTRICTION) in charging event when call is barred because of International or International-exHC condition in barring rules.
vtasCrLastCallInfoType	New enum value 3: INDEPENDENT_OF_INTERROGATION_TIME_RELATIVE_FULL_DATE
VtasNaAnnCause	Changed Description to indicate, that the configuration is for the originating side.
vtasNaAnnCauseAnnName	Changed Description to indicate, that the configuration is for the originating side.
vtasNaAnnCauseRejectCode	Changed Description to indicate, that the configuration is for the originating side.
vtasNaAnnCauseRejectReason	Changed Description to indicate, that the configuration is for the originating side.



Attribute Name	Description of Changes
vtasOcbBCatNumBarred	Support of wildcard "^" character in number matching pattern
vtasOcbBCatNumExempted	Support of wildcard "^" and fixed length limiter "\$" in number matching pattern
vtasOcbOpBCatNumBarred	Support of wildcard "^" character in number matching pattern
vtasOcbOpBCatNumExempted	Support of wildcard "^" and fixed length limiter "\$" in number matching pattern

4.2.2.3 Deprecated Configuration Attributes

The deprecated configuration attributes are listed in Table 14.

Table 14 Deprecated Configuration Attributes

Attribute Name	Description of Changes
MtasChargingProfileRoReject	Was never supported
mtasChargingProfileRoRejectGa	Was never supported
mtasGaAnnCauseValue	Use mtasGaAnnSessionProgressReason instead.
vtasGaAnnCauseValue	Use vtasGaAnnSessionProgressReason instead.
mtasMmtAsName	Replaced with mtasFunctionMmtAsName
mtasMrfpNodeOperationalState	The CM is deprecated with mtasMrfpNodeOperState
mtasNwAsName	The CM is deprecated with mtasNwPriWAsName. During upgrade, the value of mtasNwAsName is migrated automatically to mtasNwPriWAsName.
mtasNwFoIwAsName	Replaced with mtasFunctionNwFoIwAsName
mtasSccAsName	Replaced with mtasFunctionSccAsName
mtasFunctionMmtAsName	Upgrade from previous release – mtasMmtAsName value is copied to mtasFunctionMmtAsName. See HX31452.
mtasFunctionSccAsName	Upgrade from previous release – mtasSccAsName value is copied to mtasFunctionSccAsName. See HX31452.
MtasMultiPersonaImrnRange	Deprecated
mtasMultiPersonaImrnRangeFirst	Deprecated
mtasMultiPersonaImrnRangeLast	Deprecated
mtasMultiPersonaImrnLifetime	Deprecated
VtasMultiPersonaImrnRange	Deprecated
vtasMultiPersonaImrnRangeFirst	Deprecated
vtasMultiPersonaImrnRangeLast	Deprecated
vtasMultiPersonaImrnLifetime	Deprecated
mtasMultiPersonaImrnLifetime	Deprecated because IMRN acronym was changed for MPCN for readability and new CMs were introduced
mtasMultiPersonaImrnRange	Deprecated because IMRN acronym was changed for MPCN for readability and new CMs were introduced



Attribute Name	Description of Changes
mtasMultiPersonaImrnRangeFirst	Deprecated because IMRN acronym was changed for MPCN for readability and new CMs were introduced
mtasMultiPersonaImrnRangeLast	Deprecated because IMRN acronym was changed for MPCN for readability and new CMs were introduced
mtasSdsConditionalServiceKeys	Was never supported
vtasMultiPersonaImrnLifetime	Deprecated because IMRN acronym was changed for MPCN for readability and new CMs were introduced
vtasMultiPersonaImrnRange	Deprecated because IMRN acronym was changed for MPCN for readability and new CMs were introduced
vtasMultiPersonaImrnRangeFirst	Deprecated because IMRN acronym was changed for MPCN for readability and new CMs were introduced
vtasMultiPersonaImrnRangeLast	Deprecated because IMRN acronym was changed for MPCN for readability and new CMs were introduced
SC114 and SC115	Deprecated

4.2.2.4 Obsolete Configuration Attributes

The configuration MOCs and attributes made obsolete are shown in Table 15.

Table 15 Obsolete Configuration Attributes

Attribute Name	Description of Changes
mtasMrfpNodeOperationalState	Not supported, obsolete, mtasMrfpNodeOperState has taken over the role of this CM
carSelDialedStringAnalysisTableSynchronization	CMCO – Carrier Select – made obsolete and replaced by carSelDialedStringAnalysisTableSyncState
carSelCarrierTableSynchronization	CMCO – Carrier Select – made obsolete and replaced by CarSelCarrierTableSyncState
numAnaLocalCallTableSynchronization	CMCO – Number Analysis – made obsolete and replaced by numAnaLocalCallTableSyncState
numberNormalisationTableSync	CMCO Number Normalization – made obsolete and replaced by numberNormalisationTableSyncState
mtasSystemConstantSC1	Obsoleted (Parameter provides a possibility to configure MMTel AS to suppress the general No Reply Timer supervision in case CFNR or FCD-NR supervisions expire. This in order to avoid conflicting actions resulting in failed diversion.)
SC 72	System Constant 72 is obsoleted
SC 86	System Constant 86 is obsoleted

4.2.2.5 Deleted Configuration Attributes

The deleted configuration attributes are shown in Table 16.

Table 16 Deleted Configuration Attributes

Attribute Name	Description
DN "fmAlarmTypeId=Memory,fmAlarmModelId=MM AS,fmId=1"	This is deleted. For more information, see section Deleted Alarms.



4.2.3 Fault Management

This section describes changed, new, and removed alarms.

4.2.3.1 New Alarms

The new alarms are shown in Table 17.

Table 17 New Alarms

Alarm Name	Description
Forking Interworking Function License Absent	The alarm is raised when mtasFoIwAdministrativeState is unlocked and Forking Interworking Function license is absent, expired or invalid, and snoozed when a valid license is installed.
MultiPersona Service License Absent	The alarm is raised when mtasMultiPersonaAdministrativeState is unlocked and MultiPersona Service license is absent, expired or invalid, and snoozed when a valid license is installed.
MTAS Time Based Scaling	This alarm will be raised at a specific time configured on the VNF, and is used for triggering the time based scaling feature.
SRM Alarm System Resources High Usage	This threshold-based alarm is raised when one or more system resources are above the configured limits and genericThresholdAlarmEnable is set to 1.
SRM Alarm System Resources Low Usage	This threshold-based alarm is raised when one or more system resources are below the configured limits and genericThresholdAlarmEnable is set to 1.

4.2.3.2 Changed Alarms

The changed alarms are shown in Table 18.

Table 18 Changed Alarms

Alarm Name	Description of Changes
-	-

4.2.3.3 Deleted Alarms

The deleted alarms are shown in Table 19.

Table 19 Deleted Alarms

Alarm Name	Description
MMAS, Heap Memory Load Limit Exceeded	<p>The alarm was raised by the Multimedia Application Server (MMAS) as part of overload protection when the heap memory load exceeds a configured threshold value.</p> <p>The reason to delete the alarm is because the behavior of standard Java raise the alarm, when the memory is allocated, and cease the alarm, when the garbage collection is executed. This result was a flaky alarm, without traffic impact. See HW61234.</p>



4.2.4 IFC Triggers

4.2.4.1 New IFC Triggers

The new IFC triggers are listed in Table 20.

Table 20 New IFC Triggers

Reason	IFC
To trigger Forking Interworking Function on NW AS	The Forking IWF service can be invoked by 2 levels: iFC and CM parameters within MTAS. On iFC level, the top most route header must have an "as" parameter with a value set to the configured CM attribute mtasNwFoIwAsName, if the generic port functionality is used. When the iFC has no condition in the rule (always adds "as" to trigger the FoIwf AS) then additional condition can be used in MTAS with the mtasFoIwMode CM attribute to trigger FoIw functionality.
The device will send a SIP MESSAGE with its own IMPU as destination. This MESSAGE should reach the MMTel AS	Trigger the MMTel AS on either the generic SIP port or on the originating port (mtasSipTrafficOriginatingIpPort) when Method="MESSAGE" AND SessionCase="ORIGINATING_REGISTERED" AND Header="Content-Type" Content="application/vnd.call-id-info+xml"

4.2.4.2 Changed IFC Triggers

The changed IFC triggers are listed in Table 21

Table 21 Changed IFC Triggers

Reason	IFC
Multiple AS roles invocation on one ISC triggering	For multiple AS invocation in co-location MTAS on AS generic SIP port, the IFC triggers must contain the AS roles. Example for originating MTAS: Trigger2ApplicationServers: xxx: sip:<mtas.operator.net>; as="scc,foiwf,mmt,priwf" The order of AS roles is specified in the Route Header "as="

4.2.5 Performance Measurement

This section lists new and changed, deprecated, obsolete, and deleted Performance Measurement (PM) counters.

For more information on counter description, refer to [MTAS Performance Measurements](#).

4.2.5.1 New PM Counters

The new PM counters are listed in Table 22.



Table 22 New PM Counters

Counter Name	Description
MtasCBOCBBarredType	Added and supported
MtasCBOCBNotBarredType	Added and supported
MtasCelNOkE	Now Supported
MtasCelNOkI	Now Supported
MtasCelOk	Now Supported
MtasFoIwNOkE	Now supported
MtasFoIwNOkI	Now supported
MtasFoIwOk	Now supported
MtasMmtInitOrigPlmnSessNOkNet	Added but not supported
MtasMmtInitOrigPlmnSessNOkNet	Now supported
MtasMmtInitOrigPlmnSessNOkService	Now supported
MtasMmtInitOrigPlmnSessNOkSupportNode	Now supported
MtasMmtInitOrigPlmnSessNOkUser	Now supported
MtasMmtInitOrigPlmnUnregSessNOkNet	Now supported
MtasMmtInitOrigPlmnUnregSessNOkService	Now supported
MtasMmtInitOrigPlmnUnregSessNOkSupportNode	Now supported
MtasMmtInitOrigPlmnUnregSessNOkUser	Now supported
MtasMmtInitTermPlmnSessNOkNet	Now supported
MtasMmtInitTermPlmnSessNOkService	Now supported
MtasMmtInitTermPlmnSessNOkSupportNode	Now supported
MtasMmtInitTermPlmnSessNOkUser	Now supported
MtasMmtInitTermPlmnUnregSessNOkNet	Now supported
MtasMmtInitTermPlmnUnregSessNOkService	Now supported
MtasMmtInitTermPlmnUnregSessNOkSupportNode	Now supported
MtasMmtInitTermPlmnUnregSessNOkUser	Now supported
MtasMmtOrigPlmnNetworkSuccessSessionEstablish	Now supported
MtasMmtOrigPlmnUnregNetworkSuccessSessionEstablish	Now supported
MtasMmtTermOrigPlmnSessNOk	Now supported
MtasMmtTermOrigPlmnSessNOkECause	Now supported
MtasMmtTermOrigPlmnSessNOkServiceCause	Now supported
MtasMmtTermOrigPlmnSessOk	Now supported
MtasMmtTermOrigPlmnUnregSessNOk	Now supported
MtasMmtTermOrigPlmnUnregSessNOkECause	Now supported
MtasMmtTermOrigPlmnUnregSessNOkServiceCause	Now supported
MtasMmtTermOrigPlmnUnregSessOk	Now supported
MtasMmtTermPlmnNetworkSuccessSessionEstablish	Now supported



Counter Name	Description
MtasMmtTermPlmnUnregNetworkSuccessSessionEstablish	Now supported
MtasMmtTermTermPlmnSessNOK	Now supported
MtasMmtTermTermPlmnSessNOKCause	Now supported
MtasMmtTermTermPlmnSessNOKServiceCause	Now supported
MtasMmtTermTermPlmnSessOk	Now supported
MtasMmtTermTermPlmnUnregSessNOK	Now supported
MtasMmtTermTermPlmnUnregSessNOKCause	Now supported
MtasMmtTermTermPlmnUnregSessNOKServiceCause	Now supported
MtasMmtTermTermPlmnUnregSessOk	Now supported
MtasMultiPersonaOrigSelAttempts	Now supported
MtasMultiPersonaOrigSelectionsNOK	Now supported
MtasMultiPersonaOrigSelectionsNOKI	Now supported
MtasMultiPersonaOrigSelectionsOk	Now supported
MtasMultiPersonaTermSelAttempts	Now supported
MtasMultiPersonaTermSelectionsNOK	Now supported
MtasMultiPersonaTermSelectionsNOKI	Now supported
MtasMultiPersonaTermSelectionsOk	Now supported
MtasSccInitOrigCsPlmnSessAttempts	Now supported
MtasSccInitOrigCsPlmnSessNOKNet	Now supported
MtasSccInitOrigCsPlmnSessNOKUser	Now supported
MtasSccInitOrigCsPlmnSessOk	Now supported
MtasSccInitTermCsPlmnSessAttempts	Now supported
MtasSccInitTermCsPlmnSessNOKNet	Now supported
MtasSccInitTermCsPlmnSessNOKUser	Now supported
MtasSccInitTermCsPlmnSessOk	Now supported
MtasSccTermOrigCsPlmnSessCompletionAttempts	Now supported
MtasSccTermOrigCsPlmnSessNOK	Now supported
MtasSccTermOrigCsPlmnSessOk	Now supported
MtasSccTermTermCsPlmnSessCompletionAttempts	Now supported
MtasSccTermTermCsPlmnSessNOK	Now supported
MtasSccTermTermCsPlmnSessOk	Now supported
MtasSdsCapInitDPRelayAttempt	Added but not supported
MtasSdsPlmnCapInitDPOrigNOK	Now supported
MtasSdsPlmnCapInitDPOrigNOKI	Now supported
MtasSdsPlmnCapInitDPOrigOk	Now supported
MtasSdsPlmnCapInitDPOrigPlmnNOK	Added but not supported
MtasSdsPlmnCapInitDPOrigPlmnNOKI	Added but not supported



Counter Name	Description
MtasSdsPlmnCapInitDPOrigPlmnOk	Added but not supported
MtasSdsPlmnImrnNOkE	Now supported
MtasSdsPlmnImrnNOkI	Now supported
MtasSdsPlmnImrnOk	Now supported

4.2.5.2 Changed PM Counters

The changed PM counters are listed in Table 23.

Table 23 Changed PM Counters

Counter Name	Description of Changes
MtasSubsReregOk	Fixed no increment in common scenario when mtasSubsDataInitRegHSSFchDelay=3. See HW90791.

4.2.5.3 Deprecated PM Counters

The deprecated PM counters are listed in Table 24.

Table 24 Deprecated PM Counters

Counter Name	Description of Changes
MtasMmtInitOrigSessNOkNet	MtasMmtInitOrigPlmnSessNOkNet counter can be used instead
MtasMmtInitOrigSessNOkService	MtasMmtInitOrigPlmnSessNOkService counter can be used instead
MtasMmtInitOrigSessNOkSupportNode	MtasMmtInitOrigPlmnSessNOkSupportNode counter can be used instead
MtasMmtInitOrigSessNOkUser	MtasMmtInitOrigPlmnSessNOkUser counter can be used instead
MtasMmtInitOrigUnregSessNOkNet	MtasMmtInitOrigPlmnUnregSessNOkNet counter can be used instead
MtasMmtInitOrigUnregSessNOkService	MtasMmtInitOrigPlmnUnregSessNOkService counter can be used instead
MtasMmtInitOrigUnregSessNOkSupportNode	MtasMmtInitOrigPlmnUnregSessNOkSupportNode counter can be used instead
MtasMmtInitOrigUnregSessNOkUser	MtasMmtInitOrigPlmnUnregSessNOkUser counter can be used instead
MtasMmtInitTermSessNOkNet	MtasMmtInitTermPlmnSessNOkNet counter can be used instead
MtasMmtInitTermSessNOkService	MtasMmtInitTermPlmnSessNOkService counter can be used instead
MtasMmtInitTermSessNOkSupportNode	MtasMmtInitTermPlmnSessNOkSupportNode counter can be used instead
MtasMmtInitTermSessNOkUser	MtasMmtInitTermPlmnSessNOkUser counter can be used instead
MtasMmtInitTermUnregSessNOkNet	MtasMmtInitTermPlmnUnregSessNOkNet counter can be used instead



Counter Name	Description of Changes
MtasMmtInitTermUnregSessNokService	MtasMmtInitTermPlmnUnregSessNokService counter can be used instead
MtasMmtInitTermUnregSessNokSupportNode	MtasMmtInitTermPlmnUnregSessNokSupportNode counter can be used instead
MtasMmtInitTermUnregSessNokUser	MtasMmtInitTermPlmnUnregSessNokUser counter can be used instead
MtasMmtOrigNetworkSuccessSessionEstablish	MtasMmtOrigPlmnNetworkSuccessSessionEstablish counter can be used instead
MtasMmtOrigUnregNetworkSuccessSessionEstablish	MtasMmtOrigPlmnUnregNetworkSuccessSessionEstablish counter can be used instead
MtasMmtTermNetworkSuccessSessionEstablish	MtasMmtTermPlmnNetworkSuccessSessionEstablish counter can be used instead
MtasMmtTermOrigSessNok	MtasMmtTermOrigPlmnSessNok counter can be used instead
MtasMmtTermOrigSessNokECause	MtasMmtTermOrigPlmnSessNokECause counter can be used instead
MtasMmtTermOrigSessNokServiceCause	MtasMmtTermOrigPlmnSessNokServiceCause counter can be used instead
MtasMmtTermOrigSessOk	MtasMmtTermOrigPlmnSessOk counter can be used instead
MtasMmtTermOrigUnregSessNok	MtasMmtTermOrigPlmnUnregSessNok counter can be used instead
MtasMmtTermOrigUnregSessNokECause	MtasMmtTermOrigPlmnUnregSessNokECause counter can be used instead
MtasMmtTermOrigUnregSessNokServiceCause	MtasMmtTermOrigPlmnUnregSessNokServiceCause counter can be used instead
MtasMmtTermOrigUnregSessOk	MtasMmtTermOrigPlmnUnregSessOk counter can be used instead
MtasMmtTermTermSessNok	MtasMmtTermTermPlmnSessNok counter can be used instead
MtasMmtTermTermSessNokECause	MtasMmtTermTermPlmnSessNokECause counter can be used instead
MtasMmtTermTermSessNokServiceCause	MtasMmtTermTermPlmnSessNokServiceCause counter can be used instead
MtasMmtTermTermSessOk	MtasMmtTermTermPlmnSessOk counter can be used instead
MtasMmtTermTermUnregSessNok	MtasMmtTermTermPlmnUnregSessNok counter can be used instead
MtasMmtTermTermUnregSessNokECause	MtasMmtTermTermPlmnUnregSessNokECause counter can be used instead
MtasMmtTermTermUnregSessNokServiceCause	MtasMmtTermTermPlmnUnregSessNokServiceCause counter can be used instead
MtasMmtTermTermUnregSessOk	MtasMmtTermTermPlmnUnregSessOk counter can be used instead
MtasMmtTermUnregNetworkSuccessSessionEstablish	MtasMmtTermPlmnUnregNetworkSuccessSessionEstablish counter can be used instead

4.2.5.4

Obsolete PM Counters

The obsolete PM counters are listed in Table 25.



Table 25 Obsolete PM Counters

Counter Name	Description of Changes
-	-

4.2.5.5 Deleted PM Counters

The deleted PM counters are shown in Table 26.

Table 26 Deleted PM Counters

Counter Name	Description of Changes
MtasSdsPlmnCapInitDPOrigPlmnOk	It was never supported.
MtasSdsPlmnCapInitDPOrigPlmnNOkE	It was never supported.
MtasSdsPlmnCapInitDPOrigPlmnNOkI	It was never supported.

4.3 Impacts to Continuous Delivery Machinery

This section summarizes the impacts to the Continuous Delivery Machinery, which can need changes based on the listed items.

A summary of impacts is shown in Table 27.

The description of impact is as follows:

- **No Impact** – This change has a very low chance to have an impact on any CD Machinery or can be activated with additional configuration.
- **Minor Impact** – This change has a medium chance to have an impact on any CD Machinery.
- **Major Impact** – This change is having an impact on CD Machinery with high probability.

Table 27 Summary of Impacts to CD Machinery

Service	Impact	Description of Changes
Health Check	Minor Impact	Minor NBC changes on interface of Health Check triggering script: <ul style="list-style-type: none">• Type 'troubleshooting' renamed to 'full'• Periodic scheduling options changed• Period scheduling unit changed from second to hour XML format report changed because of schema changes. HTML report is unchanged.



Table 27 Summary of Impacts to CD Machinery

Service	Impact	Description of Changes
Health Check	Minor Impact	'SoftwareVersions' check functionality is extended to verify if R-states of all MTAS components are the same.
SS7 trace	Minor impact	The ss7trace.log file has changed permission to prevent others than users with root privileges to read it. Also permissions for the ss7caf-collect-info script is changed to only allow users with root privileges to execute it. This means that if still root user executes it there is no impact. If a user is belonging to system-ts group is used, a password will be required to access the script. No other users are allowed to execute.

4.4 Summary of Impacts per Feature

All MTAS nodes in the network must be upgraded before taking new services in operation. This section summarizes the impact per feature when the feature is turned on. A summary of impacts per feature is shown in Table 28.

The description of impact is as follows:

- **No Impact** – This change has very low chance to have an impact or can be activated with additional configuration.
- **Minor Impact** – This change has medium chance to have an impact.
- **Major Impact** – This change has an impact with a high probability.

Table 28 Summary of Impacts per Feature

Feature	Service	Impact	Description of Changes
Support of IMRN in national format for SDS	CS Interworking/SDS	No impact	New option in the SDS function to return the destinationRoutingAddress/IMRN in CAP CONNECT in National format, without the country code, and with the NAI set to 3 (national). Configured by CM parameter mtasSdsImrnNai.
Call type validation for the destination number provisioned for abbreviated dialing	Abbreviated Dialing	No impact	If call type validation for the destination number provisioned for abbreviated dialing is needed on the CAI3G interface, the CM parameter mtasAbDi alCallTypeValidation must be activated.



Adding date to call return announcement for calls older than two days	Call Return	No Impact	Call Return service is enhanced to provide a new option for <code>mtasCrLastCallInfoType</code> to present relative day and date. This feature enhancement is controlled with the following CM attribute: <code>mtasCrLastCallInfoType</code> enum value 3.
Call type validation for the destination number provisioned for abbreviated dialing	CDiv, Abbreviated Dialing	No impact	If call type validation for the destination number provisioned for abbreviated dialing is needed on the Ut interface, the CM parameter <code>mtasAbDialCallTypeValidation</code> must be activated
Communication barring enhancements	ICB	No Impact	ICB service of MMTel AS will support domestic roaming and can bar the calls on detecting network level roaming after the country level roaming is detected. This feature can be configured with the following CM attributes: <code>mtasComCcmMccDestinationMapping</code> , <code>mtasComCcmMccDestinationMappingMappedValue</code> , <code>mtasComCcmMccMnc</code> , <code>mtasComCcmMccMncHome</code>
Network announcement triggered by specific SIP header	Network Announcement Service	No Impact	This feature is to enable MTAS to recognize a customer specific SIP header in initial INVITE, reject the call setup and play an announcement to the user. This feature is controlled with the following CM attributes: <code>mtasNaRaSipHeaderName</code> , <code>mtasNaRaSipHeaderValue</code> , <code>mtasNaRaSipHeaderGaAnnId</code> , <code>mtasNaRaRejectCode</code> , <code>mtasNaRaRejectReason</code> , <code>mtasGaAnnSessionProgressReason</code> , <code>vtasNaRaSipHeaderName</code> , <code>vtasNaRaSipHeaderValue</code> , <code>vtasNaRaSipHeaderGaAnnId</code> , <code>vtasNaRaRejectCode</code> , <code>vtasNaRaRejectReason</code> , <code>vtasGaAnnSessionProgressReason</code> .



Communication barring enhancements	OCB	No Impact	OCB service of MMTel AS will support domestic roaming and can bar the calls on detecting network level roaming after the country level roaming is detected. This feature can be configured with the following CM attributes: mtasComCcmMccDestinationMapping, mtasComCcmMccDestinationMappingMappedValue, mtasComCcmMccMnc, mtasComCcmMccMncHome
Communication barring enhancements	OCB	No Impact	OCB service of MMTel AS will allow calls to additional destination country when international and international-exHC conditions are applied. This feature can be configured with the following CM attributes: mtasComCcmMccDestinationMapping, mtasComCcmMccDestinationMappingMappedValue, mtasComCcmMccMnc, mtasComCcmMccMncHome
Network based handling of non-authorized international calls	Outgoing Communication Barring	No Impact	<p>Outgoing Communication Barring service enhanced to report new CB counters are introduced to measure number of failed calls because of barring and number of successful calls (not barred) with key as call type. The following counters are supported now: MtasCBOCBBarredType, MtasCBOCBNotBarredType.</p> <p>If the parameter is set and already existing user document settings are generating reject messages, the parameter mtasXdmsUtValidation can be set to (1) and selective validation is supported. In this case MMTel AS validates the received Ut request together with the user document but for CDIV and/or Abbreviated Dialing services and the validation constraints are applied only on the received request. If CDIV and/or Abbreviated Dialing services are not part of the Ut request, then the validation of those services in the user document is skipped.</p>



Announcement according to Reason header	Network Announcement	No impact	Instances of the new CMs parameters will not exist after the upgrade and accordingly the new function will be disabled by default. In terminating case an announcement can be played based on combination of SIP error status code + Q.850/SIP cause code and SIP error response can be configurable, the same way as it works for originating. This is controlled by a new MOC MtasNaAnnCauseT, or for Wholesale VtasNaAnnCauseT, and its attributes.
Communication Barring Service is enhanced to report SSID 141 for International or International-exHC condition in barring rules.	Communication Barring	No Impact	When mtasCbVersion is set to 3 (VERSION_3), Outgoing Communication Barring service reports SSID value 141 (INTERNATIONAL_TO_LL_RESTRICTION) in charging event when call is barred because of International or International-exHC condition in barring rules.
Communication Barring Service is enhanced to report SSID 141 for International or International-exHC condition in barring rules.	Communication Barring	No Impact	When mtasCbVersion is set to 3 (VERSION_3), Outgoing Communication Barring service reports SSID value 141 (INTERNATIONAL_TO_LL_RESTRICTION) in charging event when call is barred because of International or International-exHC condition in barring rules.



Ro Announcement for errors without Announcement AVP	Online Charging	No Impact	<p>MTAS can play Ro reject announcement in case any CCA-I or CCA-U message contains command or service level error code or Experimental-Result-Code AVP, even when the CCA does not contain Announcement-Instructions AVP, if CCFH action is set to TERMINATE and it is configured through CM parameters.</p> <p>Generic announcement will be played, if the result code entry in mtasChargingProfileRoRejectAnn matches the error result code (3xxx/4xxx/5xxx) returned in the CCA message by the OCS, or if that is not true, when mtasChargingProfileRoRejectDefaultAnnRemoteUser and/or mtasChargingProfileRoRejectDefaultAnnServedUser is configured. The generic announcement to be played is configurable through the CM parameters.</p> <p>The above CM parameters are configurable per charging profile. There can be multiple instances (0-32) of mtasChargingProfileRoRejectAnn, but only a single instance of the latter two parameters.</p>
Multi-Persona on CS	MultiPersonaService	Minor Impact	Multi persona selection when VoLTE UE attached to CS. See section Impact on MTAS Features.
Time-based auto-scale	VNF-LCM	No Impact	Time-based auto-scaling feature triggered by a preconfigured time-based alarm
EM-driven instantiation	VNF-LCM	No Impact	VNFs instantiated on VNF-LCM are now visible on EO (Ericsson Orchestrator)
EM-driven scale	VNF-LCM	No Impact	VNFs scaled on VNF-LCM are now updated on EO (Ericsson Orchestrator)



Support CAP call forwarding indication in MTAS	NorthboundCallControlS ervice	Minor Impact	When an MMTel CDIV diverts the call at Busy or No-Reply and if the SCP node armed event reporting with RRB (tBusy/tNoAnswer) before that, the ERB notification with the 'callForwarded' indication will be sent by the NCC service
Ro Announcement for errors without Announcement AVP	Online charging	No impact	MTAS plays default generic announcement before terminating the call if: * both primary and secondary Ro diameter connections are unavailable; * no receipt of CCA response to CCR message; when mtasChargingProfileRo RejectDefaultAnnRemot eUser or mtasChargin
MTAS Barring Program enhancement	Communication Barring	No Impact	Service is enhanced to support Wildcard character '^' and Fixed length delimitator '\$' in number matching pattern in respective CM's are configured.
5G TADS adaptation	Terminating Access Domain Selection (T-ADS)	Minor Impact	Stored Mobile Access Node is updated with information retrieved during T-ADS Information request. If RAT type returned by HSS is 1004 (E-UTRAN) then Mobile Access Node is set to mme_node. If RAT type returned by HSS is 1006 (NR) then Mobile Access Node is



Unified roaming determination correction and support for domestic roaming in multiple services	OCB	Minor Impact	The served user roaming status in OCB service will be determined by roaming determination.
	ICB	Minor Impact	The served user roaming status in ICB service will be determined by roaming determination.
	CAT	Minor Impact	The served user roaming status in CAT service will be determined by roaming determination.
	RBT	Minor Impact	The served user roaming status in RBT service will be determined by roaming determination.
	Northbound Call Control	Minor Impact	The served user roaming status in Northbound Call Control service will be determined by roaming determination.
	Charging	Minor Impact	The served user roaming status in Online Charging service will be determined by roaming determination.
	Call Pull	Minor Impact	New 'same network' policy introduced in call pull. Domestic roaming support added in Call Pull service.

4.5 Other Interface Impacts

All MTAS nodes in the network must be upgraded before taking new services in operation.

The changes to existing services are described in Table 29.

The description of impact is as follows:

- **No Impact** – New version can be installed without affecting other nodes.
- **Minor Impact** – There are changes, but with extra configuration the previous behavior can be kept.
- **Major Impact** – The change has made an interface backward incompatible.
- **New Interface** – The interface did not exist in the previous revision.
- **Obsolete** – The interface no longer exists.



Table 29 Other Interface Changes

Source of Change	Service	Impact	Description of Changes
HW50758	CDIV and Call Barring in ST AS	Minor impact	Until now, rules (CDIV and CB) and routes (SIP Trunking Control) in ST AS were not keeping the order during evaluation as were set in CAI3G Create/Set request. Now this fault has been corrected.
HX10219	Ad Hoc conference service	No Impact	Before, when the conference creator wanted to remove a non-existing participant from the conference (for example, the CP has already left), the last moved-in participant was kicked out. This behavior can be turned off from now. When this function is disabled and the specified CP is not in the conference, the REFER message is rejected. New CM attribute: mtasConfLastMovedParticipantRemovalEnabled is introduced to control this behavior.
HX13418	MMTel NPLI	No impact	There is a possibility to use VLR-number in LocationInformation from HSS as alternative to CGI to get current location MCC. Prerequisites - configure MMTel AS NPLI to use VLR/MSC number in addition to CGI when building np PANI, terminating case. (mtasMmtNpliCSLocationInformation=1) - VLR/MSC number to be added to PANI should also be applied for originating MMTel NPLI case. This behavior can be controlled with CM mtasMmtNpliOriginatingCSLocationInformation=1; =0 legacy behavior (only CGI considered for PANI; =1 consider also VLR number or MSC number, or both, if available (same behavior as for mtasMmtNpliCSLocationInformation).
HX14241	DEN	No impact	The order of <remote> and <local> tag in XML NOTIFY body is now according to RFC 4235, Ch 4.4. The XML tag order can be configured by a new CM attribute mtasDenVersion. When set to 0 (INITIAL_VERSION), legacy behavior of the service is active. When set to 1 (VERSION_1), the <local> and <remote> tag is sent in correct order.
HX19883	O-SDS	Minor impact	When IMRN INVITE reaches O-SDS on the PSI port and the service decides to update the PANI header based on InitialDP's location information, the service will remove incoming network-provided PANI from all further SIP messages coming from the served user during session establishment.
TR HW19418	XDMS	No Impact	Separated XDMS application logs: The log events generated by different applications (CAI3G, Ut/XCAP, CAI3G for SIP Trunk, GenSSC, CCMP) are recorded into different log files. The original log file "catalina.log" only records other non-application related events. For more information, refer to MTAS Troubleshooting Guideline
TR HX29166	XDMS	No Impact	Introduced XDMS log files retention policy: For each log type (access log, application log, Catalina log, and so on.), XDMS keeps additional 10 old archived log files based on the age, older files are removed For more information, refer to MTAS Troubleshooting Guideline
HX35573	SRVCC	No Impact	When a new CM attribute (mtasSrvccPreconditionTime) is set to a value greater than 0, SRVCC pre-alerting access transfer INVITE will be delayed by SCC AS if there's an early dialog that does not have QoS parameters negotiated (if preconditions are required)
HW67604	Alarms	Minor Impact	Because of an earlier fault NeLS Alarms might not be cleared even if the related features are disabled in MTAS. Now this fault is fixed, so the alarms will be ceased in this case.
HX34278	SRVCC	No impact	The new mtasSrvccAlertAckFallbackTime timer is started on ACK and fallback can then happen until it expires. If the mtasSrvccAlertAckFallbackTime time > 0, then fallback can also happen after the legacy fallback timer expires and before the new one is started (on ACK).
HX25597	CDIV	Minor	CDIV in MTAS is now putting "privacy=history" into the History-Info header for 180/181/183/200OK SIP messages from UE_C if reveal-identity-to-caller=false. This is to prevent C-number to be exposed to A.
HX14490	Ad Hoc conference	Minor	Ad-Hoc conference service is now sending partial notification about CP joining into the conference, when conference created using uri list and answer confirmation is enabled. Until now, nothing was sent, because of a fault.
HX19590	PRIW	Minor	PRIW service is adding confirm-status attribute into the SDP of 183 session progress message sent from NWAS, requesting resource reservation confirmation from user.
HX34376	Online Charging	Minor Impact	When OCS orders call termination in CCA-U (response code is 4010 with Announcement-Instruction) after call establishment, then terminating MTAS rejects the SIP session with 480 Temporarily Unavailable.



Source of Change	Service	Impact	Description of Changes
HX34377	Online Charging	Minor Impact	When OCS orders call termination in CCA-I/CCA-U (response code is 4010 with Announcement-Instruction), then originating MTAS rejects the SIP session with 403 Forbidden.
HX34278	SRVCC	Minor impact	Before this update there was no possibility of PS fallback after the call was answered if the SRVCC transfer was done in alerting state. Now, if <code>mtasSrvccAlertAckFallbackTime > 0</code> , a (second) fallback timer is started at reception of ACK for 200OK on INVITE if the transfer was started in alerting state. A PS fallback can then occur until this timer expires.
HX45973	Japanese Charging	Minor Impact	Until now, because of an earlier fault "MtasJc ICBS Data Not Found" alarm was not raised. Now the alarm can be raised again.
HX26776	Number Portability	No Impact	MTAS Number Portability Service will support replacement based on regular expressions in NAPTR response for ENUM query.
HX34278	SRVCC	No Impact	Added support for <code>mtasSrvccAlertAckFallbackTime</code> . The new <code>alertAckFallback</code> timer for SRVCC alerting is started on ACK and fallback can then happen until it expires. If the <code>alertAckFallback</code> time > 0 , then fallback can also happen after the legacy fallback timer expires and before the new one is started (on ACK).
HX35299	SRVCC	Minor Impact	Added a check if preconditions exist in media stream, if they are present then add the precondition tag to Require header in the provisional response to access transfer INVITE.
HX32907	Short Number Dialing	Minor	With this fix when a SND user creates an Ad-Hoc conference with uri list, the From header of the dialout INVITEs will be updated.
HX38859	MTAS Awareness after IS recovery	Minor Impact	The checking of the 'initialselection' tag in top most Route header was changed to case-insensitive for MTAS Awareness after IS recovery invocation
HW67604	N/A	Minor Impact	Because of an earlier fault, NeLS Alarms were not cleared even if the related features were disabled in MTAS. Now after bug fix NeLS Alarms are only reported, if the related feature's administrativeState is enabled in MTAS.
HX51446	Network Announcement Service	Minor Impact	Network Announcement Service is suppressed on terminating MTAS when CCNL service is unlocked and CCNL is indicated.
HX33804	Customized Alerting Tones	Minor Impact	When transparent mode is on, CatService handles subsequent 183 provisional responses without SDP from network and forwards the message. If transparent mode is off, stops the message.
HX55002	SIP Upstream Overload Control	No Impact	With the updated algorithm MTAS reaches a stable load in an overload situation faster.
HW64046	Workflow	Minor Impact	In the scope of the TR we implemented hardening directives according to the MTAS Hardening guideline in the <code>post_instantiation.py</code> LCM script: A new Workflow Admin user is introduced (<code>wf_admin</code>) which is used by the script;
HX53550	Scaling out	Major Impact	Because of a newly identified fault, there might be problems with the MRFP connections (H248). The manual scale out documentation has been updated with an extra step, to do a small restart after the scaling out operation, which will mitigate this problem.
HX35573	SRVCC	No Impact	When a new attribute (<code>mtasSrvccPreconditionTime</code>) is set to a value greater than 0, SRVCC pre-alerting access transfer INVITE will be delayed by SCC AS if there's an early dialog that does not have QoS parameters negotiated (if preconditions are required)
HX17177	SFTP	Minor Impact	The following issue has been corrected: In SFTP NBI session, an unauthorized user was able to execute below commands to navigate to the folders and access file information. This was possible only when the user knows the exact name and path of the files/folders.
HX46931	vMTAS Nettrace	Minor Impact	Nettrace existing logic of matching subscriber ID was based on regular expressions, after the TR solution, exact match will be used for the filtering.
HX53546	Number Analysis	Major Impact	New action parameters that trigger the configuration sync. If PDB is used to configure the node, New version of PDB which supports action attributes shall be used.





5 Impact on MTAS Features

This section describes the impact on vMTAS 1.15.0 features when the feature is turned on.

5.1 5G TADS Adaptation

The T-ADS service updates stored mobile access node type depending on the RAT type returned by HSS during TADSinformation request. If RAT type returned by HSS equals to 1004 (E-UTRAN) then Mobile Access Node is set to mme_node. If RAT type returned by HSS is equals to 1006 (NG) then Mobile Access Node is set to amf_node. This new feature can be configured with the following CM attribute: `mtasTadsSuppressCsRetryWhen5G`.

Impact

No impact on capacity, performance, network elements, and operation.

5.2 Announcement According to Reason Header

Network Announcement service is enhanced. In terminating case an announcement can be played based on combination of SIP error status code + Q.850/SIP cause code and SIP error response can be configurable, the same way as it works for originating. This is controlled by a new MOC `MtasNaAnnCauseT`, or for Wholesale `VtasNaAnnCauseT`, and its attributes.

Impact

No impact.

5.3 Communication Event Logging

The new communication event logging function is a Rf based MMTel AS service, sending notifications about served user session communication to an external server.

Communication events will be sent to the external logging server whenever there is a communication attempt from/towards served user. The event includes information about type of session state event, time, calling party, called party, subscription information, and so on.

The feature is controlled by the new `mtasCel` MOC.

It is possible to provision this service both individually per subscriber and per groups of subscribers (Service Profile) and per MMTel context (Multi-Persona).



Impact

There is minor impact on capacity and performance when feature is enabled and provisioned.

5.4 Forking Interworking Function (F-IWF)

The Forking Interworking function (F-IWF) is an interworking function provided by the Network Application Server (NW AS).

The F-IWF provides interworking between a caller device lacking support of multiple early dialogs and the IMS network.

It aggregates multiple early dialogues to a single dialogue, keeps track of the media state on multiple-dialog-side, and maps the authorized media towards the single dialog.

F-IWF can be configured to be executed on all traffic, or have a flexible invocation mechanism to trigger its execution based on the presence of a SIP header or an attribute in a SIP header in the initial INVITE.

This new feature can be configured with the following CM attributes: `mtasNwFoIwAsName`, `mtasFoIwAdministrativeState`, `mtasFoIwMode`, `mtasFoIwInvocationHeaderName`, `mtasFoIwInvocationHeaderValue`, `mtasFoIwInvocationHeaderHandling`.

The following PM counters are increased by this new feature: `MtasFoIwOk`, `MtasFoIwNOkE`, `MtasFoIwNOkI`.

Impact

No impact on capacity, performance, network elements, and operation.

5.5 MTAS Call Success Rate And Drop Rate per PLMN

New session setup and completion counters have been added in MMTel AS and SCC AS with PLMN and access type key information. These counters can be used to troubleshoot the network issues.

The following counters have been added to support this functionality:

- `MtasMmtOrigPlmnNetworkSuccessSessionEstablish`
- `MtasMmtOrigPlmnUnregNetworkSuccessSessionEstablish`
- `MtasMmtTermPlmnNetworkSuccessSessionEstablish`
- `MtasMmtTermPlmnUnregNetworkSuccessSessionEstablish`
- `MtasMmtInitOrigPlmnSessNOkService`



- MtasMmtInitOrigPlmnUnregSessN0kService
- MtasMmtInitTermPlmnSessN0kService
- MtasMmtInitTermPlmnUnregSessN0kService
- MtasMmtInitOrigPlmnSessN0kNet
- MtasMmtInitOrigPlmnUnregSessN0kNet
- MtasMmtInitTermPlmnSessN0kNet
- MtasMmtInitTermPlmnUnregSessN0kNet
- MtasMmtInitOrigPlmnSessN0kUser
- MtasMmtInitOrigPlmnUnregSessN0kUser
- MtasMmtInitTermPlmnSessN0kUser
- MtasMmtInitTermPlmnUnregSessN0kUser
- MtasMmtInitOrigPlmnSessN0kSupportNode
- MtasMmtInitOrigPlmnUnregSessN0kSupportNode
- MtasMmtInitTermPlmnSessN0kSupportNode
- MtasMmtInitTermPlmnUnregSessN0kSupportNode
- MtasMmtTermOrigPlmnSessOk
- MtasMmtTermOrigPlmnSessN0k
- MtasMmtTermOrigPlmnSessN0kECause
- MtasMmtTermOrigPlmnSessN0kServiceCause
- MtasMmtTermTermPlmnSessOk
- MtasMmtTermTermPlmnSessN0k
- MtasMmtTermTermPlmnSessN0kECause
- MtasMmtTermTermPlmnSessN0kServiceCause
- MtasMmtTermOrigPlmnUnregSessOk
- MtasMmtTermOrigPlmnUnregSessN0k
- MtasMmtTermOrigPlmnUnregSessN0kECause
- MtasMmtTermOrigPlmnUnregSessN0kServiceCause
- MtasMmtTermTermPlmnUnregSessOk



- MtasMmtTermTermPlmnUnregSessNok
- MtasMmtTermTermPlmnUnregSessNokECause
- MtasMmtTermTermPlmnUnregSessNokServiceCause
- MtasSccInitOrigCsPlmnSessAttempts
- MtasSccInitTermCsPlmnSessAttempts
- MtasSccInitOrigCsPlmnSessOk
- MtasSccInitTermCsPlmnSessOk
- MtasSccInitOrigCsPlmnSessNokNet
- MtasSccInitTermCsPlmnSessNokNet
- MtasSccInitOrigCsPlmnSessNokUser
- MtasSccInitTermCsPlmnSessNokUser
- MtasSdsPlmnCapInitDPOrigOk
- MtasSdsPlmnCapInitDPOrigNokE
- MtasSdsPlmnCapInitDPOrigNokI
- MtasSdsPlmnImrnOk
- MtasSdsPlmnImrnNokE
- MtasSdsPlmnImrnNokI
- MtasSccTermOrigCsPlmnSessCompletionAttempts
- MtasSccTermTermCsPlmnSessCompletionAttempts
- MtasSccTermOrigCsPlmnSessOk
- MtasSccTermTermCsPlmnSessOk
- MtasSccTermOrigCsPlmnSessNok
- MtasSccTermTermCsPlmnSessNok

Additionally, when error response is received for INVITE in SCC Terminating or SCC Terminating Unregistered session, if served user location is not available and `mtasSccNpliTerminatingOnInviteReject` is enabled, MTAS will trigger NPLI query to obtain the location information.

Impact

No impact on capacity, performance, network elements, and operation.



5.6 Multi-Persona on CS

The Multi-Persona service enables a mobile subscriber to use different personas (identities) at incoming and outgoing communication. Multi persona selection when originating VoLTE UE attached to CS. Multi persona indication when terminating VoLTE UE attached to CS . For more information refer to Multi-Persona Service in MTAS.

This feature can be controlled with the following CM attributes:.

- `mtasMmtSipccIdentification`
- `mtasMultiPersonaAdministrativeState`
- `mtasMultiPersonaEnhancement`
- `mtasMultiPersonaInviteDelay`
- `mtasMultiPersonaMpcnMaxLifetime`
- `mtasMultiPersonaMpcnRange`
- `mtasMultiPersonaMpcnRangeFirst`
- `mtasMultiPersonaMpcnRangeLast`

This feature requires a license to work: `MtasMultiPersona` or `vMtasMultiPersona`.

This feature uses the following counters for Performance Measurement:

- `MtasMultiPersonaOrigSelAttempts`
- `MtasMultiPersonaOrigSelectionsNOkE`
- `MtasMultiPersonaOrigSelectionsNOkI`
- `MtasMultiPersonaOrigSelectionsOk`
- `MtasMultiPersonaTermSelAttempts`
- `MtasMultiPersonaTermSelectionsNOkE`
- `MtasMultiPersonaTermSelectionsNOkI`
- `MtasMultiPersonaTermSelectionsOk`

This feature may raise the following new alarm: `MultiPersona Service License Absent`.

Impact

No impact on capacity, performance, network elements, and operation.



Minor impact. For backward compatibility with legacy behavior during upgrade the CM `mtasMultiPersonaAdministrativeState` is to be set to UNLOCKED.

5.7 Protection Against Endpoints Not Including SDP in 200OK

If MTAS receives a 200 OK response to an INVITE request without SDP and this has been preceded by an unreliable provisional response with SDP, then if an extended Offer/Answer exchange verification is enabled (`mtasSipOfferAnswerExchangeControl = 1`; REJECT_ON_UNRELIABLE_SDP_ANSWER), MTAS immediately shall release the session.

Impact

No impact on capacity, performance, network elements, and operation.

5.8 Removal of Multiple AS Invocation in Co-Location Scenarios

When multiple AS roles are co-located, MTAS supports to invoke these AS roles by one ISC triggering on generic SIP port. The invoked AS order is specified in the top Route header “as=”, as the following example:

```
Route:sip:mtas.operator.net; as="scc,foiwf,mtt,pridf"
```

Impact

No impact on capacity, performance, network elements and operation.

5.9 Reporting Ro CCR(Terminate) failure over Rf interface

This feature extends the currently implemented Ro failure handling with providing information about the Ro CCR (Termination) failure on Rf interface. All Ro failures handled by CCFH are currently reported on Rf except for the Ro CCR (Termination) failure and backward compatibility is ensured by suppressing Ro-Information AVP in ACRs.

This feature can be controlled with the following Configuration Attribute:

— `mtasChargingProfileEnhancedReportRoFailureOverRf`

Impact

No impact on capacity, performance, network elements, and operation.



5.10 Support CAP Call Forwarding Indication in MTAS

When an MMTel Communication Diversion service diverts the call at Busy or No-Reply and if the SCP node armed event reporting with RRB (tBusy/tNoAnswer) before that, the ERB notification with the 'callForwarded' indication will be sent by the NCC service.

Impact

No impact on capacity, performance, network elements, and operation.

5.11 Support Hardware Watchdog for Intel 6300 ESB

vMTAS now supports the `lde-watchdogd` function that LDE provides as a CSM (CBA system model) component. `lde-watchdogd` provides a configurable watchdog daemon which periodically resets the watchdog timer by writing to `/dev/watchdog`.

The watchdog device can be real hardware, or emulated hardware, (for example, by a KVM hypervisor), or fully implemented in software as a kernel module.

In case of a hardware watchdog device, the LDE agent watchdog daemon relies that its driver (kernel module) is loaded. This is determined by checking for the existence of `/dev/watchdog`. If this file is not there when the LDE agent watchdog service is started, the service will attempt to load a software watchdog (softdog). This will result in `/dev/watchdog` appearing albeit backed by a software implemented "device".

The watchdog configuration used by the LDE `watchdogd` component is set using the following parameters (provided in the CSM component configuration file `lde-agents-watchdogd.yaml`):

- `watchdog_timeout`: Time frame from the last received ping until the watchdog device triggers
- `interval_timeout`: Every `interval_timeout` a ping is sent to the watchdog device by the watchdog daemon
- `shutdown_timeout`: When the watchdog daemon is stopped, the time that watchdog device waits is set to `shutdown_timeout` value. It is used to ensure watchdog device triggers if a reboot hangs for any reason.

Impact

No impact on capacity, performance, network elements and operation.



5.12 Unified Roaming Determination Correction And Support for Domestic Roaming in Multiple Services

MMTel AS provides unified roaming determination for originating and terminating services. For domestic roaming evaluation, services can select between MCC-only and MCC+MNC based roaming determination. This feature enhancement can be configured with the following CM attributes: `mtasMmtDomesticRoaming`, `mtasMmtVersion`, `vtasMmtDomesticRoaming`, and `vtasMmtVersion`.

Impact

No impact on capacity, performance, network elements, and operation.

5.13 vMTAS Workflow Enhancement When Used with Ericsson Orchestrator

The Ericsson Orchestrator (EO) is enhanced in a way that if an instance is successfully terminated in the VNF Life Cycle Manager (VNF-LCM), then it will be removed from the EO too.

Impact

No additional impact.

5.14 vMTAS, Tool for Faster and Easier Handling of Subscriber and Software Trace

The `MtasTrace` tool makes it possible to manage subscriber or software trace in vMTAS system in a faster and more efficient way. The tool supports easy configuration, start and stop of trace session. Generated trace messages can be tailed to new files to avoid information loss because of log rotation. CPU load monitoring and automatic deactivation of the trace session protects against system overload.

Impact

No impact on capacity, performance, network elements, and operation.

5.15 Adding Date to Call Return Announcement for Calls Older Than Two Days

MTAS is now adding date in announcement for CR invocation, if the interrogation happens after 2 days of saving last incoming call.



This feature enhancement is controlled with the following CM attribute:
`mtasCrLastCallInfoType` enum value 3.

Impact

No impact.

5.16 Call Type Validation for the Destination Number Provisioned for Abbreviated Dialing

If call type validation for the destination number provisioned for abbreviated dialing is needed on the Ut interface, the CM parameter `mtasAbDialCallTypeValidation` must be activated. If the parameter is set and already existing user document settings are generating reject messages, the parameter `mtasXdmsUtValidation` can be set to (1) and selective validation is supported. In this case, MMTel AS validates the received Ut request together with the user document, but for CDIV or Abbreviated Dialing, services and the validation constraints are applied only on the received request. If CDIV or Abbreviated Dialing, or both services are not part of the Ut request, then the validation of those services in the user document is skipped.

If call type validation for the destination number provisioned for abbreviated dialing is needed on the CAI3G interface, the CM parameter `mtasAbDialCallTypeValidation` must be activated.

Impact

No impact.

5.17 Communication-Barring Enhancements

MMTel AS takes it into consideration the additional destination country for mobile user, when international and international-exHC conditions are evaluated.

MMTel AS to bar the call based on configurations when mobile served user is calling from another carrier network in the home country.

This feature enhancement can be configured with the following CM attributes: `mtasComCcmMccDestinationMapping`, `mtasComCcmMccDestinationMappingMap`, `pedValue`, `mtasComCcmMccMnc`, and `mtasComCcmMccMncHome`.

Impact

No impact.

5.18 EM-Driven Instantiation

After a successful instantiation operation, started from the VNF-LCM, has been finished successfully, a newly created virtual application belonging to the newly instantiated VNF is available in the EO (Ericsson Orchestrator) as well.

Impact

No impact on capacity, performance, network elements and operation.

5.19 EM-Driven Scaling

If an instance has been deployed from the EO (Ericsson Orchestrator), then after a successful scaling operation, started from the VNF-LCM, has been finished successfully, the newly updated stack-related information (number of virtual machines, IDs of VMs, and so on.) are available in the EO as well.

Impact

Scaling is a deliberate operation with direct impact on the capacity of the VNF. No impact on network elements and operation.

5.20 Graceful locking from vMRF

New service change method graceful reason 908 is supported, this triggers graceful shutdown. After receiving this service change new connections will not be allowed (no more add message allowed), but ongoing transactions will not be affected. After all connection has been gracefully subtracted, operationalState will be linkDown (previously disabled, this means SCTP link is down).

A new CM parameter is introduced to indicate this state. The CM parameter is called `mtasMrfpNodeOperState`. The following states are represented with this CM:

- `linkDown := 0` (SCTP link is down)
- `linkUp := 1` (SCTP link is up)
- `linkShuttingDown := 2` (SCTP link is up, but we do not allow new connections)

The state `linkShuttingDown` represents the new function, graceful locking.

Impact

No impact.



5.21 Increased Number of Rating Centers in Number Analysis

The cardinality of CM attribute NumAnaRatingCenter is increased from the present 5000 to 7000.

Impact

No impact on capacity, performance, network elements, and operation.

5.22 Mid-Call Renegotiation Request Retry

MMTel AS can receive 500 error response with retry-after header for a relayed mid-dialog renegotiate request triggered by either re-INVITE or UPDATE. In such a scenario, MMTel AS retries the renegotiation request after the delay time indicated in the received retry-after header or `mtasMmtReInviteRetryAfterTimeMax`, whichever is less.

The function is controlled with CM `mtasMmtMidCallRenegotiationRetryAfterSupport`.

Impact

No impact on capacity, performance, network elements, and operation.

5.23 MTAS Barring Program Enhancements

This feature enhances OCB Barring Category pattern matching with following:

- Wildcarding of one or multiple digits in barred and exempted lists
- Fixed length number matching option in exempted lists

The enhanced pattern matching is applicable for the user part of the Tel URI or embedded Sip URI, that is, for phone numbers only. The barred and exempted entries may include one or several wildcard characters in any position of the number part. The presence of such wildcard character is interpreted as any character value. The Exempted list entries may include a fixed length matching indicator character.

Impact

There is a minor impact on capacity and performance when wildcarding is configured.



5.24 Multi-X: Active Persona Device Selection (Former Multi-X: Hunting on Persona)

The Multi-X:Active persona device selection service is a new service that consists of the following new functions:

- Adding support for the user to via cai3g set a policy (active or inactive persona) for originating and terminating communication per mobile device.
- Adapting the multi-persona on CS to the enhanced multi-persona service, that is to use the new multi-persona provisioning data, introducing policy validation, removing time delay between sending MESSAGE and INVITE on terminating side, adding of SIP CC impi provisioning.
- Adding service interaction use cases between Multi-Persona and other services especially the Multi Mobile subscription service.

Impact

No impact on capacity, performance, network elements, and operation.

5.25 Network Announcement Triggered by Specific SIP Header

The purpose of this feature is to enable MTAS to recognize a customer-specific call barring scenario and play an announcement to the user. The recognition is done based on checking SIP headers in the incoming initial INVITE messages.

This feature is controlled with the following CM attributes:

- `mtasNaRaSipHeaderName`
- `mtasNaRaSipHeaderValue`
- `mtasNaRaSipHeaderGaAnnId`
- `mtasNaRaRejectCode`
- `mtasNaRaRejectReason`
- `mtasGaAnnSessionProgressReason`
- `vtasNaRaSipHeaderName`
- `vtasNaRaSipHeaderValue`
- `vtasNaRaSipHeaderGaAnnId`
- `vtasNaRaRejectCode`
- `vtasNaRaRejectReason`
- `vtasGaAnnSessionProgressReason`



Impact

No impact on capacity, performance, network elements, and operation.

5.26 Network-Based Handling of Non-Authorized International Calls

New CB counters are introduced to measure number of failed calls because of barring and number of successful calls (not barred) with key as call type.

The new PM counters are: MtasCB0CBBarredType, MtasCB0CBNotBarredType.

Impact

No impact.

5.27 Remove Service-Interact-Info Header

The SIP headers of incoming INVITE requests (configured by CM `mtasAsIwInviteHeaderFilter`, for example, `mtasAsIwInviteHeaderFilter = "Service-Interact-Info"`) will be removed from the outgoing request when the filtering function is enabled.

Impact

No impact on capacity, performance, network elements, and operation.

5.28 Ro Announcement for Errors Without Announcement AVP

MTAS plays Ro reject announcement in case any CCA message contains command or service level error code or Experimental-Result-Code AVP, even when the CCA does not contain an Announcement-Instructions AVP, if CCFH action is set to TERMINATE.

It can be configured and controlled through the following CM parameters:

The `mtasChargingProfileRoRejectAnn` CM parameter determines the announcement package to be played in case of a specific reject code. Announcement played to the served user, when the reject result code in the CCA-I on originating side, or in the CCA-U on both sides matches the result code configured in the CM parameter.

Example: `mtasChargingProfileRoRejectAnn = "4012|RoRejectAnnouncement"`. If the reject code in the CCA message is 4012, then the `RoRejectAnnouncement` keyed Generic announcement will be played to the served user.



The `mtasChargingProfileRoRejectDefaultAnnRemoteUser` CM parameter determines the announcement package to be played for call termination to the remote user when CCR-I rejected on the terminating side.

The `mtasChargingProfileRoRejectDefaultAnnServedUser` CM parameter determines the announcement package to be played for call termination to the served user, when CCR-I rejected on the originating side, or, when CCR-U rejected on both sides.

Example: `mtasChargingProfileRoRejectDefaultAnnServedUser = "DefaultRoRejectAnnouncement"`. If the reject code in the CCA message not matches the entries configured in `mtasChargingProfileRoRejectAnn` or `mtasChargingProfileRoRejectAnn` is not configured, then the `DefaultRoRejectAnnouncement` keyed Generic announcement will be played to the served user.

If both `mtasChargingProfileRoRejectDefaultAnnServedUser` and `mtasChargingProfileRoRejectAnn` CM parameters are configured and the reject code in the CCA message matches an entry in `mtasChargingProfileRoRejectAnn`, then the latter takes precedence.

These CM parameters are configurable per charging profile. There can be multiple instances (0–32) of `mtasChargingProfileRoRejectAnn`, but only a single instance of `mtasChargingProfileRoRejectDefaultAnnRemoteUser` and `mtasChargingProfileRoRejectDefaultAnnServedUser` per charging profile.

Impact

By default, there is no impact. There can be additional strain on MRF resources, when the feature is enabled and configured by the CM parameters (announcement will be ordered from the MRF by MTAS for CCA messages containing error response), depending on the details of the configuration.

5.29 Ro Announcement for Errors Without Announcement AVP (Phase 2)

MTAS plays Ro reject announcement in case any CCA message contains command or service level error code or Experimental-Result-Code AVP, even when the CCA does not contain an Announcement-Instructions AVP, if CCFH action is set to TERMINATE.

It can be configured and controlled through the following CM parameters:

- The `mtasChargingProfileRoRejectAnn` CM parameter determines the announcement package to be played in case of a specific reject code. Announcement played to the served user, when the reject result code in the CCA-I on originating side, or in the CCA-U on both sides matches the result code configured in the CM parameter.



Example: `mtasChargingProfileRoRejectAnn = "4012|RoRejectAnnouncement"`. If the reject code in the CCA message is 4012, then the `RoRejectAnnouncement` keyed Generic announcement will be played to the served user.

- The `mtasChargingProfileRoRejectDefaultAnnRemoteUser` CM parameter determines the announcement package to be played for call termination to the remote user when CCR-I rejected on the terminating side.
- The `mtasChargingProfileRoRejectDefaultAnnServedUser` CM parameter determines the announcement package to be played for call termination to the served user, when CCR-I rejected on the originating side, or, when CCR-U rejected on both sides.

Example: `mtasChargingProfileRoRejectDefaultAnnServedUser = "DefaultRoRejectAnnouncement"`. If the reject code in the CCA message not matches the entries configured in `mtasChargingProfileRoRejectAnn` or `mtasChargingProfileRoRejectAnn` is not configured, then the `DefaultRoRejectAnnouncement` keyed Generic announcement will be played to the served user.

If both `mtasChargingProfileRoRejectDefaultAnnServedUser` and `mtasChargingProfileRoRejectAnn` CM parameters are configured and the reject code in the CCA message matches an entry in `mtasChargingProfileRoRejectAnn`, then the latter takes precedence.

These CM parameters are configurable per charging profile. There can be multiple instances (0–32) of `mtasChargingProfileRoRejectAnn`, but only a single instance of `mtasChargingProfileRoRejectDefaultAnnRemoteUser` and `mtasChargingProfileRoRejectDefaultAnnServedUser` per charging profile.

Impact

By default, there is no impact. There can be additional strain on MRF resources, when the feature is enabled and configured by the CM parameters (announcement will be ordered from the MRF by MTAS for CCA messages containing error response), depending on the details of the configuration.

5.30 Ro Announcement for Errors Without Announcement AVP (Phase 3)

MTAS plays default generic announcement before terminating the call if both primary and secondary Ro diameter connections are unavailable no receipt of CCA response to CCR message.

This functionality can be configured and controlled through the following CM parameters:

- The `mtasChargingProfileRoRejectDefaultAnnRemoteUser` CM parameter determines the announcement package to be played for call termination to the remote user when CCR-I rejected on the terminating side.
- The `mtasChargingProfileRoRejectDefaultAnnServedUser` CM parameter determines the announcement package to be played for call termination to the served user, when CCR-I rejected on the originating side, or, when CCR-U rejected on both sides.

These CM parameters are configurable per charging profile.

Impact

By default, there is no impact. There can be additional strain on MRF resources, when the feature is enabled and configured by the CM parameters (announcement will be ordered from the MRF by MTAS for CCA messages containing error response), depending on the details of the configuration.

5.31 Supplementary Service Support for Multi-Persona in IMS/VoLTE

Support multi-persona subscribers that shall have differentiation of supplementary services per persona. This is an enhancement on the existing Multi Persona feature. This enhanced functionality can be controlled by below node level configuration and user level provisioning.

To use this feature, operator needs to enable the following CM attributes along with valid Multi-Persona License:

- `mtasMmtMobileBehaviour` is set to 1 (MOBILE_ENHANCEMENT_ON)
- `mtasMultiPersonaAdministrativeState` = UNLOCKED
- `mtasMultiPersonaEnhancement` = PERSONA_ENHANCEMENT_ON

To use this feature, operator needs to provision and activate the MultiPersona service for the subscriber along with:

- `mobile-subscription-list` with one or more mobile subscriptions
- `personas-specific-services`
- `public-identity-list` and `subscription-identity-mapping-list`.

Impact

No impact on capacity, performance, network elements, and operation.



5.32 Support for ANSI network (CAP)

Previously ITU standard and Global Title was hardcoded for the CAP interface.

Now support for configuration of standard (ITU or ANSI) used on the CAP signaling network is added. Configuration can be done with the `mtasCsiCapSccpStandard` CM attribute.

Support for configuration of Global Title is added. This feature can be configured with the following attributes:

- `mtasCsiCapCdGti`
- `mtasCsiCapCdNai`
- `mtasCsiCapCdNp`
- `mtasCsiCapCdTt`
- `mtasCsiCapCdEs`
- `mtasCsiCapCgGti`
- `mtasCsiCapCgNai`
- `mtasCsiCapCgNp`
- `mtasCsiCapCgTt`
- `mtasCsiCapCgEs`

Impact

No impact.

5.33 Support of IMRN in national format for SDS

When CM parameter `mtasSdsImrnNai` is set to `National(1)`,

- T-SDS return IMRN in National format when responding in Connect message, regardless of received NAI of calledPartyNumber in IDP,
- O-SDS return IMRN in National format when responding in Connect message.

In both cases, the NAI of IMRN are set to `National(3)`. When CM parameter `mtasSdsImrnNai` is set to `Legacy(0)`, legacy behavior is applied.

Impact

No impact.



5.34 Time-Based Auto-Scale

The customer can now configure an auto scaling operation (by configuring a timestamp and a scaling type – in/out – with additional scaling information via ECLI). The scale-out and scale-in workflows can be triggered automatically based on alarms which will be raised at the specific time configured on the VNF. The ENM triggers a scale workflow on VNF-LCM based on the alarm from the VNF.

Newly introduced alarm: MTAS Time Based Scaling

Newly introduced MOC: MtasScaling MOC

Impact

Scaling is a deliberate operation with direct impact on the capacity of the VNF. No impact on network elements and operation.

5.35 vMTAS Improved Resilience to Network Disturbances

To make vMTAS more resilient to network disturbances, the time-out value has been increased from 1500 milliseconds to 5000 milliseconds on the internal network interface (TIPC).

Impact

No impact on capacity, performance, network elements and operation.

5.36 vMTAS, Improved Serviceability Success Rate during In-service Scaling

Serviceability success rate during in service scaling of vMTAS is improved significantly. vMTAS continues to serve those ongoing transactions during scaling by not terminating the application processes which are handling those transactions.

Serviceability success rate is improved but varies depending on the CPU load when the scaling is triggered and scenarios ongoing at that time. Overload rejections and other failures observed as the CPU load increases beyond 35–40% during scaling.

This feature enhancement can be controlled with the following CM attribute: `mtasFunctionScalingTerminateWaitTime`.

Impact

No impact on capacity, performance, network elements, and operation.