ERICSSON

Auto Provisioning REST Northbound Interface

Interwork Description

1/155 19-CNA 403 2978 Uen A4

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Contents

1 Introduction

> The Auto Provisioning REST Northbound Interface (NBI) is a feature deployed in the ENM.

Auto Provisioning REST NBI supports the following Auto Provisioning use cases:

- Node Integration
- Node Expansion
- Hardware Replace

Auto Provisioning NBI supports additional NBI actions, refer to Supplementary Documentation for AutoProvisioning REST Northbound Interface

Target Audience

Developers implementing a client application that performs Auto Provisioning use cases.

Base URL

This RESTful service is accessible from https://**<customer-domain>//auto-provisioning/v1/**

Basic REST Concepts

All services are accessed through the standard HTTP interface. The interface is

designed following RESTful principles. These principles include:

- Client-server communication is stateless.

  This information must be stored or managed on the client side, and must be resent with every request.

- REST resources can be addressed using URLs.
- Standard HTTP methods (GET / POST / PUT / DELETE) can be used to manipulate these resources.
- Error reporting is through standard HTTP response codes and messages unless otherwise stated.
- Responses are encoded in JavaScript Object Notation (JSON) format.

Schema

For REST endpoint and JSON Schema details and responses, refer to Supplementary Documentation for AutoProvisioning REST Northbound Interface.

2 AutoProvisioning Use Cases

2.1 Integrate Node

2.1.1 Zero Touch (ZT) Auto Integration with Early Binding

> ZT Auto Integration with early binding is used to bring a node from its factory settings into service in a customer network with full ENM integration.

ZT Auto Integration with Early Binding is executed by importing an Auto Provisioning integration project. Auto Provisioning automates the provisioning activities for node integration.

When provisioning is completed, the node is powered on at site and additional integration tasks are automatically completed.

The following picture provides an overview of how to perform ZT Node Integration with early binding and monitor its integration status using AP NBI.

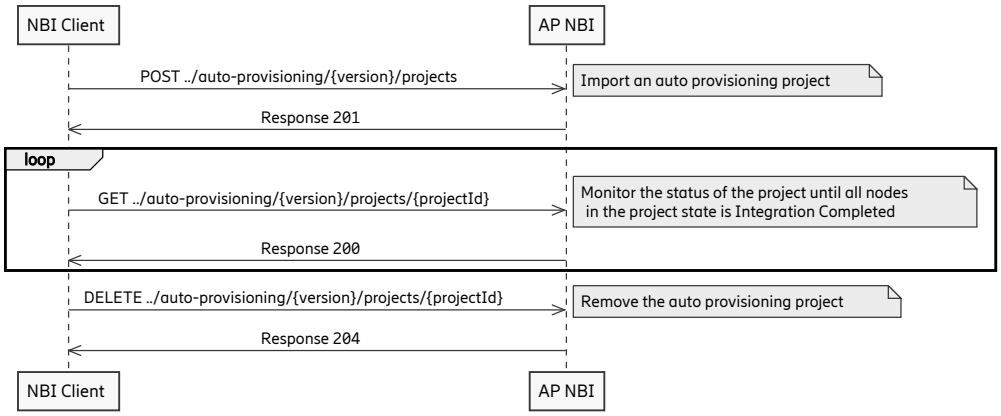

Figure 1 Zero Touch (ZT) Auto Integration with Early Binding

2.1.2 Zero Touch (ZT) Auto Integration with Late Binding

> ZT Auto Integration with late binding is used to bring a node from its factory settings into service with a customer network with full ENM integration.

ZT Auto Integration with late binding is executed by importing an Auto Provisioning integration project. Auto Provisioning automates the provisioning

activities for node integration. When provisioning is completed, late binding allows an operator to assign specific node configurations using a hardware serial number.

When the node is powered on at site, additional integration tasks are automatically completed.

The following picture provides an overview of how to perform ZT Auto Integration with late binding and monitor the integration status using AP NBI.

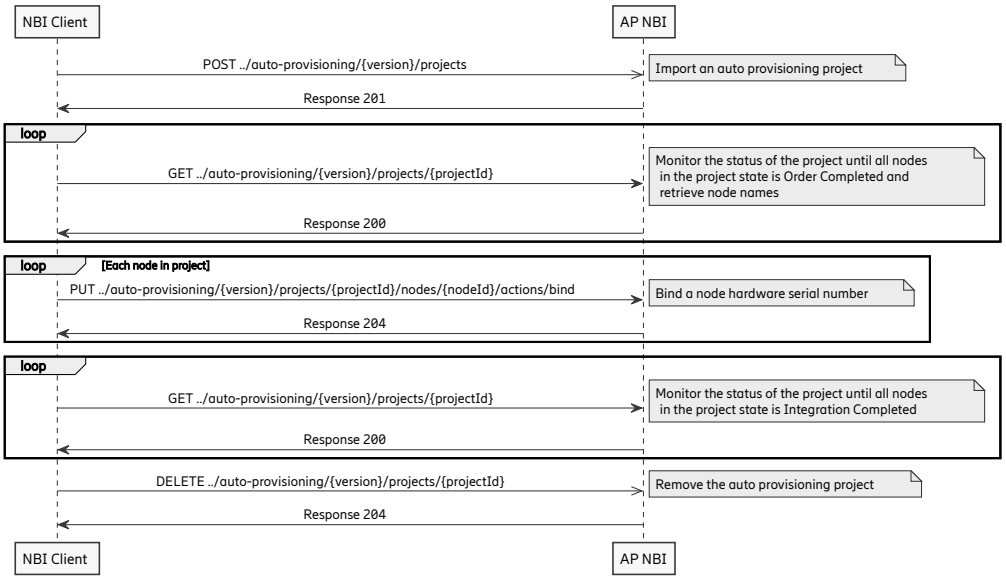

Figure 2 Zero Touch (ZT) Auto Integration with Late Binding

You can use this flow to execute ZT Auto Integration with Late Binding using node name. The node name binding on site can be used as an alternative to the hardware serial number binding.

2.1.3 Local Machine Terminal (LMT) Auto Integration

> LMT Auto Integration is used to bring a node from its factory settings into service with a customer network with full ENM integration.

LMT Auto Integration is executed by importing an Auto Provisioning integration project. Auto Provisioning automates the provisioning activities for node integration. When provisioning is completed a Site Installation File (SIF) is downloaded from ENM and provided to the Field Technician.

The Field Technician loads the SIF onto the node using a local machine terminal.

When SIF is loaded on at site and configurations are downloaded, additional integration tasks are automatically completed.

The following picture provides an overview of how to perform LMT Node Integration and monitor its integration status using AP NBI.

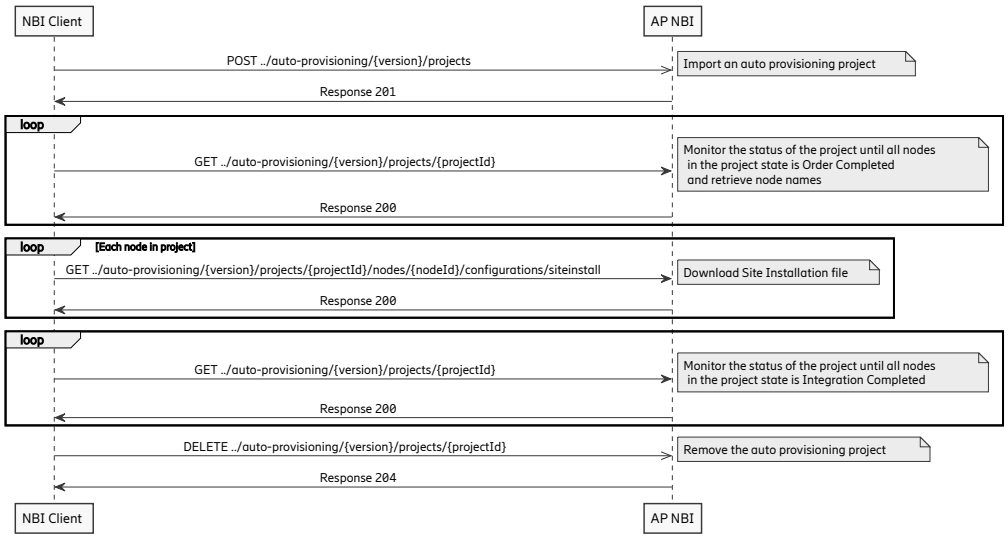

Figure 3 Local Machine Terminal (LMT) Auto Integration

2.2 Expand Node

2.2.1 Node Expansion with Manual Resume

> Node expansion with manual resume allows an operator to execute a node expansion automatically.

Node expansion with manual resume is executed by importing an Auto Provisioning expansion project. Auto Provisioning automates the provisioning activities for node expansion. When provisioning is completed, the expansion is suspended for on site hardware expansion.

When on site hardware expansion is completed, the expansion is manually resumed and additional expansion tasks are automatically completed.

The following picture provides an overview of how to perform a node expansion, monitor its status and resume the expansion after the on site hardware activity is completed using AP NBI.

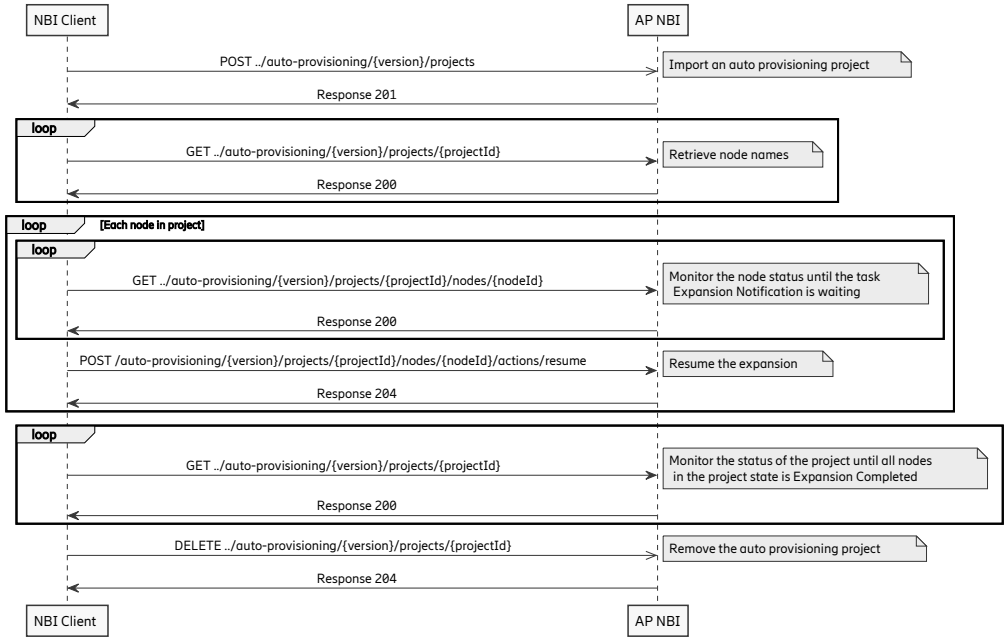

Figure 4 Node Expansion with Manual Resume

2.2.2 Node Expansion with Maintenance Button Press

> Node Expansion with maintenance button press allows an operator to execute a node expansion automatically.

Node Expansion with Maintenance Button Press is executed by importing an Auto Provisioning expansion project. Auto Provisioning automates the provisioning activities for node expansion. When provisioning is completed, the expansion is suspended for on-site hardware expansion.

Before on site expansion is started, the node is brought into Maintenance Mode by pressing the maintenance button on the node for between two and seven seconds.

When on site hardware expansion is completed, the node is brought out of Maintenance Mode by pressing the maintenance button on the node for between two and seven seconds. After the node is taken out of Maintenance Mode, additional expansion tasks are automatically completed.

The following picture provides an overview of how to perform expansion and monitor its status using AP NBI.

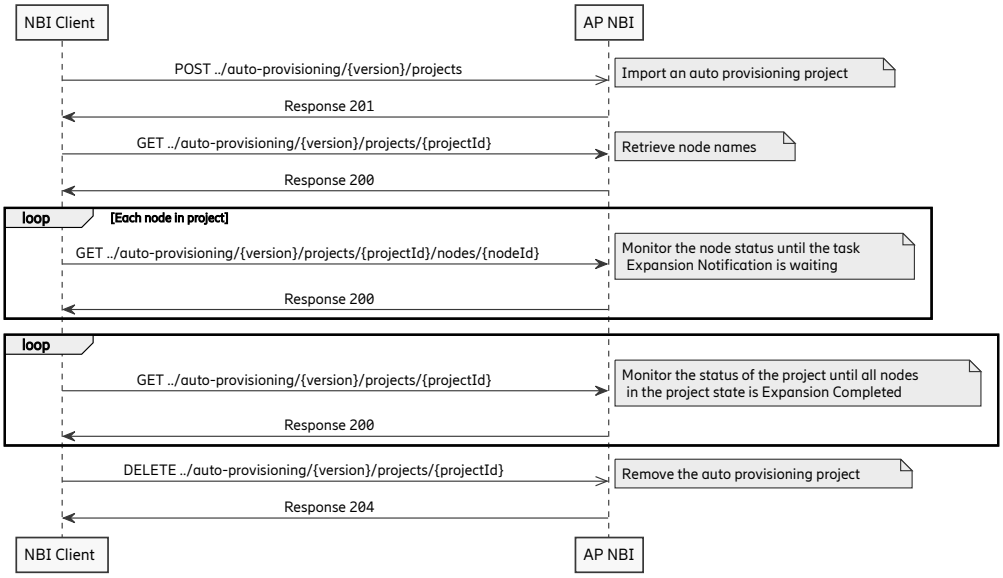

Figure 5 Node Expansion with Maintenance Button Press

2.3 Replace Node

2.3.1 Zero Touch (ZT) Hardware Replace

> ZT Hardware replace is performed when a full or partial replacement of a Baseband Radio Node or Pico Radio Node is required. A physical board (or the main processor board) in a node can be replaced with a new one, without losing the configuration data.

ZT Hardware Replace is executed by importing an Auto Provisioning hardware replace project. Auto Provisioning automates the provisioning activities for hardware replace.

When provisioning is completed the node is powered on at site and additional hardware replacement tasks are automatically completed.

The following diagram provides an overview of how to perform ZT Hardware Replace and monitor its status using AP NBI.

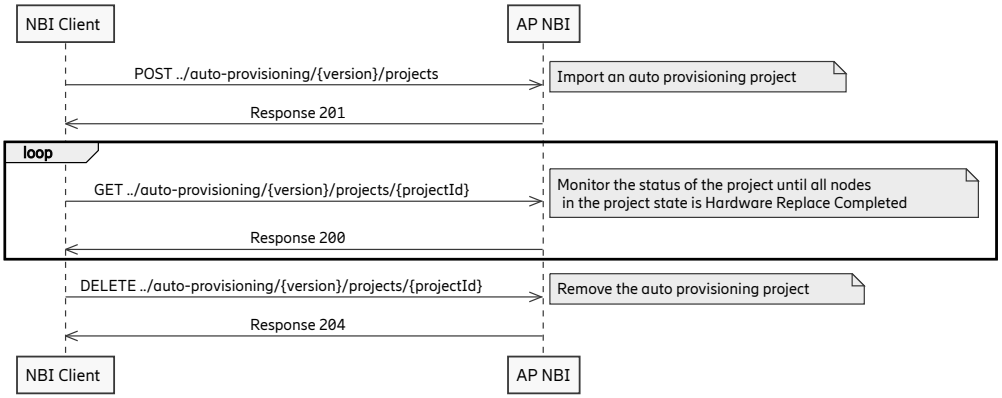

Figure 6 Zero Touch (ZT) Hardware Replace

2.3.2 Local Machine Terminal (LMT) Hardware Replace

> LMT Hardware replace is performed when a full or partial replacement of a Baseband Radio Node is required. A physical board (or the main processor board) in a node can be replaced with a new one, without losing the configuration data.

LMT Hardware Replace is executed by importing an Auto Provisioning hardware replace project. Auto Provisioning automates the preparation activities for hardware replace.

When preparation is completed a Site Installation File (SIF) is downloaded from ENM and provided to the Field Technician. The Field Technician loads the SIF onto the node using a local machine terminal.

When SIF is loaded on at site and configurations are downloaded additional hardware replace tasks are automatically completed.

The following picture provides an overview of how to perform hardware replace, download a SIF and monitor its status using AP NBI.

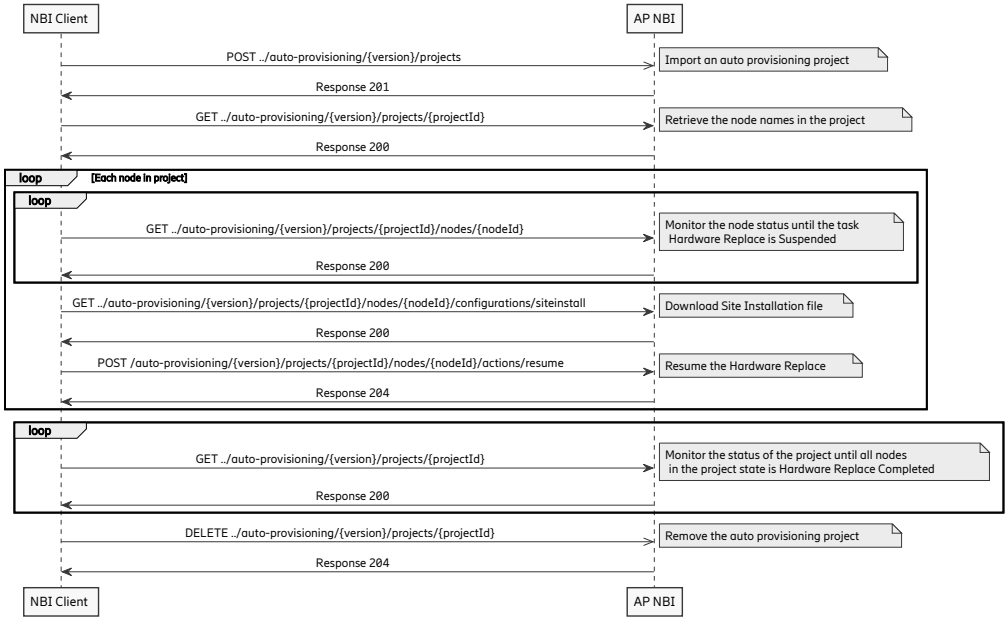

Figure 7 Local Machine Terminal (LMT) Hardware Replace

3 Authorization

Role-Based Access Control (RBAC)

The following role is required to be able to execute AP use cases over the NBI:

Autoprovisioning_Operator

For more details, see section *Role-based Authorization* in the ENM Identity and Access Management System Administrator Guide.

User Authentication

To establish a valid connection with the NBI interface, see *Establish a User Session Over REST* in the ENM Identity and Access Management Programmer's Guide.

4 AutoProvisioning Prerequisites

4.1 Integrate Node Prerequisites

The following prerequisites are required for execution of node integration.

- The node type is supported by Auto Provisioning for Node Integration.
- Be familiar with Auto Integrate a Physical Node Overview.
- For LMT Integration, user with FIELD_TECHNICIAN role is created in ENM.
- Define SNMP security configuration options if necessary.
- The required Upgrade and Basic Packages are uploaded to SHM.
- The required License Key Files (LKF) are uploaded to SHM (not applicable to Pico Radio Nodes) or the LKF can be included as part of the AP project.
- Auto Provisioning project is created.

Integration Target-Based Access Control (TBAC)

To add a node to a Target Group, a Target Group must be created before Node Integration.

Common Baseline

If common baseline files are referenced as part of the AutoProvisioning project, the baseline files must be stored in the shared AutoProvisioning directory on the scripting cluster before Node Integration.

Remote Node Configurations

If using Remote Node Configurations, referenced Nodes need to be created.

For more information on Node Integration Prerequisites, refer to *AutoProvisioning → Prerequisites* in ENM Online Help.

4.2 Expansion Prerequisites

The following prerequisites are required for execution of node expansion.

- The node type is supported by Auto Provisioning for Node Expansion.
- Be familiar with Expand a Node Overview.

— The node that is being expanded is synchronized with ENM.

— Auto Provisioning expansion project is created.

Expansion Node Health Check (NHC)

If a Health Check Profile is referenced as part of an Expansion Project, a Health Check Profile must be created before node expansion.

Additional NHC privileges are required to view the health check reports.

Common Baseline

If common baseline files are referenced as part of the AutoProvisioning project, the baseline files must be stored in the shared AutoProvisioning directory on the scripting cluster before Node Expansion.

Remote Node Configurations

If using Remote Node Configurations, referenced nodes need to be created.

For more information on Expansion Prerequisites, refer to *AutoProvisioning → Prerequisites* in ENM Online Help.

4.3 Hardware Replace Prerequisites

The following prerequisites are required for execution of hardware replace.

— The node type is supported by Auto Provisioning for Replace Node.

— Be familiar with Replace a Node Overview.

— The original node configuration data has previously been synchronized in ENM.

— Auto Provisioning hardware replace project is created.

— For LMT Hardware Replace for Baseband Radio Node, FIELD_TECHNICIAN user role is created in ENM.

— Any node auto provisioning data for the Network Element that hardware replace is to be executed against is removed before execution.

— For Baseband Radio Node, a backup is created in ENM of the node that hardware replace is to be executed against.

— The required Upgrade Package for the version of software installed on the node is available in SHM.

For more information on Hardware Replace Prerequisites, refer to *AutoProvisioning → Prerequisites* in ENM Online Help.

Reference List

[1] *Supplementary Documentation for AutoProvisioning REST Northbound Interface, 190 89-LZN 708 0882-14/0*
[2] *ENM Identity and Access Management Programmer's Guide, 19817-CNA 403 3016*
[3] *ENM Identity and Access Management System Administrator Guide,*2/1543-AOM 901 151-1
[4] *ENM Online Help, EN/LZN 703 0220*