

Function Specification IPWorks/ENUM

Ericsson Dynamic Activation 1

FUNCTION SPECIFICATION

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Contents

1	Introduction	1
1.1	Purpose and Scope	1
1.2	Target Group	1
1.3	Typographic Conventions	1
2	IPWorks/ENUM Provisioning Function	2
2.1	Overview	2
2.2	Data Model ENUM	3
2.3	Atomicity and Integrity Handling	4
2.3.1	Layered IPWorks/ENUM	4
2.3.2	Monolithic IPWorks/ENUM	4
2.4	IPWorks/ENUM Provisioning	5
	Reference List	7





1 Introduction

This section is an introduction to this document. It contains information about the prerequisites, purpose, scope, and target group for the document. This section also contains explanations of typographic conventions used in this document.

1.1 Purpose and Scope

This document gives a brief introduction to the Telephone E.164 Number Mapping (ENUM) data in IPWorks provisioning function, provided by Ericsson™ Dynamic Activation (EDA).

1.2 Target Group

The target group for this document is as follows:

- Application Administrator
- Marketing
- Network Administrator
- System Administrator
- Network Supervision Administrator
- Application Designer

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

1.3 Typographic Conventions

Typographic conventions are described in *Library Overview* Reference [1]. In addition to the writing conventions mentioned above, the following applies:

2 IPWorks/ENUM Provisioning Function

2.1 Overview

Dynamic Activation supports layered and monolithic IPWorks/ENUM provisioning solutions as shown in Figure 1.

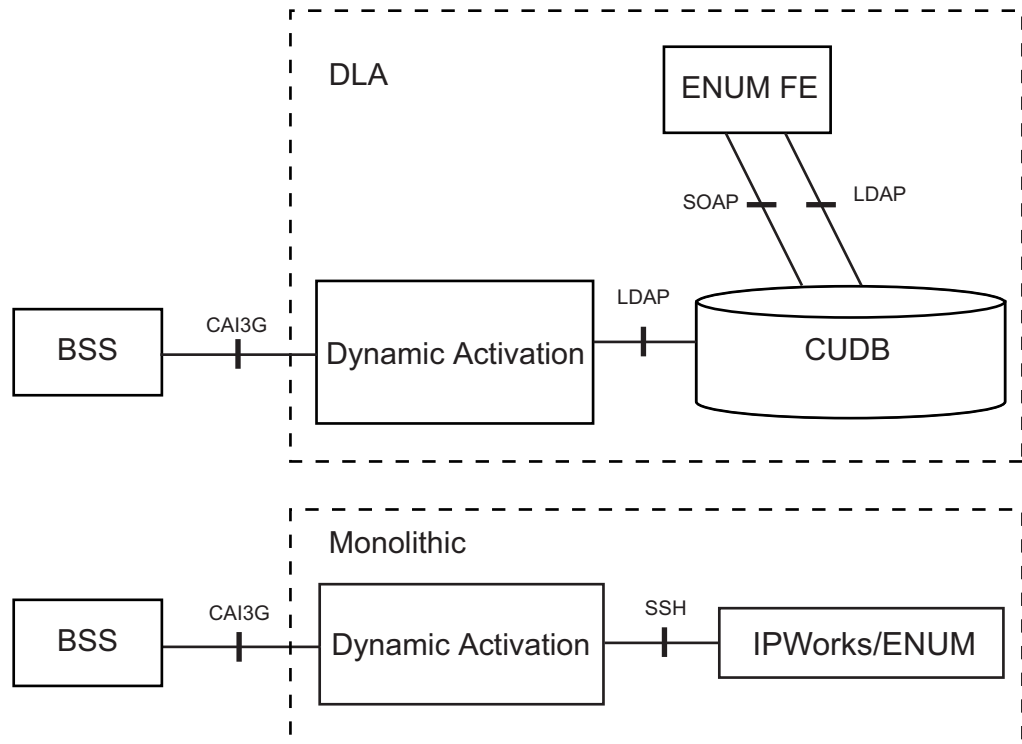


Figure 1 IPWorks/ENUM Provisioning Overview

- **BSS** - Initiates the provisioning request towards Dynamic Activation.
- **Dynamic Activation** - A provisioning system that provides a single provisioning interface towards the Business Support System (BSS), by hiding the complexities of provisioning multiple underlying network elements.
- **CUDB** – The Back-End database offered by the Ericsson realization of DLA, which decouples the user data storage from the application logic in the Front Ends (FEs).
- **Layered and monolithic IPWorks/ENUM** - A Telephone E.164 Number Mapping (ENUM) server that has a central role for the DNS. It provides the resolution of the IMS-related domain names, as well as the users private, and public addresses in the IMS network.



Monolithic IPWorks/ENUM supports two IPWorks/ENUM nodes configured into one NE cluster following the *ActiveActive* cluster strategy.

For more information about configuration of IPWorks/ENUM *ActiveActive* cluster strategy and Dynamic Activation in the deployment, see *Configuration Manual for Resource Activation*, Reference [3].

2.2 Data Model ENUM

Figure 2 shows the layered IPWorks/ENUM provisioning data model in Centralized User Database (CUDB).

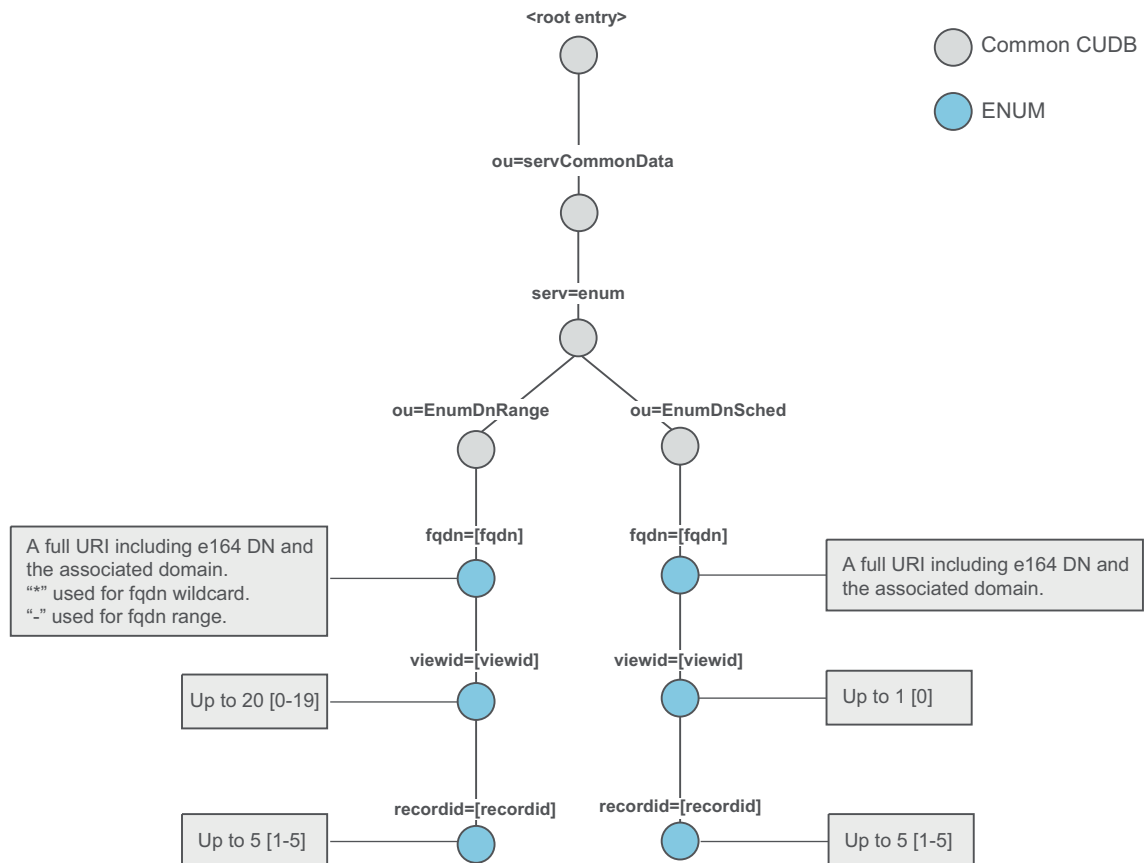


Figure 2 Data Model in CUDB (Layered ENUM)

Dynamic Activation is responsible to:

- Map the CAI3G order to the LDAP objects in the data model for a subscriber's ENUM record. There are attributes that have a different format in the CAI3G interface and in the LDAP schema.
- Check attributes that are required (mandatory) in CUDB but optional in CAI3G.



- Secure data consistency.

2.3 Atomicity and Integrity Handling

Atomicity means ensuring that any operations performed on the system are either all completed successfully or all reversed successfully to keep the data consistency.

2.3.1 Layered IPWorks/ENUM

Dynamic Activation will provide atomicity in layered IPWorks/ENUM provisioning as below:

- Parses and validates the whole CSO before any LDAP order is sent towards the CUDB to minimize the LDAP errors received from the CUDB.
- Retries the LDAP order when some LDAP errors are returned from CUDB, for example Function Busy. The number of retries is configurable. For more information about retry setting, refer to *User Guide for Resource Activation*, Reference [4].
- Support fault tolerance and rollback when LDAP errors are returned from CUDB and retry failed. For more information about fault tolerance and rollback on ENUM operations, refer to *Function Specification Resource Activation*, Reference [5].

If rollback is still failed, the atomicity is not achieved; the CUDB integrity is not assured. Dynamic Activation raised an alarm and sends back error information about inconsistent data in the CUDB.

For more information about layered IPWorks/ENUM alarm, refer to *Event and Alarm Handling*,

For more information about rollback failed error, refer to *IPWorks/ENUM Provisioning over CAI3G*, Reference [2].

In case of data inconsistency, manual action is needed. For more information about layered IPWorks/ENUM actions, refer to *Function Specification Resource Activation*, Reference [5].

Note: Simultaneously Create, Set and Delete the same subscriber's ENUM record can result in inconsistent data in the CUDB. To avoid that, reserve sufficient time duration, with consideration to retry behavior, among the different operations.

2.3.2 Monolithic IPWorks/ENUM

Dynamic Activation will provide atomicity in monolithic IPWorks/ENUM provisioning as below:



- Support rollback when CLI errors are returned from IPWorks during create DNSSubscription request.
- Support loose error handling when CLI errors 35250 and 35254 are returned from IPWorks.
- Support loose error handling configuration for IPWorks ENUM NE Type.

When two monolithic IPWorks/ENUMs are configured into one cluster using the `ActiveActive` cluster strategy, Dynamic Activation handles errors that occur during the cluster strategy provisioning process as below:

- If the second NE is down during the provisioning, the create operation provisioned on the first NE will be rolled back while set and delete operations will be not. The set and delete operations need to be re-provisioned on the second NE to ensure the consistency between two NEs.

For more information about loose error handling configuration, see *User Guide for Resource Activation*, Reference [4].

2.4 IPWorks/ENUM Provisioning

CAI3G is offered for provisioning of IPWorks/ENUM. Through the CAI3G provisioning interface, it is possible to perform the following Customer Service Orders (CSOs):

- For both layered and monolithic IPWorks/ENUM:

`Create/Set/Get/Delete DNSSubscription MO`

This MO is used to provision ENUM records in IPWorks.

`Create/Set/Get/Delete` can be used to operate both `EnumDnSched` and `EnumDnRange` records through IPWorks.

- For monolithic IPWorks/ENUM only:

`Set DNSDomains MO`

This MO is used to manage DNS domain in IPWorks. Use a `domainData` sub-MO to add a DNS domain. Use `xsi:nil=true` on the `domainData` sub-MO to remove a DNS domain. The command list that is used for managing DNS domain is configured in activation logic properties of IPWorks/ENUM JDV. For configuration details, refer to *Configuration Manual for Resource Activation*, Reference [3].

For more information, refer to *IPWorks/ENUM Provisioning over CAI3G*, Reference [2].





Reference List

Ericsson Documents

- [1] *Library Overview*, 18/1553-CSH 109 628 Uen
- [2] *IPWorks/ENUM Provisioning over CAI3G*, 33/155 19-CSH 109 628 Uen
- [3] *Configuration Manual for Resource Activation*, 2/1543-CSH 109 628 Uen
- [4] *User Guide for Resource Activation*, 1/1553-CSH 109 628 Uen
- [5] *Function Specification Resource Activation*, 3/155 17-CSH 109 628 Uen