

# Network Impact Report

## Ericsson Dynamic Activation 1

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### NETWORK IMPACT REPORT

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# 1 Introduction

This document provides a general summary of the new functionality introduced in Ericsson Dynamic Activation (EDA) 1. This new product is based on the Ericsson Multi Activation 16.2 CP1 functionality.

## 1.1 Purpose and Scope

The purpose of the Network Impact Report (NIR) is to, at an early stage, provide sufficient information about the impact of introducing Dynamic Activation 1, to help the Ericsson system operators plan the integration of the new products in their networks. The document provides information about various new functions in Dynamic Activation 1.

This document is a living document and is subject to change during the development of the new release. Therefore, part of the information may be incomplete or unavailable until later releases of the new Dynamic Activation product.

## 1.2 Target Groups

The target groups for this document are as follows:

- Network administrators
- System administrators
- Operation and Maintenance (O&M) management

For more information regarding the target groups, see the *Library Overview*, Reference [1].

## 1.3 Typographic Conventions

This document follows a set of typographic rules that make the document consistent and easy to read. The typographic conventions are found in the *Library Overview*, Reference [1].





## 2 Supported NEs and Solutions

In Dynamic Activation the following solutions and Network Elements (NEs), with respective versions, are supported.

For the UDC solution, the following releases or combinations have been verified by UDC Network Integration Verification (UNIV).

*Table 1 UDC Solution*

	Dynamic Activation Release 1	Dynamic Activation Release 1 Sep.
Solution/NE	Version	Version
UDC	1.4	1.6
CUDB	1.4	1.6
HLR-FE (HLR, AuC, MNP, M2M-FE)	1.3	1.3
HSS-FE	HSS/SLF Front End 17A HSS-FE 1.2	HSS/SLF Front End 17A.8 HSS-FE 1.8
Mavenir 3PP EIR-FE	12B	12B
Ericsson EIR-FE	1.3	1.3
SAPC-FE	15B	1 <sup>(1)</sup>
IPWorks AAA-FE	15B FD1 1.6	1.9
IPWorks ENUM-FE	1.6	1.9

(1) SAPC Family and SAPC Dataplan are supported towards SAPC-FE internal database. Provisioning of SAPC Family towards CUDB is supported up to release 16B.

Provisioning of the IMS solution is also supported. Following combinations and releases are supported. There is no network or solution level verifications for the IMS solution performed.

*Table 2 Application Part of IMS Solution*

	Dynamic Activation Release 1	Dynamic Activation Release 1 Sep.
Solution/NE <sup>(1)</sup>	Version	Version
IMS <sup>(2)</sup>	17A	17A
HSS-FE	1.2	1.8
MTAS	17A 17B vMTAS 1.4/1.6	17A 17B vMTAS 1.4/1.6



	Dynamic Activation Release 1	Dynamic Activation Release 1 Sep.
Solution/NE <sup>(1)</sup>	Version	Version
IPWorks ENUM	15B 15B FD1 16A 1	15B 15B FD1 16A 1
IPWorks ENUM-FE	1.6	1.9
BCE	15A	15A
PGM	6.0	6.0

(1) Network entities/nodes that are in layered architecture are called - FE (Front End). Without that extension, the node is a monolithic node.

(2) There are other nodes supported by the IMS solution, but those are not provisioned by Dynamic Activation.

**Table 3 Application Part of Wi-Fi Calling Solution**

	Dynamic Activation Release 1	Dynamic Activation Release 1 Sep.
Solution/NE	Version	Version
Wi-Fi Calling Solution	1	1
HSS	1	1
IPWorks AAA (NSD)	1	1
IPWorks AAA-FE (NSD)	-	1.9
ECAS	1	1

Besides the above releases in UDC and IMS solutions, the following versions of additional NEs are also supported:

**Table 4 Additional NEs in Dynamic Activation**

	Dynamic Activation Release 1	Dynamic Activation Release 1 Sep.
Solution/NE	Version	Version
CBIO	3.1	3.1
CS	6.0 (AIR 4.0, ACIP/UCIP 5.0 update 3) (AF 3.0)	6.0, 16, and 17 (AIR 4.0, ACIP/UCIP 5.0 update 8) (AF 3.0)
DSC/ILF	16B 17A	16B 17A
SAPC	cSAPC 16B SAPC 17A <sup>(1)</sup>	cSAPC 16B SAPC 17A <sup>(1)</sup> SAPC 1

(1) Both Classic and Virtual deployment.





Dynamic Activation is supported by the following OSS-RC versions:

*Table 5 OSS-RC in Dynamic Activation*

	Dynamic Activation Release 1	Dynamic Activation Release 1 Sep.
Solution/NE	Version	Version
OSS-RC	17A	17A





## 3 Installation and Upgrade Information

This section contains information about system upgrade impacts and initial installations.

### 3.1 Installation

- An option to have licenses installed automatically during installation is introduced. For detailed information, refer to *Software Installation for Native Deployment*, Reference [15], *Software Installation for Virtual and Cloud Deployment*, Reference [16], and *User Guide for Designer Studio*, Reference [9].
- Resource Configuration functionality is only supported on Virtualized deployments.

For information about installation, refer to *Software Installation for Native Deployment*, Reference [15], *Software Installation for Virtual and Cloud Deployment*, Reference [16], *User Guide for Designer Studio*, Reference [9], and *OSS/BSS Integration Guide*, Reference [19].

### 3.2 System Upgrade

This is the first release of Dynamic Activation, though support is provided for upgrade from Multi Activation releases.

When performing an upgrade, some issues might require additional advance planning. Such issues are described below. For further information regarding these issues, contact your local Ericsson representative.

#### 3.2.1 CAI3G XML Format

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#### Attention!

Before upgrade or before integrating CAI3G, ensure that the CAI3G is parsed as an XML document and not as plain text.

Dynamic Activation CAI3G XML format and namespace definition can be updated without notice in-between releases, even though the document content is exactly the same. Below follows examples on CAI3G XML format- and namespace definition changes.

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The Dynamic Activation generated CAI3G XML format, and namespace definition can change in-between releases, even though the document content is exactly the same.

Example of format changes:

- changes in indentation.
- changes in number of newlines, whitespaces, and more.

Example of namespace definitions changes:

- changes from a namespace prefix to a default namespace and the other way around.
- changes in which element the namespace declaration occurs.

### 3.2.2

#### Service Models

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#### Attention!

From Dynamic Activation 1, service models produced by Designer Studio are deployed on `activation-orchestration-module` instead of `dve-application`.

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This means that:

- The service models that remain in the `/home/bootloader/Carepository` directory after the upgrade, need to be deployed manually. For more details, refer to section **Deploy a Service Model** in the *User Guide for Designer Studio*, Reference [9] document.
- When upgrading from Multi Activation 16.0 with alternative 1, that is with processing logs in Cassandra, service models are not functional throughout the Cassandra upgrade duration. Choose alternative 2, that is, remove all processing logs in Cassandra to minimize the downtime of service models. For more details, refer to *System Upgrade to Ericsson Dynamic Activation 1*, Reference [4] for both native or virtual and cloud deployments.

### 3.2.3

#### Supported Native, Virtual and Cloud Upgrade Paths and Deployment Configurations

This section contains information about the different upgrade paths and deployment configurations supported in Dynamic Activation, both for Native, Virtual, and Cloud deployments.



### 3.2.3.1

#### Native Deployment

The following table shows supported upgrade paths, and upgrade paths that only supports new installation and data migration.

#### Attention!

Since DMX 3.1 and SCXB2 are end of support, the only upgrade possible from older Multi Activation version to Dynamic Activation 1, is to upgrade to BSP 8100.

Upgrading from Native Multi Activation 7.1, 7.2 or 15.0 is not supported. It requires a maiden installation with newly purchased hardware. Data migration is supported though. If deciding to reuse old GEP3/GEP5 hardware, rollback is not possible to perform.

Table 6 Supported Paths

Current Deployment	Target Deployment EDA 1	
	Native	Virtual or Cloud
EMA 7.2 or 15.0	MIM <sup>(1)</sup>	<sup>(1)</sup>
EMA 16.0, 16.1, and 16.2	SW Upgrade <sup>(2)</sup>	<sup>(1)</sup>

(1) Maiden Installation and Migration

(2) Only applicable if keeping the GEP blades. If not keeping the GEP blades, a maiden installation with data migration is required.

Detailed information about the different upgrade procedures can be found in *System Upgrade to Ericsson Dynamic Activation 1*, Reference [4].

For more information about Dynamic Activation 1, refer to *Product Overview*, Reference [14].

### 3.2.3.2

#### Virtual or Cloud Deployment

The following table shows supported upgrade paths, and upgrade paths that only supports new installation and data migration.

Table 7 Supported Paths

Current Deployment		Target Deployment EDA 1			
		KVM	VMware	CEE	OpenStack
EMA 7.2, 15.0	KVM or VMware	MIM <sup>(1)</sup>	<sup>(1)</sup>	<sup>(1)</sup>	<sup>(1)</sup>

Current Deployment		Target Deployment EDA 1			
		KVM	VMware	CEE	OpenStack
EMA 16.0	KVM	(1)	(1)	(1)	(1)
	VMware	(1)	Upgrade	(1)	(1)
EMA 16.1	KVM	Upgrade	(1)	(1)	(1)
	VMware	(1)	Upgrade	(1)	(1)
EMA 16.2	KVM	Upgrade	(1)	(1)	(1)
	VMware	(1)	Upgrade	(1)	(1)
	CEE	(1)	(1)	Upgrade	(1)

(1) Maiden Installation and Migration

**Note:** Compared to the Virtual deployment, the cloud deployment uses ephemeral storage instead of an attached block storage.

For ECEE and Openstack deployments, traffic separation of provisioning traffic and O&M traffic is not supported. On a UDC solution level, Dynamic Activation provisioning traffic is usually considered as O&M traffic.

The IPv4/IPv6 dual stack is neither supported in ECEE nor Openstack deployments.

Detailed information about the different upgrade procedures can be found in *System Upgrade to Ericsson Dynamic Activation 1*, Reference [4].

For more information about Dynamic Activation 1, refer to *Product Overview*, Reference [14].

### 3.2.4 General Upgrade Prerequisites

Latest released CP needs to be installed, for the current used release, before upgrading to Dynamic Activation.

### 3.2.5 Function Dependent Upgrade Prerequisites

- In the User Data Consolidation (UDC) solution, Dynamic Activation will be the last component to be upgraded. CUDB and FEs, like HLR and HSS, must already be upgraded. In addition, it is expected that the existing IMSI changeover procedures are concluded before Dynamic Activation is upgraded.
- If an IPWorks/ENUM NE has been used in an earlier release (before Multi Activation 16.0 CP1), and an upgrade is performed, this NE has to be deleted and created again with the CF-SSH protocol. If direct routing has been used, the NE needs to be created with the same name. If the



upgrade fails, the new NE created with the new CF-SSH protocol needs to be removed before a rollback is performed. For more information about the CF-SSH protocol, see *Configuration Manual for Resource Activation*, Reference [33], *User Guide for Resource Activation*, Reference [31], and *Function Specification Resource Activation*, Reference [42].

### 3.3 System Expansions

This section describes the system expansion impacts in Dynamic Activation 1.

The following expansion paths are supported:

- Add Payload nodes to the existing scalable configuration.
- Add VM instance to the existing cluster in Virtualized or Cloud deployment.







## 4 Features to be Phased Out in Future Releases

- The Reporter Client feature is not supported in Dynamic Activation 1.
- The Capacity Management feature is not supported in Dynamic Activation 1.
- From Dynamic Activation 2, the operations for IMSI Changeover included in the HLR Components specifications will be phased out for layered applications. The `ImsiChangeover` MO stated in the *CAI3G Interface Specification for HLR Components*, Reference [21], and the `IMSICH` operation stated in *CAI Interface Specification for HLR Components*, Reference [20] will no longer be supported.

For layered applications, the recommendation is to use the IMSI Changeover operations described in the *Layered Identity Changeover Provisioning over CAI3G*, Reference [22] document. Potential new services added to the layered solution will only be developed for these operations, therefore it is recommended to only use this interface specification.





## 5 Highlights in Dynamic Activation 1

This section provides a summary of the highlights provided in Dynamic Activation 1. This new product is based on the Multi Activation 16.2 CP1 functionality.

- *Life Cycle Plan Dynamic Activation*, Reference [2].
- *Dynamic Activation Roadmap*, Reference [3].
- *DUP Customer Adaptation Migration Guide*, Reference [13]

### 5.1 Capacity and Limitations

The following limitations exist on the new authentication function in Dynamic Activation 1:

- GUI users and provisioning clients are separated in Dynamic Activation 1. There is no automatic migration of existing users into GUI users since a migration can not distinguish a GUI user from a provisioning client.

**Note:** By existing users, it means users that were configured in the Multi Activation **Operation & Management** > **Access Control** GUI with configuration management authorities only.

A default `System Administrator` user is created at installation, and other GUI users must be manually created.

- GUI users are either `System Administrator` or `System User`. Customization on user roles is not supported yet.
- The User Management data of the GUI users are not synchronized among clusters when using the Synchronize Configuration function. These data (referred as OAuth data) can be manually synchronized by performing a Cassandra backup and restore. For instructions, refer to chapter **Backing Up and Restoring Cassandra** (OAuth part) in *Backup and Restore Guideline for Native Deployment*, Reference [17] or *Backup and Restore Guideline for Virtual and Cloud Deployment*, Reference [18].

For more information on authentication function, refer to *Function Specification Dynamic Activation Execution Environment*, Reference [12].

For instruction on how to create and manage users, refer to *User Guide for Resource Activation*, Reference [31].



## 5.2 Hardware and Software

For information about the hardware configurations for Native deployment in Dynamic Activation 1, refer to BSP 8100 documentation.

For information about the different Software used in Dynamic Activation 1, refer to *Software Specification*, Reference [5].

### 5.2.1 Phased out Software

No impact in this release.

## 5.3 Virtualized/Cloud Deployment

In Dynamic Activation 1 Cloud deployment, the following are introduced:

- Support of OpenStack (Newton or later) deployment based on HEAT Orchestration Template (HOT).
  - Available block storage is automatically attached, partitioned and formatted with eXtended File System (XFS).
  - Cassandra data is mounted on block storage and available throughout the lifecycle of a VM instance.
  - Only one external IP (floating IP) is used and attached to the VIP address exposed on either node-1 or node-2
  - Off-line, or non-live migration of instances is supported.
  - Live migration and evacuation is not supported.
  - Traffic separation of provisioning traffic and O&M traffic is not supported.
  - IPv4/IPv6 dual stack is not supported.

For more information, refer to:

- *Function Specification Dynamic Activation Execution Environment*, Reference [12]
- *System Administrators Guide for Virtual and Cloud Deployment*, Reference [7]
- *Requirements on Virtualization and Cloud Infrastructure*, Reference [52]



## 5.4 Interfaces

This section contains the new functionality related to interfaces in Dynamic Activation 1.

### 5.4.1 Customer Administration Interface Third Generation

This section lists the new functionality for the CAI3G interfaces.

- CAI3G interface for MMTel Subscription and MMTel Shared Profile Service is updated to support MTAS 17B. The following attributes have been added to the Create/Set/Get Response operations:

- vtp-domain
- fip-suppression

For more information, refer to *MTAS Provisioning over CAI3G*, Reference [25].

- CAI3G interface for EPSMultiSC is updated to support the non-3GPP access in HSS-EPS. The following attributes have been added to the Create/Set/Get Response operations:

- epsAaaOdb
- epsAaaIndividualContextId
- epsAaaIndividualDefaultContextId
- epsAaaIndividualMappingContextId

For more information, refer to *Layered EPS Provisioning over CAI3G*, Reference [26].

- CAI3G interface for EPSMultiSC is updated to support Multi Service Admin Disable in HSS-EPS. Attribute `epsAdminDisable` has been added to the Create/Set/Get Response operations. For more information, refer to *Layered EPS Provisioning over CAI3G*, Reference [26].
- CAI3G interface for EPSMultiSC is updated to support Network Access Mode in HSS-EPS. Attribute `epsNam` has been added to the Create/Set/Get Response operations. For more information, refer to *Layered EPS Provisioning over CAI3G*, Reference [26].
- CAI3G interface for EPSMultiSC is updated to support Dedicated Core Networks in HSS-EPS. Attribute `epsIndividualUeUsageType` has been added to the Create/Set/Get operations. For more information, refer to *Layered EPS Provisioning over CAI3G*, Reference [26].
- A new CAI3G interface MultiSCCat is supported to synchronize common attributes setting of subscription among HLR and EPS.

For more information, refer to *Multi Service Consumer Common Data Provisioning over CAI3G*, Reference [49].

- CAI3G interface for IMSAssociation is updated to support SIP URI without domain. For more information, refer to the following documents:
  - *User Guide for Resource Activation*, Reference [31]
  - *Layered IMS Provisioning over CAI3G*, Reference [39]
- CAI3G interface for synchronous requests is updated to support Priority configuration in GUI. For more information, refer to the following document:
  - *User Guide for Resource Activation*, Reference [31]
- CAI3G interface for EPSMultiSC is updated to support MIP6-Feature-Vector. Attribute `epsAaaMIP6FeatureVector` has been added for the `Create/Set/Get Response` operations. For more information, refer to *Layered EPS Provisioning over CAI3G*, Reference [26].
- CAI3G interface for all Resource Configuration feature models are updated to support relation to a service. Attribute `serviceInstanceId` has been added as an optional MOld for all operations. For more information, refer to *Customer Adaptation Guide for Resource Configuration*, Reference [30].
- From Dynamic Activation 1 September 2017, CAI3G interface for AUC Subscription is updated to support the Tuak Authentication Algorithm in HLR-FE 1.9. The attribute value in `Create/Get Response` operations for `fsetind` has been extended to 0-31.

A new error code 326 is added for AUC Subscription. For more information, refer to *CAI3G Interface Specification for HLR Components*, Reference [21]

- From Dynamic Activation 1 September 2017, CAI3G interface for EPSMultiSC is updated to support Subscribed Periodic RAU TAU Timer in HSS-EPS. Attribute `epsIndividualRauTauTimer` has been added to the `Create/Set/Get Response` operations. For more information, refer to *Layered EPS Provisioning over CAI3G*, Reference [26].
- From Dynamic Activation 1 September 2017, CAI3G interface for EPSMultiSC is updated to support MDT User Consent in HSS-EPS. Attribute `epsMdtUserConsent` has been added to the `Create/Set/Get Response` operations. For more information, refer to *Layered EPS Provisioning over CAI3G*, Reference [26].
- From Dynamic Activation 1 September 2017, CAI3G interface for AIR is updated to support CS16 and 17, ACIP/UCIP 5.0 update8. For more information, refer to *Charging Provisioning over CAI3G*, Reference [27].
- From Dynamic Activation 1 September 2017, CAI3G interface for IPWorks NonSIM AAA User Subscription is updated. Attribute `apn` is changed to optional. `apn` with a single value can be added or deleted, and `apn` with all



values can be deleted in the `Set` operation. For more information, refer to *Wi-Fi Calling Provisioning over CAI3G*, Reference [28].

- From Dynamic Activation 1 September 2017, CAI3G interface for SAPC is updated to support a new `MO Dataplan` that is stored in SAPC internal database. New error codes 17010 and 17011 are added for SAPC data plan. For more information, refer to *SAPC Provisioning over CAI3G*, Reference [29].
- From Dynamic Activation 1 September 2017, CAI3G interface for HLR Subscription is updated.
  - Parameters (`vlrData`, `tsdl`, `asl`, `bsl`, `ttp`) are only valid in `Get Response`. They are removed from `Create` and `Set` operations.
  - Parameters (`neDestAddress`, `hpn`, `dualstat`, `dualstatnumber`, and `submch`) are removed from `Create`, `Set`, and `Get` operations.

For more information, refer to *CAI3G Interface Specification for HLR Components*, Reference [21].

## 5.4.2 Customer Administration Interface

This section lists the new functionality for the CAI interface.

- Routing error code in CAI is changed from 2002 to 3005 since Dynamic Activation 1.
- From Dynamic Activation 1 September 2017, CAI interface for AUCSUB is updated to support the Tuak Authentication Algorithm in HLR-FE 1.9. The attribute value in `Create/Get Response` operations for `fsetind` has been extended to 0-31.

A new error code 326 is added for AUCSUB.

For more information, refer to *CAI Interface Specification for HLR Components*, Reference [20].

## 5.4.3 EDIFACT Interface

No impact in this release.

## 5.4.4 Graphical User Interface

This section lists the new functionality for the GUI interface.

- The GUI interfaces only allow HTTPS traffic. All GUI traffic towards HTTP port (8282) will be automatically redirected to HTTPS port (8383).
- A new login GUI is introduced.

- The **User Password Settings** property in the Ericsson Dynamic Activation GUI (**System** > **Options** tab) is only applicable on Provisioning Clients. Password settings for GUI Users are configured with bootloader parameters. For more details, *System Administrators Guide for Native Deployment*, Reference [6] or *System Administrators Guide for Virtual and Cloud Deployment*, Reference [7].
- Users need to change their passwords on first time login.
- A new **User Management** GUI is introduced for administration of GUI users.
- The **Access Control** GUI is only used for administration of Provisioning Clients, Replayer REST interface users, and Device Management REST interface users. GUI user related management is moved to the new **User Management** GUI.
- A new **Dashboard** GUI is introduced to monitor provisioning performance. Up to 36 hours of historical performance is available in Dynamic Activation Base Package. Up to seven days is available in SW Advanced Value Package.

From Dynamic Activation 1 September 2017, it is possible to monitor southbound performance on a node or for a network element.

- The following parameters are changed for Resource Activation configuration:
  - The parameter `AllowAvgDuringIMSICHO` is removed from the HSS AVG provisioning configuration since immediate IMSI changeover for EPS and IMS using AVG as authentication method is supported.
  - The new parameter `allowSipUriWithoutDomain` is introduced for the HSS IMS provisioning configuration. This change allows Multi Activation to apply SIP URI without domain.
- From Dynamic Activation 1 September 2017, the following GUIs use **Target Resource** instead of the earlier name **Network Element**.
  - **Request Management**
  - **Retry Rule for Request Management**
  - **Notification Rule Configuration**

For more information, refer to *User Guide for Resource Activation*, Reference [31].

- A new **Batch Handler** GUI is introduced to monitor and manage batch jobs. For more information, refer to *User Guide for Batch Handler*, Reference [32].
- The Resource Configuration GUI supports the following new functionality:





- Support for feature configuration and comparison in the **Service Visualization** GUI.
- Support for visualization of service relation to the feature in **Device Repository** GUI.
- When adding or editing a device in the **Device Repository** GUI:
  - In Dynamic Activation 1, an `Additional Parameters` field is introduced to change the settings of a selected protocol for the access point.
  - From Dynamic Activation 1 September 2017:
    - Multiple access points over various protocols can be configured to a device.
    - A new device category `Proxy` is introduced.
    - Access points with protocol HTTP or HTTPS can select to access the device via a `Proxy`.
- Support for common import and export for XML and YANG templates.
- Support for displaying commit messages of the **Revisions** history in **Template Management** GUI.
- From Dynamic Activation 1 September 2017, device export format is changed from `csv` to `json`. For now device import supports both formats, while:
  - The legacy `csv` format only supports one access point per device. This format is deprecated.
  - The `json` format supports multiple access points.

For more information, refer to *Customer Adaptation Guide for Resource Configuration*, Reference [30].

For more information, refer to *User Guide for Resource Configuration*, Reference [36].

- The following connection parameters of the HTTP protocol are introduced. They are used for ECAS Provisioning configuration in Wi-Fi Calling for multi-device solution. For more information, refer to *User Guide for Resource Activation*, Reference [31].
  - `Secure`
  - `CA used to validate server`
  - `CA file password`
  - `Mutual authentication (Two-way handshake)`



- Client certificate used in mutual authentication
- Client certificate file password
- A new AIR connection protocol is introduced for AIR provisioning. For more information, refer to *User Guide for Resource Activation*, Reference [31].
- A new NE type CUDB\_AAA\_NSD is introduced for CUDB IPWorks AAANSN, a new NE type AAA\_FE\_NSD is introduced for routing notification, and a new NE group Active-Active is also added. For more information, refer to *User Guide for Resource Activation*, Reference [31].

#### 5.4.5 Command Line Interface

- From Dynamic Activation 1 September 2017, the following commands are updated to support the Tuak Authentication Algorithm in HLR-FE 1.9. The attribute value for `fsetind` in those operations has been extended to 0-31.
  - AEMSAAP command for printing Authentication and Key Agreement Algorithm.
  - AEMSSUP command for printing the AUC subscription.
  - AEMSSUC command for changing the AUC subscription.

A new error code 11026 is added for AUC.

For more information, refer to *Layered HLR AUC Massive Operations over CLI*, Reference [40].

#### 5.4.6 MML Interface

- From Dynamic Activation 1 September 2017, the following commands are updated to support the Tuak Authentication Algorithm in HLR-FE 1.9. The attribute value for `fsetind` in those operations has been extended to 0-31.
  - AGAAP command for printing Subscription, and Authentication and Key Agreement Algorithm.
  - AGSUI command for creating the AUC subscription.
  - AGSUC command for changing the AUC subscription.
  - AGSUP command for printing the AUC subscription.

A new error code 26 is added for AUC.

For more information, refer to *Layered HLR AUC Provisioning over MML*, Reference [41].



### 5.4.7 REST Interface

In Dynamic Activation 1, the REST interface only allows HTTPS traffic. All REST traffic towards HTTP port (8282) will be automatically redirected to HTTPS port (8383).

From Dynamic Activation 1 September 2017, the REST interface in the Resource Configuration solution supports for Discovery and Reconciliation. Discovery gives the possibility to update Device Repository with the latest configuration in the device while Reconciliation can be used to restore the device configuration from Device Repository. For more information, refer to *Device Management over REST for Resource Configuration*, Reference [44].

## 5.5 Operation

### 5.5.1 New Alarms and Events

The following table contains information about the new alarms:

*Table 8 New Alarm Codes*

Alarm Code	Alarm Description	Proposed Action
1501	License Agent is not in service.	If the alarm is not automatically ceased, find and correct the error. Then (re)start License Agent service, see System Administrators Guide.
1502	EDA application detected on unlicensed resource instances, and will enforce a graceful shutdown of application modules running on such instances within a defined period.	Contact your local support organization to order a new license. For more information about licenses, see <i>Function Specification Dynamic Activation Execution Environment</i> , Reference [12].
1503	EDA application enforced a graceful shutdown of application modules running on unlicensed resource instances.	Contact your local support organization to order a new license. For more information about licenses, see <i>Function Specification Dynamic Activation Execution Environment</i> , Reference [12].
2411	A module ran out of memory.	Analyze the generated .hprof file.
8201	The ema-batch-handler-module is not in service.	If the alarm is not automatically ceased, find and correct the error. Then start the ema-batch-handler-module, see System Administrators Guide.
8202	Batch Job status is changed.	No need, stateless alarm.

For more information, see *Event and Alarm Handling*, Reference [8].

### 5.5.2 Updated Alarms and Events

No impact in this release.



### 5.5.3 Phased out Alarms and Events

No impact in this release.

### 5.5.4 Security

- Security is enhanced to support SSL configuration for CAI port 3301. For more details, refer to *System Administrators Guide for Native Deployment*, Reference [6] or *System Administrators Guide for Virtual and Cloud Deployment*, Reference [7].

## 5.6 Functions

This section describes new, enhanced and phased-out functions.

### 5.6.1 New Functions

- A new system health check tool is introduced to reduce manual steps for checking the status of the system. This tool is automatically handling health check during installation, update and upgrade. For more information, refer to section **System Checks** in *System Administrators Guide for Virtual and Cloud Deployment*, Reference [7] or *System Administrators Guide for Native Deployment*, Reference [6].
- Support for a new Authentication function for GUI management activities. For more information, refer to *Function Specification Dynamic Activation Execution Environment*, Reference [12].

**Note:** REST interfaces of **Replayer** and **Device Management** functions still use the same authentication mechanism that exists in the Multi Activation release.

- From Dynamic Activation 1 September 2017, a brute force protection algorithm is implemented for the default GUI user `admin`. Parameters in the algorithm are configurable. For more details, refer to *System Administrators Guide for Native Deployment*, Reference [6] or *System Administrators Guide for Virtual and Cloud Deployment*, Reference [7].
- A new Batch Handler feature is introduced. For more information, refer to *Function Specification Dynamic Activation Execution Environment*, Reference [12].
- Support for monolithic cSAPC 16B and SAPC 17A provisioning is introduced. For details, refer to *Function Specification SAPC*, Reference [46].
- Support for Dedicated Core Networks (DECOR) is introduced for HSS-EPS. Related to this feature, a new Value Package `Shared Networks` is



introduced. For more information refer to *Function Specification Layered LTE EPC*, Reference [47].

- MTAS provisioning is updated to support MTAS 17B and vMTAS 1. Multiple versions of NEs are also supported. For more information, refer to, *Configuration Manual for Resource Activation*, Reference [33], *User Guide for Resource Activation*, Reference [31].
- A new CAI3G interface is introduced that synchronizes the attribute values between EPS and HLR, to modify common service data. For more information, refer to *Function Specification Multi Service Consumer Common Data*, Reference [50].
- Support for provisioning of MIP6-Feature-Vector regarding to 3GPP TS 29 273 towards HSS-EPS is introduced. For details, refer to *Function Specification Layered LTE EPC*, Reference [47] and *Layered EPS Provisioning over CAI3G*, Reference [26].

**Note:** A new binary attribute `EpsAaaMip6fv` is introduced by MIP6-Feature-Vector. To activate this binary attribute, CUDB Network Element configuration must be updated according to *System Upgrade to Ericsson Dynamic Activation 1*, Reference [4].

- Support for the HSS-EPS feature non-3GPP APN in HSS-FE is introduced. For details, refer to *Function Specification Layered LTE EPC*, Reference [47] and *Layered EPS Provisioning over CAI3G*, Reference [26].
- From Dynamic Activation 1 September 2017, a new function is introduced to configure the log level setting of MML interface for the processing log. For more details, refer to *System Administrators Guide for Native Deployment*, Reference [6] or *System Administrators Guide for Virtual and Cloud Deployment*, Reference [7].
- From Dynamic Activation 1 September 2017, support for unconditional routing and routing of notification destination by regular expression, number range, and number series of key attributes is introduced for HSS-FE. The `associationId` is used for IMS and the `imsi` attribute is used for EPS. For more details, refer to *Configuration Manual for Resource Activation*, Reference [33].
- From Dynamic Activation 1 September 2017, support for TUAK Authentication Algorithm in HLR-FE 1.9 is introduced for AUC provisioning on the CAI3G, CAI, MML and CLI interfaces. For details, refer to respective interface specification.
- From Dynamic Activation 1 September 2017, support for EPS provisioning of Subscribed Periodic RAU TAU Timer and MDT User Consent features in HSS-FE 1.6 are introduced. For details, refer to *Layered EPS Provisioning over CAI3G*, Reference [26].
- From Dynamic Activation 1 September 2017, Wi-Fi Calling IPWorks AAA NSD user provisioning is updated to support either Layered or Monolithic IPWorks AAA. For more information, refer to *Solution Description Wi-Fi*

*Calling*, Reference [34] and *Wi-Fi Calling Provisioning over CAI3G*, Reference [28].

- From Dynamic Activation 1 September 2017, support for ACIP/UCIP 5.0 update 8 for AIR is introduced. Meanwhile, multi-version for AIR is introduced. For details, refer to *Solution Description Charging and CBiO*, Reference [35].
- From Dynamic Activation 1 September 2017, support for SAPC 1 provisioning is introduced.
  - SAPC Dataplan is supported for both Layered and Monolithic SAPC. For Layered SAPC, it is provisioned towards the SAPC-FE internal database.
  - SAPC Family is supported for provisioning towards SAPC-FE internal database.

For details, refer to *Function Specification SAPC*, Reference [46].

- From Dynamic Activation 1 September 2017, support for external authentication for GUI users is introduced.

For more information, refer to the following documents:

- *Function Specification Dynamic Activation Execution Environment*, Reference [12]
- *User Guide for Resource Configuration*, Reference [36]
- *User Guide for Resource Activation*, Reference [31]

## 5.6.2

### Enhanced Functions

- License Agent process is introduced for license enforcement on the application level. For information, refer to *Function Specification Dynamic Activation Execution Environment*, Reference [12].
- Activation of DSC/ILF 17A is supported. For more information, refer to *Function Specification DSC/ILF*, Reference [24].
- The `ema-async-activation-module` is changed to `activation-orchestration-module`. This change was introduced as a result of the added synchronous interface to the module, and because of the new product Ericsson Dynamic Activation. For more information, refer to *System Administrators Guide for Virtual and Cloud Deployment*, Reference [7] or *System Administrators Guide for Native Deployment*, Reference [6].
- Support for immediate IMSI Changeover functionality for AVG service is introduced. For more information, refer to *Function Specification Identity Changeover for Layered Applications*, Reference [38].
- CUDB subscription repair and remove procedures are enhanced:



- AVG service data during IMSI changeover can be printed and removed.
- AVG service data during IMSI changeover can be repaired.

For more information, refer to *CUDB Subscription Repair and Remove Procedures*, Reference [37].

- `nbia-module` is updated to support sending synchronous requests with priority configuration to `activation-orchestration-module`. For more information, refer to the following document:
  - *User Guide for Resource Activation*, Reference [31]
- From Dynamic Activation 1 September 2017, Recourse Configuration solution supports protocol specific vendor templates, which enables the possibility to configure different features on a device using different protocols. For information, refer to:
  - *Function Specification Resource Configuration*, Reference [43]
  - *User Guide for Resource Configuration*, Reference [36]
- From Dynamic Activation 1 September 2017, the Rollover data feature, introduced in SAPC-FE 16B, is supported for layered SAPC (SAPC-FE) provisioning.

### 5.6.3 Phased out Functions

- The standalone application Service Order Batch Handler is phased out and is replaced by the new Batch Handler feature within Dynamic Activation.

## 5.7 Customization

VoLTE auto provisioning solution can be adopted to support integration with UPG to synchronize user's supplementary services automatically.

For more information, refer to *Solution Description VoLTE*, Reference [51].

For general customization information, refer to *Customer Adaptation Development Guide for Resource Activation*, Reference [23].

### 5.7.1 Designer Studio

The following functions are enhanced:

- Task parameter assignment: support for dynamic changes of mandatory parameters choices according to current settings.
- Default rollback for SET operation: support tasks containing assigned sub-MOs.



- From Dynamic Activation 1 September 2017, support for response mapping for northbound CREATE, SET, and DELETE operations.

In the current release, Service Models cannot be deployed directly from Designer Studio. Only manual deployment is supported.

For more information, refer to *User Guide for Designer Studio*, Reference [9].

## 5.7.2 DUP Migration Tool

No impact in this release.

## 5.7.3 NBIA

The following new function is introduced:

- Support for using statistics service in NBIA development, which enables the customized NBIA to benefit from the new **Dashboard** GUI of the Dynamic Activation.
- A new NBIA submodule SSH-CAI is introduced as an NBIA customization example for CLI protocol development. For more information, refer to *Northbound Interface Adapter Customization Development Guide for CLI-Based Protocol*, Reference [10].

## 5.7.4 Interfaces

The following new interface is introduced:

- A new interface `setIgnoreSLEE` is introduced to control whether to ignore the exception `SizeLimit Exceeded` or not.

For more information, refer to *Customer Adaptation Development Guide for Resource Activation*, Reference [23].

- From Dynamic Activation 1 September 2017, new APIs `getClusterStrategyType`, `getNEProvisionStatus`, and `getNES` are introduced for cluster strategy APIs.

For more information, refer to *Customer Adaptation Development Guide for Resource Activation*, Reference [23].





## 5.8 Customer Product Information

### 5.8.1 New Customer Product Information

*Table 9 New Documents in Dynamic Activation 1*

Document Title	Document Number
Multi Service Consumer Common Data Provisioning over CAI3G	35/155 19-CSH 109 628
Function Specification Multi Service Consumer Common Data	22/155 17-CSH 109 628
User Guide for Batch Handler	12/1553-CSH 109 628
Northbound Interface Adapter Customization Development Guide for CLI-Based Protocol	26/1553-CSH 109 628
Function Specification Layered IPWorks/AAA NSD	23/155 17-CSH 109 628

### 5.8.2 Renamed Customer Product Information

*Table 10 Renamed Documents in Dynamic Activation 1*

Former Document Title	New Document Title	Document Number
Asynchronous CAI3G Interface Specification 1.2	Asynchronous CAI3G Interface Specification 1.2 <sup>(1)</sup>	34/155 19-CSH 109 628
Function Specification Layered LTE/SAE (4G)	Function Specification Layered LTE EPC	5/155 17-CSH 109 628
Wi-Fi Calling over CAI3G	Wi-Fi Calling Provisioning over CAI3G	14/155 19-CSH 109 628
Function Specification Layered SAPC	Function Specification SAPC	9/155 17-CSH 109 628
Layered SAPC Provisioning over CAI3G	SAPC Provisioning over CAI3G	20/155 19-CSH 109 628
Layered SAPC Massive Operations over CLI	SAPC Massive Operations over CLI	29/155 19-CSH 109 628
User Guide for Subscriber Activation	User Guide for Resource Activation	1/1553-CSH 109 628
Northbound Interface Adapter Development Step-by-Step Guide	Northbound Interface Adapter Customization Development Guide for HTTP-Based Protocol	7/1553-CSH 109 628

(1) New document number, no title change.

### 5.8.3 Removed Customer Product Information

*Table 11 Removed Documents in Dynamic Activation 1*

Document Title	Document Number
Operator User Guide for Capacity Management	8/1553-CSH 109 628
Service Provider User Guide for Capacity Management	9/1553-CSH 109 628



Document Title	Document Number
Reporter Client User Guide	22/1553-CSH 109 628
Reporter Integration Guide	23/1553-CSH 109 628
Function Specification Reporter Client	1/155 17-CSH 109 628
Service Order Batch Handler	21/1553-CSH 109 628
Function Specification Service Order Batch Handler	2/155 17-CSH 109 628



# Glossary

**3GPP**

3rd Generation Partnership Project

**3PP**

Third Party Product

**AAA**

Authentication, Authorization, and Accounting

**ACIP**

Administration Communication Integration Protocol

**AF**

Account Finder

**AIR**

Account Information and Refill server

**APN**

Access Point Network

**AuC**

Authentication Center

**AVG**

Authentication Vector Generation

**BCE**

Business Communication Enabler

**BSP**

Board Support Package

**CAI**

Customer Administration Interface

**CAI3G**

CAI Third Generation

**CBiO**

Charging and Billing In One

**CEE**

Cloud Execution Environment

**CF**

Common Function

**CLI**

Command Line Interface

**CP**

Correction Package

**CS**

Charging System

**CUDB**

Centralized User Database

**DAE**

Data Access Enabler

**DECOR**

Dedicated Core Networks

**DSC**

Diameter Signaling Controller

**DUP**

Data Unit Processing

**ECAS**

Ericsson Certificate Administration Server

**EDA**

Ericsson Dynamic Activation

**EDIFACT**

Electronic Data Interchange For Administration, Commerce, and Transport

**EIR**

Equipment Identity Register

**ENUM**

E.164 Telephone Number Mapping

**EPS**

Evolved Packet Service

**GUI**

Graphical User Interface

**HLR**

Home Location Register

**HLR-FE**

Home Location Register Front End

**HOT**

Heat Orchestration Template

**HSS**

Home Subscriber Server

**HTTP**

HyperText Transfer Protocol

**HTTPS**

HyperText Transfer Protocol Secure

**IMS**

IP Multimedia Subsystem

**IMSI**

International Mobile Subscriber Identification

**ILF**

Individual Locator Function

**IP**

Internet Protocol

**KVM**

Kernel Virtual Machine

**LTE**

Long Term Evolution

**M2M**

Machine to Machine

**MML**

Man-Machine Language

**MMTel**

Multimedia Telephony

**MNP**

Mobile Number Portability

**MO**

Managed Object

**MSISDN**

MS ISDN Number

**MTAS**

Multimedia Telephony Application Server

**NBIA**

Northbound Interface Adapter

**NE**

Network Element

**NIR**

Network Impact Report

**NSD**

Non Sim Device

**O&M**

Operation and Maintenance

**OSS-RC**

Operation and Support System Radio and Core

**REST**

Representational State Transfer

**SAPC**

Service Aware Policy Controller

**SSH**

Secure Shell

**SSL**

Secure Sockets Layer

**UCIP**

User Communication Integration Protocol

**UDC**

User Data Consolidation

**UNIV**

UDC Network Integration Verification

**VIP**

Virtual Internet Protocol

**VM**

Virtual Machine

**VoLTE**

Voice over LTE

**Wi-Fi**

Trademark of Wi-Fi Alliance for products based on 802.11 standards

**XFS**

eXtended File System

**XML**

Extensible Markup Language

**YANG**

Yet Another Next Generation





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