Nokia WiFi Beacon

Beacon 3.1 Product Guide

3TN-00512-AAAA-TCZZA
Issue 1
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About this document

Purpose

This documentation set provides information about safety, features and functionality, ordering, hardware installation and maintenance, and software installation procedures for the current release.

Intended audience

This documentation set is intended for planners, administrators, operators, and maintenance personnel involved in installing, upgrading, or maintaining the WiFi Beacon.

The reader must be familiar with general telecommunications principles.

Safety information

For your safety, this document contains safety statements. Safety statements are given at points where risks of damage to personnel, equipment, and operation may exist. Failure to follow the directions in a safety statement may result in serious consequences.

Safety Information Examples

DANGER

Hazard

Danger indicates that the described activity or situation may result in serious personal injury or death; for example, high voltage or electric shock hazards.

WARNING

Equipment Damage

Warning indicates that the described activity or situation may, or will, cause equipment damage or serious performance problems.

CAUTION

Service Disruption

Caution indicates that the described activity or situation may, or will, cause service interruption.

Note: A note provides information that is, or may be, of special interest.

Acronyms and initialisms

The expansions and optional descriptions of most acronyms and initialisms appear in the glossary

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Nokia quality processes

Nokia WiFi Beacon's manufacturing, testing, and inspecting practices are in compliance with TL 9000 requirements. These requirements are documented in the Fixed Networks Quality Manual 3FQ-30146-6000-QRZZA.

The quality practices adequately ensure that technical requirements and customer end-point requirements are met. The customer or its representatives may be allowed to perform on-site quality surveillance audits, as agreed upon during contract negotiations.

Documents

Documents are available using ALED or OLCS.

To download a ZIP file package of the customer documentation

1

Navigate to http://customer.nokia.com/s/ and enter your user name and password. If you are a new user and require access to this service, please contact your Nokia sales representative.

2

Select **Products**.

3

Type your product name in the **Find and select a product** field and click the search icon. Select a product.

4

Click **Downloads: ALED** to go to the Electronic Delivery: Downloads page.

5

Select **Documentation** from the list.

6

Select a release from the list.

7

Follow the on-screen directions to download the file.

End of steps

To access individual documents

Individual PDFs of customer documents are also accessible through the Nokia Support Portal website.

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1

Navigate to http://customer.nokia.com/s/ and enter your user name and password. If you are a new user and require access to this service, please contact your Nokia sales representative.

2

Select **Products**.

3

Type your product name in the **Find and select a product** field and click the search icon. Select a product.

4

Click **Documentation: Doc Center** to go to the product page in the Doc Center.

5

Select a release from the **Release** list and click **SEARCH**.

6

Click on the PDF icon to open or save the file.

End of steps

Procedures with options or substeps

When there are options in a procedure, they are identified by letters. When there are required substeps in a procedure, they are identified by roman numerals.

Example of options in a procedure

At Step 1, you can choose option a or b. At Step 2, you must do what the step indicates.

1

This step offers two options. You must choose one of the following:

a. This is one option.

b. This is another option.

2

You must perform this step.

End of steps

Example of required substeps in a procedure

At Step 1, you must perform a series of substeps within a step. At Step 2, you must do what the step indicates.

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1

This step has a series of substeps that you must perform to complete the step. You must perform the following substeps:

a. This is the first substep.

b. This is the second substep.

c. This is the third substep.

2

You must perform this step.

END OF STEPS

Multiple PDF document search

You can use Adobe Reader Release 6.0 and later to search multiple PDF files for a common term. Adobe Reader displays the results in a single display panel. The results are grouped by PDF file, and you can expand the entry for each file.

Note: The PDF files in which you search must be in the same folder.

To search multiple PDF files for a common term

1

Open Adobe Acrobat Reader.

2

Select **Edit→Search** from the Acrobat Reader main menu. The Search PDF panel displays.

3

Enter the search criteria.

4

Select **All PDF Documents In**.

5

Select the folder in which to search using the list.

6

Click **Search**.

Acrobat Reader displays the search results. You can expand the entries for each document by clicking on the + symbol.

END OF STEPS

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Technical support

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1 What's new

1.1 Overview

1.1.1 Purpose

This chapter provides the details of features and other documentation changes updated in the product guide in each release.

1.1.2 Contents

1.2 What's new in BBD Release 23.04

The Product guide is a new guide in BBD Release 23.04, Issue 1. In future releases, this chapter will provide tables of the feature and document changes applicable to this guide.

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2 ANSI CPE safety guidelines

This chapter provides information about the mandatory regulations that govern the installation and operation of devices in the North American or ANSI market.

2.1 Safety instructions

This section describes the safety instructions that are provided in the CPE customer documentation and on the equipment.

2.1.1 Safety instruction boxes in customer documentation

The safety instruction boxes are provided in the CPE customer documentation. Observe the instructions to meet safety requirements.

The following is an example of the Danger box.

DANGER

Hazard

Possibility of personal injury.

The Danger box indicates that the described activity or situation may pose a threat to personal safety. It calls attention to a situation or procedure which, if not correctly performed or adhered to, may result in death or serious physical harm.

Do not proceed beyond a Danger box until the indicated conditions are fully understood and met.

The following is an example of the Warning box.

WARNING

Equipment Damage

Possibility of equipment damage.

Possibility of data loss.

The Warning box indicates that the described activity or situation may, or will, cause equipment damage, loss of data, or serious performance problems. It identifies a possible equipment-damaging situation or provides essential information to avoid the degradation of system operations or data.

Do not proceed beyond a warning until the indicated conditions are fully understood and met.

The following is an example of the Caution box.

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CAUTION

Service Disruption

Possibility of service interruption.

Service interruption.

The Caution box indicates that the described activity or situation may, or will, cause service interruption.

Do not proceed beyond a caution until the indicated conditions are fully understood and met.

The following is an example of the Note box.

Note: Information of special interest.

The Note box provides information that assists the personnel working with devices. It does not provide safety-related instructions.

2.1.2 Safety-related labels

The customer premises equipment is labeled with specific safety compliance information and instructions that are related to a variant of the CPE. Observe the instructions on the safety labels.

The following table provides examples of the text in the various CPE safety labels.

Table 2-1 Safety labels

Label text	Description
ETL compliance	Communication service equipment US listed.
ESD warning	Caution: This assembly contains electrostatic sensitive device.
FCC standards compliance	Tested to comply with FCC standards for home or office use.

Figure 2-1, “Sample safety label” (p. 23) shows a sample safety label located on the bottom of the Beacon 3.1.

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Figure 2-1 Sample safety label

2.2 Safety standards compliance

This section describes the CPE compliance with North American safety standards.

WARNING

Equipment Damage

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2.2.1 EMC, EMI, and ESD standards compliance

The customer premises equipment complies with the following requirements:

- Federal Communications Commission (FCC) CFR 47, Part 15, Subpart B, Class A requirements for equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

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- Connect the equipment into an outlet on a circuit different from that to which the receiver is needed.
- Consult the dealer or an experienced radio/TV technician for help.

2.2.2 Energy-related products standby and off modes compliance

Hereby, Nokia declares that the Beacon 3.1 devices are in compliance with the essential requirements and other relevant provisions of Directive 2009/125/EC together with Commission Regulation (EC) No 1275/2008 and Commission Regulation (EC) No 801/2013.

The Beacon 3.1 devices qualify as high network availability (HiNA) equipment. Since the main purpose of Beacon 3.1 devices is to provide network functionality with HiNA 7 days/24 hours, the modes Off/Standby, Power Management, and Networked Standby are inappropriate.

For information about the type and number of network ports, see 5.5 “Beacon 3.1 interfaces and interface capacity” (p. 40) in Chapter 5, “Beacon 3.1 unit data sheet”.

For information about power consumption, see 5.7 “Beacon 3.1 detailed specifications” (p. 42) in Chapter 5, “Beacon 3.1 unit data sheet”.

2.2.3 FCC statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

2.2.4 FCC Radiation Exposure Statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and consider removing the no-collocation statement.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and

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2. This device must accept any interference received, including interference that may cause undesired operation.

Note: For product availability in the USA and Canada, only channels 1 to 11 can be operated. Selection of other channels is not possible.

This device is restricted for indoor use.

CAUTION

Service Disruption

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2.2.5 Resistibility requirements compliance

The customer premises equipment complies with the requirements of ITU Recommendation K.21 for resistibility of telecommunication equipment installed in customer premises to overvoltage and overcurrents.

2.3 Electrical safety guidelines

This section provides the electrical safety guidelines for the customer premises equipment.

Beacon 3.1 devices are compliant with the following standards:

- IEC-62368-1
- UL-62368-1

Note: The devices comply with the U.S. National Electrical Code. However, local electrical authorities have jurisdiction when there are differences between the local and U.S. standards.

2.3.1 Power supplies

The use of any non-Nokia approved power supplies or power adapters is not supported or endorsed by Nokia. Such use will void any warranty or support contract with Nokia. Such use greatly increases the danger of damage to equipment or property.

2.3.2 Cabling

The following are the guidelines regarding cables used for the customer premises equipment:

- Use only cables approved by the relevant national electrical code.

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3 ETSI CPE safety guidelines

This chapter provides information about the mandatory regulations that govern the installation and operation of devices.

3.1 Safety instructions

This section describes the safety instructions that are provided in the CPE customer documentation and on the equipment.

3.1.1 Safety instruction boxes

The safety instruction boxes are provided in the CPE customer documentation. Observe the instructions to meet safety requirements.

The following is an example of the Danger box.

DANGER

Hazard

Possibility of personal injury.

The Danger box indicates that the described activity or situation may pose a threat to personal safety. It calls attention to a situation or procedure which, if not correctly performed or adhered to, may result in death or serious physical harm.

Do not proceed beyond a Danger box until the indicated conditions are fully understood and met.

The following is an example of the Warning box.

WARNING

Equipment Damage

Possibility of equipment damage.

Possibility of data loss.

The Warning box indicates that the described activity or situation may, or will, cause equipment damage, loss of data, or serious performance problems. It identifies a possible equipment-damaging situation or provides essential information to avoid the degradation of system operations or data.

Do not proceed beyond a warning until the indicated conditions are fully understood and met.

The following is an example of the Caution box.

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CAUTION

Service Disruption

Possibility of service interruption.

Service interruption.

The Caution box indicates that the described activity or situation may, or will, cause service interruption.

Do not proceed beyond a caution until the indicated conditions are fully understood and met.

The following is an example of the Note box.

Note: Information of special interest.

The Note box provides information that assists the personnel working with devices. It does not provide safety-related instructions.

3.1.2 Safety-related labels

The customer premises equipment is labeled with the specific safety instructions and compliance information that is related to a variant of the CPE. Observe the instructions on the safety labels.

The following table provides sample safety labels on the customer premises equipment.

Table 3-1 Safety labels

Label text	Description
CE marking	Indicates compliance to the European Council Directives including EN 60950-1 and EN 62368-1 safety
ESD warning	Caution: This assembly contains an electrostatic sensitive device.

3.2 Safety standards compliance

This section describes the CPE compliance with the European safety standards.

3.2.1 EMC, EMI, and ESD compliance

The customer premises equipment complies with the following EMC, EMI, and ESD requirements:

- EN 300-386 V1.6.1: Electromagnetic Compatibility and Radio Spectrum Matters (ERM): Telecommunications Network Equipment; Electromagnetic Compatibility (EMC) requirements; Electrostatic Discharge (ESD) requirements
- EN 301489-1: Electromagnetic Compatibility and Radio Spectrum Matters (ERM): Telecommunications Network Equipment; Electromagnetic Compatibility (EMC) Standard for Radio Equipment and Servcies; part 1: Common Technical Requirements
- EN 301489-17: Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Electromagnetic Compatibility (EMC) Standard for Radio Equipment; Part 17: Specific Conditions for Broadband Data Transmission Systems.
- Radio Equipment Directive (RED) 2014/53/EU (applicable from 13 June 2016)

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- EN 55032 (2015): Electromagnetic compatibility of multimedia equipment - Emission Requirements
- EN 55024 (2010): Information Technology Equipment, Immunity Characteristics, limits and methods of measurement
- Electromagnetic Compatibility (EMC) directive 2014/30/EU
- European Council Directive 2004/108/EC
- Low Voltage (LVD) directive 2014/35/EC

3.2.2 Equipment safety standard compliance

The customer premises equipment is labeled with specific safety compliance information and instructions that are related to a variant of the CPE. Observe the instructions on the safety labels.

The following table provides examples of the text in the various CPE safety labels.

Table 3-2 Safety labels

Label text	Description
TUV compliance	Type 3R enclosure - Rainproof.
ESD warning	Caution: This assembly contains electrostatic sensitive device.
CDRH compliance	Complies with 21 CFR 1040.10 and 1040.11.
CE marking	There are various CE symbols for CE compliance.
UKCA marking	There is UKCA symbol for UKCA compliance.

Figure 3-1, “Sample safety label” (p. 29) shows a sample safety label located on the bottom of the Beacon 3.1.

Figure 3-1 Sample safety label

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The customer premises equipment complies with the requirements of EN 60950-1 and EN 62368-1, Safety of Information Technology Equipment for use in a restricted location.

- ETS 300 019-2-1 Storage Class T1.1
- ETS 300 019-2-2 Transport Class T2.3
- ETS 300 019-2-3 Stationary Class T3.2

3.2.3 Environmental standard compliance

The customer premises equipment complies with the EN 300 019 European environmental standards.

3.2.4 CE RED RF Radiation Exposure Statement

This device complies with CE RED radiation exposure limits set forth for an uncontrolled environment. To comply with CE RED RF exposure compliance requirements, this grant is applicable only for mobile configurations. The antennas used for the transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

3.2.5 Resistibility requirements compliance

The customer premises equipment complies with the requirements of ITU Recommendation K.21 for resistibility of telecommunication equipment installed in customer premises to over voltage and overcurrents.

3.2.6 Acoustic noise emission standard compliance

The customer premises equipment complies with EN 300 753 acoustic noise emission limit and test methods.

3.3 Electrical safety guidelines

This section provides the electrical safety guidelines for the customer premises equipment.

Note: The devices comply with the U.S. National Electrical Code. However, local electrical authorities have jurisdiction when there are differences between the local and U.S. standards. The devices comply with BS EN 61140.

3.3.1 Power supplies

The use of any non-Nokia approved power supplies or power adapters is not supported or endorsed by Nokia. Such use will void any warranty or support contract with Nokia. Such use greatly increases the danger of damage to equipment or property.

3.3.2 Cabling

The following are the guidelines regarding cables used for the customer premises equipment:

- All cables must be approved by the relevant national electrical code.

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4 ETSI environmental and CRoHS guidelines

This chapter provides information about the ETSI environmental China Restriction of Hazardous Substances (CRoHS) regulations that govern the installation and operation of devices. This chapter also includes environmental operation parameters of general interest.

4.1 Environmental labels

This section describes the environmental instructions that are provided with the customer documentation, equipment, and location where the equipment resides.

4.1.1 Overview

CRoHS is applicable to Electronic Information Products (EIP) manufactured or sold and imported in the territory of the mainland of the People's Republic of China. EIP refers to products and their accessories manufactured by using electronic information technology, including electronic communications products and such subcomponents as batteries and cables.

4.1.2 Environmental related labels

Environmental labels are located on appropriate equipment. The following are sample labels.

Products below Maximum Concentration Value (MCV) label

Figure 4-1, "Products below MCV value label" (p. 31) shows the label that indicates a product is below the maximum concentration value, as defined by standard SJ/T11363-2006 (Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products). Products with this label are recyclable. The label may be found in this documentation or on the product.

Figure 4-1 Products below MCV value label

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Products containing hazardous substances above Maximum Concentration Value (MCV) label

The following figure shows the label that indicates a product is above the maximum concentration value, as defined by standard SJ/T11363-2006 (Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products). The number contained inside the label indicates the Environment-Friendly User Period (EFUP) value. The label may be found in this documentation or on the product.

Figure 4-2 Products above MCV value label

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Together with major international telecommunications equipment companies, Nokia has determined it is appropriate to use an EFUP of 50 years for network infrastructure equipment and an EFUP of 20 years for handsets and accessories. These values are based on manufacturers' extensive practical experience of the design, manufacturing, maintenance, usage conditions, operating environments, and physical condition of infrastructure and handsets after years of service. The values reflect minimum values and refer to products operated according to the intended use conditions.

4.2 Other environmental requirements

Observe the following environmental requirements when handling the P-OLT or CPE

4.2.1 CPE environmental requirements

See the CPE technical specification documentation for more information about temperature ranges.

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4.2.2 Storage

According to ETS 300-019-1-1 - Class 1.1, storage of CPE equipment must be in Class 1.1, weather-protected, temperature-controlled locations.

4.2.3 Transportation

According to EN 300-019-1-2 - Class 2.3, transportation of the equipment must be in packed, public transportation with no rain on packing allowed.

4.2.4 EU RoHS

European Union (EU) Directive 2011/65/EU, “Restriction of the use of certain Hazardous Substances” (RoHS), restricts the use of lead, mercury, cadmium, hexavalent chromium, and certain flame retardants in electrical and electronic equipment. Nokia products shipped to the EU comply with the EU RoHS Directive.

Nokia has implemented a material/substance content management process. The process is described in: Nokia process for ensuring RoHS Compliance (1AA002660031ASZZA). This ensures compliance with the European Union Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment.

4.2.5 End-of-life collection and treatment

Electronic products bearing or referencing the symbol shown in Figure 4-3, “Recycling/take back/ disposal of product symbol” (p. 33), when put on the market within the European Union (EU), shall be collected and treated at the end of their useful life, in compliance with applicable EU and local legislation. They shall not be disposed of as part of unsorted municipal waste. Due to materials that may be contained in the product, such as heavy metals or batteries, the environment and human health may be negatively impacted as a result of inappropriate disposal.

Note: In the European Union, a solid bar under the symbol for a crossed-out wheeled bin indicates that the product was put on the market after 13 August 2005.

Figure 4-3 Recycling/take back/disposal of product symbol

About mark is used in compliance to European Union WEEE Directive (2012/19/EU).

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There can be different requirements for collection and treatment in different member states of the European Union.

In compliance with legal requirements and contractual agreements, where applicable, Nokia will offer to provide for the collection and treatment of Nokia products bearing the logo shown in Figure 4-3, “Recycling/take back/disposal of product symbol” (p. 33) at the end of their useful life, or products displaced by Nokia equipment offers. For information regarding take-back of equipment by Nokia, or for more information regarding the requirements for recycling/disposal of product, contact your Nokia account manager or Nokia take back support at sustainability.global@nokia.com.

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5 Beacon 3.1 unit data sheet

5.1 Overview

5.1.1 Purpose

5.1.2 Contents

5.2 Beacon 3.1 part numbers and identification

Table 5-1, “Beacon 3.1 identification” (p. 35) provides part numbers and identification information for the Beacon 3.1.

Table 5-1 Beacon 3.1 identification

Ordering kit part number	Provisioning number	Description	CLEI Code	CPR	ECI/ Bar code
3TN00511AA	3TN00512AA	Beacon 3.1, US variant, US Plug, 1G WAN, 2x1G LAN, WiFi6 2+2	BVML910CRA	—	—
3TN00511AB	3TN00512AB	Beacon 3.1, Canada variant, US Plug, 1G WAN, 2x1G LAN, WiFi6 2+2	BVMNU00DRA	—	—
3TN00511BA	3TN00512BA	Beacon 3.1, EU variant, EU Plug, 1G WAN, 2x1G LAN, WiFi6 2+2	—	—	—
3TN00511CA	3TN00512CA	Beacon 3.1, UK variant, UK Plug, 1G WAN, 2x1G LAN, WiFi6 2+2	—	—	—
3TN00511DA	3TN00512DA	Beacon 3.1, AU variant, AU Plug, 1G WAN, 2x1G LAN, WiFi6 2+2	—	—	—

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Table 5-2, “Beacon 3.1 power supply ordering information” (p. 35) provides the power supply information for the Beacon 3.1.

Table 5-2 Beacon 3.1 power supply ordering information

Beacon part numbers	Power model (Model No/Manufacture Part Number)	Power information	Customer category or country compliance tested for	Notes
Kit: 1AF33632AA EMA: 1AF33631AA	FUHUA: UES18LU-120150SPA / UE230418DGNA1RI RUIDE: RD1201500-C55-198MG / BW120150-UC6C-LL04	12V 1.5A wall mounted AC/DC power adapter with 2-pin US input plug	ANSI municipality US, UL certified	2-pin US input plug
Kit: 1AF33632BA EMA: 1AF33631BA	FUHUA: UES18LV-120150SPA / UE230418DGNA2RI RUIDE: RD1201500-C55-198OG / BW120150-EC6C-LL04	12V 1.5A wall mounted AC/DC power adapter with 2-pin EU input plug	Europe, EN/IEC certified	2-pin EU input plug
Kit: 1AF33632CA EMA: 1AF33631CA	FUHUA: UES18LB-120150SPA / UE230418DGNA3RI RUIDE: RD1201500-C55-198YG / BW120150-YC6C-LL04	12V 1.5A wall mounted AC/DC power adapter with 3-pin UK input plug	UK, EN/IEC certified	3-pin UK input plug
Kit: 1AF32724DB EMA: 1AF33631DA	FUHUA: UES18LS-120150SPA / UE230418DGNA4RI RUIDE: RD1201500-C55-81AG / BK120150-FC6C-LL02	12V 1.5A wall mounted AC/DC power adapter with 2-pin AU input plug	AS/NZS certified	2-pin AU input plug

5.3 Beacon 3.1 general description

WiFi is abundantly deployed in home networks. Users crave a seamless experience at home including effortlessly connecting their wireless devices to the network. Traditional WiFi networks require unique SSIDs for each of the access points or tedious set-up of WiFi extenders, which complicate the user experience. The Nokia WiFi network simplifies the user experience by providing a seamless mesh network with easy device onboarding and automated network optimization.

The overall Nokia WiFi solution is composed of one Nokia WiFi gateway (or Nokia WiFi beacon) as root AP, one or more Nokia WiFi beacons, the Nokia WiFi Care Portal for the operator’s customer care team, and a mobile application for the end-user’s self care.

Note: The Nokia WiFi Care Portal can be accessed by the end user and the operator.

Beacon 3.1 devices can be deployed as either an Ethernet residential gateway or a WiFi beacon in the Nokia WiFi solution. The residential gateway is the central point of the mesh network providing access to the broadband network (Internet) while the beacon aids with extending WiFi coverage to every corner of the home, providing seamless roaming to wireless connected devices.

The Beacon 3.1 has built-in concurrent dual-band WiFi 802.11b/g/n/ax and 802.11n/ac/ax networking with triple-play capability. Beacon 3.1 devices can be configured using the Nokia WiFi mobile app, which can be downloaded to iOS and Android devices.

The image below shows the Beacon 3.1.

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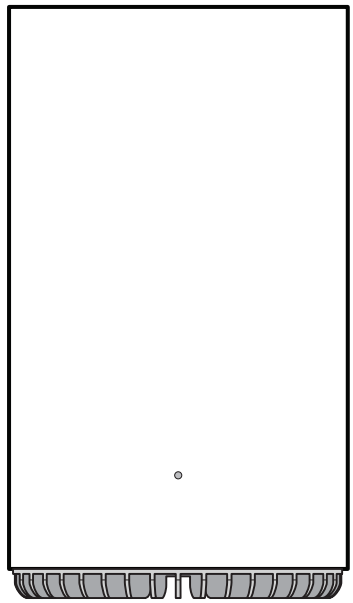
Figure 5-1 Beacon 3.1 WiFi gateway/beacon



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The Beacon 3.1 provides the following functions and benefits:

- Automatically decides on mesh root device or mesh extender device in a mesh network
- Dual-band concurrent IEEE 802.11b/g/n/ax 2x2 2.4 GHz and 802.11n/ac/ax 2x2 5 GHz
- One 1000/100/10Base-T WAN interface with RJ-45 connector and two 1000/100/10Base-T LAN interface with RJ-45 connector
- Beacon 3.1's Nokia WiFi mesh middleware can support up to five Beacon 3.1 extender nodes with a maximum mesh topology size of six nodes
- Embedded edge analytics optimize network performance in real-time

Benefits:

- PHY rate up to 574 Mb/s for 2.4 GHz and 2400 Mb/s for 5 GHz
- Self-healing, self-optimizing network
- Mesh topology and intelligent mesh routing
- Seamless roaming (IEEE 802.11k and 802.11v)
- Band steering
- Channel optimization
- High quality of service (QoS) video over WiFi
- Ease of setup and user intuitive information
- Provides capability to separate VLAN in the mesh network.
- Supports ethernet fanout switch

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- Supports WFA EasyMesh Controller and Agent
- Supports Nokia WiFi Mesh Agent
- Supports bridged WAN
- Ethernet ports on AP/Beacons inherit the configuration from the root devices

Table 5-3, “Beacon 3.1 function detail” (p. 37) lists additional function detail for the Beacon 3.1.

Table 5-3 Beacon 3.1 function detail

Function	Detail
Installation	Desk and wall mounted
WLAN interfaces	• Supports 2x2 802.11b/g/n/ax 2.4 GHz wireless LAN (WLAN) interface • Supports 2x2 802.11n/ac/ax 5 GHz WLAN interface • Maximum effective isotropic radiated power (EIRP) on 2.4GHz up to 1W (HW variant dependent) and on 5GHz up to 1W. The actual output power levels can be tuned by software to guarantee compliancy to local regulations • WiFi Protected Access (WPA) support including Pre-Shared Key (WPA-PSK), WPA2 and WPA3 personal, and WPA2/WPA3 enterprise. • Media access control (MAC) filters
Router mode	• IPv4 and IPv6 • Point-to-Point Protocol over Ethernet (PPPoE) and IP over Ethernet (IPoE) • Network Address Translation (NAT), demilitarized zone (DMZ) and firewall • Dynamic Host Configuration Protocol (DHCP) and domain name system (DNS) proxy • Internet Group Management Protocol (IGMP) v2/v3 proxy • LXC container and TR157 Software module management • Supports TR-069/TR-111 • Supports virtual private network (VPN) pass- through for Point-to-Point Tunneling protocol (PPTP), Layer 2 Tunneling Protocol (L2TP) and IPSec • Port forwarding and DMZ/dynamic domain name system (DDNS) • Flexible video delivery options over Ethernet or wireless • Beacon 3.1’s Nokia WiFi mesh middleware can support up to five Beacon 3.1 extender nodes with a maximum mesh topology size of six nodes
Beacon mode (Bridge mode)	• Supports IPv4 and IPv6 • Supports TR-069/TR-111 • Supports VPN pass-through for PPTP, L2TP and IPSec • IGMP v2/v3 snooping • Flexible video delivery options over Ethernet or wireless • Beacon 3.1’s Nokia WiFi mesh middleware can support up to five Beacon 3.1 extender nodes with a maximum mesh topology size of six nodes
LED	Single multi-color LED for simple and intuitive status indication

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Table 5-3 Beacon 3.1 function detail (continued)

Function	Detail
Regulatory compliance	• UL 62368-1 • FCC Part 15 • CE • RCM/RSM(R-NZ)

5.3.1 TR-069 object support for WiFi parameters

The Beacon 3.1 supports the status retrieval and configuration of the following WiFi parameters via TR-069:

- Channel
- SSID
- WPA Password
- Tx power (transmission rate in dBm)

These are the same TR-069 object parameters that are supported in the GUI.

5.3.2 Communication method to Nokia cloud management solution

The Beacon 3.1 communicates to the Nokia cloud management solution by TR-069 using an independent TR-069 session with the SaaS or through MQTT and https.

The supported mechanism is specific to a customer deployment and the detailed description is available in the Customer Release Notes (CRN) of each release.

5.3.3 TR-069 authentication using TLS and CA certificates

Beacon 3.1 devices support encrypted remote TR-069 management using TLS, as well as ACS authentication using SHA-256 pre-installed certificates.

If the ACS URL is set to the https://... format, by default, the connection will use TLS without authentication mode. The Beacon 3.1 can also authenticate the ACS using a pre-installed CA certificate.

5.3.4 TR-157 Software Module Managements

Beacon 2 can support LXC container for third party software components. Life cycle of these software components are managed by ACS with the parameters defined in TR-157.

The TR-157 objects are:

- Mange each software component via SoftwareModules.DeploymentUnit.
- Set software component execution environment via SoftwareModules.ExecEnv.
- Run software component and get the execution status via SoftwareModules.ExecutionUnit.

Note: The available memory for third party applications needs a detailed study, considering the actual memory load of the current hardware, software, Beacon software evolution over

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long time and the projected use by a third party application of the software. Therefore, Nokia suggests to review this case by case. Please contact your Nokia support representative for more information.

5.4 Beacon 3.1 software and installation feature support

For information on installing or replacing the Beacon 3.1, see Chapter 6, “Install or replace a Beacon 3.1”.

5.5 Beacon 3.1 interfaces and interface capacity

The table below describes the supported interfaces and interface capacity for Beacon 3.1 devices.

Table 5-4 Beacon 3.1 interface connection capacity

Device type and model	Maximum capacity								
	POTS	100/10 BASE-T	1000/100/10 BASE-T	RF video (CATV)	MoCA	VDSL2	E1/T1	Local craft	XGSPON SC/APC
Beacon 3.1	—	—	3	—	—	—	—	—	—

5.5.1 Beacon 3.1 connections and components

Figure 5-2, “Beacon 3.1 physical connections” (p. 41) shows the physical connections for Beacon 3.1.

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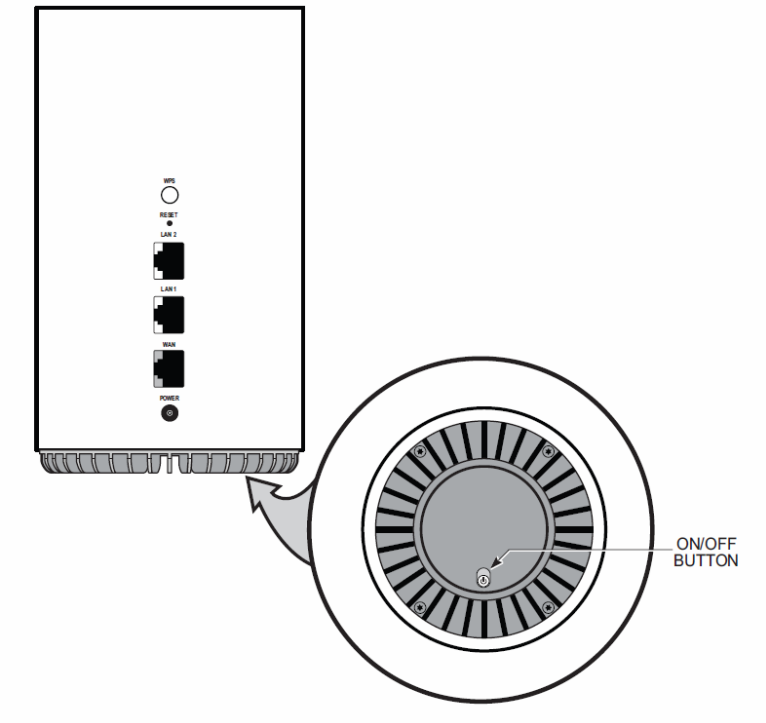
Figure 5-2 Beacon 3.1 physical connections



The following figure describes the physical connections for Beacon 3.1 devices.

Table 5-5 Beacon 3.1 physical connections

Connection	Description
WPS button	This button is used to start the WiFi Protected Setup (WPS) for new WiFi devices.
Reset button	Pressing the Reset button for less than 10 seconds reboots the Beacon; pressing the Reset button for 10 seconds or more restores the Beacon to its factory defaults.
LAN port	This connection is provided through Ethernet RJ-45 connectors. Two 1000/100/10 Base-T Ethernet interface is supported. The Ethernet ports can support both data and in-band video services.
WAN port	This connection is provided through an RJ-45 Gigabit Ethernet interface.
Power input	This connection is provided through the power connector. A power cable fitted with a barrel connector is used to make the connection.
On/Off button	This button powers the unit on or off. Green illumination is “ON”. Red illumination is “OFF”.

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5.6 Beacon 3.1 LEDs

The front of the Beacon 3.1 functions as a multi-color LED indicator. The LED color and pulse rate acts as a signal to the home user, which indicates the state of the Beacon and the quality of its backhaul link.

Table 5-6, “Beacon 3.1 LED indications” (p. 41) provides LED descriptions for the Beacon 3.1.

Table 5-6 Beacon 3.1 LED indications

LED color	LED behavior	Router mode	Bridge mode	Configuration mode	LED behavior description
Off	Off	✓	✓	✓	Power off.
Blue-Green	Solid	✓			Uplink to Internet is good.
	Solid		✓		Backhaul connection is successful. The link quality to the root node is good.
Yellow	Solid		✓		Backhaul connection is successful. The link quality to the root node is poor.
	Slow pulsing			✓	Configuration mode, the unit is waiting to be configured.
Red	Solid	✓			No connection to the Internet.
	Solid		✓		Backhaul connection is unsuccessful.
	Fast pulsing	✓	✓	✓	Factory reset.
	Slow pulsing	✓			Connecting to the Internet.
White	Solid	✓	✓	✓	Booting up in progress.
	Slow pulsing			✓	Mesh backhaul establishing and switching work mode to Router or Bridge.
	Slow pulsing	✓	✓		WPS enabled.
	3 sec quick pulse	✓	✓		WPS successful or Mesh Backhaul established.

5.7 Beacon 3.1 detailed specifications

Table 5-7, “Beacon 3.1 physical specifications” (p. 42) lists the physical specifications for the Beacon 3.1.

Table 5-7 Beacon 3.1 physical specifications

Description	Specification
Length	3.9 in. (100 mm)
Width	3.9 in. (100 mm)
Height	6.6 in. (168 mm)
Weight	0.34 kg

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Table 5-8, “Beacon 3.1 dimension data specifications” (p. 42) lists the dimension data specifications for Beacon 2.

Table 5-8 Beacon 3.1 dimension data specifications

Dimension	Specification
Packet size supported	1500
Number of IP addresses supported (or ranges)	In LAN network, the supported range is: • IPv4: support the IPv4 private network IP ranges • IPv6: any allocated Global Unicast Addresses (GUA)
Number of supported WiFi clients (per radio, per device, per mesh)	128 per radio, 128 per device, 128 per mesh
Number of supported beacons /APs in a mesh	5
Number of supported WAN interfaces	8
Number of supported VLANs	8
Number of LLIDs in the device	-
Number of priority queues, and overall buffer size	8 priority queues, Total buffer: 12K pages, 2KB
Number of multicast groups (DACL entries)	256

Table 5-9, “Beacon 3.1 power consumption specifications” (p. 43) lists the power consumption specifications for the Beacon 3.1.

Table 5-9 Beacon 3.1 power consumption specifications

Mnemonic	Maximum power (Not to exceed)	Condition	Minimum power	Condition
Beacon 3.1	14 W	3 1000/100/10 Base-T Ethernet, WiFi operational	5 W	Interfaces/services not provisioned

Table 5-10, “Beacon 3.1 environmental specifications” (p. 43) lists the environmental specifications for Beacon 3.1.

Table 5-10 Beacon 3.1 environmental specifications

Mounting method	Temperature range and humidity	Altitude
On desk or shelf	Operating: -5°C to 45°C (23°F to 113°F) ambient temperature 5% to 95% relative humidity	Contact your Nokia technical support representative for more information

5.8 Beacon 3.1 functional blocks

Beacon 3.1 devices are single-residence units that support Wireless (WiFi) service. WiFi service on these devices is compliant with the IEEE 802.11 standard. In addition to the WiFi service, these devices transmit Ethernet packets to two RJ-45 Ethernet ports.

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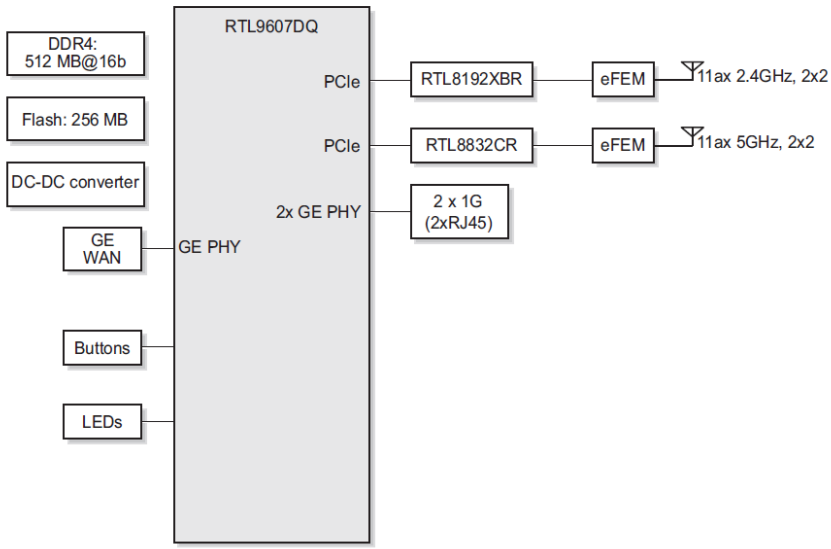
Figure 5-3, “Single-residence WiFi CPE with Gigabit Ethernet” (p. 43) shows the functional blocks for the Beacon 3.1.

Figure 5-3 Single-residence WiFi CPE with Gigabit Ethernet



5.9 Beacon 3.1 responsible party

Table 5-11, “Responsible party contact information” (p. 44) lists the party in the US responsible for this Beacon.

Table 5-11 Responsible party contact information

Legal Company name	Nokia Solutions and Networks OY	Nokia of America Corporation
Offices	Offices | Nokia (https://www.nokia.com/contact-us/offices/#north-america)	
Support	Business Support | Nokia (https://www.nokia.com/networks/business-support/)	
Other contacts	Contact us | Nokia (https://www.nokia.com/contact-us/)	

5.10 Beacon 3.1 special considerations

This section describes the special considerations for Beacon 3.1 devices.

5.10.1 WiFi service

Beacon 3.1 devices feature WiFi service as well as data services. WiFi is a wireless networking technology that uses radio waves to provide wireless HSI and network connections. This device complies with the IEEE 802.11 standards, which the WiFi Alliance defines as the basis for WiFi technology.

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WiFi standards and certifications

The WiFi service on Beacon 3.1 devices supports the following IEEE standards and Wi-Fi Alliance certifications:

- ETL-Safety: UL 62368-1
- CB-Safety: EN 62368-1, EN60950-1
- FCC:
  - EMC CFR 47: part 15B (2017)
  - RF:2.4G: part 15C(2020), 5G/DFS: part 15E(2020)
  - MPE: Section 1.1310 of FCC 47 CFR part1
- CE-Safety: EN 60950-1/EN 62368-1, IEC 60950-1/IEC 62368-1, EN 60825-1, -2
  - EMC EN 300386(2016) OTC (without WiFi)/EN 55024(2010)/EN 301489-1/17 (2019/2020)(with WiFi)
  - RF: 2.4G: EN 300328(2019), 5G/DFS: EN 301893(2017)
  - MPE: Section 1.1310 of FCC 47 CFR part1
- RCM/RSM(R-NZ)
- WFA:
  - Wi-Fi CERTIFIED 6™
  - Wi-Fi CERTIFIED™ a, b, g, n, ac
  - WPA™, WPA2™ , WPA3™
  - Wi-Fi Agile Multiband™
  - WMM®, WMM®-Power Save
  - Wi-Fi Protected Setup™

WiFi GUI features

Beacon 3.1 devices have HTML-based WiFi configuration GUIs.

In addition to the HTML-based GUI, the home user can download and use a mobile app for managing the Beacon. The Nokia WiFi app is available for iOS in the App Store, and for Android through Google Play.

5.10.2 Beacon 3.1 considerations and limitations

None.

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6 Install or replace a Beacon 3.1

6.1 Overview

6.1.1 Purpose

This chapter provides the steps to:

- Install a Beacon 3.1
- Replace a Beacon 3.1

6.1.2 Contents

6.2 Recommended tools

You need the following tools:

- Paper clip
- Screwdriver

6.3 Safety information

Read the following safety information before installing the unit.

DANGER

Hazard

Hazardous electrical voltages and currents can cause serious physical harm or death. Always use insulated tools and follow proper safety precautions when connecting or disconnecting power circuits.

Make sure all sources of power are turned off and have no live voltages present on feed lines or terminals. Use a voltmeter to measure for voltage before proceeding.

Always contact the local utility company before connecting the enclosure to the utilities.

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CAUTION

Service Disruption

Keep indoor devices out of direct sunlight. Prolonged exposure to direct sunlight can damage the unit.

Note: Observe the local and national laws and regulations that may be applicable to this installation.

Observe the following:

- The device should be installed in accordance with the applicable requirements of the NEC or CEC. Local authorities and practices take precedent when there is conflict between the local standard and the NEC or CEC.
- Indoor units must be installed with cables that are suitably rated and listed for indoor use.
- See the detailed specifications in the Chapter 5, “Beacon 3.1 unit data sheet” for the temperature ranges for these devices.

6.4 Install a Beacon 3.1

1

Place the unit on a flat surface, such as a desk or shelf.

Note: The Beacon 3.1 cannot be stacked with another Beacon or with other equipment. The installation requirements are:

- Allow a minimum 100 mm clearance above the top cover
- Allow a minimum 50 mm clearance from the side vents
- Do not place any heat source directly above the top cover or below the bottom cover

2

Review the connection locations, as shown in Figure 6-1, “Beacon 3.1 connections” (p. 49).

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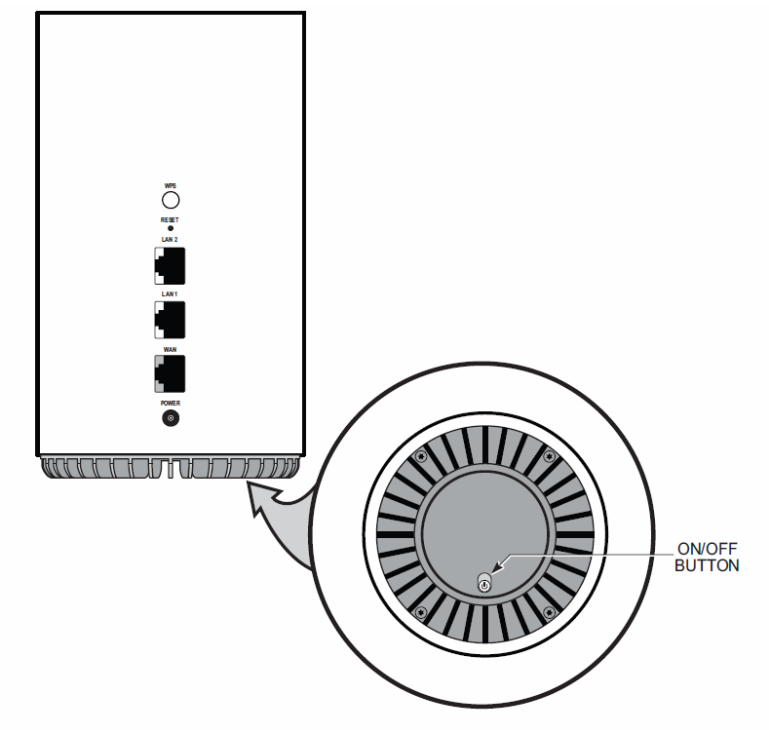
Figure 6-1 Beacon 3.1 connections



3

Connect the Ethernet cable to the RJ-45 port; see Figure 6-1, “Beacon 3.1 connections” (p. 49) for the location of the RJ-45 port.

4

Connect the WAN cable to the RJ-45 WAN port; see Figure 6-1, “Beacon 3.1 connections” (p. 49) for the location of the RJ-45 WAN port.

5

Connect the power cable to the power connector.

Note: Observe the following:
Units must be powered by a Listed or CE approved and marked limited power source power supply with a minimum output rate of 12 V dc, 1.5 A. The polarity of the power adapter plug must match the Beacon.

6

Power up the unit by using the On/Off power switch.

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7

Verify the LED.

8

Onboard the Beacon 3.1 using the Nokia WiFi App.

9

If necessary, reset the Beacon 3.1.

Note: Resetting the device will return all settings to factory default values; any configuration customization will be lost.

a. Locate the **Reset** button as shown in Figure 6-1, “Beacon 3.1 connections” (p. 49).

b. Insert the end of a straightened paper clip or other narrow object into the hole in the Reset button to reset the device.

END OF STEPS

6.5 Replace a Beacon 3.1

1

Power down the unit by using the on/off power switch. See Figure 6-2, “Beacon 3.1 connections” (p. 49) for the connections on the Beacon 3.1.

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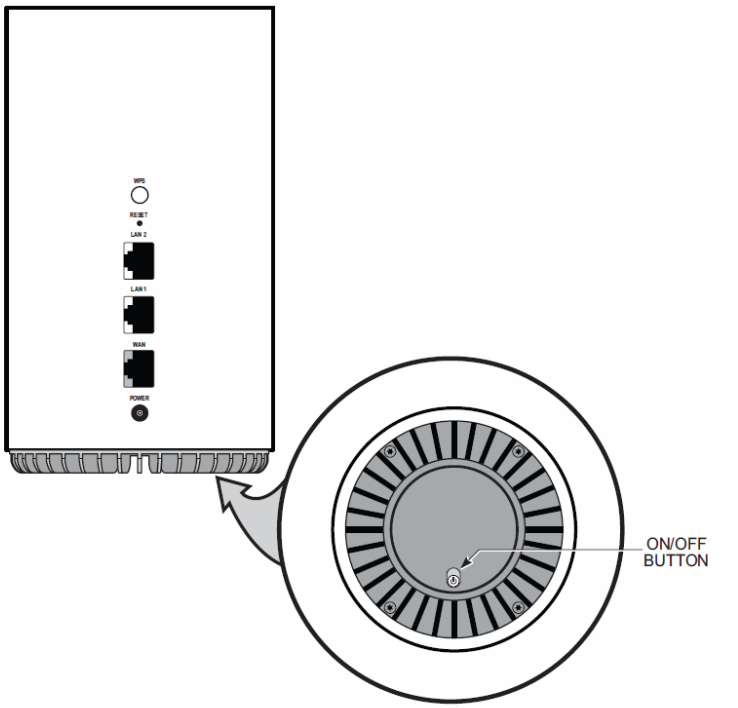
Figure 6-2 Beacon 3.1 connections



2

Disconnect the WAN, Ethernet, and power cables from the Beacon 3.1; see Figure 6-2, “Beacon 3.1 connections” (p. 51) for the connector locations on the Beacon 3.1.

3

Replace the Beacon 3.1 with the new device. The device can be placed on any flat surface, such as a desk or shelf.

4

Connect the Ethernet cable directly to the RJ-45 port; see Figure 6-2, “Beacon 3.1 connections” (p. 51) for the location of the RJ-45 port.

5

Connect the WAN cable directly to the RJ-45 port; see Figure 6-2, “Beacon 3.1 connections” (p. 51) for the location of the RJ-45 WAN port.

6

Connect the power cable to the power connector.

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Note: Observe the following:

- Units must be powered by a Listed or CE approved and marked limited power source with a minimum output rate of 12 V dc, 1.5 A. The polarity of the power adapter plug must match the Beacon.

7

Power up the unit by using the On/Off power button.

8

Verify the LED.

9

Onboard the Beacon 3.1 using the Nokia WiFi App.

10

If necessary, reset the Beacon 3.1.

Note: Resetting the device will return all settings to factory default values; any configuration customization will be lost.

a. Locate the **Reset** button on a Beacon 3.1 as shown in Figure 6-2, “Beacon 3.1 connections” (p. 51).

b. Insert the end of a straightened paper clip or other narrow object into the hole in the Reset button to reset the device.

END OF STEPS

6.6 Wall mount a Beacon 3.1

This section provides the steps to mount a Beacon 3.1 on a wall using a wall mount bracket. The Beacon 3.1 is shipped without the wall mount bracket. The wall mount bracket must be ordered separately.

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Figure 6-3 Beacon 3.1 in wall mounting bracket

6.6.1 Recommended tools

See section 6.2 “Recommended tools” (p. 47) for the recommended tools.

6.6.2 Procedure

Use this procedure to mount the Beacon 3.1 on a wall.

1

Mount the Beacon on a wall using the wall mount bracket.

Note:

- The wall mount bracket must be installed on the wall first before sliding the Beacon 3.1 into the wall mounting bracket.
- The device cannot be wall mounted at a height greater than 2 meters from the floor.

a. Mount the wall mounting bracket on a wall, as shown in Figure 6-4, “Beacon 3.1 wall mount bracket” (p. 54).

Determine the location of the two anchor holes for the wall mount bracket. The bracket can be used as a template for marking and drilling the holes.

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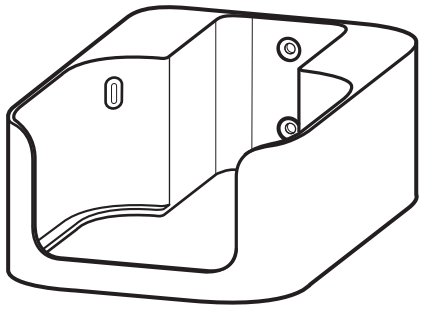
Figure 6-4 Beacon 3.1 wall mount bracket



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It is recommended to use a level to ensure that the Beacon unit is installed horizontally.

b. Drill two holes and secure the wall mounting bracket with the two mounting screws provided in the kit. Mount the bracket flush to the wall so that it does not warp or twist.

c. Install the Beacon into the wall mount bracket by lifting the unit above the bracket and sliding it downward onto the bottom ledge of the bracket. The wall mount bracket has 4 rubber pads that will keep the Beacon unit in place.

d. Connect the power cord and other cables to the Beacon.

END OF STEPS

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7 Configure a Beacon 3.1

7.1 Overview

7.1.1 Purpose

This chapter describes the WebGUI configuration procedures.

7.1.2 Contents

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GUI overview

This section provides an overview of the Beacon 3.1 WebGUI.

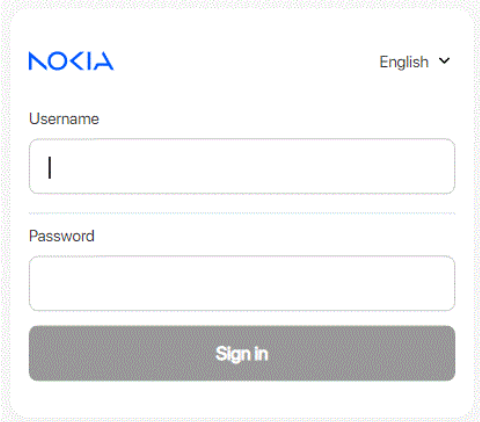
7.2 Logging in to the web-based GUI

1

Open a web browser and enter the IP address of the Beacon in the address bar.

The *Login* page displays.

Figure 7-1 Login page



The default gateway IP address must be same as the one printed on the device label. You can connect to this IP address using your web browser after connecting your PC to one of Ethernet ports of the Beacon. The static IP address of your PC must be in the same default gateway subnet as the Beacon.

2

CAUTION

Service Disruption

If you forget the current username and password, press the **Reset** *button for 10 seconds to reset the values to the default username and password provided at startup.*

Pressing the **Reset** *button for less than 10 seconds reboots the device.*

Pressing the **Reset** *button for 10 seconds resets the device to the factory defaults, except for the LOID and SLID.*

Pressing the **Reset** *button for 10 seconds resets the device to the factory defaults.*

Enter your username and password in the *Login* page, as shown in Figure 7-1, “Login page” (p. 58).

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The superadmin account is meant for the operator and the password is unique per device unless specified differently in customer specific pre configuration. Contact your Nokia representative to obtain the superadmin password for device.

The default end-user account name and the default password for this account are printed on the device label.

The superadmin user has access to all WebGUI features while the end-user account has only limited access to WebGUI features. This access for the end-user can be adapted with a WebGUI configuration file. Contact your Nokia representative to know the factory default settings of which WebGUI access is available to your end user or how to get a WebGUI configuration file.

3

Click **Sign in**. The *Overview* page displays.

Note: To help protect the security of your Internet connection, the application displays a pop-up reminder to change both the WiFi password and the Beacon password.
To increase password security, use a minimum of 10 characters, consisting of a mix of numbers and upper and lower case letters.

END OF STEPS

7.3 Beacon 3.1 WebGUI Menu

The following table lists the main menu and sub-menu options in the Beacon 3.1 WebGUI:

Table 7-1 Beacon 3.1 WebGUI Menu

Main Menu	Sub-menu	Procedure Reference
Overview	-	7.4 “Viewing overview information” (p. 60)
WAN	**WAN services**	7.6 “Configuring WAN Services” (p. 63)
WAN	**WAN statistics**	7.7 “Viewing WAN Statistics” (p. 71)
WAN	**TR-069**	7.8 “Configuring TR-069” (p. 74)
WAN	**TR-369**	7.9 “Configuring TR-369” (p. 75)
WAN	**IP routing**	7.10 “Configuring IP Routing” (p. 77)
WAN	**Qos config**	7.11 “Configuring QoS” (p. 78)
LAN	**DHCP IPv4**	7.13 “Configuring DHCP IPv4” (p. 81)
LAN	**DHCP IPv6**	7.14 “Configuring DHCP IPv6” (p. 83)
LAN	**DNS**	7.15 “Configuring DNS” (p. 85)
LAN	**LAN statistics**	7.16 “Viewing LAN Statistics” (p. 87)
WiFi	**WiFi networks**	7.18 “Configuring WiFi Network” (p. 90)
WiFi	**Guest network**	7.19 “Configuring Guest Network” (p. 96)

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Table 7-1 Beacon 3.1 WebGUI Menu (continued)

Main Menu	Sub-menu	Procedure Reference
WiFi	**Network map**	7.20 “Viewing Network Map, Adding WiFi Points, Renaming WiFi Points and Removing WiFi Points” (p. 97)
WiFi	**Advanced settings**	7.21 “Configuring Wireless 2.4 GHz” (p. 103) 7.22 “Configuring Wireless 5 GHz” (p. 105)
WiFi	**WiFi statistics**	7.23 “Viewing WiFi Statistics” (p. 107)
Devices	-	7.25 “Viewing Device Information” (p. 110)
Security	**Firewall**	7.27 “Configuring the Firewall” (p. 115)
Security	**MAC filter**	7.28 “Configuring the MAC Filter” (p. 116)
Security	**IP filter**	7.29 “Configuring the IP Filter” (p. 118)
Security	**Family profiles**	7.30 “Configuring Family Profiles” (p. 120)
Security	**DMZ and ALG**	7.31 “Configuring DMZ and ALG” (p. 131)
Security	**Access control**	7.32 “Configuring Access Control” (p. 132)
Advanced settings	**Port forwarding**	7.34 “Configuring Port Forwarding” (p. 135)
Advanced settings	**Port triggering**	7.35 “Configuring Port Triggering” (p. 136)
Advanced settings	**DDNS**	7.36 “Configuring DDNS” (p. 138)
Advanced settings	**NTP**	7.37 “Configuring NTP” (p. 139)
Advanced settings	**UPNP and DLNA**	7.38 “Configuring UPNP and DLNA” (p. 140)
Maintenance	**Change password**	7.40 “Configuring the Password” (p. 142)
Maintenance	**Backup and restore**	7.41 “Backing Up the Configuration” (p. 144) 7.42 “Restoring the Configuration” (p. 144)
Maintenance	**Firmware upgrade**	7.43 “Upgrading Firmware” (p. 145)
Maintenance	**Diagnostics**	7.44 “Diagnosing WAN Connections” (p. 147)
Maintenance	**Log**	7.45 “Viewing Log Files” (p. 150)
Troubleshooting	-	7.46 “Troubleshooting counters” (p. 152)

7.4 Viewing overview information

1

Click **Overview** from the left pane. The Overview page displays the following cards.

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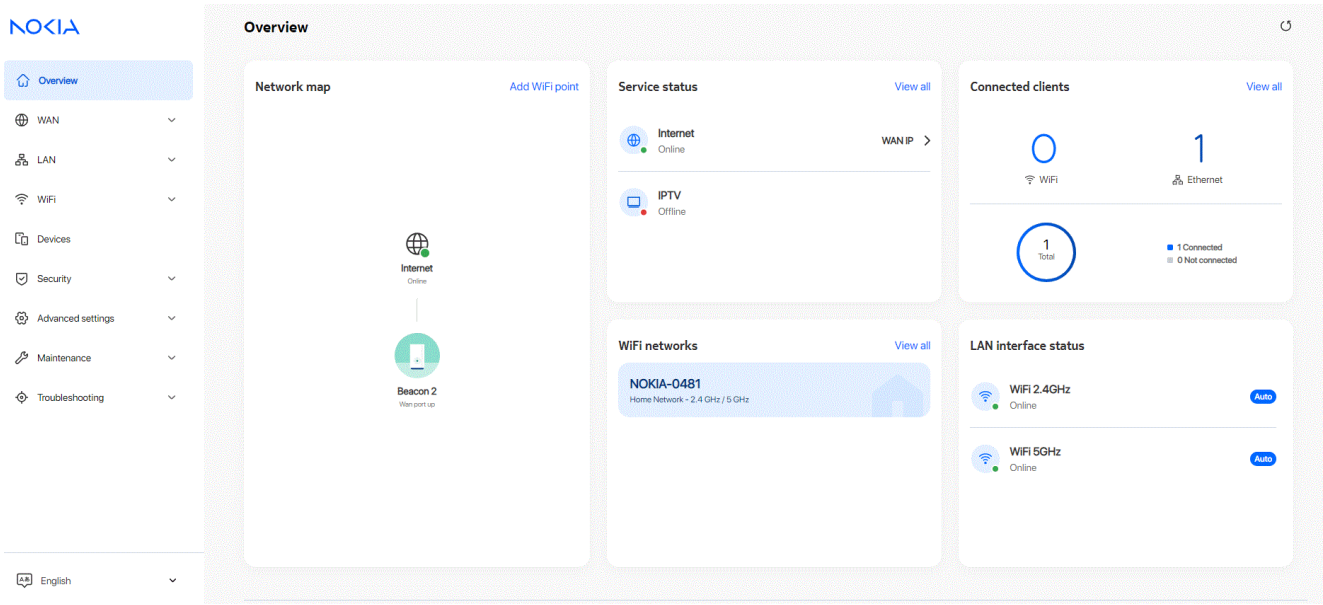

END OF STEPS

7.4.1 Network Map

Displays information about the status of the mesh network and connection to the internet. The status of the internet connection is defined by the presence of an IP address on the internet service. *Up* is indicated with green and *Down* is indicated with red.

Root device

Displays the mnemonic of the device. The colored indicator as well as the status under the name reflects the physical status of the WAN connection (4G/5G, PON port, WAN port). *Up* is Green, *Down* is Red.

Extender device

Displays the mnemonic of the device. The colored indicator as well as the status under the name reflects the physical status of the backhaul connection (Strong Signal = Green, Poor Signal = Amber, Not connected = red).

7.4.2 Radio Access

Displays the 4G or 5G signal connection status when a device is connected to a Nokia FWA receiver. Click the button to view the connection details.

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7.4.3 Service Status

Displays the active status of the triple-play services.

Internet service

The internet service represents the presence of a WAN IP address for the routed network that has the internet attached to it. The card shows the WAN IP address (IPv4 and/or IPv6).

IPTV service

Shows the status of the IPTV service. If the IPTV flag is enabled on a routed service, the online or offline state is indicated by the presence of a WAN IP address for that routed service. If the IPTV is attached to a bridged service, the online or offline state is defined by the WAN uplink status.

7.4.4 WiFi Networks

Displays a network card per activated single or dual band WiFi network containing the bands supported, the name of the network and the type of network (bridge or routed).

7.4.5 Connected Clients

Displays the total number of online and offline clients connected to this device (single device or mesh system).

7.4.6 LAN Interface Status

Displays information about all the LAN ports of the device.

WiFi 2.4GHz

Shows the status of the 2.4GHz (Up/Down) network and the current band setting. This can either be auto which indicates Radio Resource Management is enabled or in the range 1-13 when manually configured.

WiFi 5GHz

Shows the status of the 5GHz network (Up/Down) and the current band setting. This can either be auto, which indicates Radio Resource Management is enabled or in the range of 36-161 when manually configured.

Ethernet Port

Shows the status of the Ethernet ports (Up/Down), the sync rate (10Mbps, 100Mbps, 1Gbps, 2.5Gbps, 5Gbps, 10Gbps) and the duplex mode (Half duplex, Full duplex).

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WAN Configuration

7.5 Overview

This section describes the WAN configuration procedures that can be performed from the following sub-menu options under the **WAN** menu:

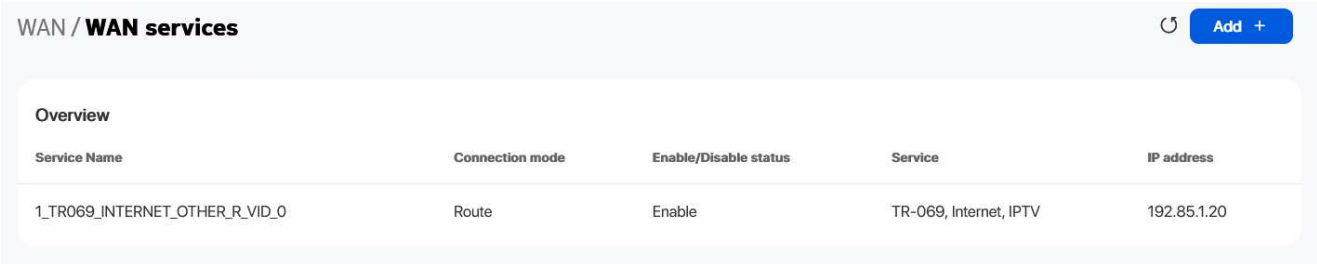
Sub-menu	Procedure
WAN services	7.6 “Configuring WAN Services” (p. 63)
WAN statistics	7.7 “Viewing WAN Statistics” (p. 71)
TR-069	7.8 “Configuring TR-069” (p. 74)
TR-369	7.9 “Configuring TR-369” (p. 75)
IP routing	7.10 “Configuring IP Routing” (p. 77)
Qos config	7.11 “Configuring QoS” (p. 78)

7.6 Configuring WAN Services

1

Click **WAN→WAN services** in the left pane. The *WAN services* page displays the existing WAN connections in the *Overview* table. You can click on a connection to modify the connection configuration.

Figure 7-2 Overview table in *WAN services* page



2

Click **Add +** to create a WAN connection. The *Create New Connection* page displays.

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Figure 7-3 Create New Connection page

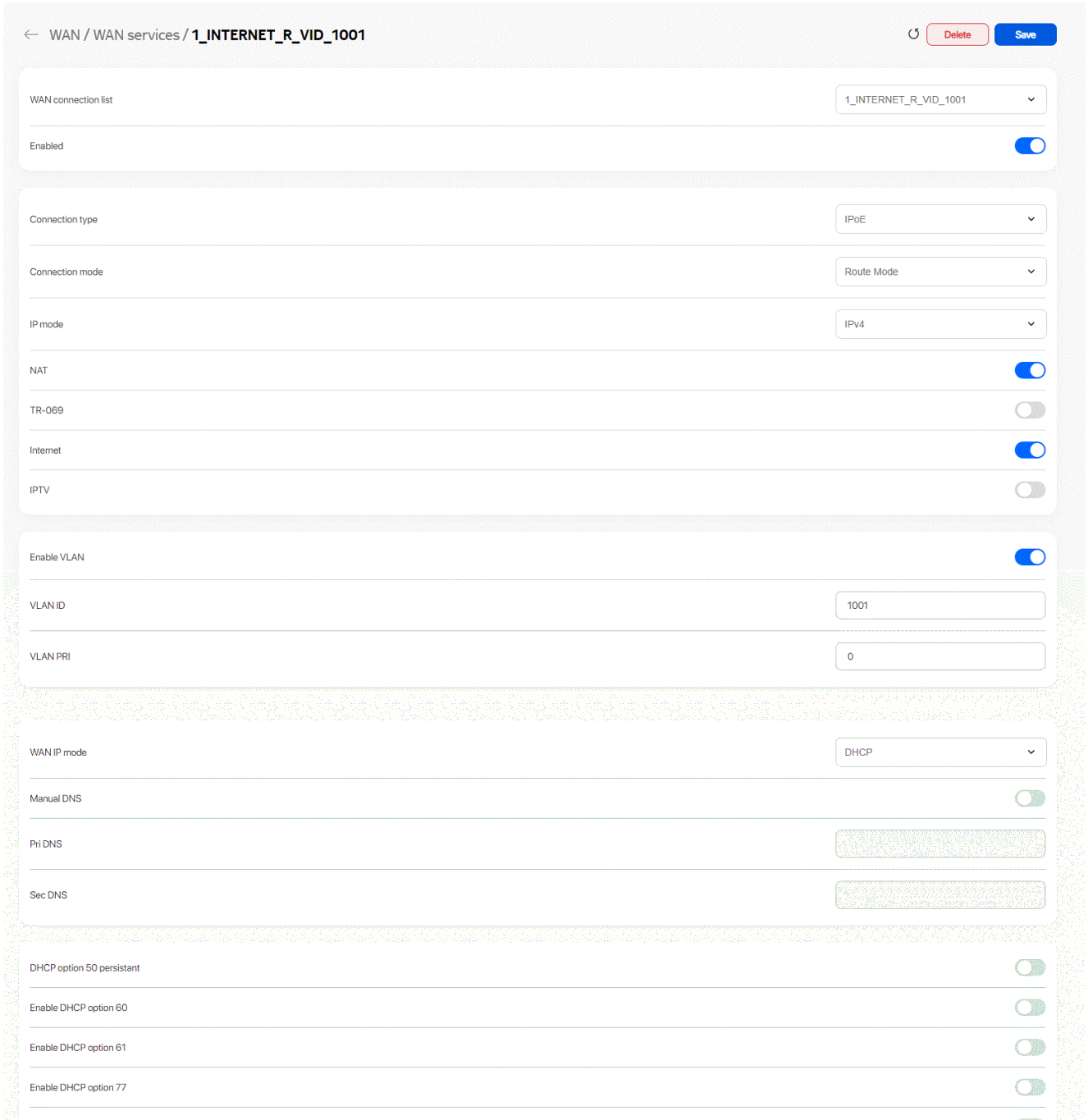

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Figure 7-4 Create New Connection page - PPPoE Configuration

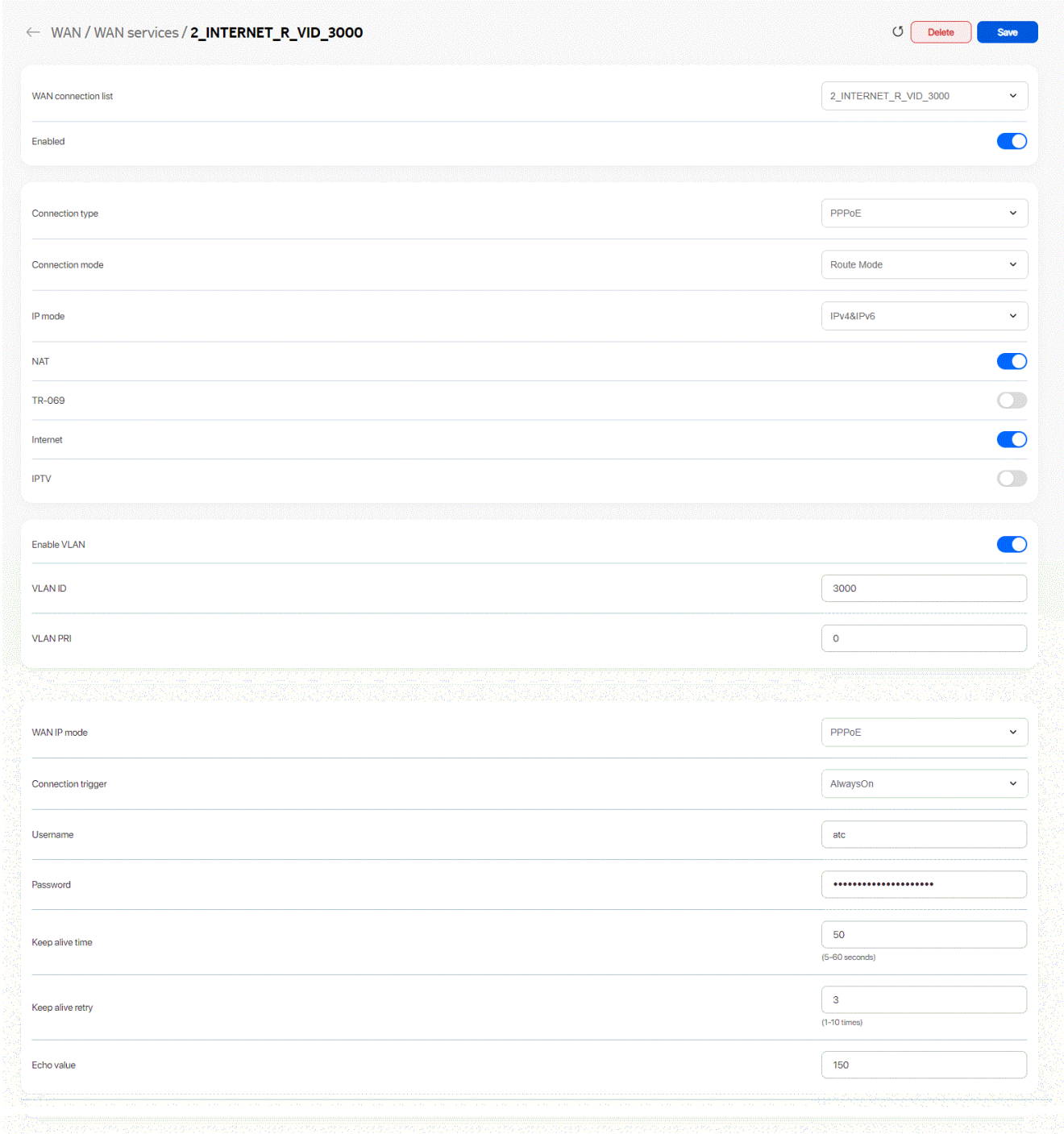

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Figure 7-5 VLAN mode - VLAN Binding

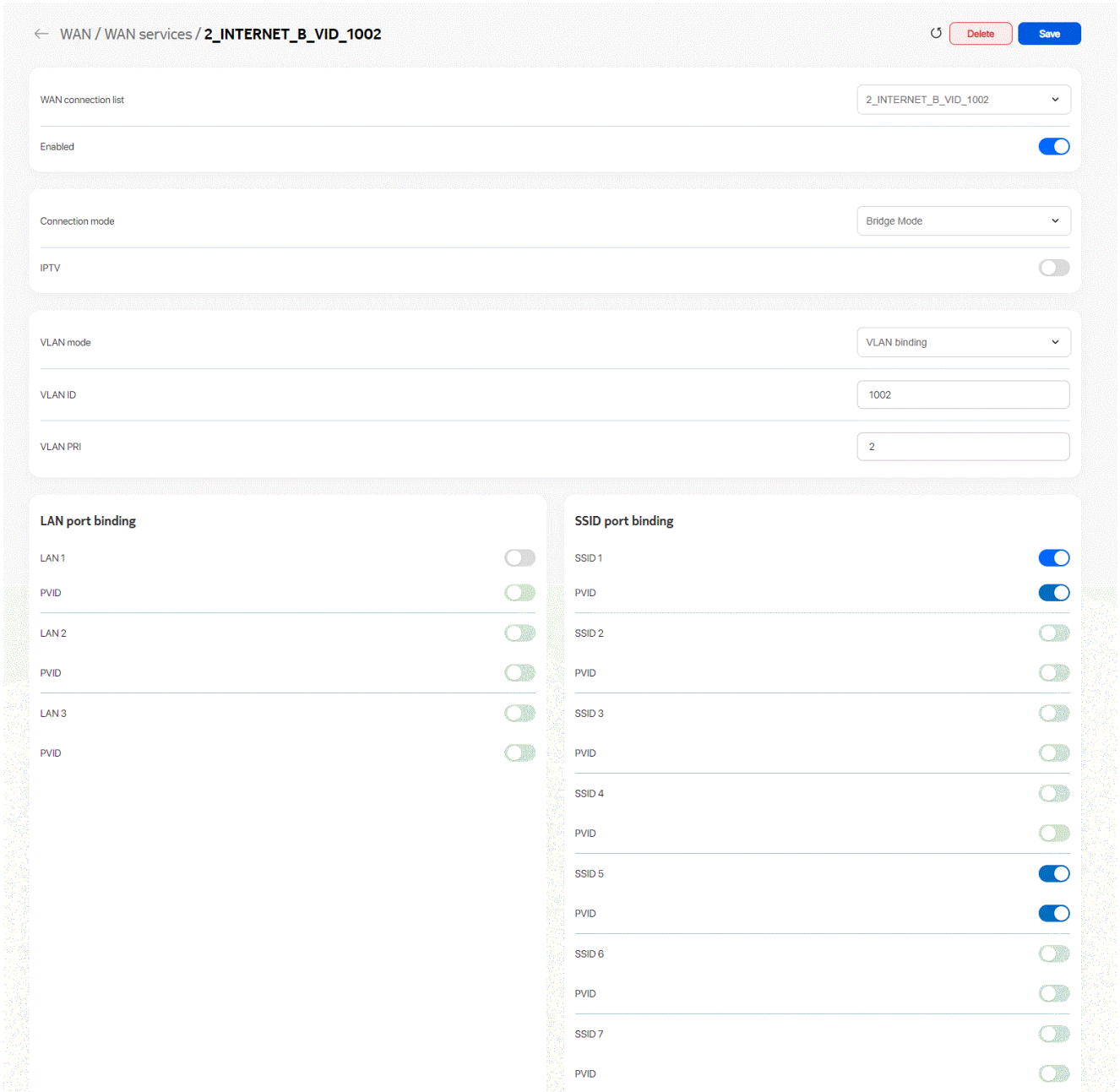

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Figure 7-6 Bridge mode - Transparent

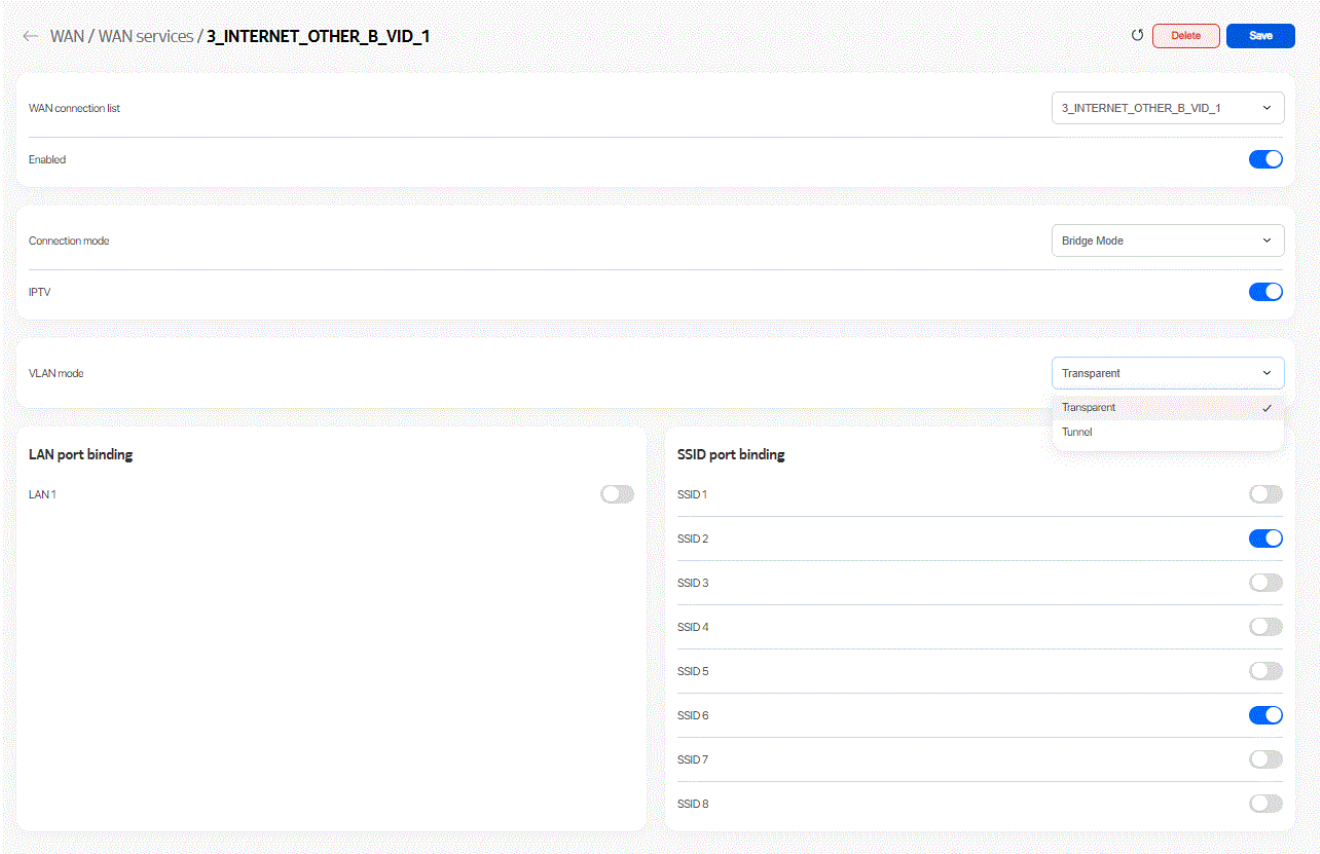

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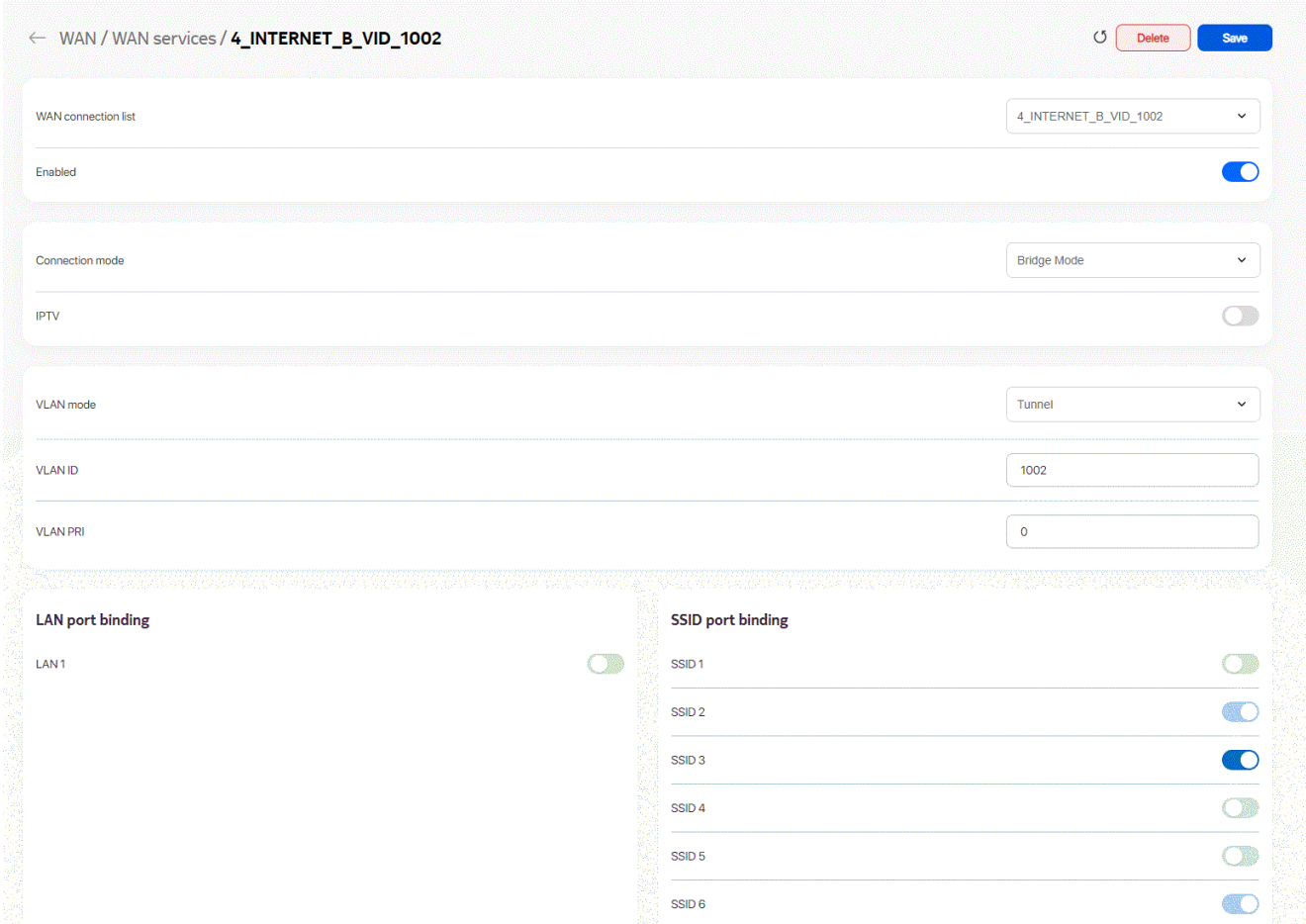
Figure 7-7 Bridge mode - Tunnel



3

Configure the following parameters:

Table 7-2 *WAN services* parameters

Field	Description
WAN connection list	Select a WAN connection from the list.
Enabled	Select the toggle button to enable the WAN connection.
Connection type	Select a connection type from the list: • **IPoE** • **PPPoE**

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Table 7-2 WAN services parameters (continued)

Field	Description
Connection mode	Select the connection mode of the WAN connection from the list: • **Route Mode** • **Bridge Mode**
IP mode	This field is applicable only if the connection mode is **Route Mode**. Select an IP mode from the list: • **IPv4** • **IPv4 & IPv6** • **IPv6** When the IP mode **IPv4 & IPv6** or **IPv6** is selected, you need to configure **Address method**, **Enabled prefix delegation** and **Prefix type**.
NAT	Select the toggle button to enable NAT. This option is applicable only if the connection mode is **Route Mode**.
TR-069	Select the toggle button to enable TR-069. This option is applicable only if the connection mode is **Route Mode**.
VOIP	Select the toggle button to enable VoIP. This option is applicable only if the connection type is **IPoE** and the connection mode is **Route Mode**.
Internet	Select the toggle button to enable Internet. This option is applicable only if the connection mode is **Route Mode**.
IPTV	Select the toggle button to enable IPTV.
Enable VLAN	Select the toggle button to enable VLAN. This option is applicable only if the connection mode is **Route Mode**.
VLAN mode	Select a VLAN mode from the list: • **VLAN binding** • **Tunnel** • **Transparent** This option is applicable only if the connection mode is **Bridge Mode**.
VLAN ID	Enter the VLAN ID. Allowed values: 2 to 4094 In the bridge mode, this option is applicable only if the VLAN mode is **Tunnel**. In the bridge mode, this option is applicable only if the VLAN mode is **VLAN binding**. In the bridge mode, this option is applicable only if the VLAN mode is **VLAN binding** and **Tunnel**.
VLAN PRI	Enter the VLAN PRI. VLAN priority allows to assign a priority to outbound packets containing the specified VLAN ID. Allowed values: 0 to 7 In the bridge mode, this option is applicable only if the VLAN mode is **VLAN binding**. In the bridge mode, this option is applicable only if the VLAN mode is **Tunnel** or **Transparent**.

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Table 7-2 WAN services parameters (continued)

Field	Description
LAN port binding	Select the toggle button next to the LAN to enable it. Select the toggle button next to the PVID to enable it. This option is not applicable if the VLAN mode is **Tunnel**.
SSID port binding	Select the toggle button next to the SSID to enable it. Select the toggle button next to the PVID to enable it. This option is not applicable if the VLAN mode is **Tunnel** or **Transparent**.
WAN IP mode	Select an IP mode from the list: • **DHCP** • **PPPoE** This option is visible only if you select PPPoE as the connection type. • **Static**
Manual DNS	If the selected IP mode is **IPv4** and the WAN IP mode is **DHCP**, enter the Domain Name Server (DNS) to be configured manually.
IPv4 Address	If the selected IP mode is **IPv4** or **IPv4&IPv6** and the WAN IP mode is **Static**, enter the static IPv4 address.
Netmask	If the selected IP mode is **IPv4** or **IPv4&IPv6** and the WAN IP mode is **Static**, enter the netmask.
Gateway	If the selected IP mode is **IPv4** or **IPv4&IPv6** and the WAN IP mode is **Static**, enter the gateway IP address.
Pri DNS	If the selected IP mode is **IPv4** or **IPv4&IPv6** and the WAN IP mode is **Static**, enter the primary Domain Name Server (DNS).
Sec DNS	If the selected IP mode is **IPv4** or **IPv4&IPv6** and the WAN IP mode is **Static**, enter the secondary Domain Name Server (DNS).
Ter DNS	If the selected IP mode is **IPv4** or **IPv4&IPv6** and the WAN IP mode is **Static**, enter the tertiary Domain Name Server (DNS).
Connection trigger	Select the connection trigger type from the list. The default option is **Always On**.
Username	Enter the username to log in to the configuration server. This option is applicable only if the WAN IP mode is **PPPoE**.
Password	Enter the password to log in to the configuration server. Allowed values are limited to numbers, letters and special characters *! # + , - . / : =* @ _. This option is applicable only if the WAN IP mode is **PPPoE**.
Keep alive time	The PPPoE connection type triggers one heartbeat each, at the configured time interval to keep the session online. Allowed values: 5 to 60 seconds This option is applicable only if the WAN IP mode is **PPPoE**.
Keep alive retry	Configure the number of retries to check the Keep Alive status of the PPPoE session after time-out. Allowed values: 1 to 10. This option is applicable only if the WAN IP mode is **PPPoE**.

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Table 7-2 WAN services parameters (continued)

Field	Description
Echo value	Indicates the number of times the device sends messages to the server to check if the IP address is available or not. This option is applicable only if the WAN IP mode is **PPPoE**.
Address method	If the selected IP mode is **IPv6** or **IPv4&IPv6**, select the address method from the list: • **AutoConfigured** • **DHCPv6** • **DHCPv6_PD** • **DHCPv6_NA** • **Static**
Enable prefix delegation	If the selected address method is **AutoConfigured**, select the toggle button to enable inclusion of the Identity Association (IA) for Prefix Delegation option in Solicit messages.
Prefix type	Displays mechanism through which the prefix was assigned or most recently updated.
IP Address (v6)	If the selected address method is **Static**, enter the IPv6 address.
Gateway (v6)	If the selected address method is **Static**, enter the gateway IPv6 address.
IPv6 address prefix	If the selected address method is **Static**, enter the IPv6 address prefix.
Pri DNS (v6)	If the selected address method is **Static**, enter the primary DNS IP address.
Sec DNS (v6)	If the selected address method is **Static**, enter the secondary DNS IP address.
DHCP option 50 persistent	Select the toggle button to enable DHCP Option 50 persistent.
Enable DHCP option 60	Select the toggle button to enable DHCP Option 60 (vendor class identifier).
Enable DHCP option 61	Select the toggle button to enable DHCP Option 61 (client identifier).
Enable DHCP option 77	Select the toggle button to enable DHCP Option 77 (user class information).
Enable DHCP option 90	Select the toggle button to enable DHCP Option 90 (authentication information).

4

Click **Save**. The connection is listed in the *Overview* table of the *WAN services* page.

END OF STEPS

7.7 Viewing WAN Statistics

1

Click **WAN→WAN statistics** in the left pane. The *WAN Statistics* page displays the following information for WAN ports.

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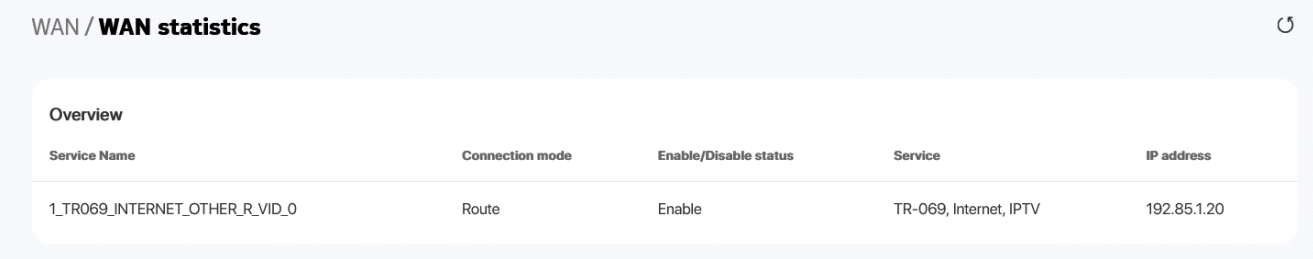
Figure 7-8 WAN Statistics page



2

Click on the service name to display the WAN statistics details page.

Figure 7-9 WAN Statistics page info

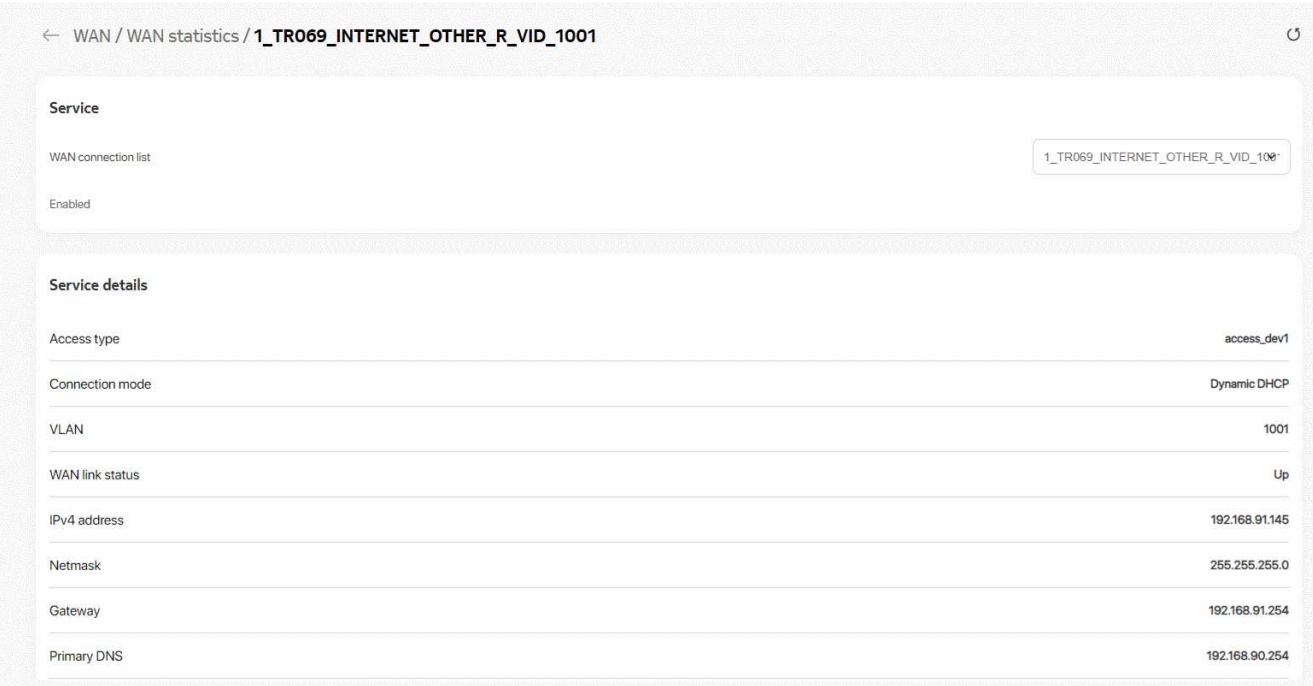


Table 7-3 WAN services parameters

Field	Description
WAN connection list	Select a WAN connection from the list.
Enabled	Displays whether WAN connection is either enabled or disabled.

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Table 7-3 WAN services parameters (continued)

Field	Description
Service details	
Access type	Displays the access type.
Connection mode	Displays the connection mode of the WAN connection.
VLAN/VLAN ID	Displays the VLAN mode based on WAN connection mode.
WAN link status	Displays the WAN status link whether it is Up or Down.
BRAS connection status	Displays the connection to remote server whether it is connected or not.
PPPoE Concentrator	Displays the PPPoE connection. This option is available when the Connection type is **PPPoE**.
WAN link status	Displays the WAN status link whether it is Up or Down.
DHCP Keep Alive	Displays whether the DHCP Keep Alive is enabled or Disabled.
PON link status	Displays whether the PON link status is Up or Down.
WAN link status(v6)	Displays the WAN status link whether it is Up or Down. This option is available when the IP mode is **IPv4 & IPv6** or **IPv6**.
IPv4 address	Displays the IPv4 address. This option is available only for **Route Mode** and when the IP mode is **IPv4**.
IP address(v6)	Displays the IPv6 address. This option is available only for Route mode and when the IP mode is **IPv6** or **IPv4 & IPv6**.
IPv6 address prefix	Displays the IPv6 prefix of the obtained IPv6 WAN address. This option is available when the IP mode is **IPv4 & IPv6** or **IPv6** and prefix delegation is enabled.
Netmask	Displays the network address.
Gateway	Displays the gateway address.
Gateway(v6)	Displays the gateway address. This option is available when the IP mode is **IPv4 & IPv6** or **IPv6**.
Primary DNS	Displays the primary DNS address.
Secondary DNS	Displays the secondary DNS address.
Ethernet link status	Displays the Ethernet status link whether it is Up or Down.
Pri DNS(v6)	Displays the primary DNS address. This option is available when the IP mode is **IPv4 & IPv6** or **IPv6**.
Port statistics	
Counters	Displays the counters details.
Bytes sent/received	Displays the bytes sent and received.
Packets sent/received	Displays the packets sent and received.
Errors sent/received	Displays the errors sent and received.

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Table 7-3 WAN services parameters (continued)

Field	Description
Unicast packets sent/received	Displays the unicast packets sent and received.
Discard packets sent/received	Displays the discard packets sent and received.
Broadcast packets sent/received	Displays the broadcast packets sent and received.
Unknown proto packets received	Displays the proto packets received.
Rx/Tx drops	Displays the Rx/Tx dropped packets.
Rx/Tx errors	Displays the Rx/Tx error packets.

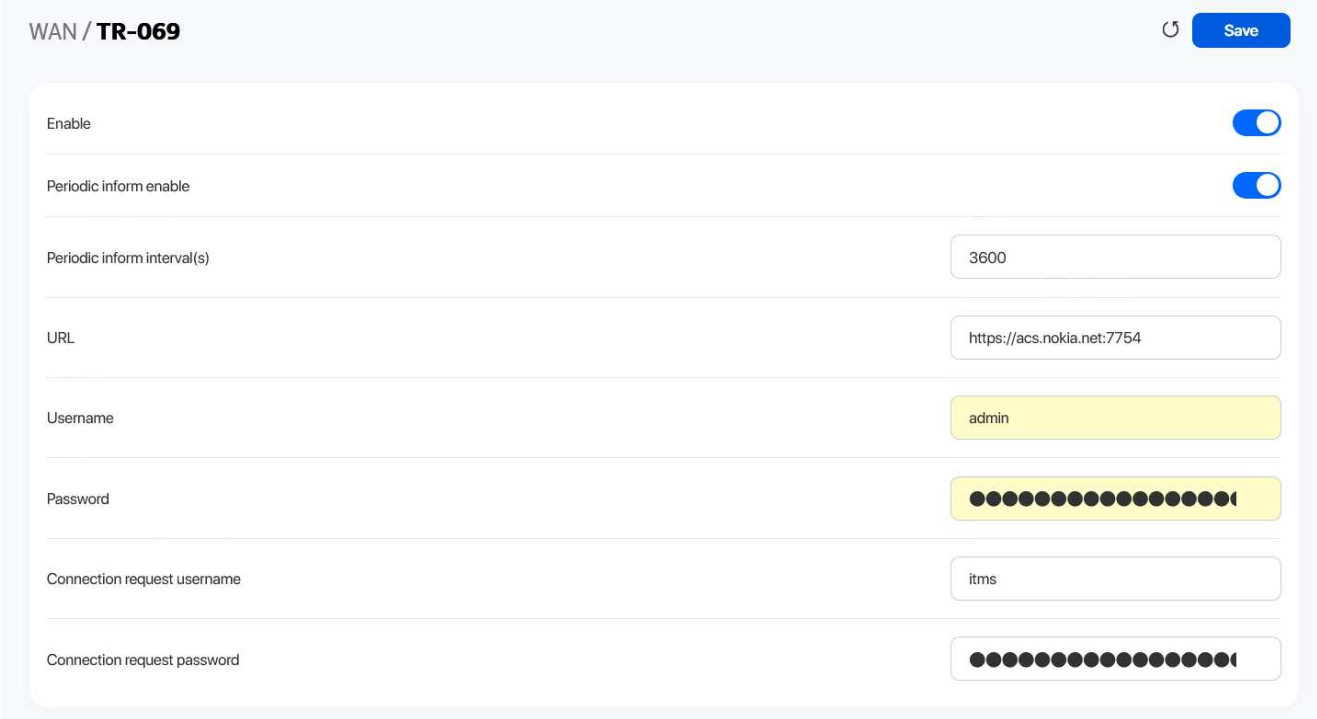
END OF STEPS

7.8 Configuring TR-069

1

Click **WAN→TR-069** in the left pane. The *TR-069* page displays.

Figure 7-10 TR-069 page



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2

Configure the following parameters:

Table 7-4 TR-069 parameters

Field	Description
Enable	Select the toggle button to enable CWMP function.
Periodic inform enable	Select the toggle button to enable periodic inform updates.
Periodic inform interval(s)	Enter the time between periodic inform updates, in seconds.
URL	Enter the URL of the auto-configuration server.
Username	Enter the username to log in to the Beacon.
Password	Enter the password to log in to the Beacon.
Connect request username	Enter the username to log in to the auto-configuration server.
Connect request password	Enter the password to log in to the auto-configuration server.

3

Click **Save**.

END OF STEPS

7.9 Configuring TR-369

Note: The TR-369 configuration option is available only if the TR-181 data model is active.

1

Click **WAN→TR-369** in the left pane. The *TR-369* page displays.

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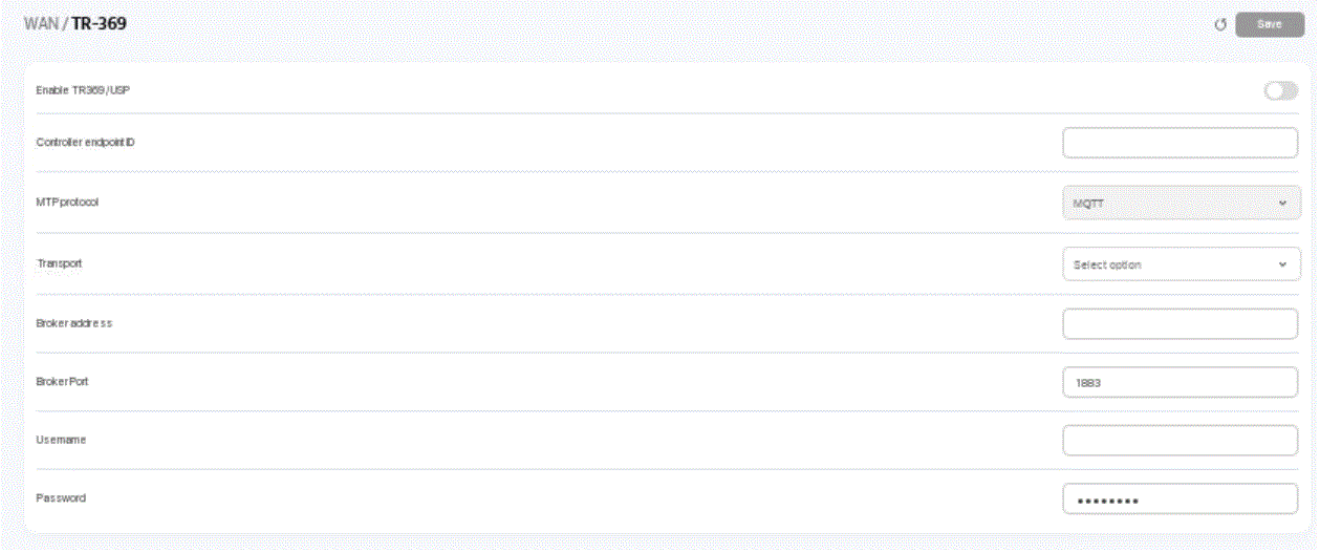
Figure 7-11 TR-369 page



2

Configure the following parameters:

Table 7-5 TR-369 parameters

Field	Description
Enable TR369/USP	Select the toggle button to enable TR-369/USP and click **Save**.
Controller endpoint ID	Enter the controller endpoint ID.
MTP Protocol	Select the MTP protocol from the list (currently only **MQTT** is supported).
Transport	Select the transport option from the list: • **TCP/IP** • **TLS**
Broker address	Enter the broker IP address.
Broker port	Enter the broker port number.
Username	Enter the username to authenticate with MQTT broker.
Password	Enter the password to authenticate with MQTT broker.

3

Click **Save**.

END OF STEPS

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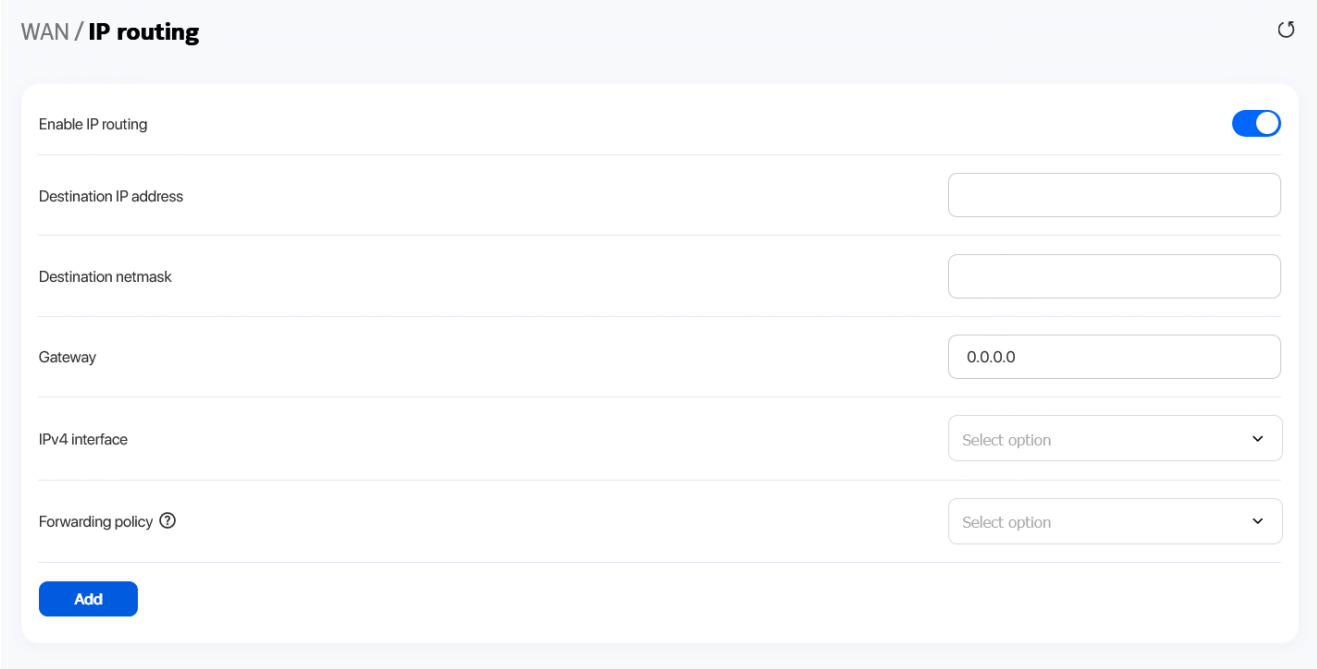
7.10 Configuring IP Routing

1

Click **WAN→IP routing** in the left pane. The *IP routing* page displays.

Figure 7-12 IP routing page



2

Configure the following parameters:

Table 7-6 IP routing parameters

Field	Description
Enable IP routing	Select the toggle button to enable IP routing.
Destination IP address	Enter the destination IP address.
Destination netmask	Enter the destination netmask.
Gateway	Enter the gateway IP address.
IPv4 interface	Select an IPv4 interface from the list.
Forwarding policy	Select a forwarding policy from the list.

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3

Click **Add**. The IP route is added to the *IP routing table*.

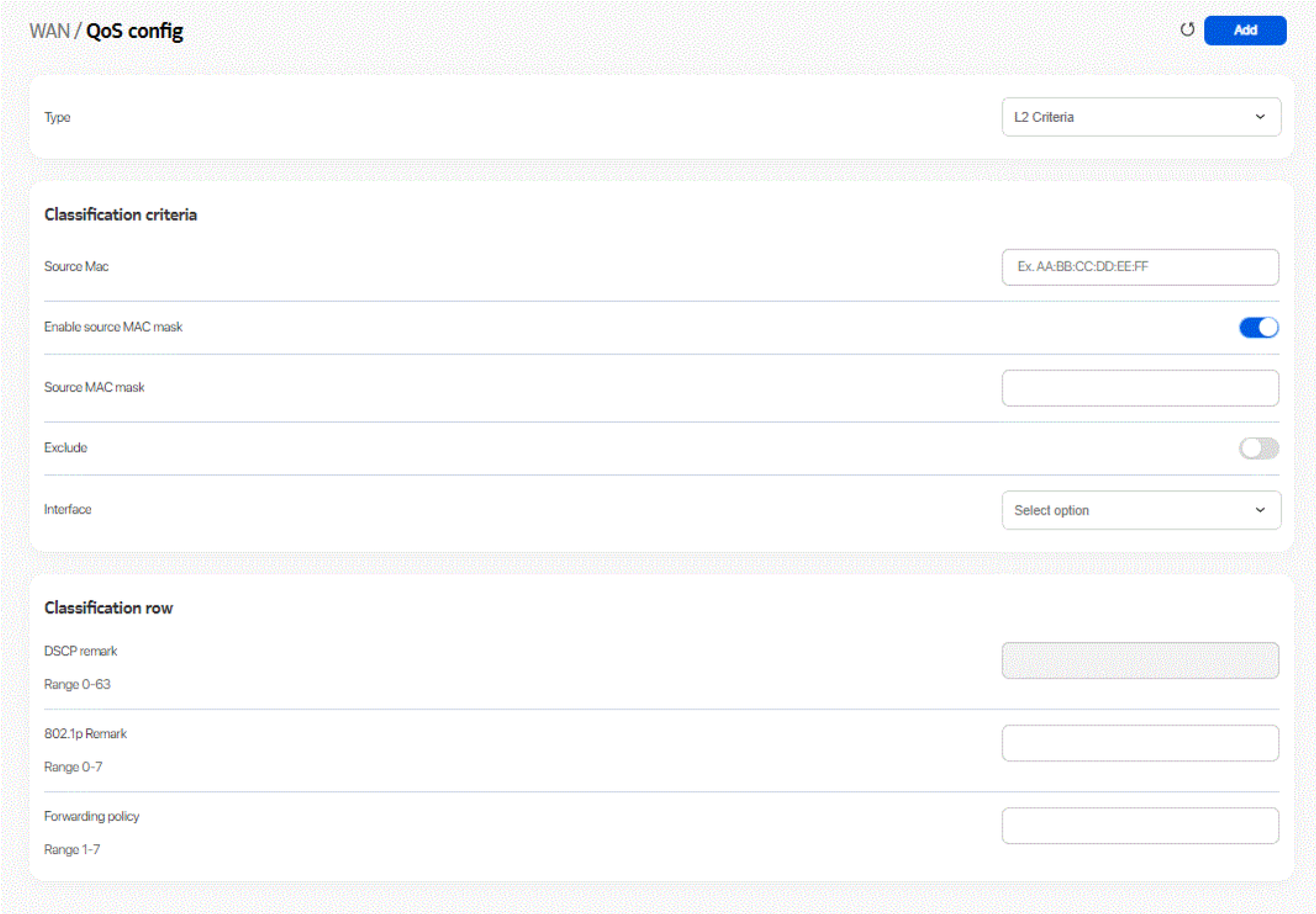
END OF STEPS

7.11 Configuring QoS

1

Click **WAN→QoS config** in the left pane. The *QoS config* page displays.

Figure 7-13 QoS config page (L2 Criteria)



In case of a non-continuous bit mask is entered, a pop up error message will appear as "*Please specify a continuous bit match pattern mask address*" then click **Okay**.

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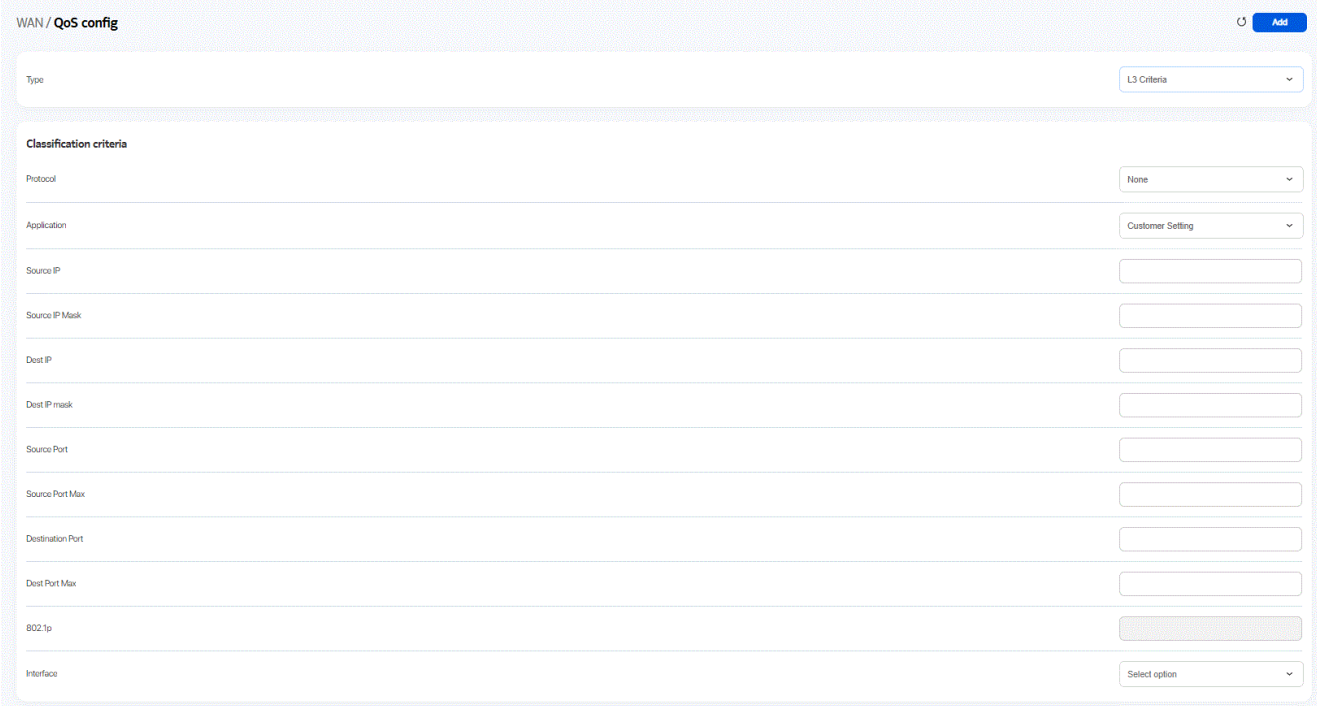
Figure 7-14 QoS config page (L3 Criteria)



2

Configure the following parameters:

Table 7-7 QoS config parameters

Field	Description
Type	Select a QoS service layer type from the list: • **L2 Criteria** • **L3 Criteria**
Classification criteria (L2)	
Source MAC	Enter the source MAC address.
Enable source MAC mask	Select the toggle button to enable the source MAC mask. This button is disabled by default.
Source MAC mask	Enter the source MAC mask address. The syntax is for example: FF:FF:FF:00:00:00 which must be a continuous bit mask pattern on this device. This field is visible only if the **Enable source MAC mask** button is enabled.
Exclude	Select the toggle button to exclude MAC address. This button is disabled by default.

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Table 7-7 QoS config parameters (continued)

Field	Description
Interface	Select an interface from the list.
Classification criteria (L3)	
Protocol	Select a protocol from the list.
Application	Select an application from the list or select **Custom Settings** and enter an application name.
Source IP	Enter the source IP address.
Source IP mask	Enter the source IP address netmask.
Destination IP	Enter the destination IP address.
Destination IP mask	Enter the destination IP address netmask.
Source port	Enter the source port number.
Source port max	Enter the values for the source port max (highest port number)
Destination port	Enter the destination port number.
Destination port max	Enter the values for the destination port max (highest port number)
802.1p	Indicates whether 802.1p is enabled.
Interface	Select an interface from the list.
Classification row	
DSCP remark	Enter the value for the DSCP remark (applicable only for L3 criteria). Allowed values: 0 to 63
802.1p Remark	Enter the value for the 802.1p remark. Allowed values: 0 to 7
Forwarding policy	Enter the number for the forwarding policy. Allowed values: 1 to 7

3

Click **Add** to add a QoS policy.

END OF STEPS

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LAN Configuration

7.12 Overview

This section describes the LAN configuration procedures that can be performed from the following sub-menu options under the **LAN** menu:

Sub-menu	Procedure
DHCP IPv4	7.13 “Configuring DHCP IPv4” (p. 81)
DHCP IPv6	7.14 “Configuring DHCP IPv6” (p. 83)
DNS	7.15 “Configuring DNS” (p. 85)
LAN statistics	7.16 “Viewing LAN Statistics” (p. 87)

7.13 Configuring DHCP IPv4

1

Click **LAN→DHCP IPv4** in the left pane. The *DHCP IPv4* page displays.

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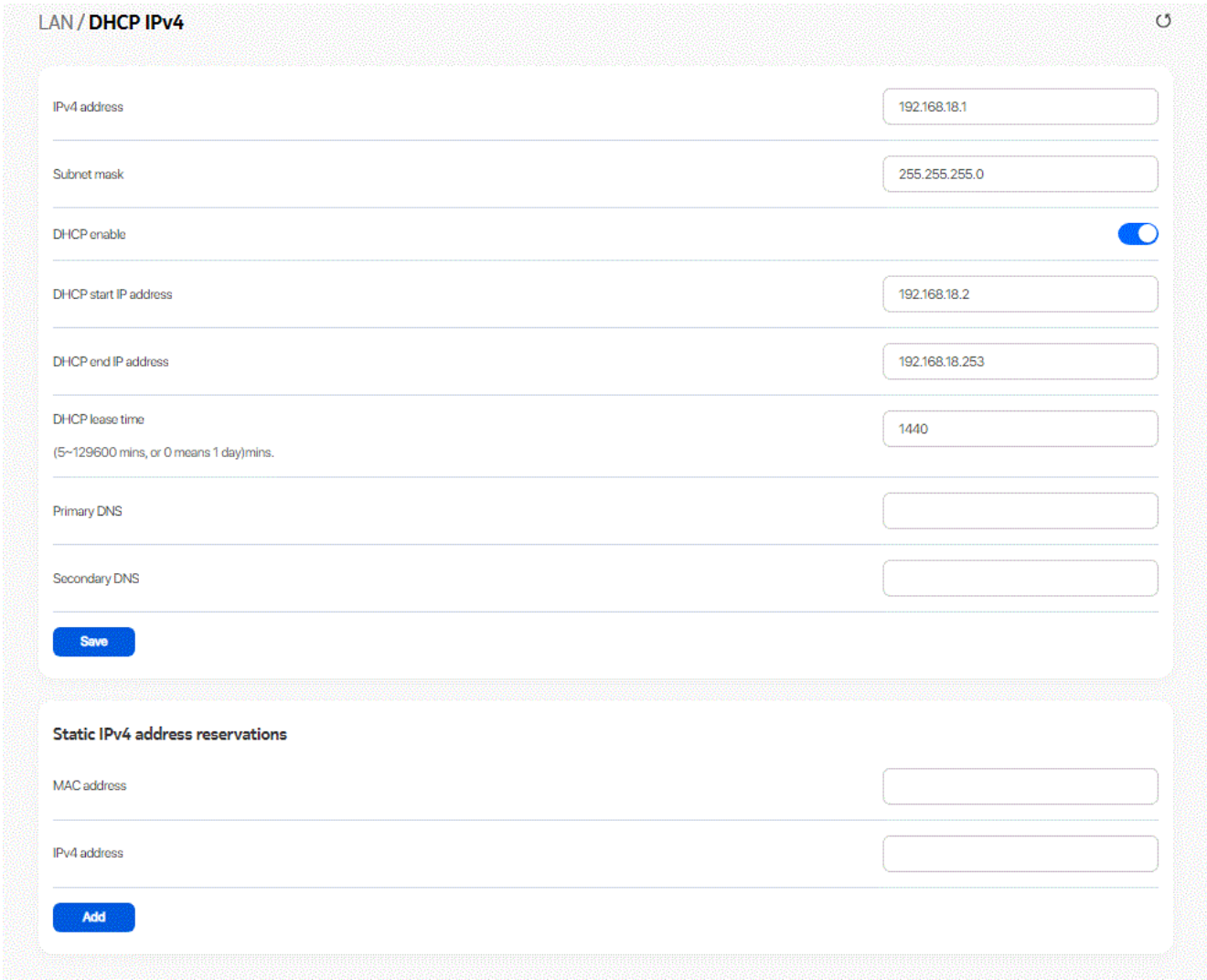
Figure 7-15 DHCP IPv4 page



2

Configure the following LAN parameters:

Table 7-8 DHCP IPv4 parameters

Field	Description
IPv4 address	Enter the IPv4 address of the Beacon.
Subnet mask	Enter the subnet mask of the Beacon.

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Table 7-8 DHCP IPv4 parameters (continued)

Field	Description
DHCP enable	Select the toggle button to enable DHCP. If this toggle button is not enabled, the DHCP functionality cannot be used. you need not configure DHCP start IP address, DHCP end IP address and DHCP lease time if this toggle button is not enabled.
DHCP start IP address	Enter the starting range of the DHCP IP address.
DHCP end IP address	Enter the ending range of the DHCP IP address.
DHCP lease time	Enter the DHCP lease time (in minutes). Allowed values: 5 to 129600 minutes or 0 for 1 day
Primary DNS	Enter the primary DNS IP address.
Secondary DNS	Enter the secondary DNS IP address.

3

Click **Save**.

4

Configure the Static DHCP parameters.

Table 7-9 Static DHCP parameters

Field	Description
MAC address	Enter the hexadecimal MAC address to associate with the LAN.
IPv4 address	Enter the IPv4 address to associate with the bound MAC address.

5

Click **Add**. Repeat steps 4 and 5 for all MAC addresses to be bound.

END OF STEPS

7.14 Configuring DHCP IPv6

1

Click **LAN→DHCP IPv6** in the left pane. The *DHCP IPv6* page displays.

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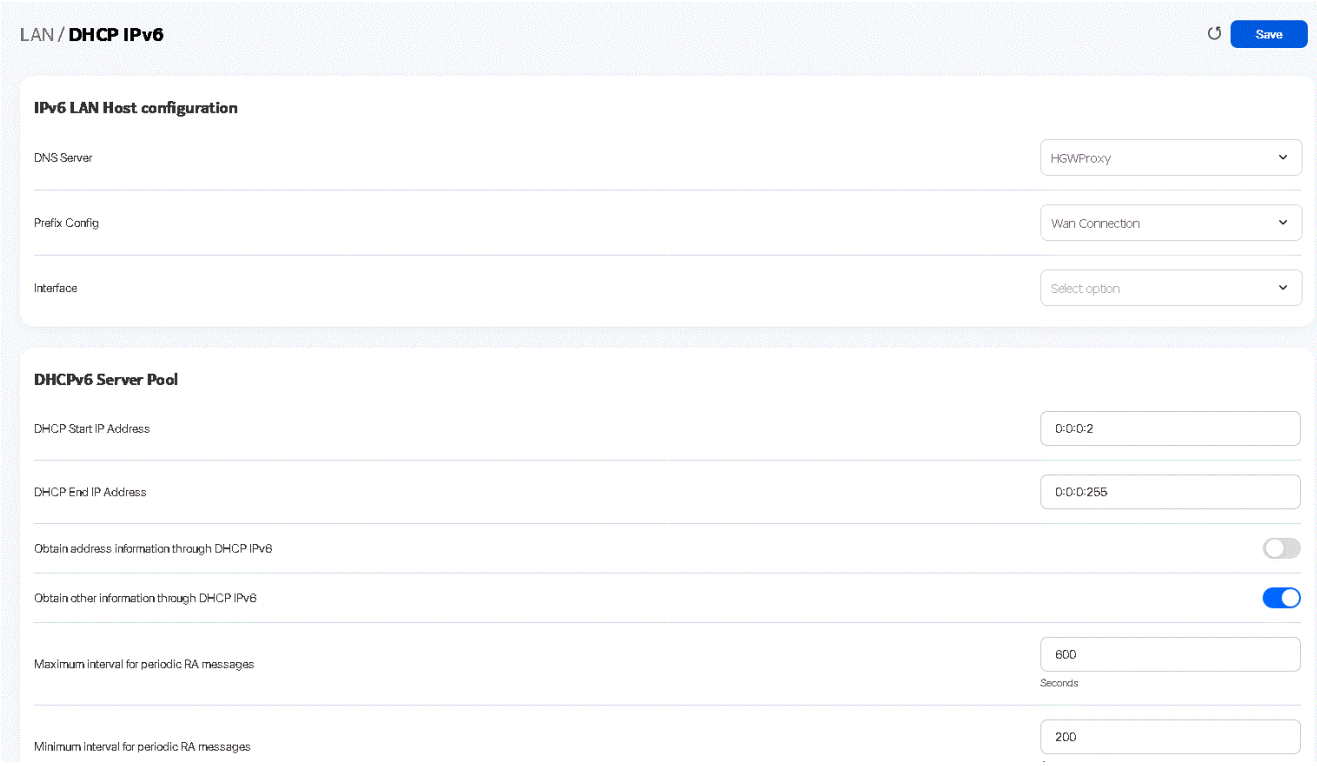
Figure 7-16 DHCP IPv6 page



2

Configure the following parameters:

Table 7-10 DHCP IPv6 parameters

Field	Description
IPv6 LAN Host Configuration	
DNS Server	Select a DNS server from the list.
Prefix Config	Select a prefix configuration option from the list: • **WAN Connection** (prefix is obtained from the WAN.), or • **Static** (enables you to enter the prefix.)
Interface	This field displays if you select the **WAN Connection** option from the Prefix Config list. Select a WAN connection interface from the list.
DHCPv6 Server Pool	
DHCP Start IP Address	Enter the starting range of the DHCP IP address.
DHCP End IP Address	Enter the ending range of the DHCP IP address.

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Table 7-10 DHCP IPv6 parameters (continued)

Field	Description
Obtain address information through DCHP IPv6	Select the toggle button to enable address information retrieval through DHCP.
Obtain other information through DHCP IPv6	Select the toggle button to enable retrieval of other information through DHCP..
Maximum interval for periodic RA messages	Enter the maximum interval (in seconds) for periodic Router Advertisement messages. Allowed values: 4 to 1800 seconds
Minimum interval for periodic RA messages	Enter the minimum interval (in seconds) for periodic Router Advertisement messages. Allowed values: 4 to 1800 seconds

Note: The DHCP Start IP Address and DHCP End IP Address fields are not available for Beacon G6.2 as the default data model is TR181.

3

Click **Save**.

END OF STEPS

7.15 Configuring DNS

1

Click **LAN→DNS** in the left pane. The *DNS* page displays.

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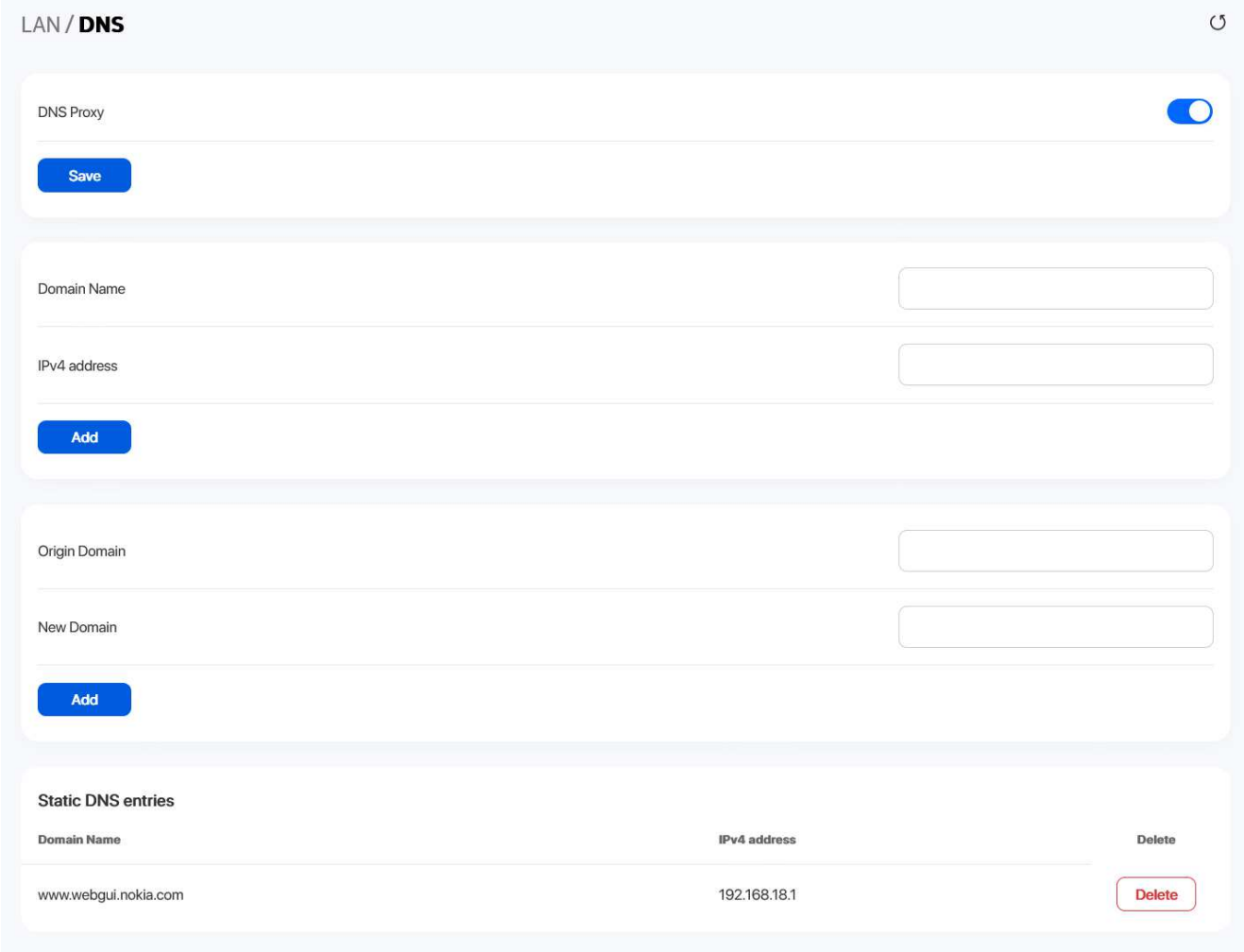
Figure 7-17 DNS page



2

Configure the following parameters:

a. Select the **DNS proxy** toggle button to enable the DNS proxy and click **Save**.

b. Configure the following:

1. Enter the domain name in the Domain Name field
2. Enter the domain IP address in the IPv4 Address field.
3. Click **Add**.

c. Configure the following:

1. Enter the origin domain name in the Origin Domain field

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2. Enter the new domain name in the New Domain field.
3. Click **Add** to associate an origin domain with a new domain.

The *DNS* table displays the configured domain names and the associated IPv4 address.

END OF STEPS

7.16 Viewing LAN Statistics

1

Click **LAN→LAN statistics** in the left pane. The *LAN statistics* page displays the following information.

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Figure 7-18 LAN statistics page

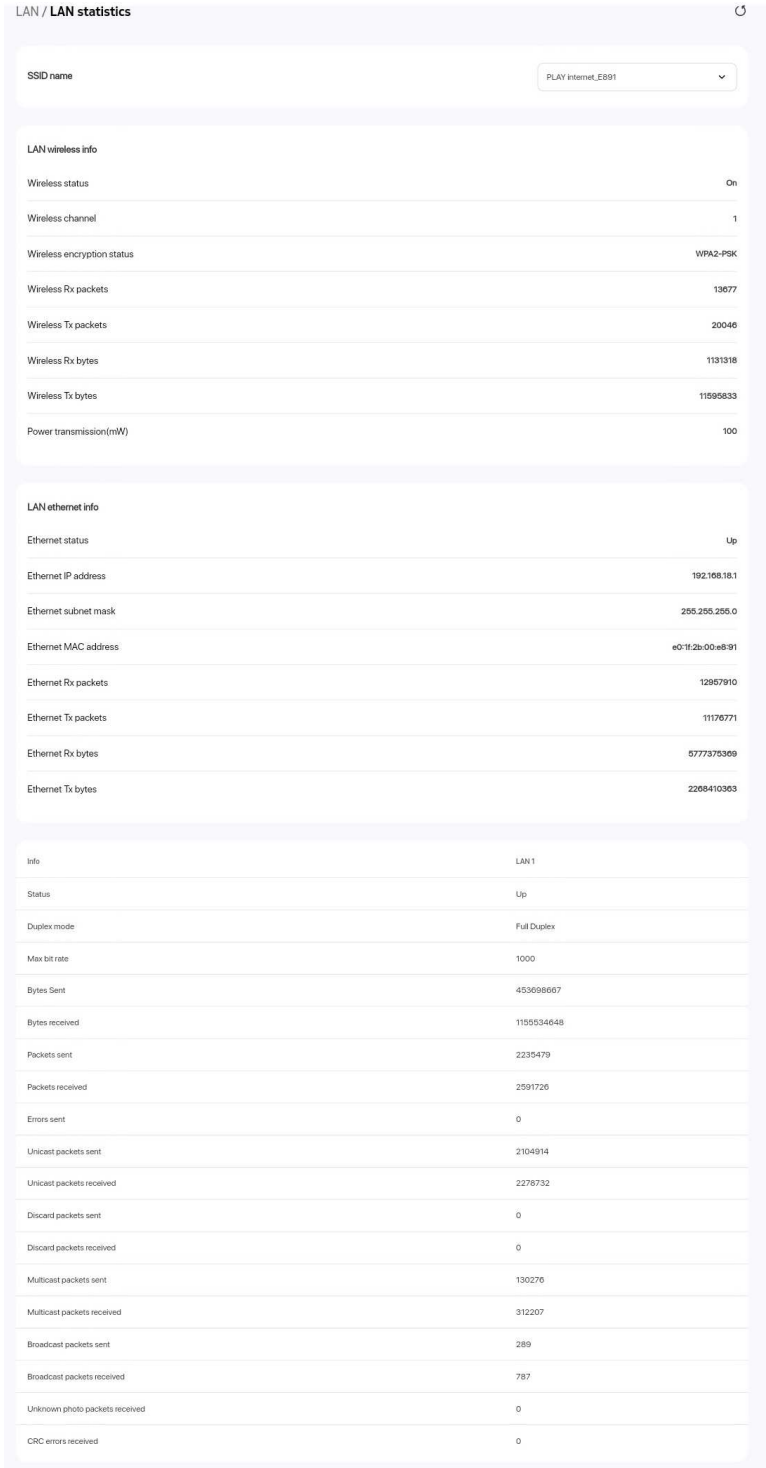

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Table 7-11 LAN statistics parameters

Field	Description
SSID name	Select an SSID from the list.
LAN Wireless info	Displays the wireless status, wireless channel, encryption status, received and transmitted bytes and packets and power transmission in mW.
LAN Ethernet info	Displays the Ethernet status IP address, subnet mask, MAC address, received and transmitted bytes and packets.
Info	Displays the information of each such as status, duplex mode, maximum bit rate, packets received and sent, CRC errors, and so on.

END OF STEPS

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WiFi Configuration

7.17 Overview

This section describes the WiFi configuration procedures that can be performed from the following sub-menu options under the **WiFi** menu:

Sub-menu	Procedure
WiFi networks	7.18 “Configuring WiFi Network” (p. 90)
Guest network	7.19 “Configuring Guest Network” (p. 96)
Network map	7.20 “Viewing Network Map, Adding WiFi Points, Renaming WiFi Points and Removing WiFi Points” (p. 97)
Advanced settings	7.21 “Configuring Wireless 2.4 GHz” (p. 103) 7.22 “Configuring Wireless 5 GHz” (p. 105)
WiFi statistics	7.23 “Viewing WiFi Statistics” (p. 107)

7.18 Configuring WiFi Network

1

Click **WiFi→WiFi network** in the left pane. The *WiFi network* page displays the existing WiFi networks. You can click **Detail** on a network to view the network details.

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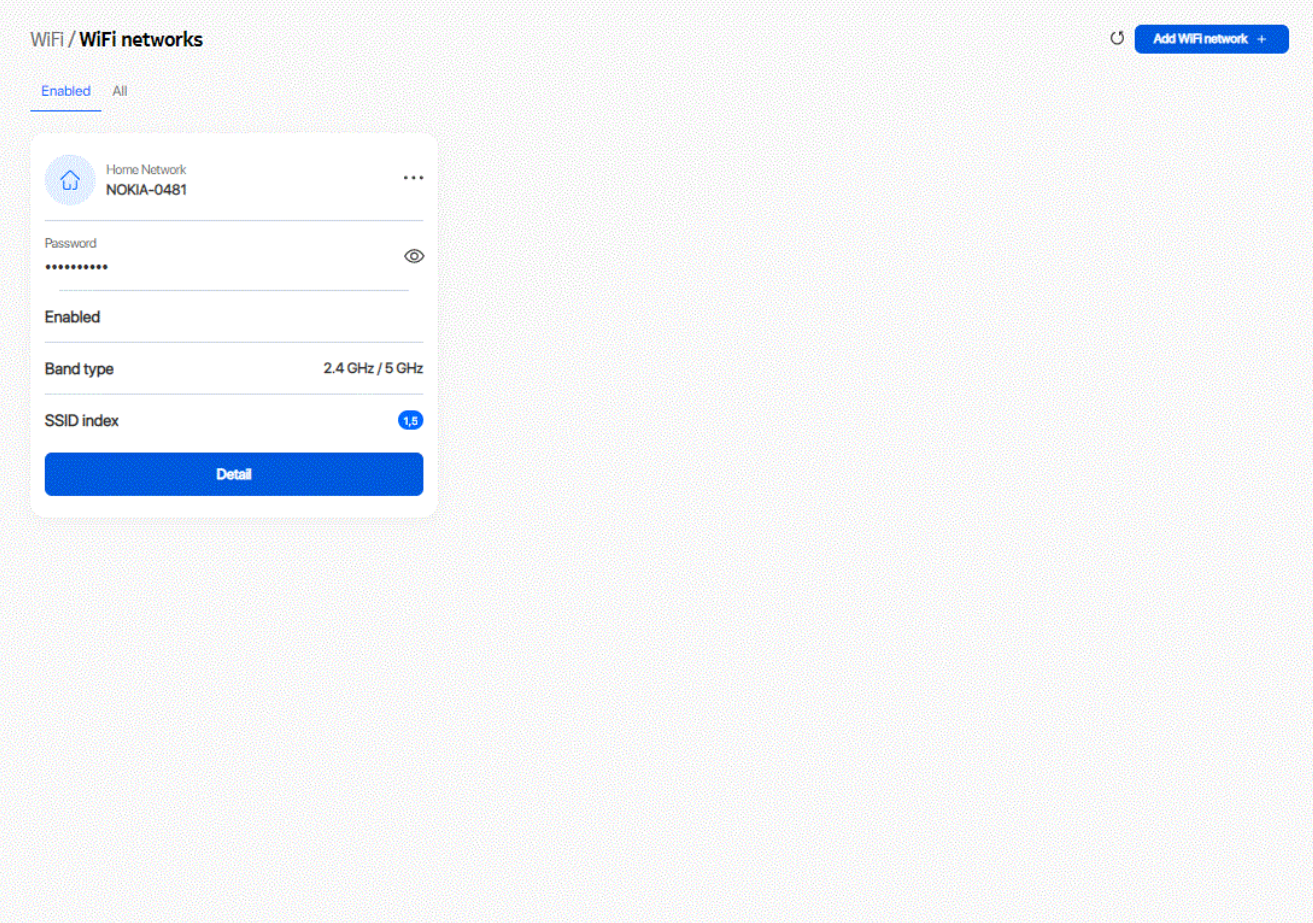
Figure 7-19 WiFi network page



2

Click **Add WiFi network +** to create a WiFi network. The *Add WiFi network* page displays.

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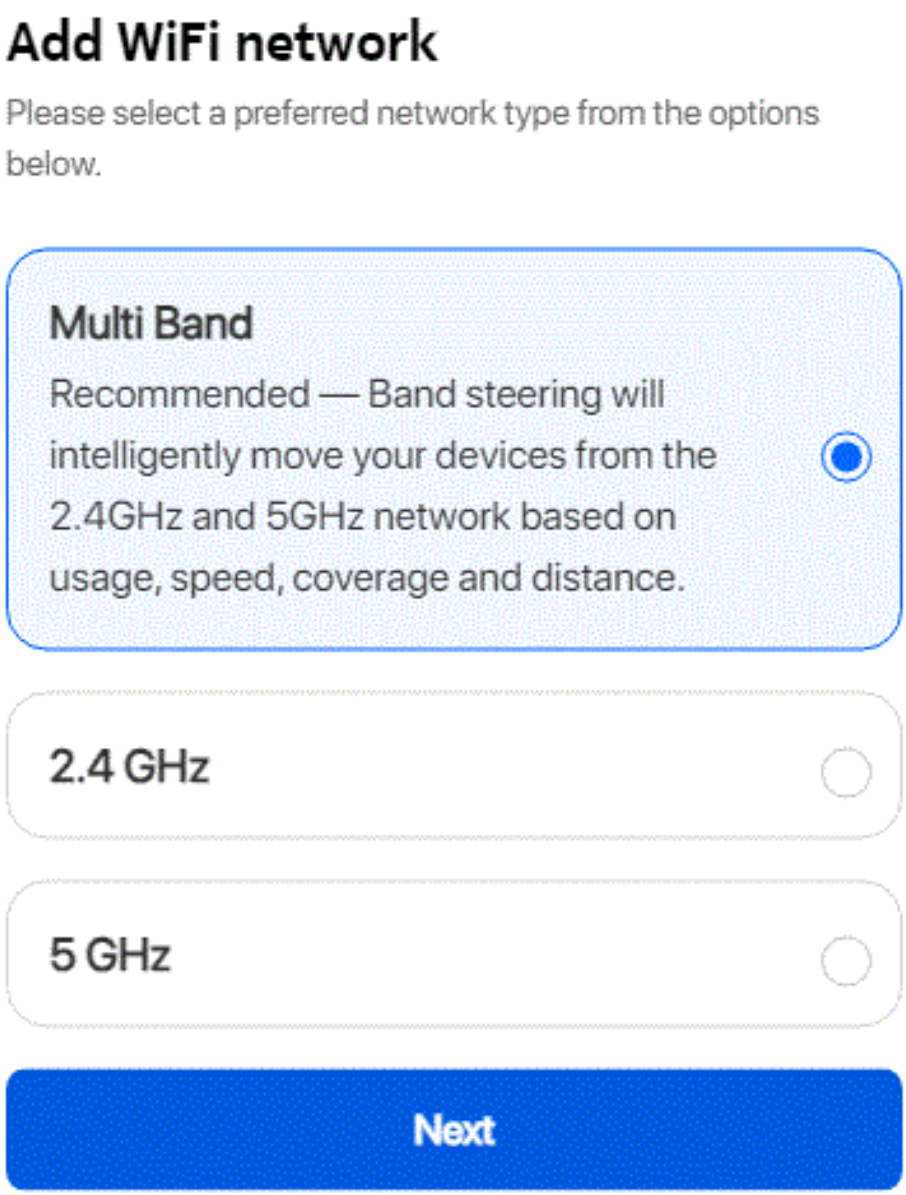
Figure 7-20 Add WiFi network page



3

Configure the following parameters:

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Table 7-12 Add WiFi network parameters

Field	Description
Multiband	Select this option to configure a multiband wireless network. This option is recommended your devices on 2.4 GHz or 5 GHzbands based on usage, speed, coverage and distance.
2.4 GHz	Select this option to configure a 2.4 GHz wireless network.
5 GHz	Select this option to configure a 5 GHz wireless network.
6 GHz	Select this option to configure a 6 GHz wireless network.

4

Click **Next**.

5

Enter the name of your network in the Name field and click **Save**.

6

Enter the password for the network in the Password field and click **Save**.

The WiFi network is created and is displayed as a card in the **Enabled** tab of the *WiFi networks* page.

Note: You can click the ellipsis icon on the card of your WiFi network and select **Edit** to edit and save the network name and password.

7

Click **Detail** to view and edit the SSID configuration for your network.

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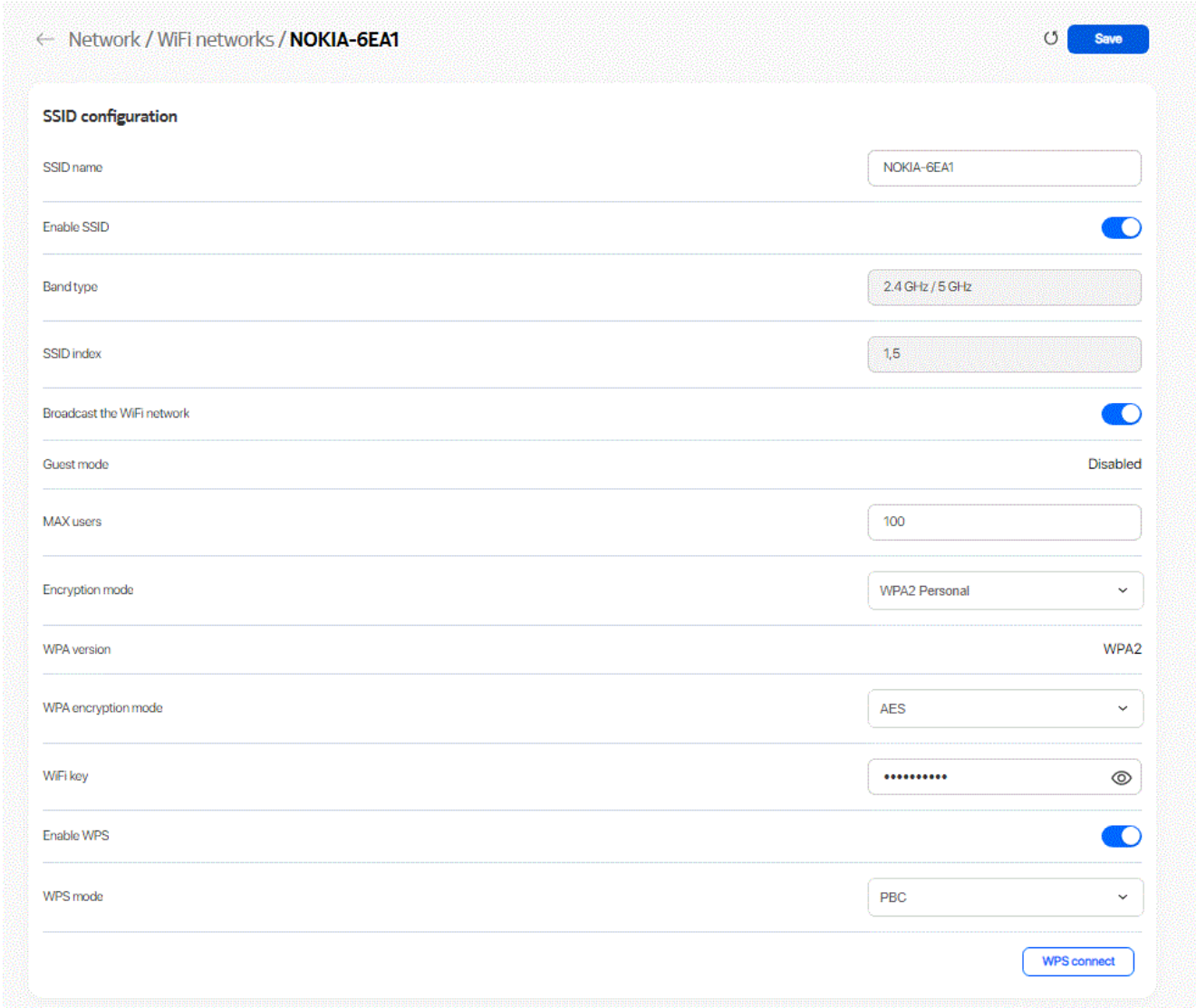
Figure 7-21 WiFi network - example of SSID Configuration page



8

Configure the following parameters:

Field	Description
SSID name	Displays the SSID name.
Enable SSID	Select the toggle button to enable SSID.
Band type	Displays the band type.

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Field	Description
SSID index	Displays the SSID index.
Broadcast the WiFi network	Select the toggle button to enable broadcasting of the WiFi network.
Guest Mode	Indicates whether guest mode is enabled or disabled. When a particular SSID is enabled with Guest Mode, LAN devices connected to the SSID can only connect to the Internet. Such devices cannot see or communicate with other LAN devices.
Isolation	Select the toggle button to enable isolation.
MAX users	Enter the maximum number of users.
Encryption Mode	In case of 2.4 GHz band type, select an encryption mode from the list: • **WPA2 Personal** • **WPA/WPA2 Personal** • **WPA3 Personal** • **WPA2/WPA3 Personal** • **WPA/WPA2 Enterprise** • **WPA3 Enterprise** • **Open** In case of 5 GHz band type, select an encryption mode from the list: • **WPA2-AES** • **WPA2+WPA** • **WPA3-AES** • **WPA2+WPA3-AES** • **WPA/WPA2 Enterprise** • **WPA3 Enterprise** • **WPA3+WPA2** • **WPA3** • **NONE-OPEN** In case of 6 GHz band type, select an encryption mode from the list: • **WPA3**
WPA version	WPA version is displayed when the encryption mode is selected: • **WPA2** • **WPA/WPA2** • **WPA3** • **WPA2/WPA3** This parameter is visible only if the band type is 2.4 GHz.
WPA Encryption Mode	Select a WPA encryption mode from the list: • **AES** • **TKIP/AES** This parameter is visible only if the band type is 2.4 GHz.

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Field	Description
WiFi Key WPA Key	Enter the WiFi key. Enter the WPA key.
Enable WPS	Select the toggle button to enable WPS.
WPS Mode	Select the required WPS mode from the list: • **PBC** • **STA PIN** • **AP PIN**
Domain Grouping	Select the toggle button to enable domain grouping.

Notes:

1. When Encryption Mode is set to “WPA/WPA2 Enterprise”, the following options are no longer available: WPA encryption mode, WPA key, Enable WPS, WPS mode.
2. When Encryption Mode is set to “WPA/WPA2 Enterprise”, the following options become available: Primary RADIUS server, port and password; RADIUS accounting port.

9

Click **Save**.

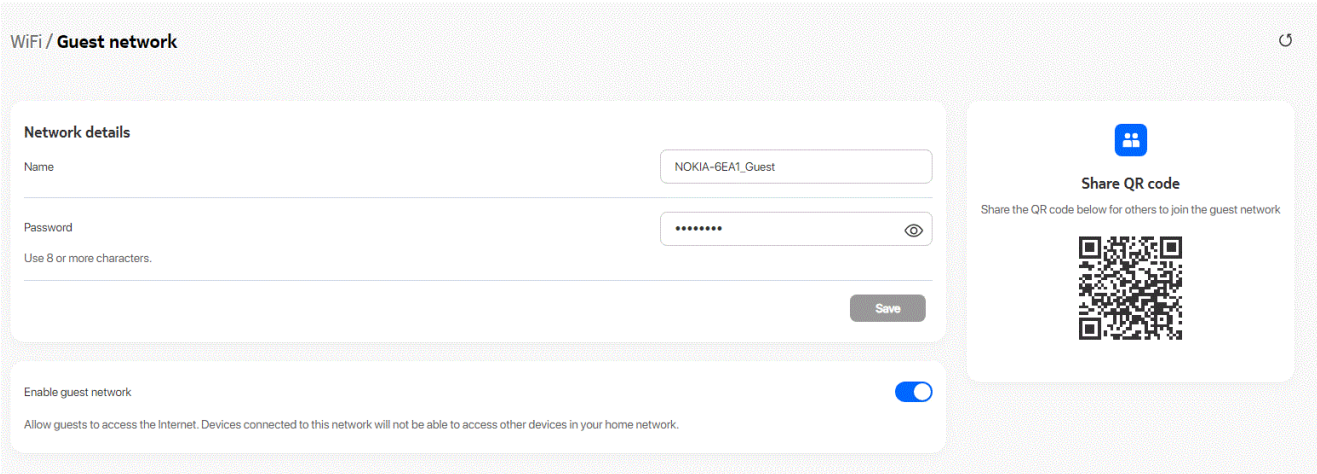
END OF STEPS

7.19 Configuring Guest Network

1

Click **WiFi→Guest network** in the left pane. The *Guest network* page displays the network details.

Figure 7-22 Guest network page



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2

Configure the following parameters:

Table 7-13 Guest network parameters

Field	Description
Name	Enter the name for guest network.
Password	Enter a password for guest network. Click **Save**.
Enable guest network	Select this toggle button to enable guest WiFi. Enabling the Guest SSID creates a multiband network (2.4GHz and 5GHz). Atleast one 2.4GHz and one 5GHz SSID index must be available to enable Guest network. After enabling the Guest Network a new WiFi card can be seen in WiFi networks page and Overview page with Guest SSID details.

3

Share the QR code for others to join the guest network.

END OF STEPS

7.20 Viewing Network Map, Adding WiFi Points, Renaming WiFi Points and Removing WiFi Points

1

Click **WiFi→Network map** in the left pane. The *Network map* page displays the WiFi points added to the network.

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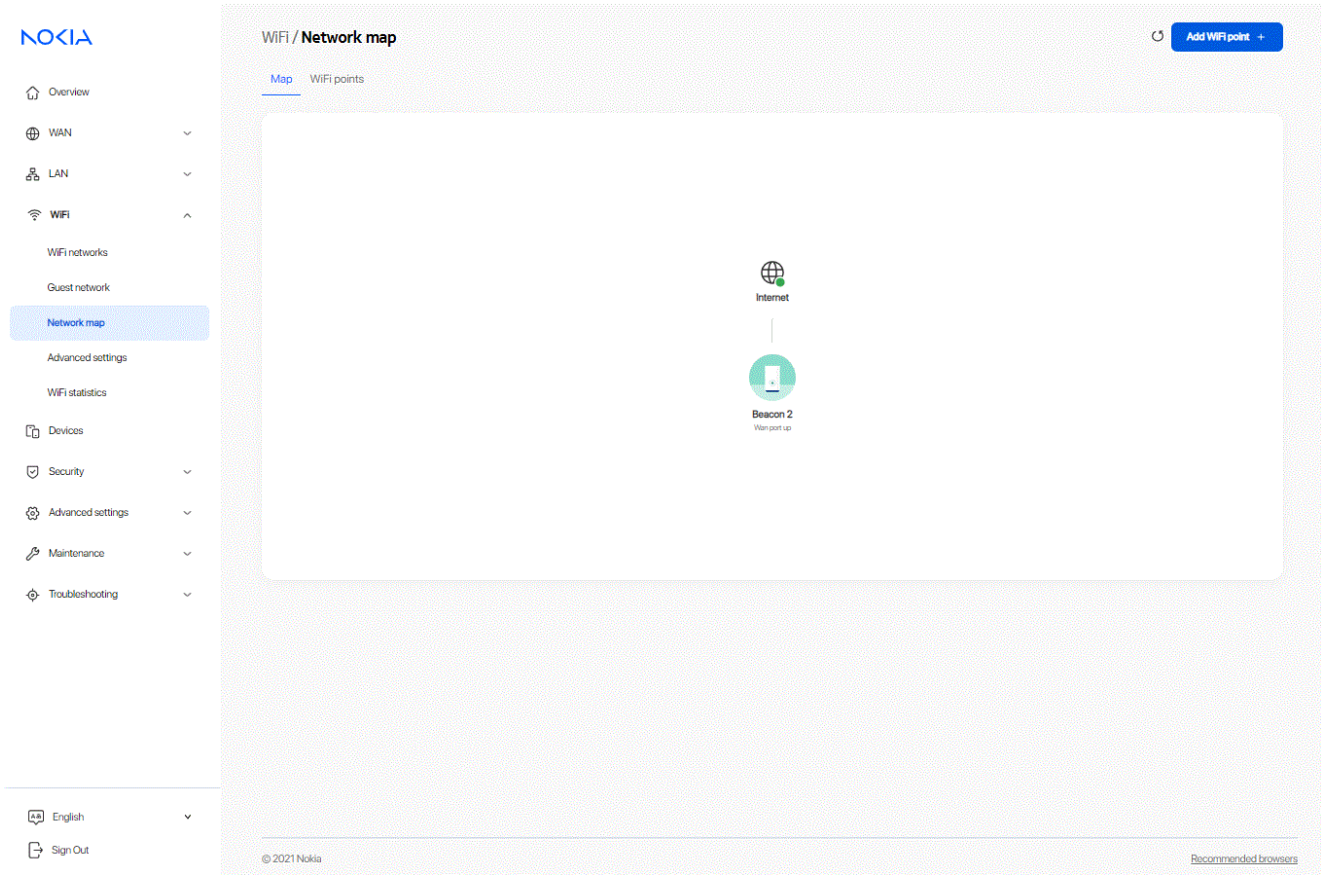
Figure 7-23 Network map page



2

Perform the following steps to add a WiFi point:

a. Click **Add WiFi point** at the top right corner of the *Device Info* page. A message displays that it is recommended to use the Nokia WiFi mobile app to add a WiFi point.

b. To add a WiFi point using the WebGUI, click **Continue with WebGUI**.

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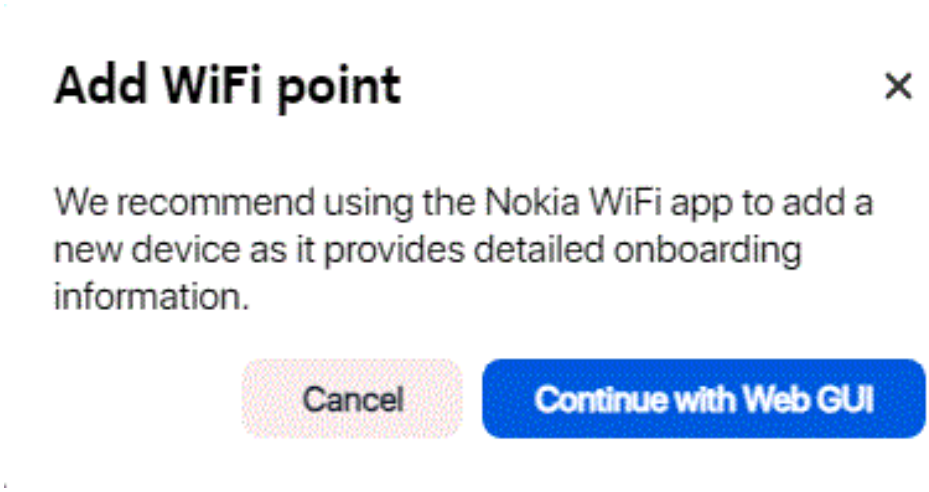
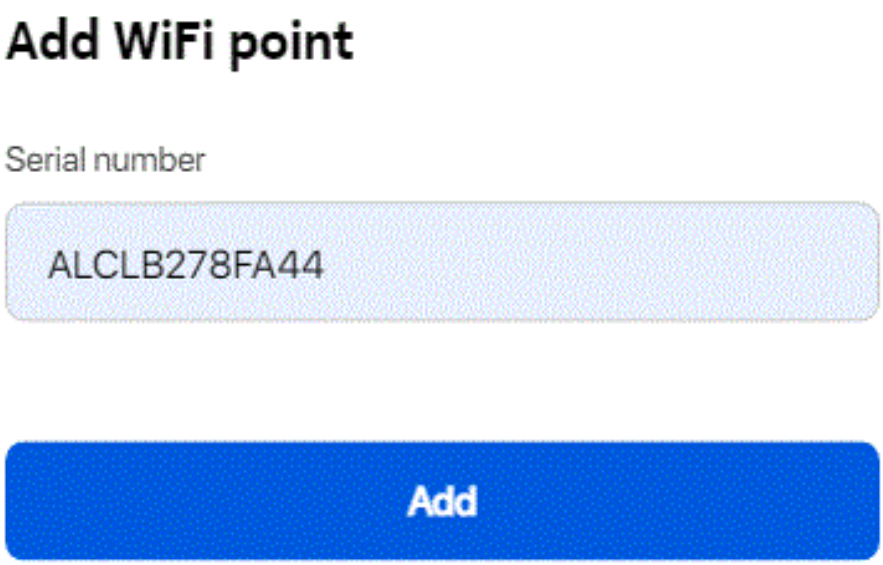


c. In the *Add WiFi point* page, enter the serial number and click **Add**.



The WiFi point is displayed in the *Detected* or *Not detected* list of the *Onboarding Status* panel in the *Device Info* page.

3

Click on a WiFi point to view the device details. The <*Device*> page displays the details of the selected device in the network, including connection status.

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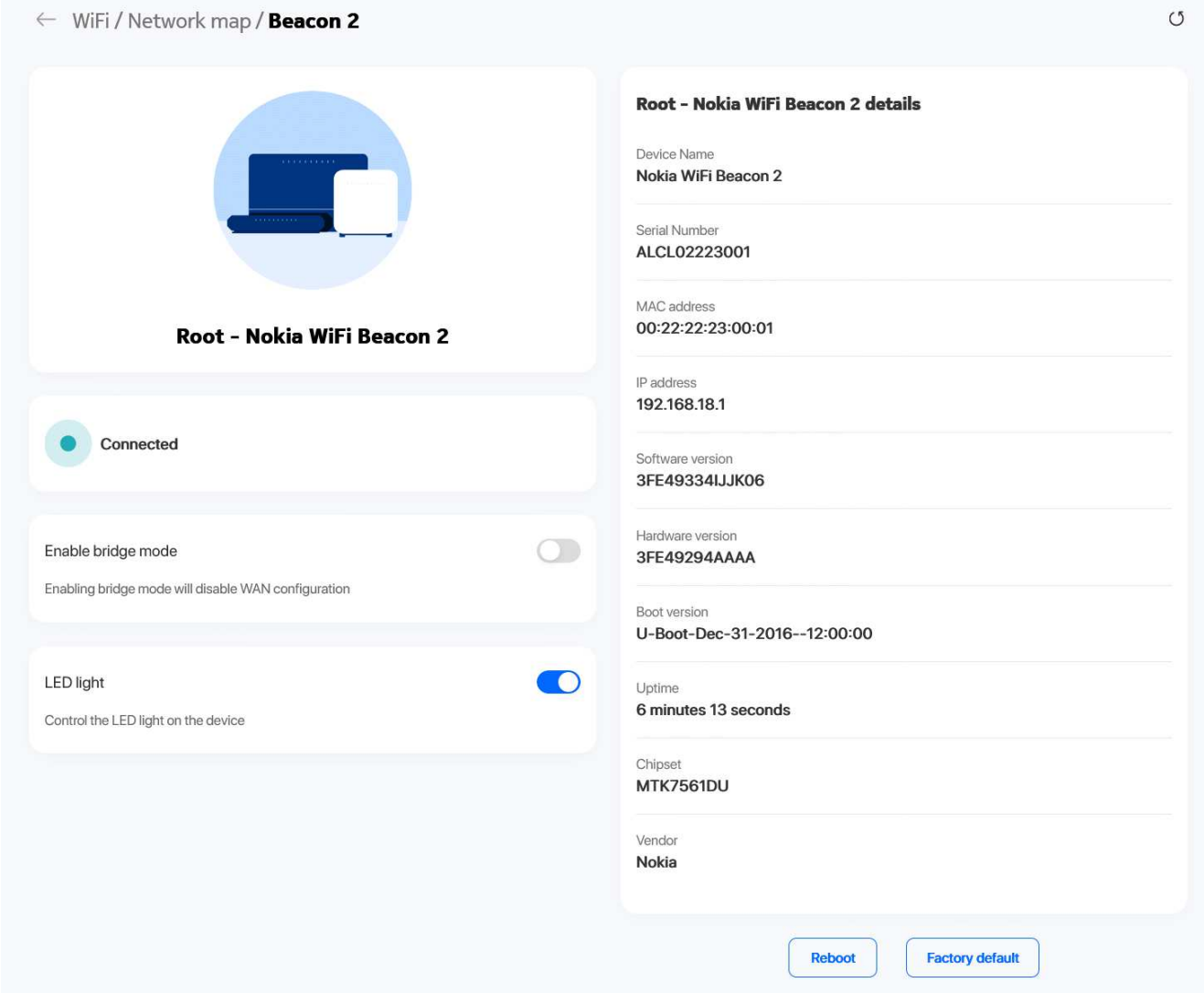
Figure 7-24 <Device> page



4

The WiFi point name can be edited by clicking the edit icon .

Perform the following steps to change the name of your WiFi point:

a. Click the Edit icon to edit the name of the WiFi point. The **Change the name of your WiFi point** page displays.

b. On the page **Change the name of your WiFi point**, click the drop-down menu to select a name for the WiFi point, or enter a **Custom name** to create your own customized name.

c. Click **Save**.

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Figure 7-25 Change the name of your WiFi point page

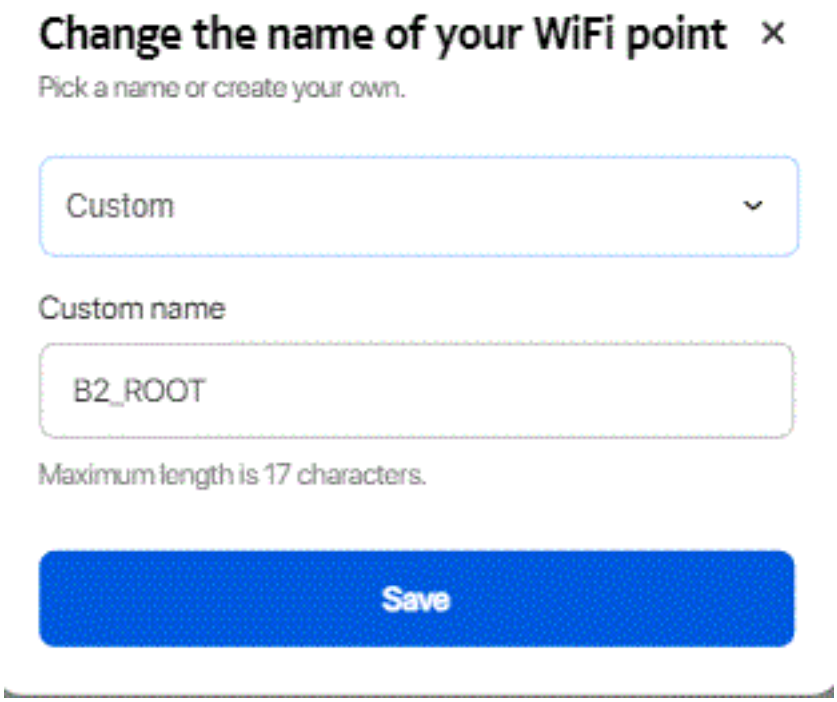

Table 7-14 <*Device*> parameters

Field	Description
Device name	Name on the device
Serial number	Serial number of the device
MAC address	MAC address of the device
IP address	IP address of the device
Software version	Software version of the device (displays only for a root device)
Hardware version	Hardware version of the device (displays only for a root device)
Boot version	Boot version of the device (displays only for a root device)
Uptime	Amount of time the device has run since last reset in hours, minutes, and seconds (displays only for a root device)
Chipset	Chipset of the device (displays only for a root device)
Vendor	Name of the vendor (displays only for a root device)
Onboarding status	Onboarding status of the device in the WiFi network (displays only for an extender device)

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Table 7-14 <*Device*> parameters (continued)

Field	Description
Backhaul status	Backhaul status of the device (displays only for an extender device)
Location nickname	Name of the location of the device (displays only for an extender device)

5

Click **LED Light** to enable the LED light on the device.

6

Click **Enable bridge mode** to enable bridge mode.

Note: WAN configuration is disabled if bridge mode is enabled.

7

Perform any of the following, as applicable:

- **Reboot the device:**
  1. Click **Reboot**. A message displays asking if you want reboot the device.
  2. Click **OK** to reboot the Beacon. The device reboots and displays the login page.
- **Reset the device to factory default settings:**
  1. Click **Factory default**. A message displays asking if you want to reset the system configuration to the factory default settings.
  2. Click **OK** to reset the Beacon to the factory default settings.
- **Reset the device to deep factory default settings:**
  1. Click **Deep factory reset**. A message displays asking if you want to reset the system configuration to the factory default settings.
  2. Click **OK** to reset the Beacon so that all the downloaded configuration files such as Web customization, delta-config, voice XML, certification file and so on will be removed.

END OF STEPS

7.20.1 Remove WiFi points

To remove WiFi points, perform the following:

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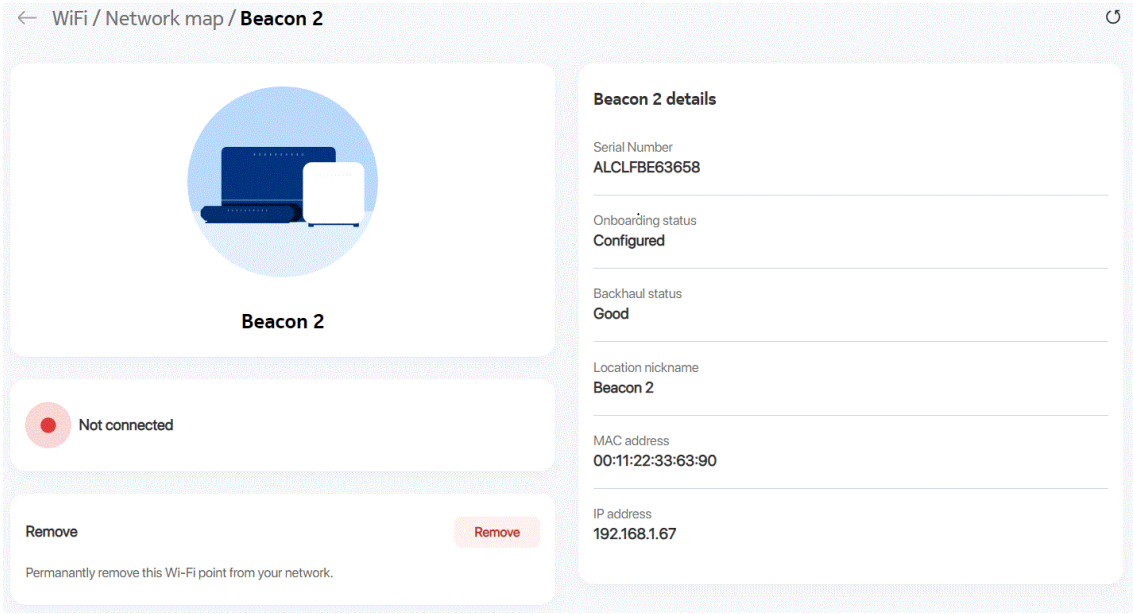
1. Click any extender device and the following *Network map* page is displayed.



   The device name can be renamed by clicking the edit icon .

2. Ensure to power off the extender and wait for few minutes to get the extender in offline status and click **Remove** to permanently remove the WiFi point from your network.

   When the extender is in powered on state, a message is displayed to power off the extender and then remove it permanently.

The WiFi point is removed from your network. If you want to use the WiFi point on a different network, factory reset it first.

7.21 Configuring Wireless 2.4 GHz

1

Click **WiFi→Advanced settings** in the left pane. The *Advanced settings* page displays.

2

Select the **2.4 GHz** tab to configure the wireless 2.4 GHz parameters.

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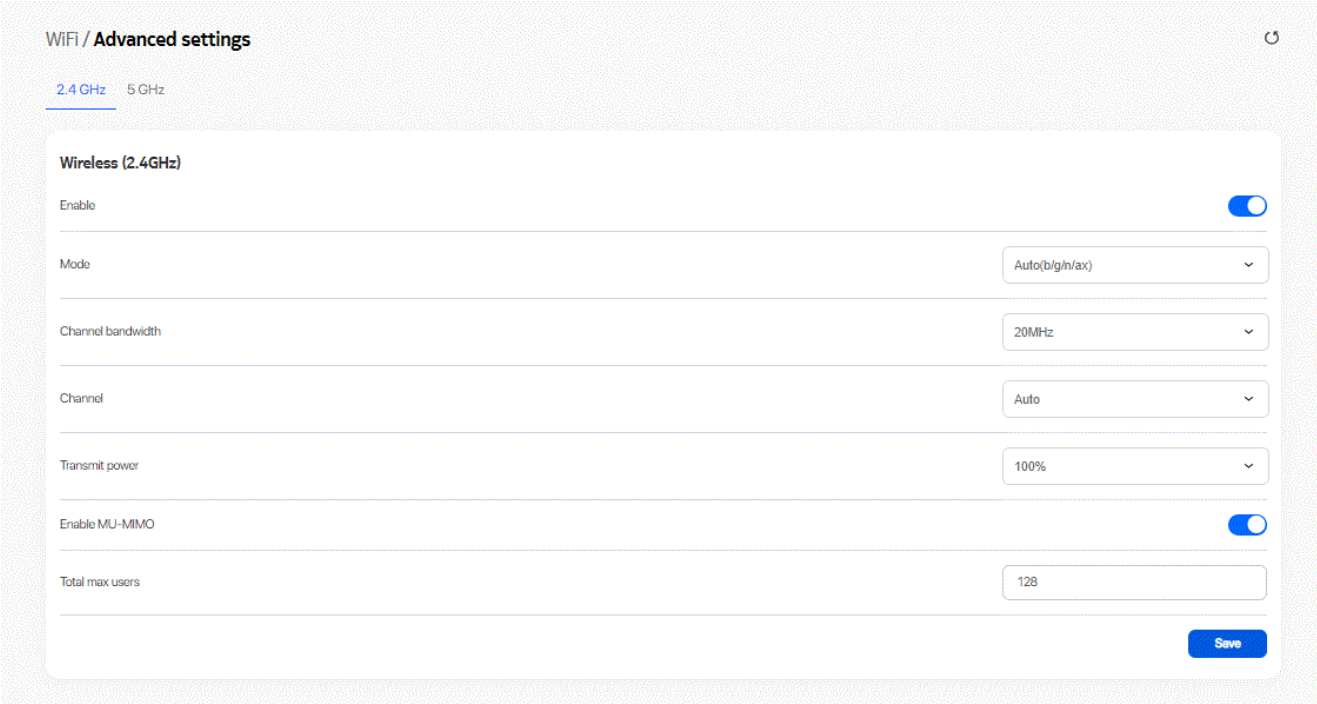
Figure 7-26 Advanced settings - 2.4 GHz tab



3

Configure the following parameters:

Table 7-15 Wireless 2.4 GHz parameters

Field	Description
Enable	Select the toggle button to enable Wireless (2.4 GHz).
Mode	Select a wireless mode from the list: • **Auto (b/g/n/ax)** • **b/g/n** • **Auto (b/g/n)** • **b** • **g** • **n** • **b/g** • **g/n** • **n/ax**

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Table 7-15 Wireless 2.4 GHz parameters (continued)

Field	Description
Channel bandwidth	Select the bandwidth range from the list: • **Auto** (auto-assigns the bandwidth range) • **20 MHz** • **40 MHz**
Channel	Select a channel from the list or select **Auto** to auto-assign the channel.
Transmit power	Select a percentage for the transmitting power from the list: • **12%** • **25%** • **50%** • **75%** • **100%**
Enable MU-MIMO	Select an option from the list to enable or disable MU-MIMO: • **Enable** • **Disable**
Total max users	Enter the maximum number of users.

4

Click **Save**.

END OF STEPS

7.22 Configuring Wireless 5 GHz

1

Click **WiFi→Advanced settings** in the left pane. The *Advanced settings* page displays.

2

Select the **5 GHz** tab to configure the wireless 5 GHz parameters.

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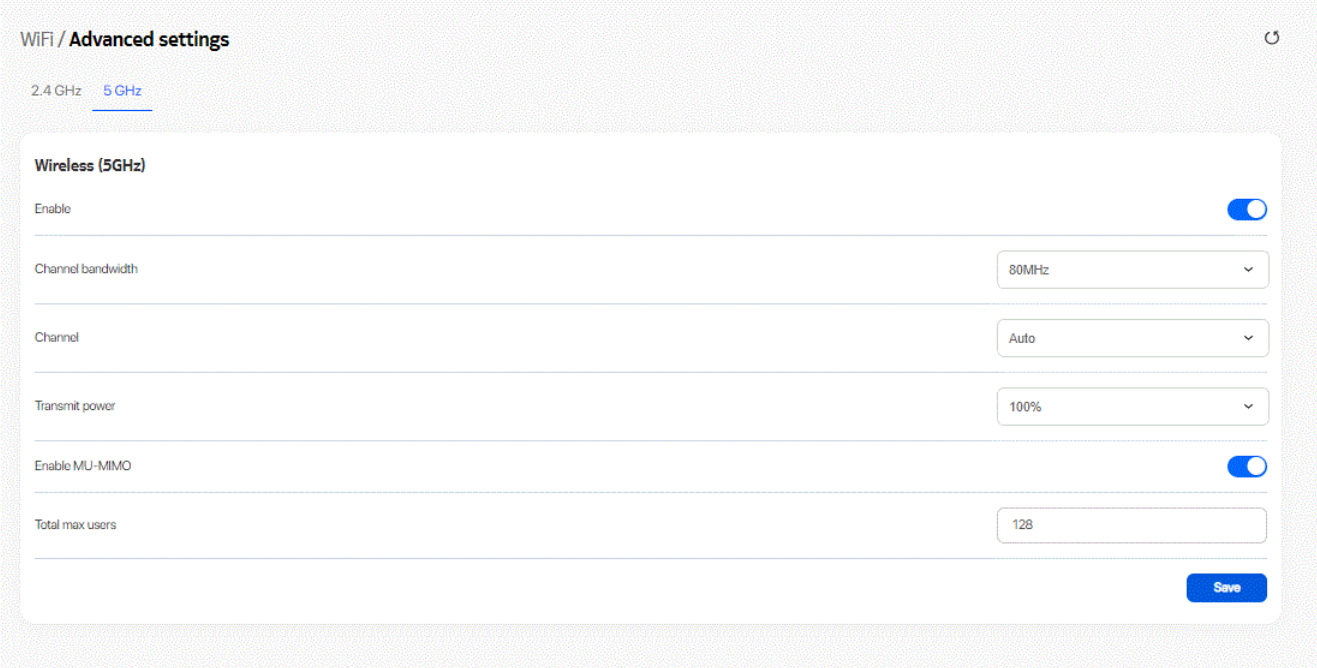
Figure 7-27 Advanced settings - 5 GHz tab



3

Configure the following parameters:

Table 7-16 Wireless 5 GHz parameters

Field	Description
Enable	Select this toggle button to enable WiFi.
Channel bandwidth	Select the bandwidth range from the list: • **20 MHz** • **40 MHz** • **80 MHz** • **160 MHz** • **Auto**
Channel	Select a channel from the list or select **Auto** to auto-assign the channel.

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Table 7-16 Wireless 5 GHz parameters (continued)

Field	Description
Transmit power	Select a percentage for the transmitting power from the list: • **12%** • **25%** • **50%** • **75%** • **100%**
Enable MU-MIMO	Select the toggle button to enable MU-MMO. This can be enabled when multiple users are trying to access the wireless network. When this parameter is enabled, multiple users can access router functions without the congestion.
Total max users	Enter the total number of MAX users. The maximum users allowed is 64. The maximum users allowed is 128.

4

Click **Save**.

END OF STEPS

7.23 Viewing WiFi Statistics

1

Click **WiFi→WiFi statistics** in the left pane. The *WiFi statistics* page displays.

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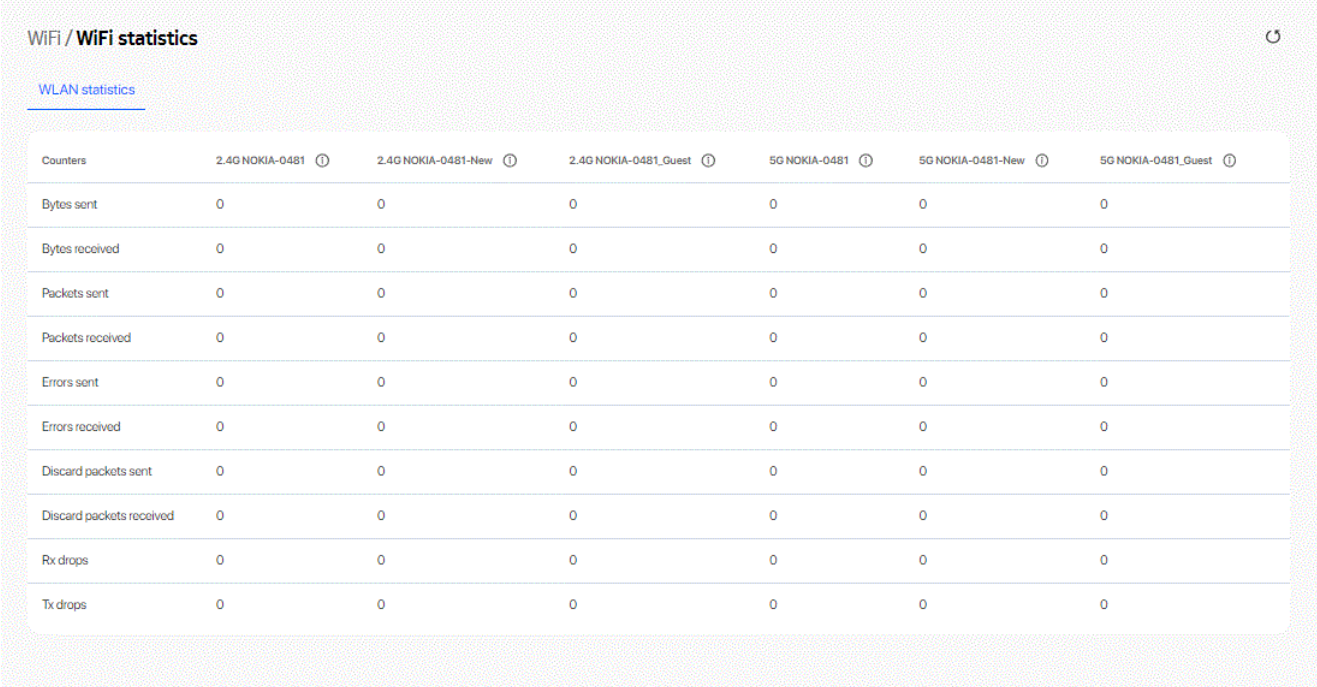
Figure 7-28 WiFi statistics page



2

Select the **STA information** tab to display STA parameters.

Table 7-17 STA information parameters

Field	Description
MAC address	Indicates the MAC address of the Ethernet connection.
SSID name	Indicates the name of each SSID.
Channel	Indicates the channel number.
Connection duration	Indicates the connection duration.
WiFi mode	Indicates the WiFi mode.
RSSI (dBm)	Indicates the received signal strength.

3

Select the **Neighboring AP** tab to display Neighboring AP parameters.

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Table 7-18 Neighboring AP parameters

Field	Description
Index	Name of the index.
SSID name	Name of each SSID.
MAC address	MAC address of the Ethernet connection.
Channel	Channel number.
RSSI (dBm)	Received signal strength in dBm.
Authentication mode	Authentication mode.
WiFi mode	Indicates the WiFi mode
Network type	Indicates the network type

Click **Scan** to scan for neighboring access points.

4

Select the **WLAN statistics** tab to display WLAN statistics.

END OF STEPS

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Devices

7.24 Overview

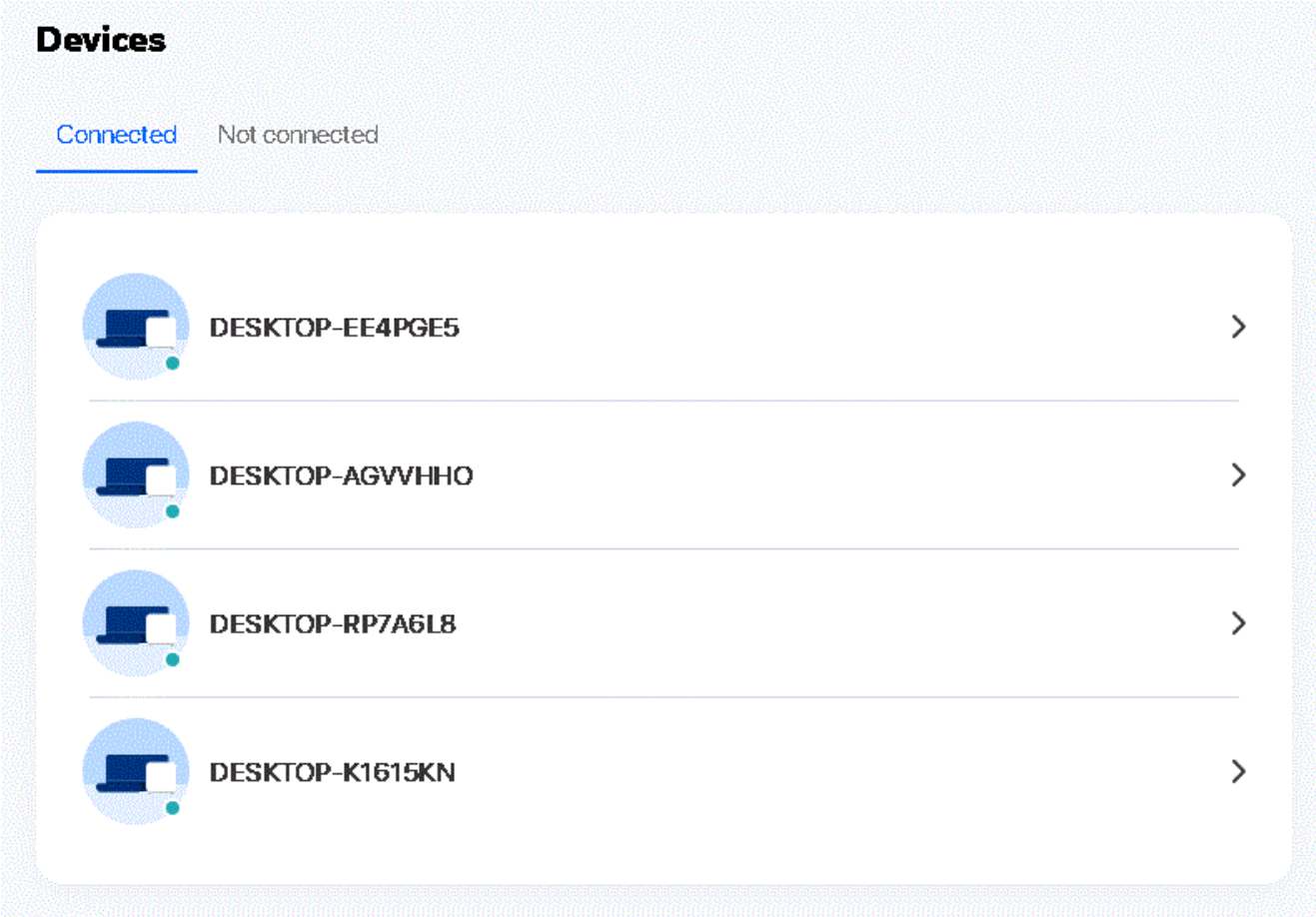
This section describes how to view device information from the **Device** menu.

7.25 Viewing Device Information

1

Click **Devices** in the left pane. The *Devices* page displays the devices.

Figure 7-29 Devices page



2

The Devices page lists the devices. Click on a Device to view the respective device Info page.

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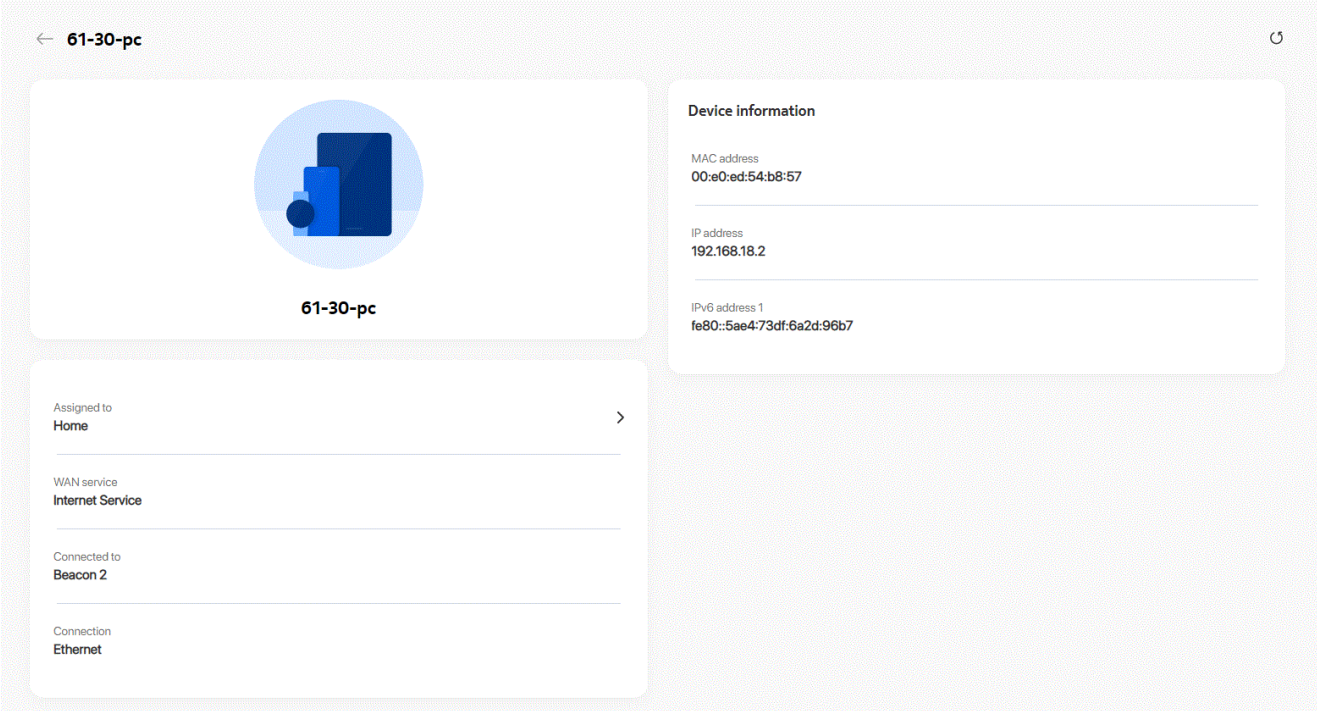
The *Device Info* page displays the details of the selected device in a network.

Figure 7-30 Device information page - L3 devices



The device name can be renamed by clicking the edit icon .

Perform the following steps to rename the client device:

a. Click the Edit icon to rename the client device. The **Edit** page displays.

b. On the **Edit** page, enter the name to create your own customized name or select a category listed in the drop-down menu.

c. Click **Save**.

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Figure 7-31 Device Rename page

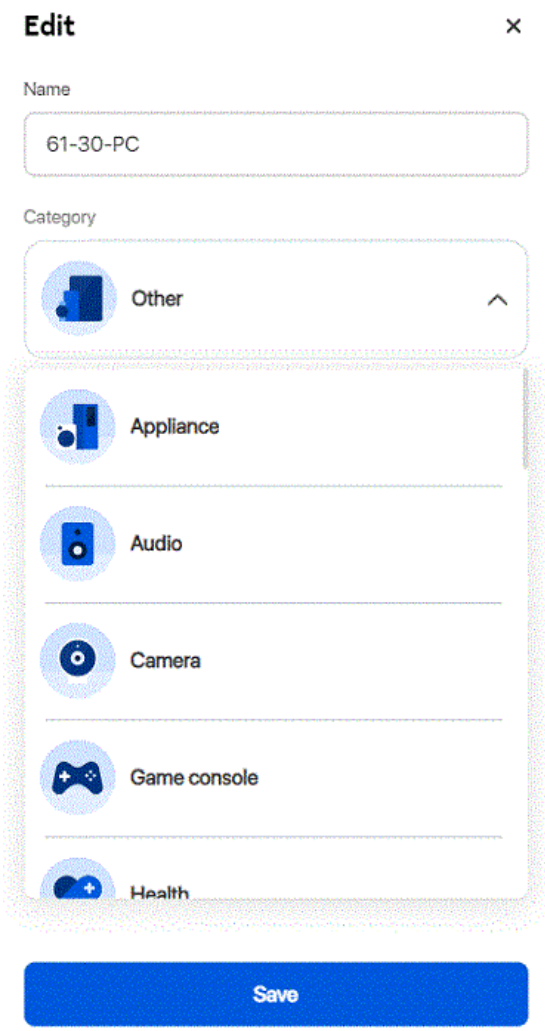

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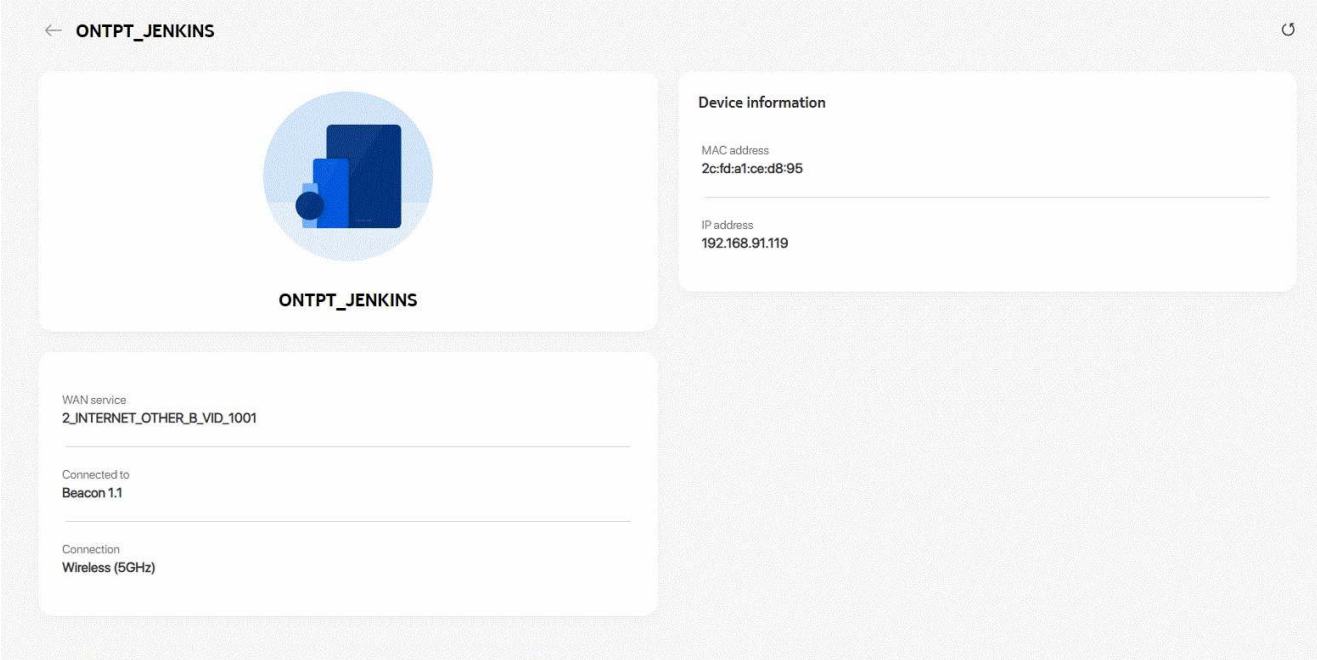
Figure 7-32 Device information page - L2 devices



The device name can be renamed by clicking the edit icon .

Perform the following steps to rename the client device:

a. Click the Edit icon to rename the client device. The **Edit** page displays.

b. On the **Edit** page, enter the name to create your own customized name or select a category listed in the drop-down menu.

c. Click **Save**.

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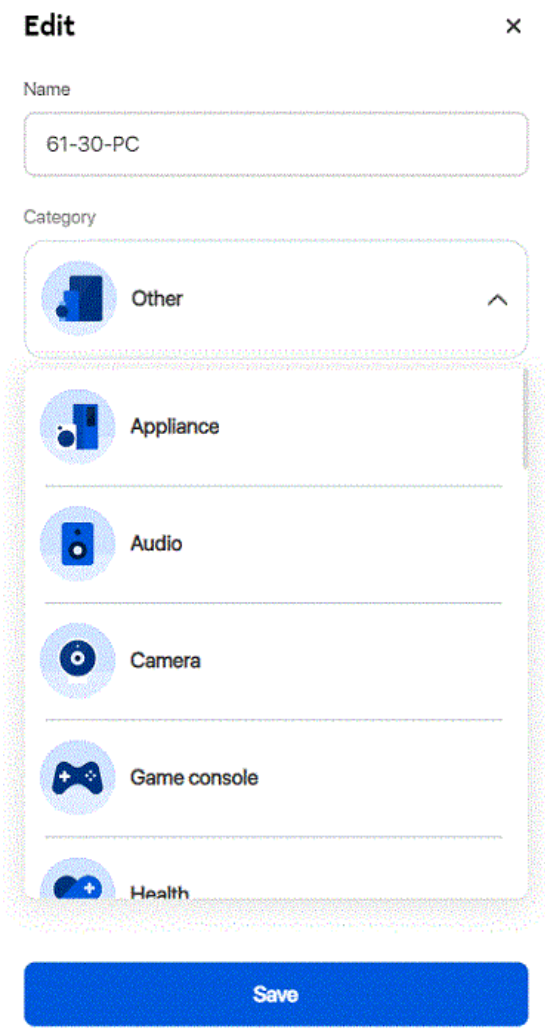
Figure 7-33 Device Rename page



END OF STEPS

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Security Configuration

7.26 Overview

This section describes the security configuration procedures that can be performed from the following sub-menu options under the **Security** menu:

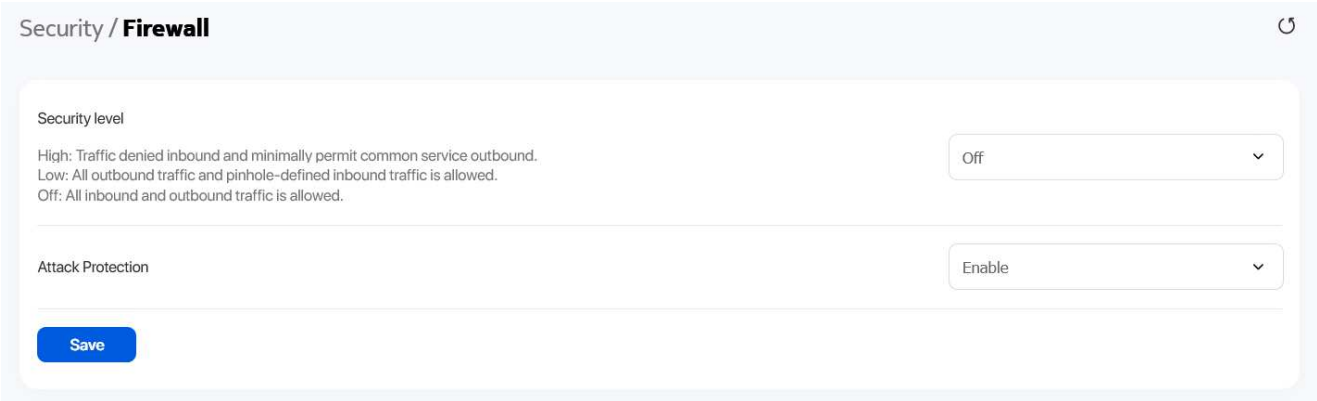
Sub-menu	Procedure
Firewall	7.27 “Configuring the Firewall” (p. 115)
MAC filter	7.28 “Configuring the MAC Filter” (p. 116)
IP filter	7.29 “Configuring the IP Filter” (p. 118)
Family profiles	7.30 “Configuring Family Profiles” (p. 120)
DMZ and ALG	7.31 “Configuring DMZ and ALG” (p. 131)
Access control	7.32 “Configuring Access Control” (p. 132)

7.27 Configuring the Firewall

1

Click **Security→Firewall** in the left pane. The *Firewall* page displays.

Figure 7-34 Firewall page



2

Configure the following parameters.

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Table 7-19 Firewall parameters

Field	Description
Security level	Select the security level from the list: • **High**: Pre-routing and application services are not supported. UDP Port 8000 can be used to access the services. For example, FTP can use 8021 and Telnet can use 8023. Regular UDP cannot be used. RG access is permitted via the LAN side but not via the WAN side. • **Low**: All outbound traffic and pinhole-defined inbound traffic is allowed. Pre-routing is supported: port forwarding, DMZ, host application, and host drop. Also supported are application services: DDNS, DHCP, DNS, H248, IGMP, NTP client, SSH, Telnet, TFTP, TR-069, and VoIP. The following types of ICMP messages are permitted: echo request and reply, destination unreachable, and TTL exceeded. Other types of ICMP messages are blocked. DNS proxy is supported from LAN to WAN but not from WAN to LAN. • **Off**: All inbound and outbound traffic is allowed. No firewall security is in effect.
Attack Protection	Select **Enable** or **Disable** from the list to enable or disable protection against DoS or DDoS attacks. Default value: **Enable**.

3

Click **Save**.

END OF STEPS

7.28 Configuring the MAC Filter

1

Click **Security→MAC filter** in the left pane. The *MAC filter* page displays.

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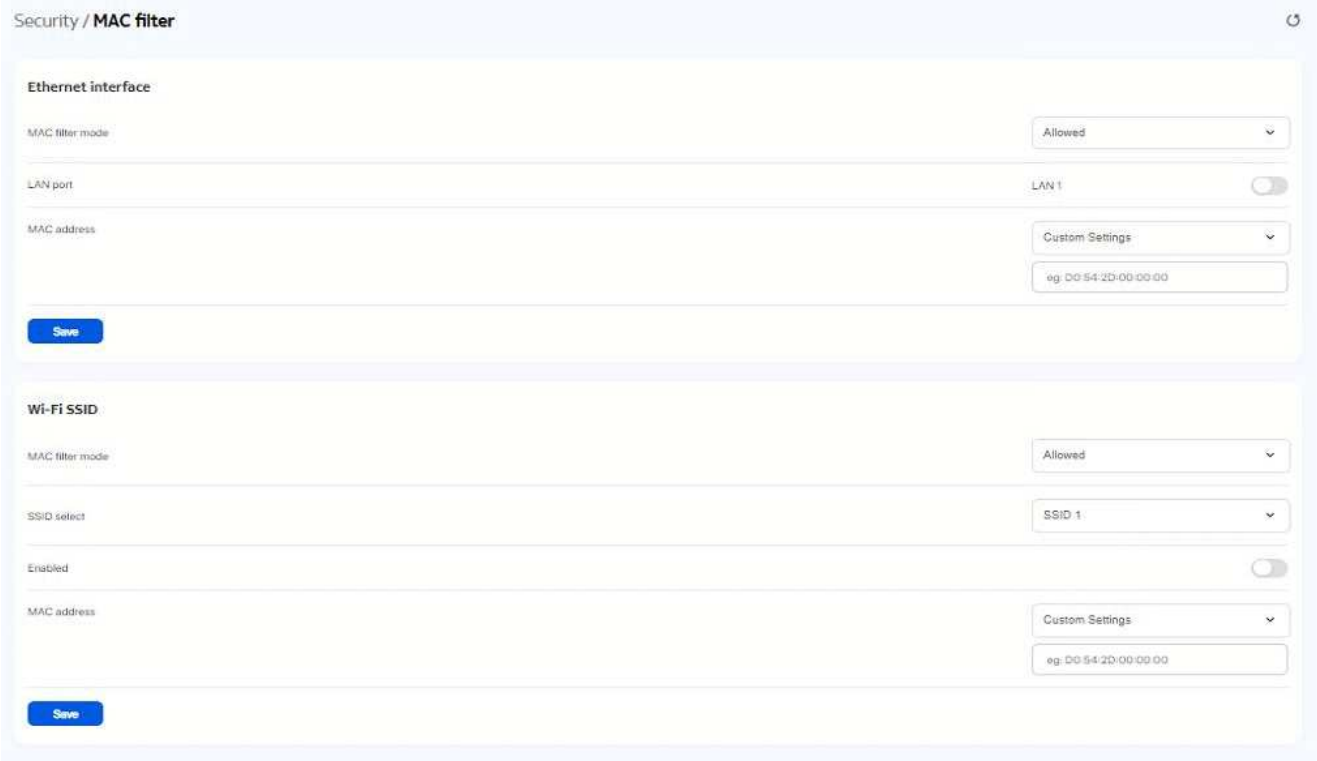
Figure 7-35 MAC filter page



2

Configure the following parameters:

Table 7-20 MAC filter - Ethernet Interface parameters

Field	Description
Ethernet Interface	
MAC filter mode	Select the MAC filter mode from the list: • **Blocked** • **Allowed**
LAN port	Select the toggle button to enable any of the LAN ports.
MAC address	Select a MAC address from the list or enter the MAC address in the text field.

3

Click **Save**.

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4

Configure the following parameters:

Table 7-21 MAC filter - WiFi SSID parameters

Field	Description
WiFi SSID	
MAC filter mode	Select the MAC filter mode from the list: • **Blocked** • **Allowed**
SSID select	Select the SSID from the list.
Enabled	Select the toggle button to enable the MAC filter.
MAC address	Select a MAC address from the list or enter the MAC address in the text field.

5

Click **Save**.

END OF STEPS

7.29 Configuring the IP Filter

1

Click **Security→IP filter** in the left pane.

2

Click **Add Filter** to add a IPv4 or IPv6 filter. The *Add IP filter* page displays.

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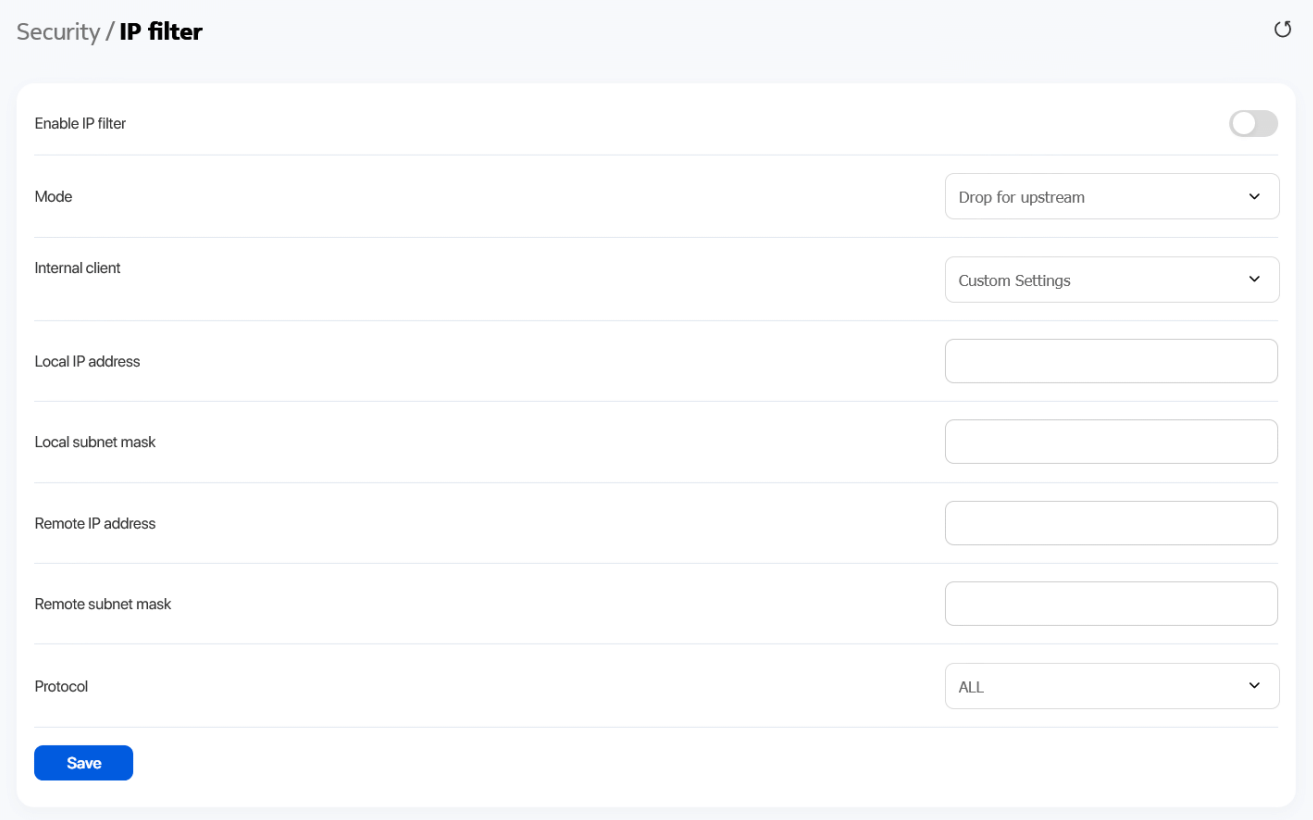
Figure 7-36 IP filter page



3

Configure the following parameters:

Table 7-22 IP filter parameters

Field	Description
Add IPv4 filter or **Add IPv6 filter** parameters	
Enable IP filter	Select the toggle button to enable an IP filter.
Mode	Select an IP filter mode from the list: • **Drop for upstream** • **Drop for downstream** • **Accept for upstream** • **Accept for downstream**

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Table 7-22 IP filter parameters (continued)

Field	Description
Source	Select an internal client from the list: • **Custom Settings**: uses the IP address input below • **IP**: uses the connecting devices' IP to the Beacon
Add IPv4 filter parameters	
Local IP address	Enter the local IP address.
Local subnet mask	Enter the local subnet mask.
Remote IP address	Enter the remote IP address.
Destination IP address	Enter the destination IP address.
Remote subnet mask	Enter the remote subnet mask.
Destination subnet mask	Enter the destination subnet mask.
Protocol	Select an application protocol or select **ALL** from the list.
Add IPv6 filter parameters	
Source IP address	Enter the source IP address.
Source Prefix	Enter the source prefix.
Destination IP address	Enter the destination IP address.
Destination prefix	Enter the destination prefix.
Protocol	Select an application protocol or select **ALL** from the list.

4

Click **Save**.

END OF STEPS

7.30 Configuring Family Profiles

1

Click **Security→Family profiles (Parental control)** from the left pane. The *Family profiles (Parental control)* page displays.

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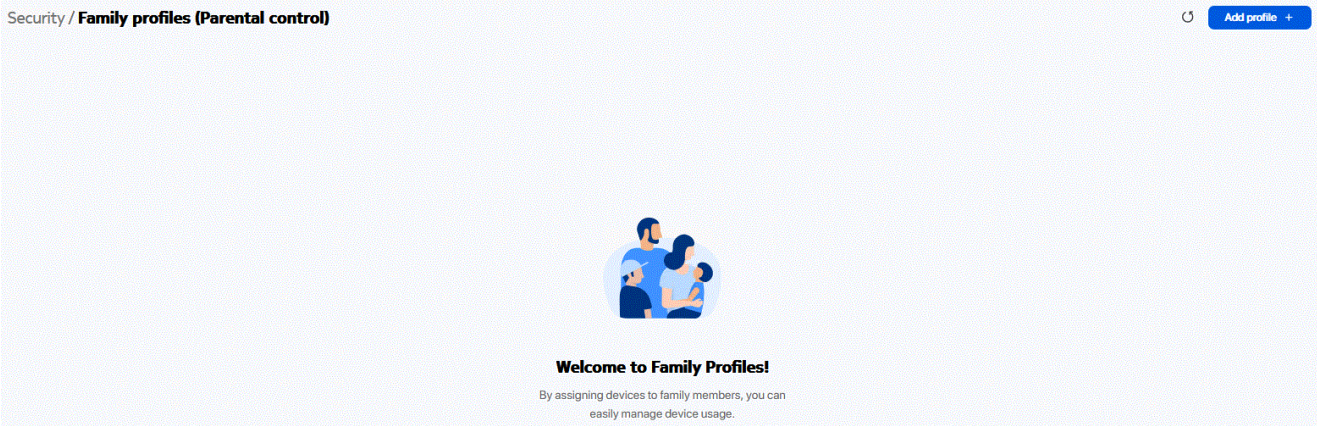
Figure 7-37 Family profiles (Parental control) page



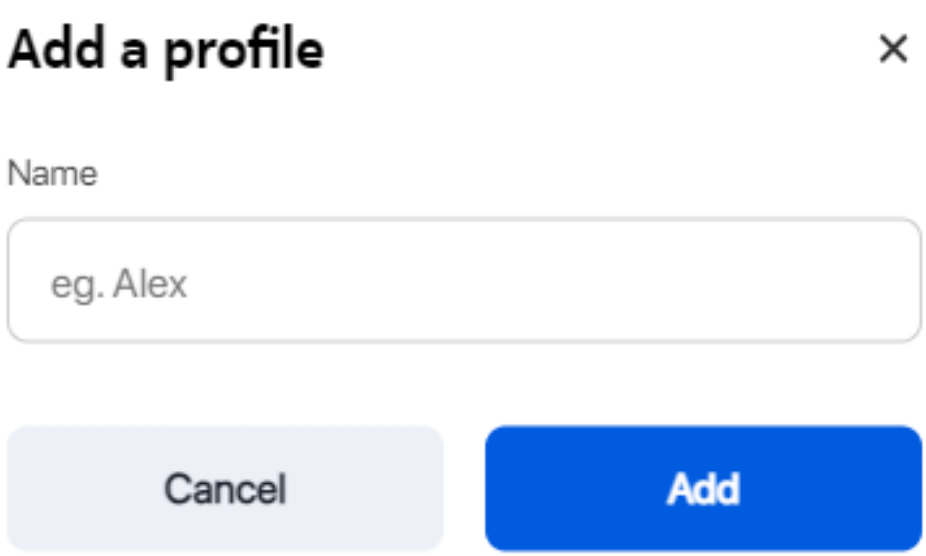
2

Click **Add profile +** to add a profile with parental controls.

3

In the *Add a profile* page, enter a name for the profile and click **Add**.

Figure 7-38 Add a profile page



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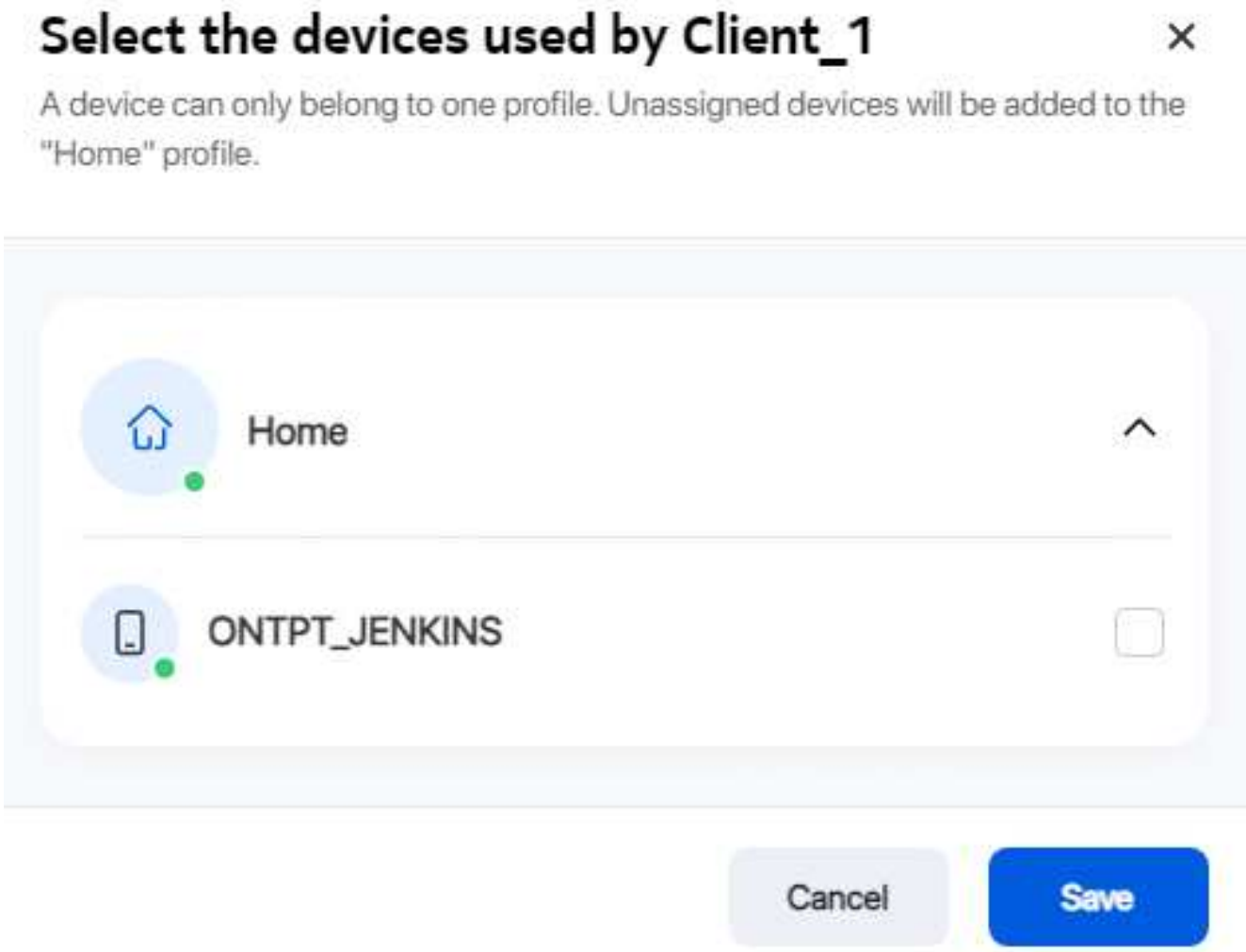
4

In the *Select the devices used by <profile>* page, select the check box next to the device name and click **Save** to assign the device to the profile.

Note: A device can be assigned to only one profile. Unassigned devices are added to the *Home* profile.

Figure 7-39 Assign devices to family profile



The new profile name is listed in the table in the *Family profiles (Parental control)* page.

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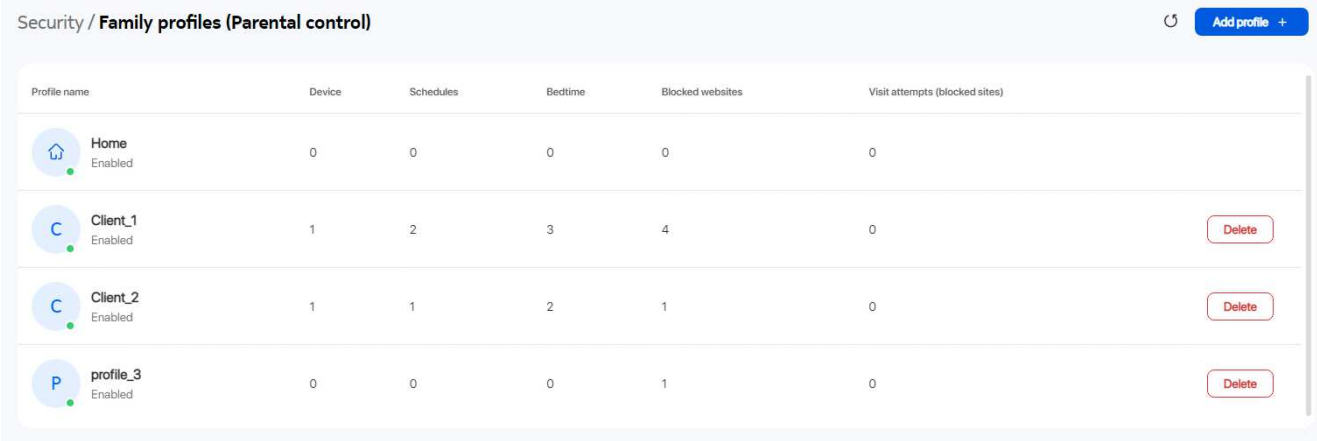
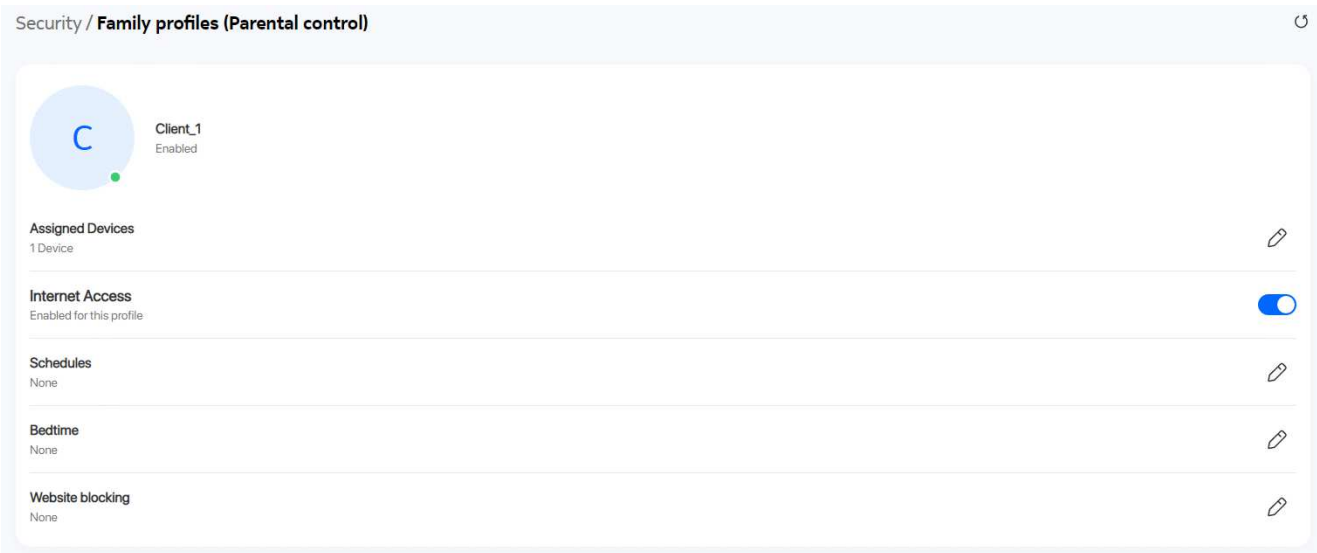
Figure 7-40 Family profiles table



5

Click a profile to configure parental control for the profile. A page displays the profile parameters.

Figure 7-41 Family profile configuration page



6

Select the **Internet Access** toggle button to enable internet access.

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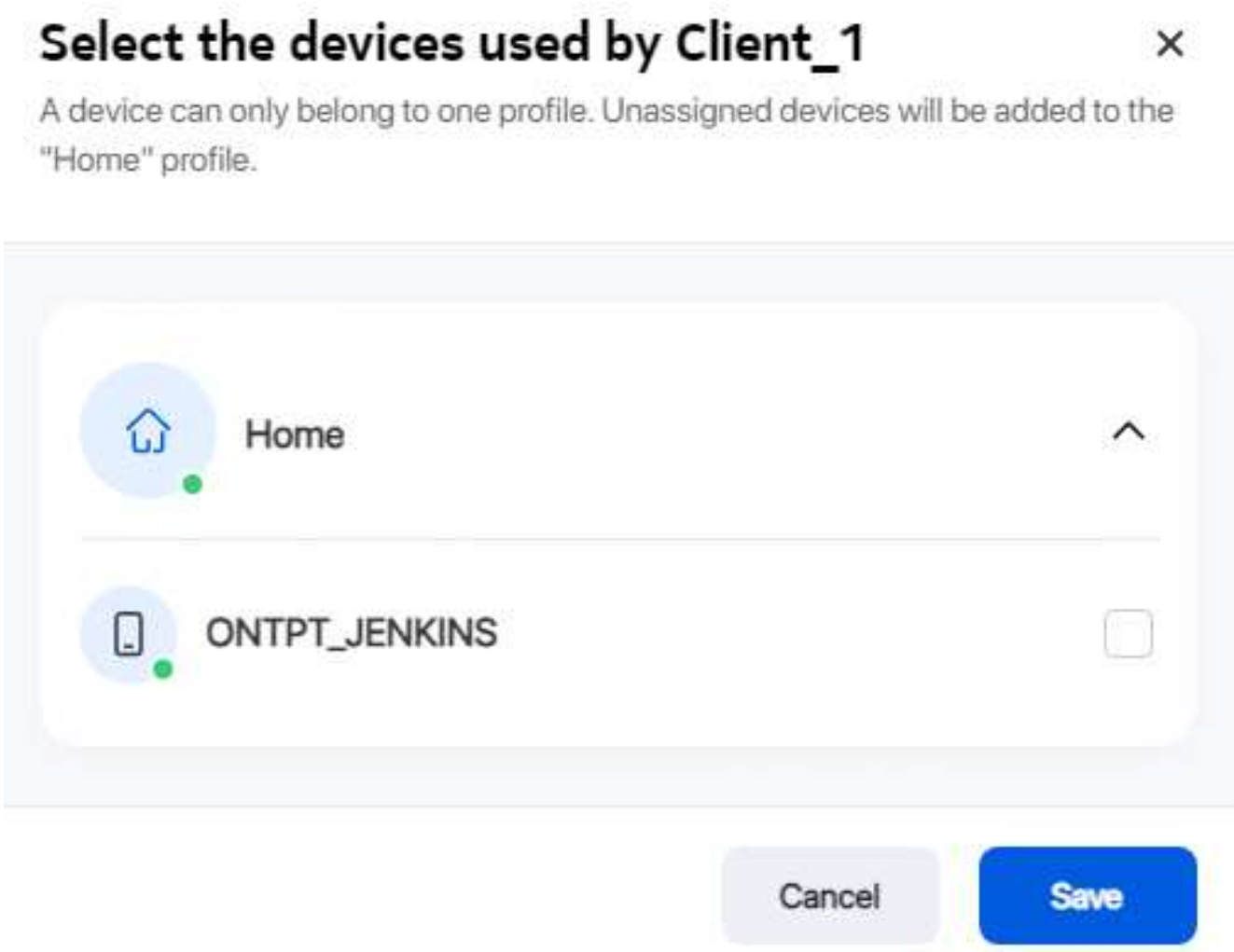
Assign more devices

7

Assign more devices to the profile, if required:

a. In the profile page, click the edit icon next to **Assigned Devices** to assign devices to the profile. The *Select the devices used by <profile>* page displays.



b. Select the check box next to the device to assign to the profile.

c. Click **Save**.

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Configure and enable schedules

8

Configure schedules for the profile:

a. In the profile page, click the edit icon next to **Schedules** to create one or more schedules for the profile to set specific days and time slots when the Internet should be turned off.

b. Click **Create Schedule**.

c. In the *Add a schedule* page, configure the following:

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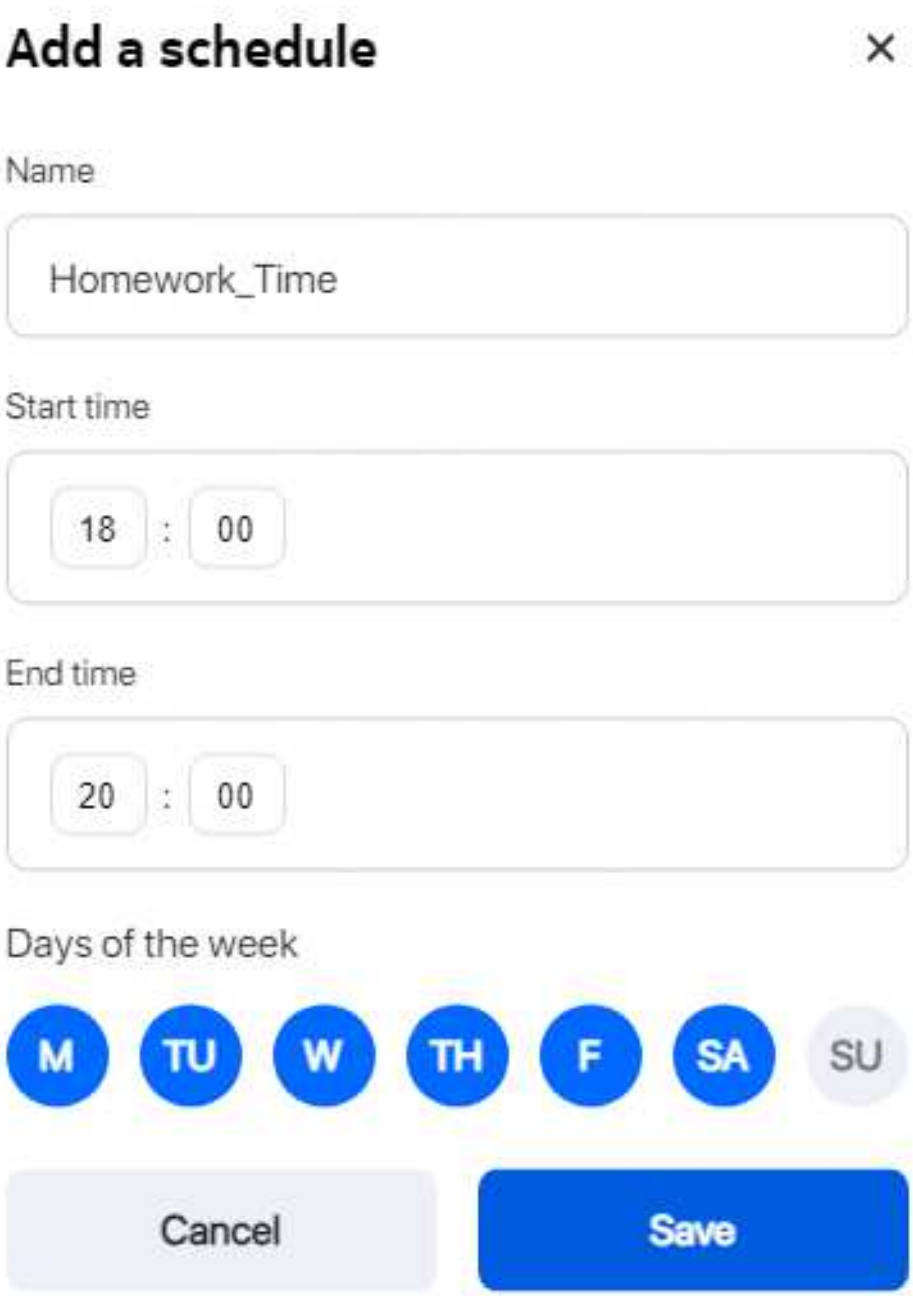

1. Enter the name of the schedule in the Name field.
2. Select the start time, end time, and select the days of the week on which the schedule will be in effect.
3. Click **Save**. The schedule is created and listed in the Schedules page.

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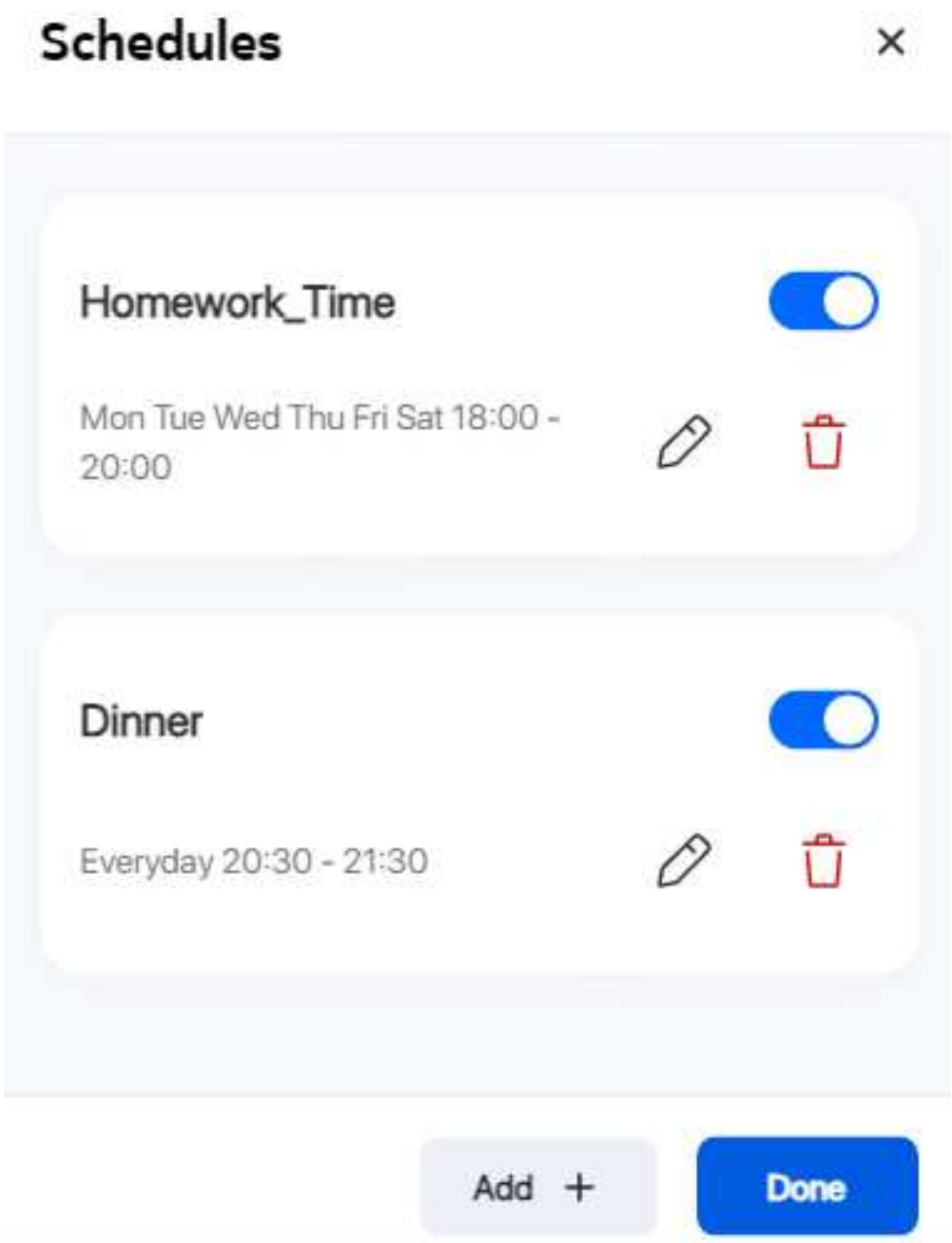
9

In the *Schedules* page, select the toggle button to enable the schedule and click **Done**. To add more schedules, you can click **Add +**.



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Configure and enable bedtime

10

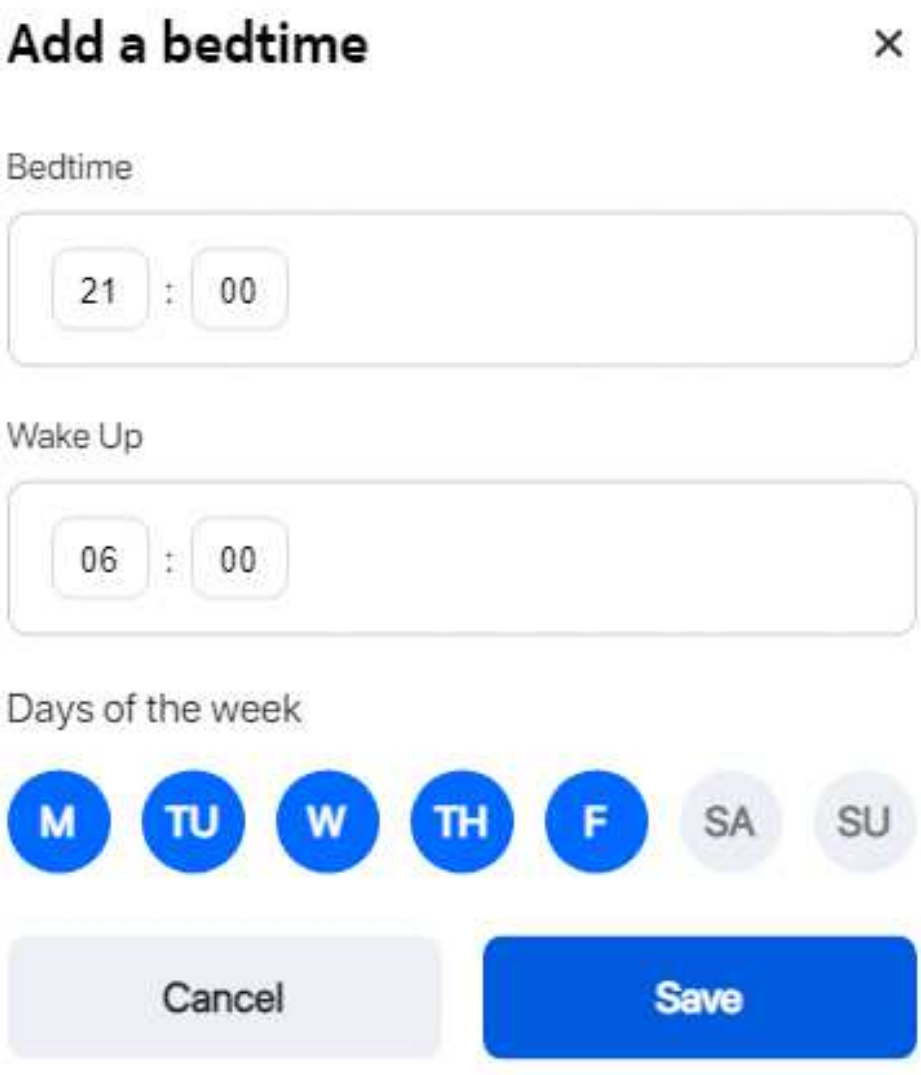
Configure bedtime for the profile:

a. In the profile page, click the edit icon next to **Bedtime** to configure bedtime for the profile to automatically pause internet access at this time.

Only one bedtime can be assigned per day.

b. Click **Create Bedtime**.

c. In the *Add a bedtime* page, configure the following:



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1. Select the Bedtime, Wake Up time, and select the days of the week on which the bedtime will be in effect.
2. Click **Save**. The bedtime is created and listed in the *Bedtime* page.

d. In the *Bedtime* page, select the toggle button to enable the bedtime and click **Done**.

Configure website blocking

11

Configure website blocking for the profile:

a. In the profile page, click the edit icon next to **Website blocking** to control websites and services that devices assigned to the profile can access.

b. Click **Continue**.

c. In the *Website blocking* page, perform the following:

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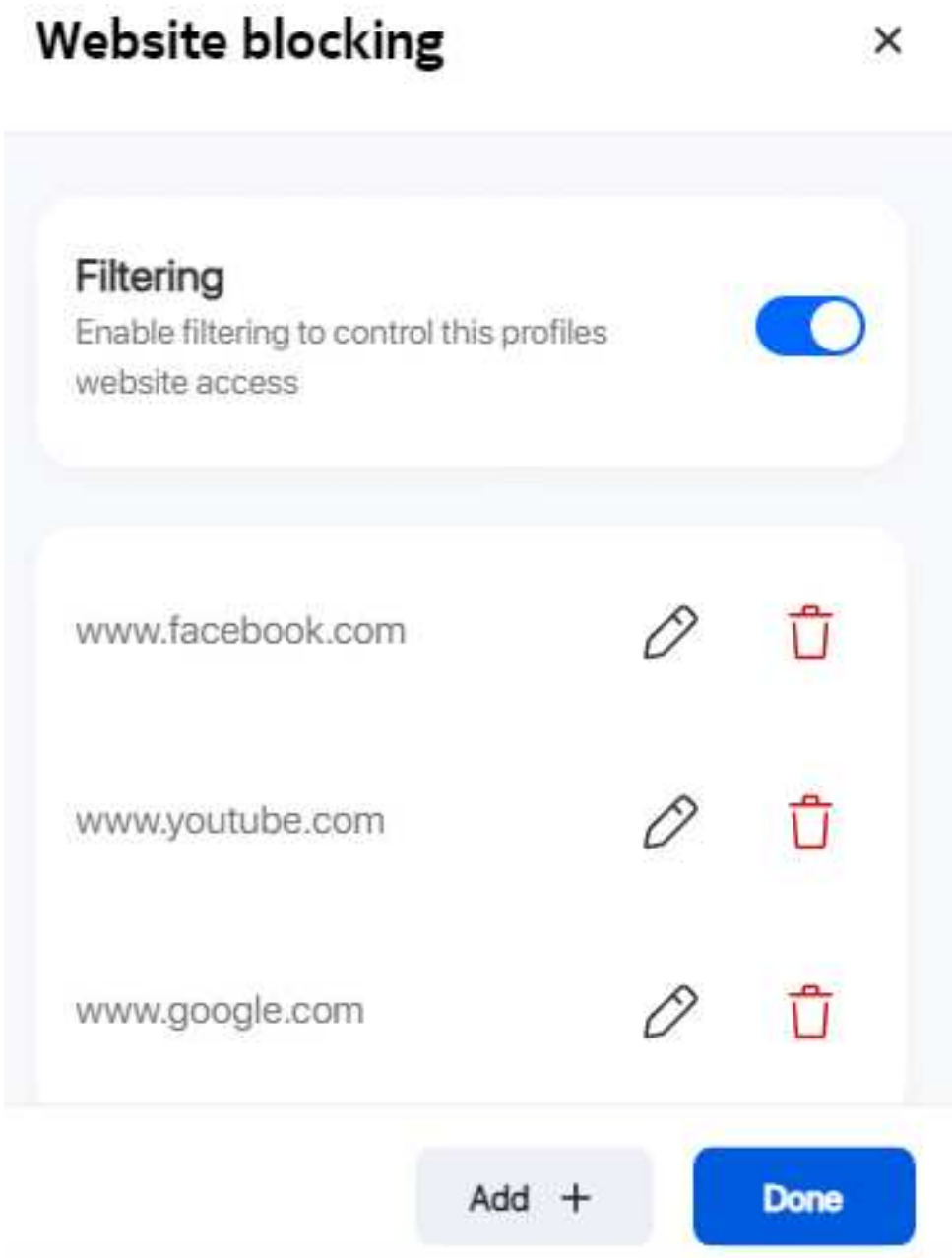

1. Select the toggle button next to **Filtering** to enable filtering to control the profile's website access.
2. Click **Add +** to add a website URL to be blocked.
3. Enter the URL in the Website URL field and click **Save**.

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4. Click **Add +** to add more website URLs to be blocked or click **Done**.

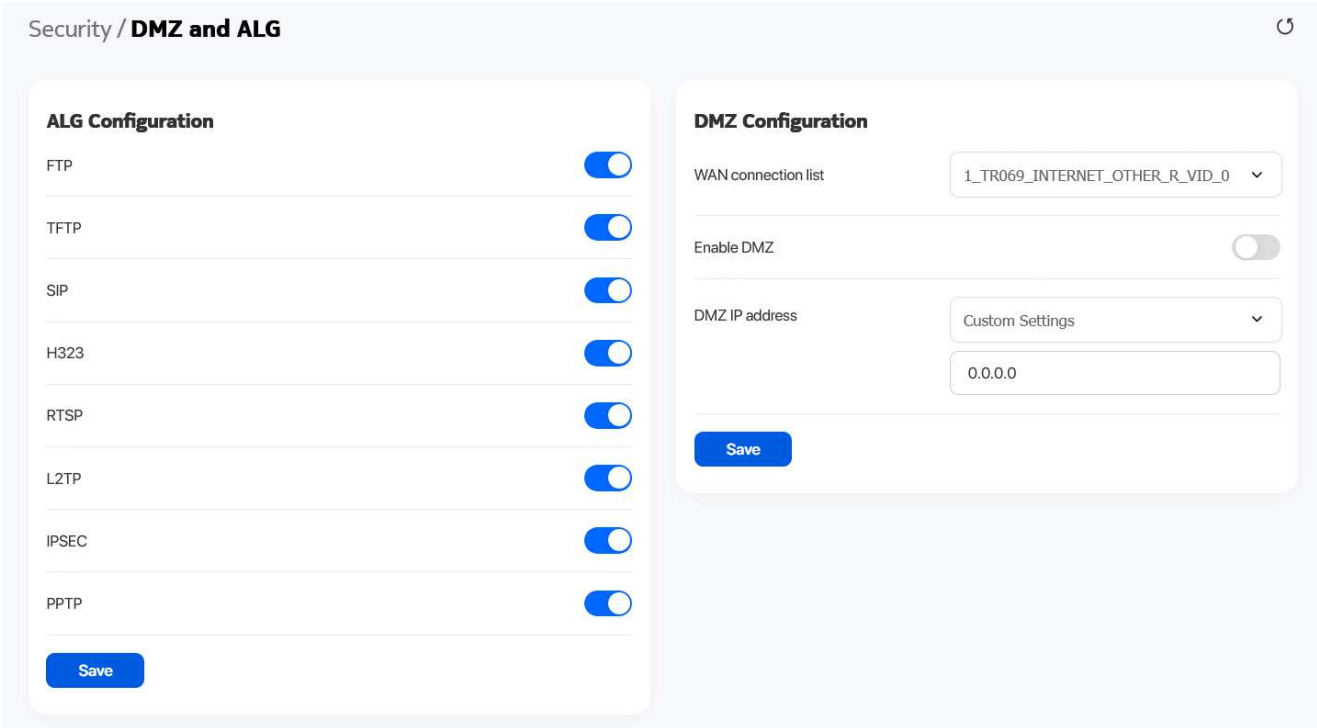
END OF STEPS

7.31 Configuring DMZ and ALG

1

Click **Security→DMZ and ALG** in the left pane. The *DMZ and ALG* page displays.

Figure 7-42 DMZ and ALG page



2

Configure the following parameters:

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Table 7-23 ALG Configuration parameters

Field	Description
ALG Configuration	Select the toggle button next to the protocol name to enable the protocols to be supported by ALG: • FTP • TFTP • SIP • H323 • RTSP • L2TP • IPSEC • PPTP

3

Click **Save**.

4

Configure the following parameters:

Table 7-24 DMZ Configuration parameters

Field	Description
WAN connection list	Select a WAN connection from the list.
Enable DMZ	Select the toggle button to enable DMZ on the WAN connection.
DMZ IP address	Select **Custom Settings** and enter the DMZ IP address or select the IP address of a connected device from the list.

5

Click **Save**.

END OF STEPS

7.32 Configuring Access Control

This procedure describes how to configure the access control level (ACL).

Note: ACL takes precedence over the firewall policy.
The trusted network will be shared for all WAN connections; it is not applied individually to a WAN connection.

1

Click **Security→Access control** in the left pane. The *Access control* page displays.

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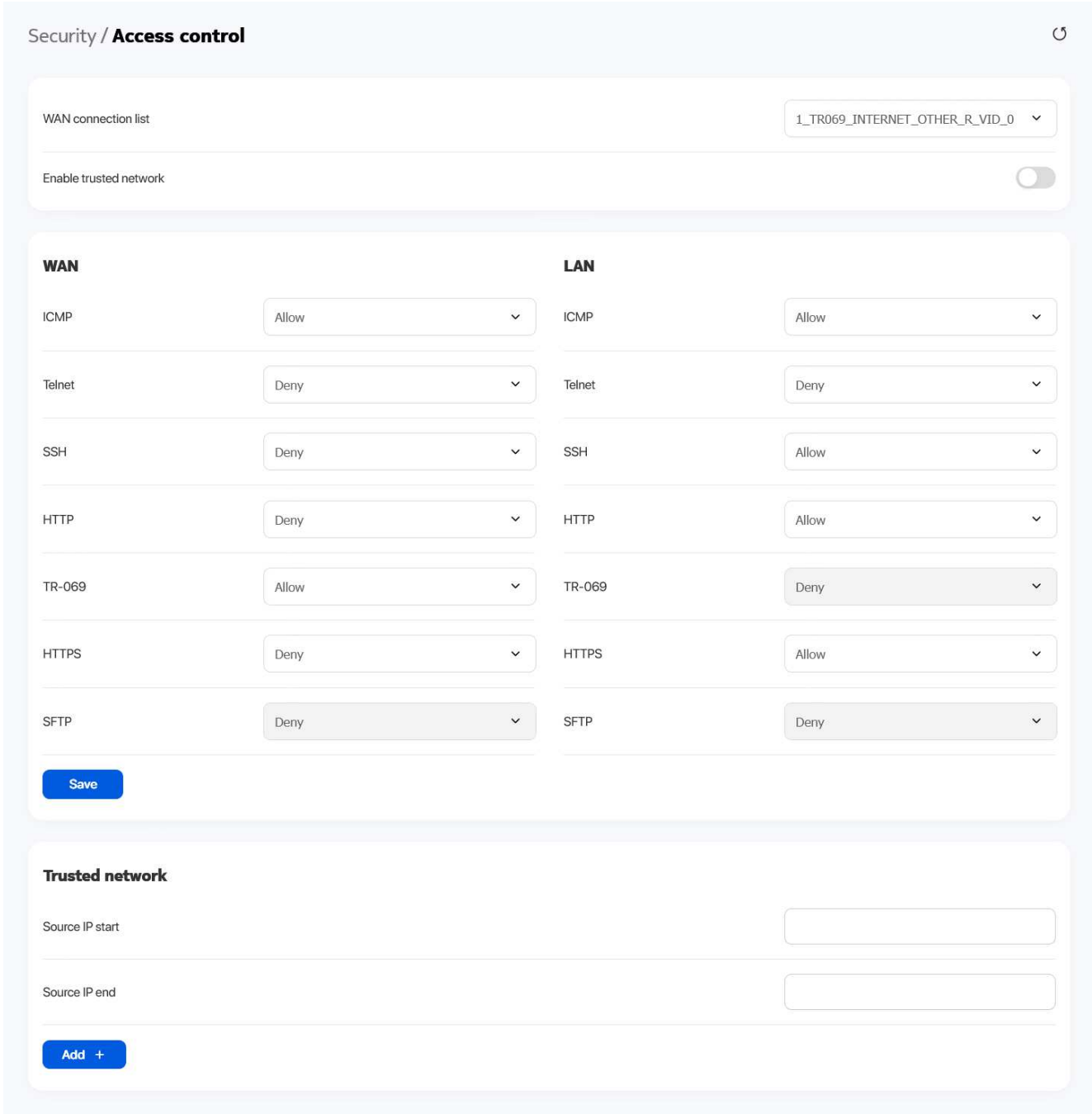
Figure 7-43 Access control page



2

Configure the following parameters:

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Table 7-25 Access control parameters

Field	Description
WAN connection list	Select a WAN connection from the list.
Enable trusted network	Select the toggle button to enable a trusted network.
WAN	The following protocols are supported: ICMP, Telnet, SSH, HTTP, TR-069, HTTPS, SFTP. Select an access control level for each protocol: **Allow**, **Deny**, or **Trusted Network Only** LAN side: **Allow** or **Deny**
LAN	The following protocols are supported: ICMP, Telnet, SSH, HTTP, TR-069, HTTPS, SFTP. Select an access control level for each protocol: LAN side: **Allow** or **Deny**

3

Click **Save** to save the ACL configuration.

4

If the **Enable trusted network** option is enabled, add one or more subnet trusted networks. You can add up to 32 trusted networks.

Table 7-26 Trusted Network parameters

Field	Description
Source IP start	Enter a start IP address range for the new subnet trusted network.
Source IP end	Enter an end IP address range for the new subnet trusted network.

5

Click **Add +**.

END OF STEPS

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Advanced Settings

7.33 Overview

This section describes the advanced settings that can be performed from the following sub-menu options under the **Advanced settings** menu:

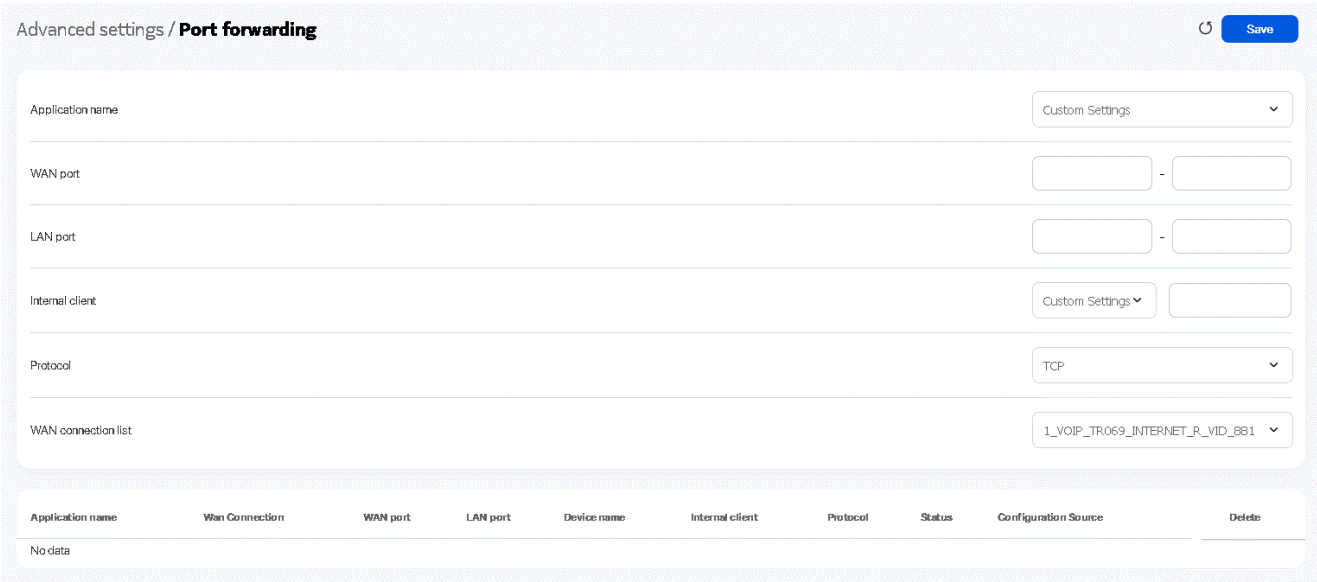
Sub-menu	Procedure
Port forwarding	7.34 “Configuring Port Forwarding” (p. 135)
Port triggering	7.35 “Configuring Port Triggering” (p. 136)
DDNS	7.36 “Configuring DDNS” (p. 138)
NTP	7.37 “Configuring NTP” (p. 139)
UPNP and DLNA	7.38 “Configuring UPNP and DLNA” (p. 140)

7.34 Configuring Port Forwarding

1

Click **Advanced settings→Port forwarding** in the left pane. The *Port forwarding* page displays.

Figure 7-44 Port forwarding page



2

Configure the following parameters:

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Table 7-27 Port forwarding parameters

Field	Description
WAN port	Enter the WAN port range.
LAN port	Enter the LAN port range.
Internal client	Select a connected device from the list and enter the associated IP address. The default is **Custom Settings**.
Protocol	Select the port forwarding protocol from the list: • **TCP** • **UDP** • **TCP/UDP**
WAN connection list	Select a WAN connection from the list. Only active devices are displayed in the list.

3

Click **Save**.

END OF STEPS

7.35 Configuring Port Triggering

1

Click **Advanced settings→Port triggering** in the left pane. The *Port triggering* page displays.

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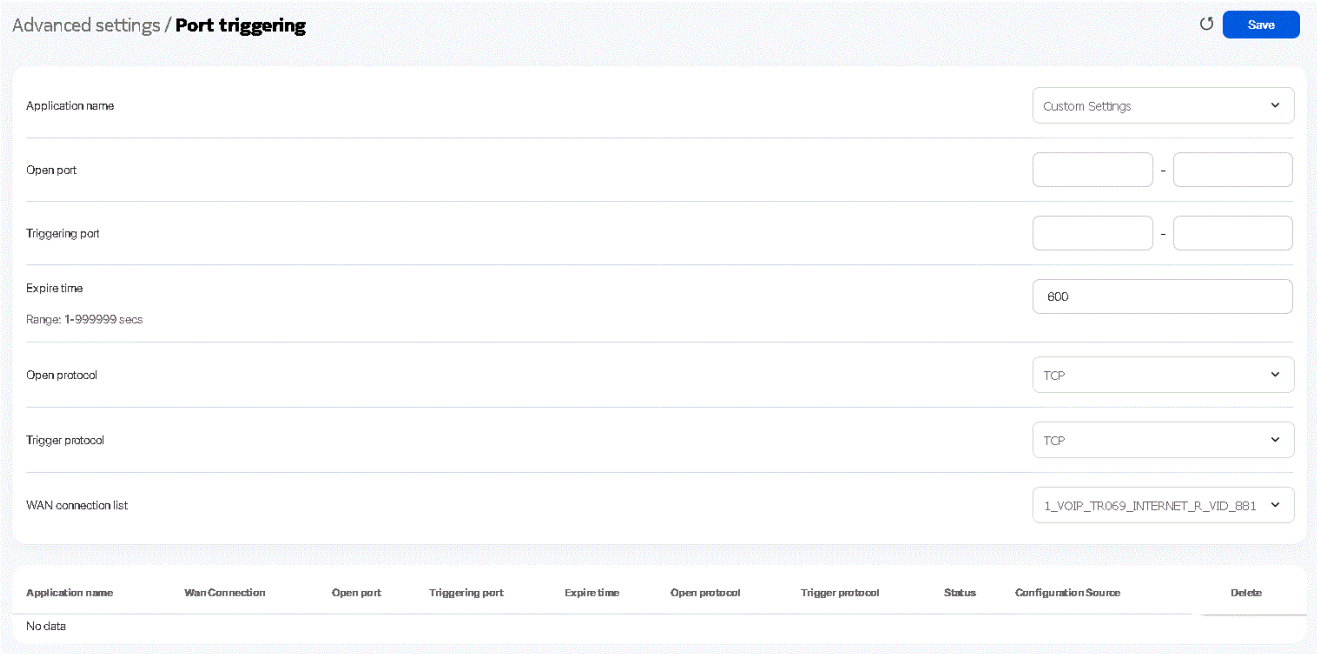
Figure 7-45 Port triggering page



2

Configure the following parameters:

Table 7-28 Port triggering parameters

Field	Description
Open port	Enter the open port range.
Triggering port	Enter the triggering port range.
Expire time Expiration time	Enter the expiration time in seconds. Allowed range: 1 to 999999 seconds
Open protocol	Select the open port protocol from the list: • **TCP** • **UDP** • **TCP/UDP**
Trigger protocol	Select the triggering port protocol from the list: • **TCP** • **UDP** • **TCP/UDP**
WAN connection list	Select a WAN connection from the list. Only active devices are displayed in the list.

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3

Click **Save**.

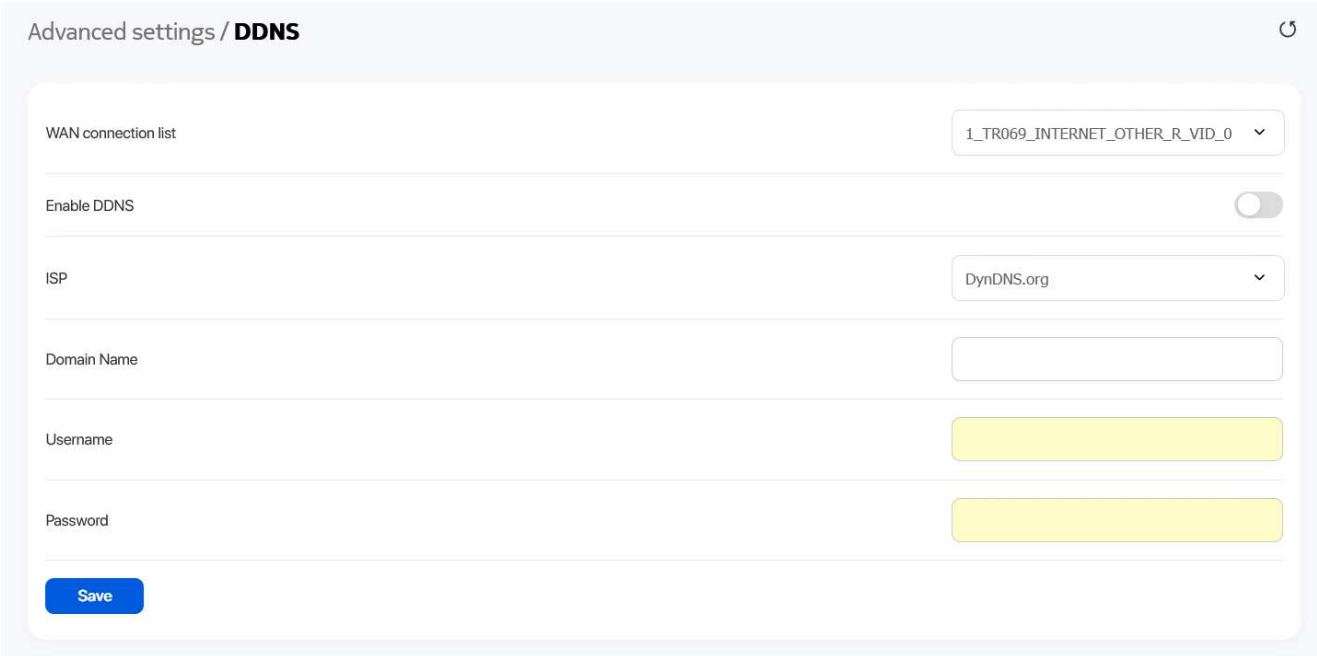
END OF STEPS

7.36 Configuring DDNS

1

Click **Advanced settings→DDNS** in the left pane. The *DDNS* page displays.

Figure 7-46 DDNS page



2

Configure the following parameters:

Table 7-29 DDNS parameters

Field	Description
WAN connection list	Select a WAN connection from the list.
Enable DDNS	Select the toggle button to enable DDNS on the WAN connection.
ISP	Select an ISP from the list.
Domain Name	Enter the domain name of the DDNS server.

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Table 7-29 DDNS parameters (continued)

Field	Description
Username	Enter the username.
Password	Enter the password.

3

Click **Save**.

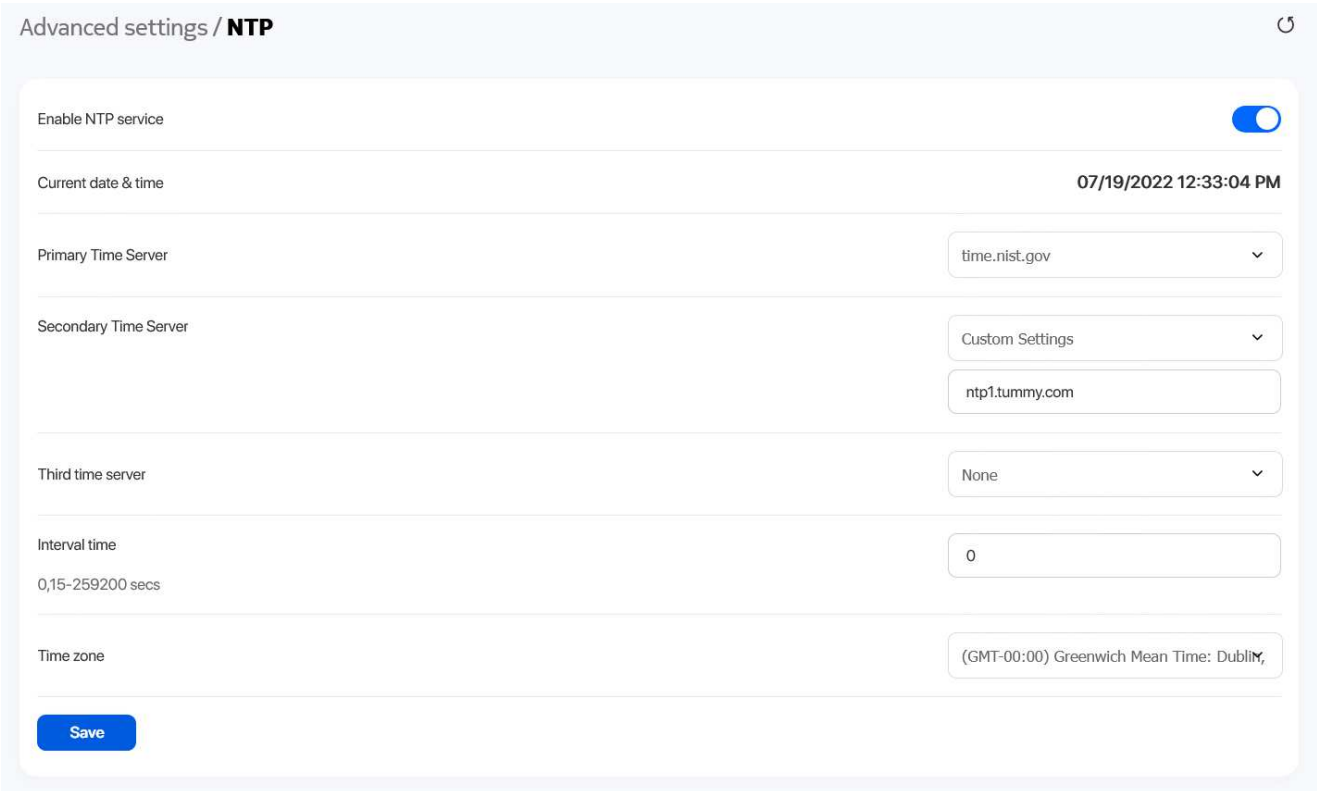
END OF STEPS

7.37 Configuring NTP

1

Click **Advanced settings→NTP** in the left pane. The *NTP* page displays.

Figure 7-47 NTP page



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2

Configure the following parameters:

Table 7-30 NTP parameters

Field	Description
Enable NTP service	Select the toggle button to enable the NTP service.
Current date & time	Displays the current local date and time.
Primary Time Server Secondary Time Server Third Time Server	Select a time server from the list or select **Custom Settings** and enter the IP address of the time server. You can select **None** if you do not want configure a secondary or tertiary time server.
Interval time	Enter the interval at which to get the time from the time server, in seconds. Allowed values: 0 to 259200 seconds
Time zone	Select the local time zone from the list.

3

Click **Save**.

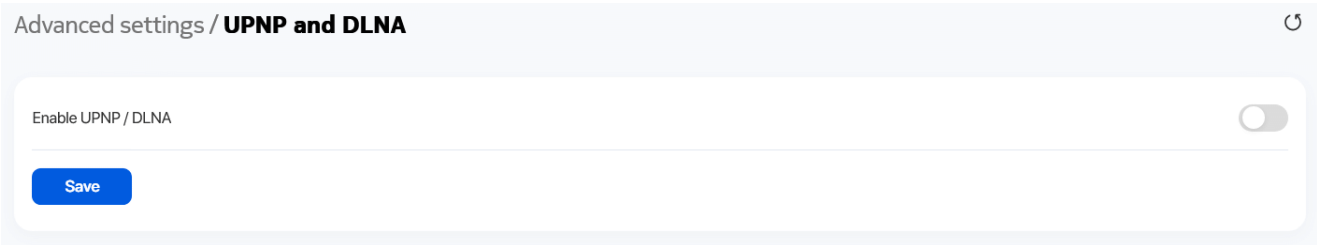
END OF STEPS

7.38 Configuring UPNP and DLNA

1

Click **Advanced settings→UPNP and DLNA** from the left pane. The *UPNP and DLNA* page displays.

Figure 7-48 UPNP and DLNA page



2

Select the **Enable UPNP/DLNA** toggle button to enable UPNP/DLNA. If this toggle button is not enabled, the UPNP and DLNA process will not start.

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3

Click **Save**.

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Maintenance

7.39 Overview

This section describes the maintenance procedures that can be performed from the following sub-menu options under the **Maintenance** menu:

Sub-menu	Procedure
Change password	7.40 “Configuring the Password” (p. 142)
Backup and restore	7.41 “Backing Up the Configuration” (p. 144) 7.42 “Restoring the Configuration” (p. 144)
Firmware upgrade	7.43 “Upgrading Firmware” (p. 145)
Diagnostics	7.44 “Diagnosing WAN Connections” (p. 147)
Log	7.45 “Viewing Log Files” (p. 150)

7.40 Configuring the Password

A password must adhere to the following password rules:

- The password may consist of uppercase letters, lowercase letters, digital numbers, and the following special characters ! # + , - / @ _ : =]

  The password may consist of uppercase letters, lowercase letters, digital numbers, and the following special characters ! # + , -. / : =@_
- The password length must be from 8 to 24 characters
- The first character must be a digital number or a letter
- The password must contain at least two types of characters: numbers, letters, or special characters
- The same character must not appear more than 8 times in a row

When the password meets the password rules, the application displays the message “Your password has been changed successfully”.

When the password does not meet the password rules, the application displays a message to indicate which password rule has not been followed, for example:

- The password is too short
- The password is too long
- The first character cannot be a special character
- There are not enough character classes

1

Click **Maintenance→Change password** in the left pane. The *Change password* page displays.

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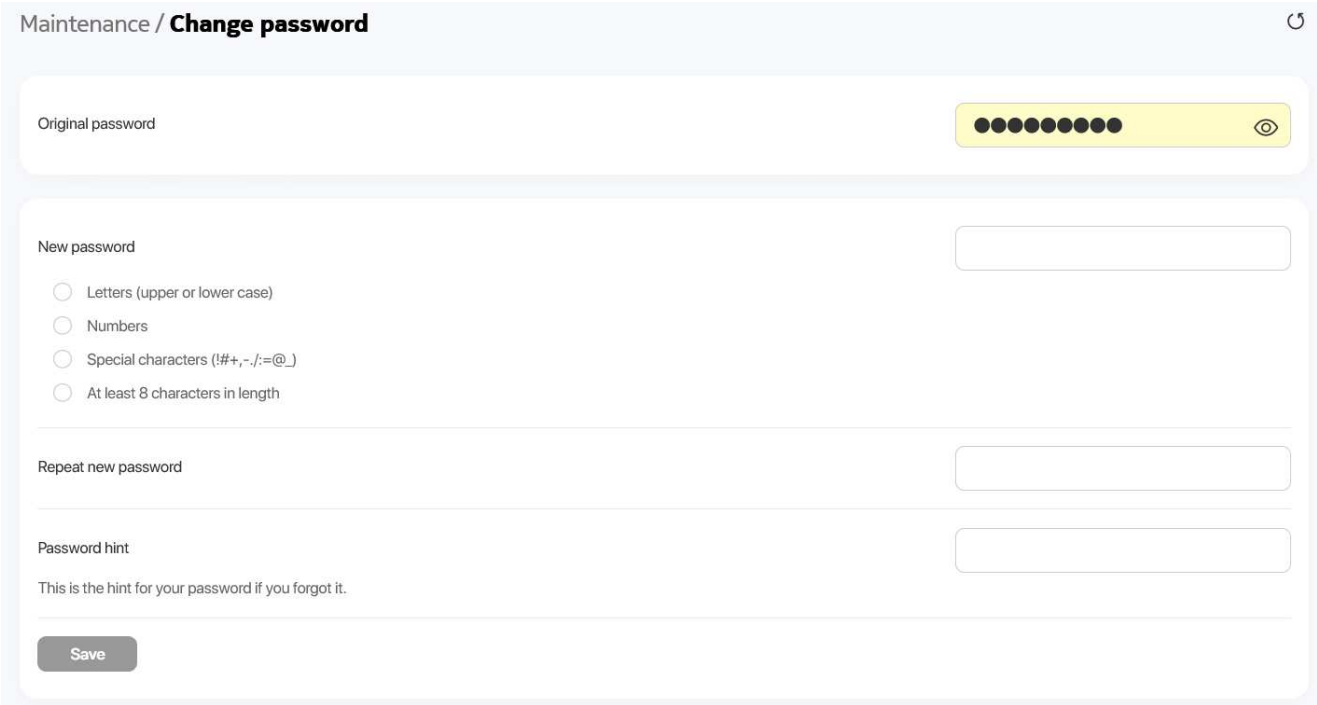
Figure 7-49 Change password page



2

Configure the following parameters:

Table 7-31 Change password parameters

Field	Description
Original password	Enter the current password.
New password	Enter the new password as per the password rules.
Repeat new password	Re-enter the new password (must match the password entered above exactly).
Password hint	Enter the password hint message.

3

Click **Save**.

END OF STEPS

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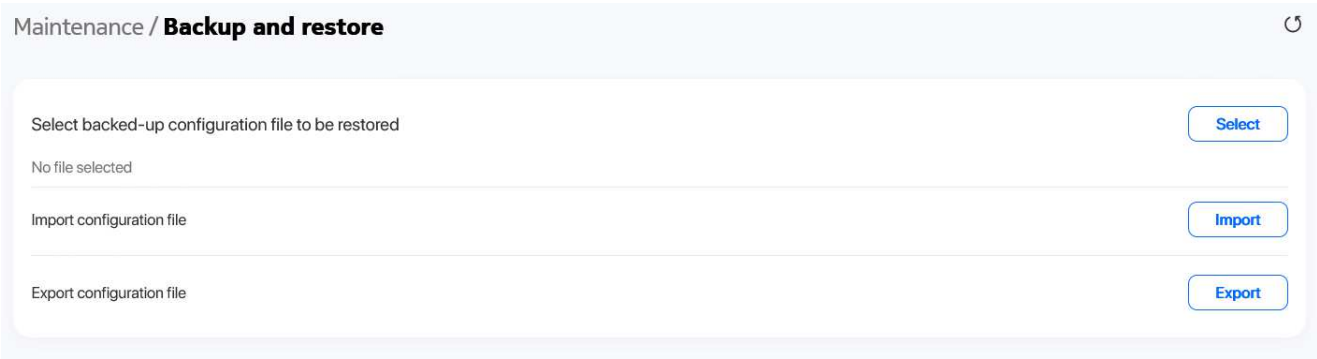
7.41 Backing Up the Configuration

1

Click **Maintenance→Backup and restore** in the left pane. The *Backup and restore* page displays.

Figure 7-50 Backup and restore page



2

Click **Export** to export the current Beacon configuration to your PC. The configuration filename is *config.cfg*.

END OF STEPS

7.42 Restoring the Configuration

Note: Ensure that you have a previously backed-up configuration file.

1

Click **Maintenance→Backup and restore** in the left pane. The *Backup and restore* page displays.

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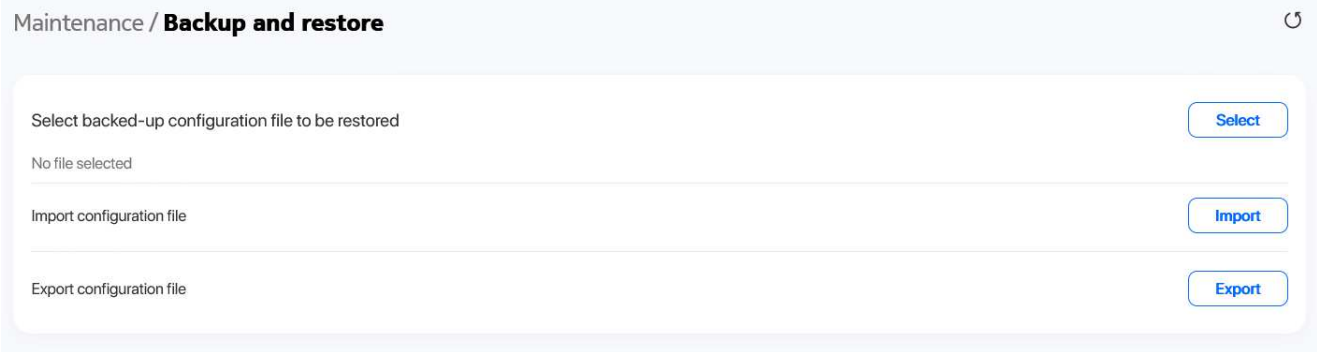
Figure 7-51 Backup and restore page



2

Click **Select** and select the previously backed-up configuration file.

3

Click **Import** to import the configuration file and restore the Beacon to the backed-up configuration.

A confirmation message displays after successful restore and the Beacon reboots.

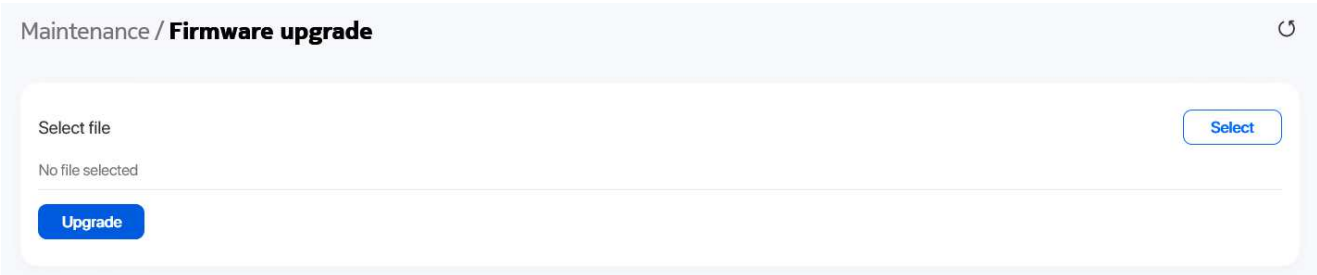
END OF STEPS

7.43 Upgrading Firmware

1

Click **Maintenance→Firmware upgrade** in the left pane. The *Firmware upgrade* page displays.

Figure 7-52 Firmware upgrade page



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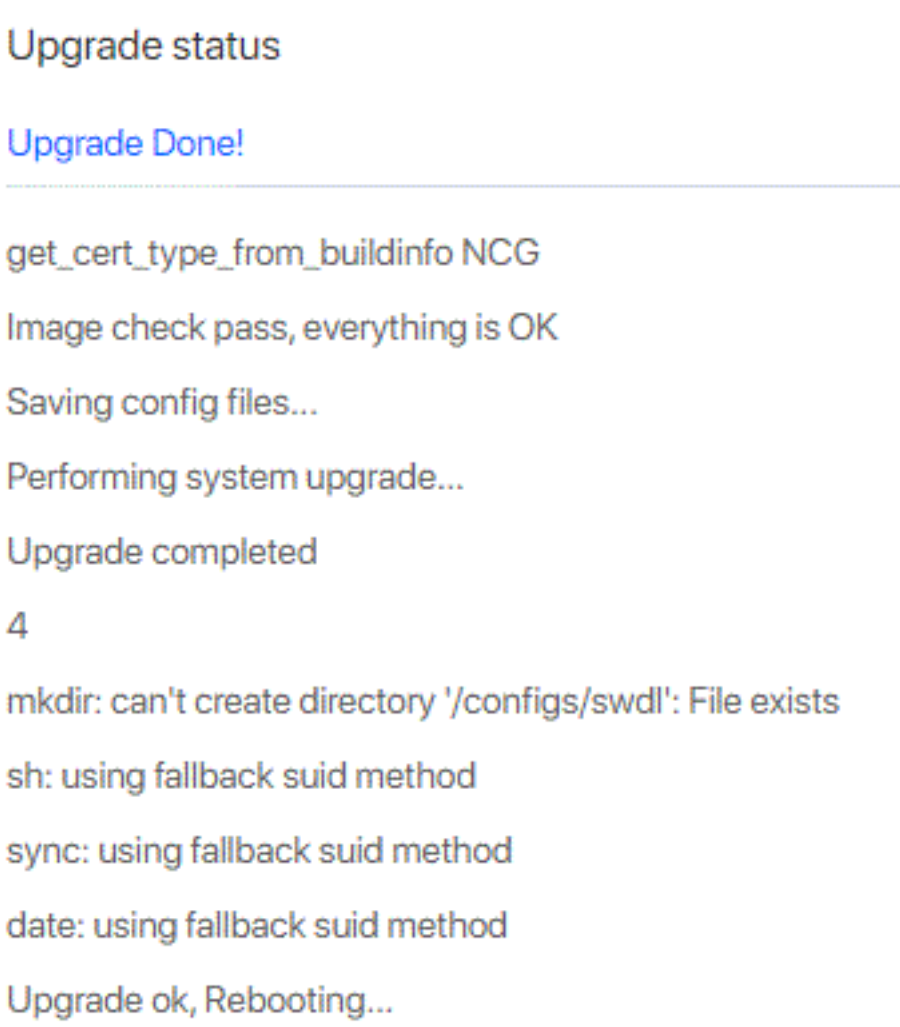
2

Click **Select** and select the file for firmware upgrade.

3

Click **Upgrade** to upgrade the firmware. The status displays in the *Upgrade status* panel. The device reboots after firmware upgrade and displays the login page.

Figure 7-53 Example of upgrade status messages



END OF STEPS

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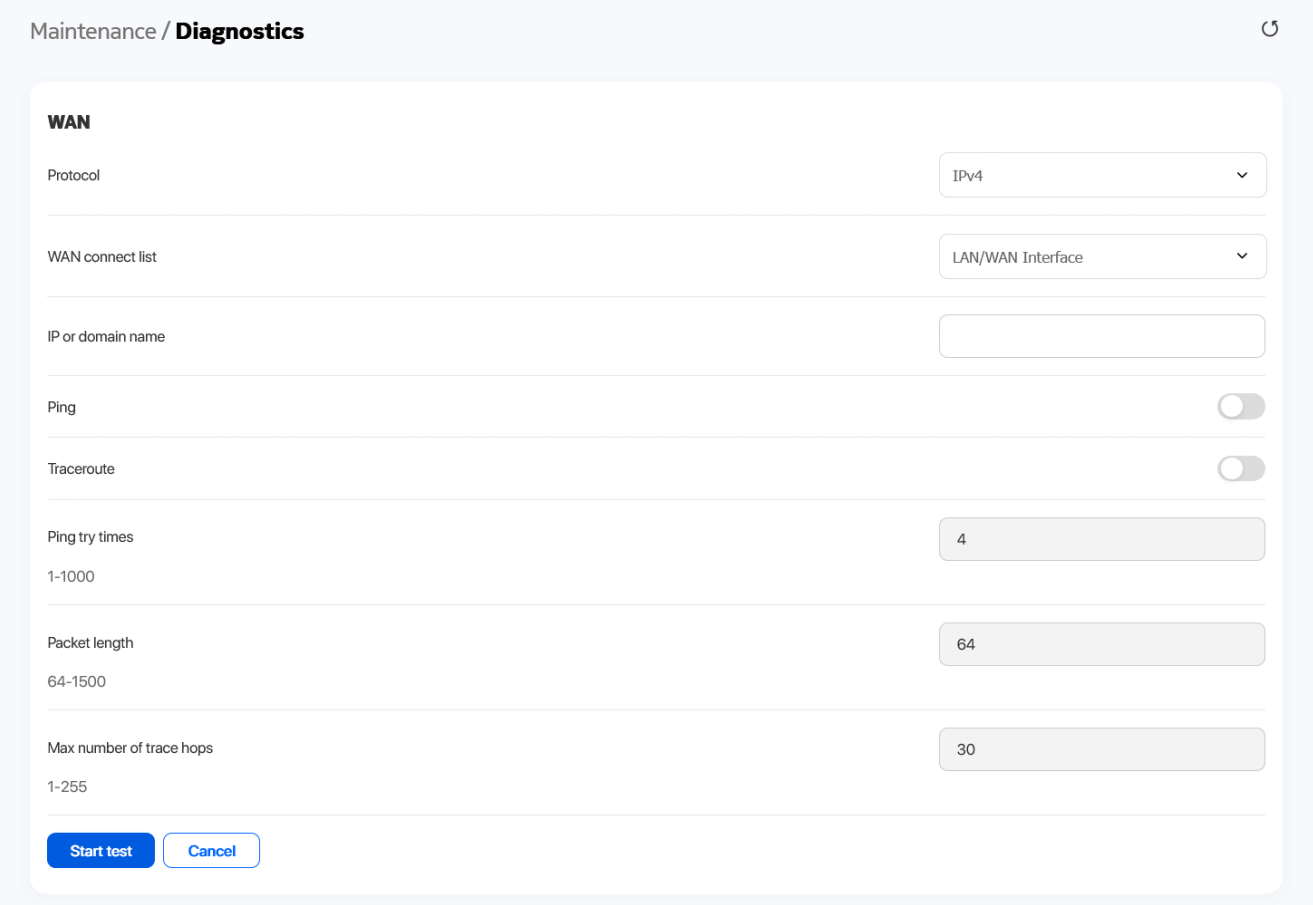
7.44 Diagnosing WAN Connections

1

Click **Maintenance→Diagnostics** in the left pane. The *Diagnostics* page displays.

Figure 7-54 Diagnostics page



2

Configure the following parameters.

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Table 7-32 Diagnostics parameters

Field	Description
Protocol	Select a protocol from the list: • **IPv4** • **IPv6**
WAN connection list	Select a WAN connection to diagnose from the list.
IP or domain name	Enter the IP address or domain name.
Ping	Select this toggle button to enable ping.
Traceroute	Select this toggle button to enable traceroute.
Ping try times	Enter the number of ping attempts. This field is enabled only if you select the **Ping** toggle button. Allowed values: 1 to 1000 Default value: 4
Packet length	Enter a packet length. Allowed values: 64 to 1500 Default value: 64
Max number of trace hops	Enter the maximum number of trace hops. This field is enabled only if you select the **Traceroute** toggle button. Allowed values: 1 to 255 Default value: 30

3

Click **Start test** to start the test. Results are displayed at the bottom of the page.

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Figure 7-55 Example of ping results

```
PING 192.168.18.10 (192.168.18.10): 64 data bytes
72 bytes from 192.168.18.10: seq=0 ttl=64 time=49.398 ms
72 bytes from 192.168.18.10: seq=1 ttl=64 time=75.414 ms
72 bytes from 192.168.18.10: seq=2 ttl=64 time=102.160 ms

72 bytes from 192.168.18.10: seq=3 ttl=64 time=123.691 ms



--- 192.168.18.10 ping statistics ---

4 packets transmitted, 4 packets received, 0% packet loss

round-trip min/avg/max = 49.398/87.665/123.691 ms
```

Figure 7-56 Example of traceroute results

```
traceroute to 192.168.18.10 (192.168.18.10), 30 hops max, 64 byte packets

1 192.168.18.10  52.241 ms  5.023 ms  3.396 ms
```

END OF STEPS

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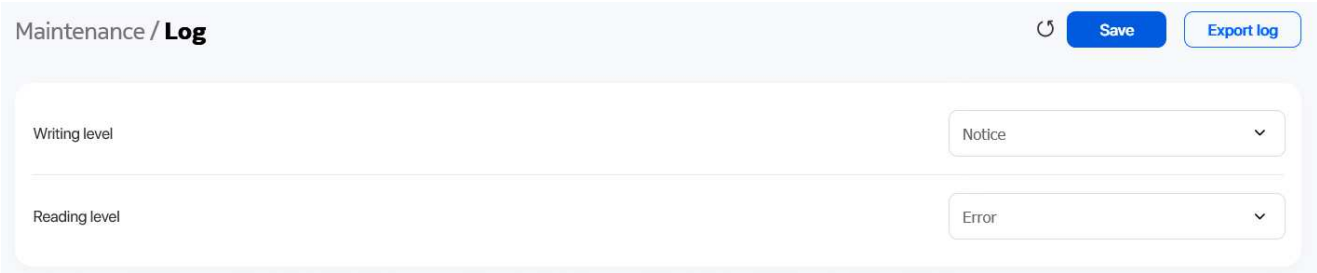
7.45 Viewing Log Files

1

Click **Maintenance→Log** in the left pane. The *Log* page displays.

Figure 7-57 Log page



2

Configure the following parameters:

Table 7-33 Log parameters

Field	Description
Writing level	Select a writing level from the list to determine the event types recorded in the log file: • **Emergency** • **Alert** • **Critical** • **Error** • **Warning** • **Notice** • **Informational** • **Debug**
Reading level	Select a reading level from the list to determine the event types displayed in the log file: • **Emergency** • **Alert** • **Critical** • **Error** • **Warning** • **Notice** • **Informational** • **Debug**

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3

Click **Save**. The log file is displayed at the bottom of the page.

4

Click **Export log** to download the log file to your PC. The filename of the log is *onu_info.log*.

END OF STEPS

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Troubleshooting

7.46 Troubleshooting counters

The Troubleshooting counters feature enables service providers and end users to monitor the performance of their broadband connection.

Tests are run to retrieve upstream and downstream throughput, latency, and DNS response time. The Troubleshooting counters page also displays upstream and downstream packet loss and Internet status.

1

Click **Troubleshooting→Troubleshooting counters** in the left pane. The *Troubleshooting counters* page displays.

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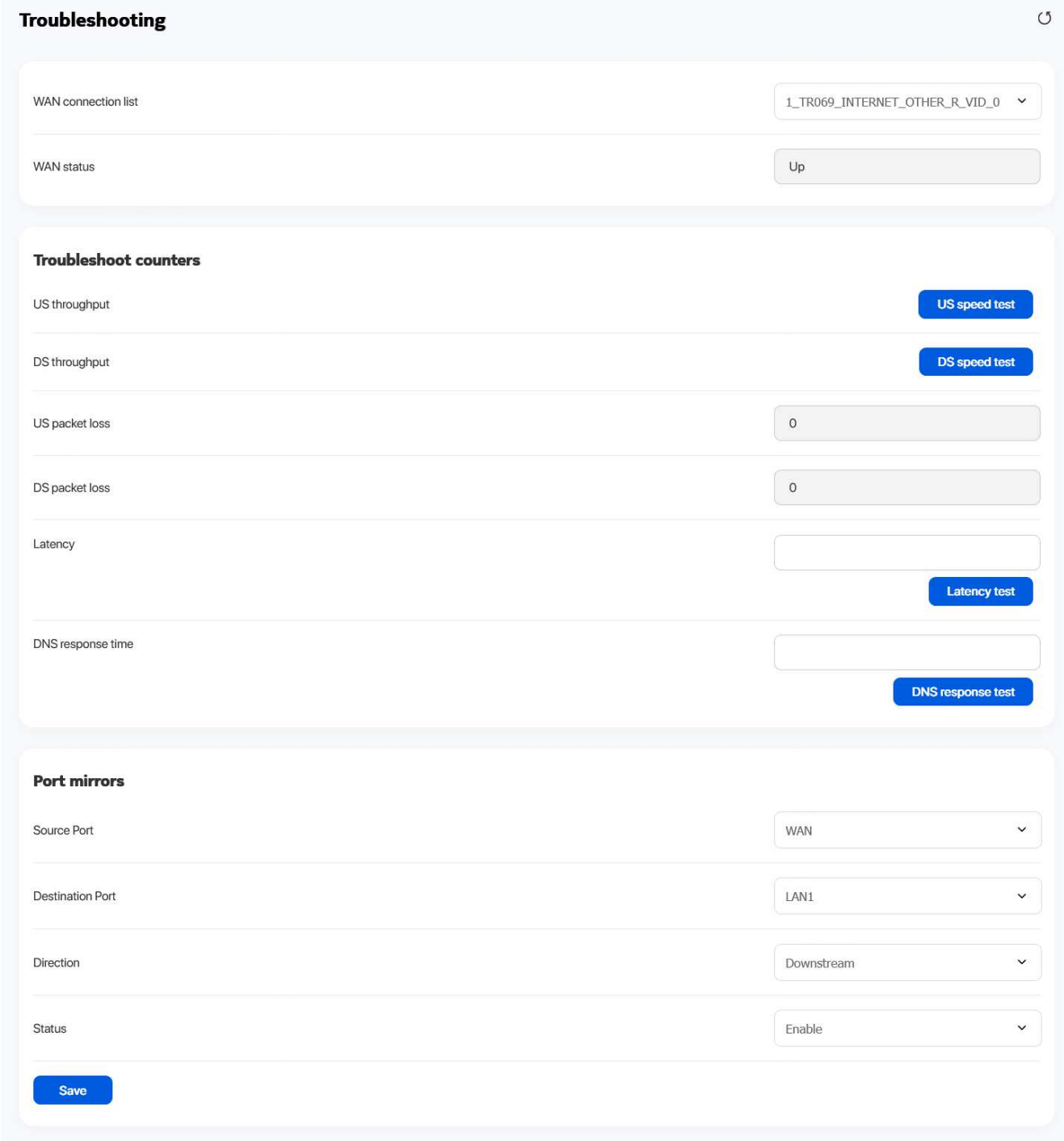
Figure 7-58 Troubleshooting counters page



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2

Configure the following parameters:

Table 7-34 Troubleshooting counters parameters

Field	Description
WAN Connection List	Select a WAN connection from the list.
WAN Status	Displays the WAN status: • Up • Down
Troubleshoot counters	
US throughput US throughput snapshot	This test is used to determine the upstream throughput/speed. Click **US speed test** to specify the time for the upstream test. Click **Take snapshot** to take a snapshot of the time for the upstream test.
DS throughput DS throughput snapshot	This test is used to determine the downstream throughput/speed. Click **DS speed test** to specify the time for the downstream test. Click **Take snapshot** to take a snapshot of the time for the downstream test.
US packet loss	Displays the number of upstream packages lost.
DS packet loss	Displays the number of downstream packages lost.
Latency	This test is used to determine the lowest round-trip time in milliseconds by pinging the target server multiple times. Click **Latency test** to specify the time for the test.
DNS response time	This test is used to determine the lowest round-trip time in milliseconds by sending a request to the target DNS server. Click **DNS response test** to specify the time for the test.
Port mirrors	
Source port	Select a source port for port mirroring from the list.
Destination port	Select a destination port for port mirroring from the list.
Direction	Select a direction from the list: • **Upstream** • **Downstream**
Status	Select a port mirroring status from the list: • **Enable**

3

Click **Save**.

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