



# FortiExtender Release Notes

**VERSION v3.0.2**

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# Change Log

Date	Change Description
2016-11-08	Updated Fortinet Support links to include file path.
2016-10-28	Updated from v3.0.1 to v3.0.2 for the third release. The branch point is build 0089.
2016-08-17	Updated from v3.0.0 to v3.01 for the second release. The branch point is build 0084.
2016-04-06	Initial Release.

# Introduction

This document provides the following information for FortiExtender build 0089:

- [Supported Models](#)
- [What's new in FortiExtender v3.0.2](#)
- [Model Specific New Features](#)
- [Special Notices](#)
- [Upgrade Information](#)
- [Product Integration and Support](#)
- [Resolved Issues](#)
- [Known Issues](#)

For more information on upgrading your FortiExtender device, see the *FortiExtender Administration Guide*.

## Supported Models

FortiExtender supports the following models on GA build 69 or above: FEXT-20D, FEXT-40D-INTL, and FEXT-40D-NAM.



The built-in modems residing in FEXT-40D-NAM and FEXT-40D-INTL can also be upgraded with compatible operator specific modem firmware.

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## What's new in FortiExtender v3.0.2

The following is a list of features and enhancements that are supported in 3.0.2 similar to the 3.0.1 GA release:

- **Enhanced FortiExtender CLI/ GUI** to help improve configuration and diagnose commands. The following commands are currently supported:
  - Configure FortiExtender networking parameters with the following commands:

```
config connection addr-mode static| dhcp
config connection static-ip-addr x.x.x.x
config connection static-ip-netmask x.x.x.x
config connection static-ip-gw x.x.x.x
```
  - Configure FortiExtender networking parameters with the following command:

```
config connection discovery-type auto| static | broadcast
```
  - Show the system version with the following command:

```
get system version
```
  - Show the FortiGate connection status with the following command:

```
get extender status
```
  - Show the modem status with the following command:

- ```
get modem status
```
- Show system status with the following command:
 

```
get system status
```

- The FortiExtender 20-D GUI home page is displayed below:

- The FortiExtender 20-D GUI status page is displayed below:

| Manufacture | Novatel Wireless Incorporated |
| Product | Novatel Wireless 4G |
| Model | USB551L |
| Revision | 1.48 SVN 11 [2012-04-30 18:44:34] |
| IMSI | 311480057536097 |
| PIN Status | READY |
| Service | LTE |
| Signal Strength(%) | 57 |
| Signal Strength(dBm) | -78 |
| Connection Status | disabled |
| Profile 1 | vzwims |
| Profile 2 | vzwadmin |
| Profile 3 | VZWINTERNET |
| Profile 4 | vzwapp |
| NAI(Network Access Identifier) | 4084973416@vzims.com |
| User Profile | 0 Enabled |
| Primary HA | 255.255.255.255 |
| Secondary HA | 255.255.255.255 |

- The new FortiExtender-40D GUI home page is displayed below:

The screenshot displays the FortiExtender-40D GUI home page. The top navigation bar includes 'System', 'Modem', 'Help', and 'admin'. The main content area is organized into several panels:

- General:** Host Name (FEXT40D), Serial Number (FX04DN4N16000233), Firmware Version (FortiExtender-40D v3.0.build0089.161026 (Interim)), System Time (Fri Oct 28 20:57:55 UTC 2016), Uptime (16 min(s)).
- Device Info:** IP Address (192.168.10.111), Network Mask (255.255.255.0), Gateway IP (192.168.10.99), IP Address (192.168.10.99), Device Name (FGT60D4613057602), State (connected).
- Hardware:** CPU 5.0% and Memory 15.0% gauges.
- Network Configuration:** Address Mode (Static/DHCP), Default Local IP Address (192.168.1.2), Default Local Network Mask (255.255.255.0), Default Gateway IP (192.168.1.1).
- CAPWAP Configuration:** Discovery Type (Auto/Static/Broadcast), Extender Controller Port (5246), Extender Data Port (25246), FortiGate IP (192.168.1.1).
- Firmware Upgrade:** Step 1: Firmware (Extender, Sim1, Sim2), Step 2: File (Choose File).

- The new FortiExtender-40D status page is displayed below:

The screenshot displays the FortiExtender-40D Modem Status page. The table below provides detailed information about the embedded Sierra Wireless modem:

| Field                          | Value                                                           |
|--------------------------------|-----------------------------------------------------------------|
| Manufacture                    | Sierra Wireless, Incorporated                                   |
| Product                        | Sierra Wireless Minipci modem                                   |
| Model                          | EM7355                                                          |
| Revision                       | GENEU-4G_005.026_000;SWI9X15C_05.05.58.00 r27038 carmd-fwbuild1 |
| IMSI                           | 310410596203412                                                 |
| PIN Status                     | N/A                                                             |
| Service                        | WCDMA                                                           |
| Signal Strength(%)             | -61                                                             |
| Signal Strength(dBm)           | -61                                                             |
| Connection Status              | CONNECTED                                                       |
| Profile 1                      |                                                                 |
| Profile 2                      |                                                                 |
| Profile 3                      |                                                                 |
| Profile 4                      |                                                                 |
| NAI(Network Access Identifier) | N/A                                                             |
| User Profile                   | 0 Disabled                                                      |
| Primary HA                     | 0.0.0.0                                                         |

## Model Specific New Features

### FortiExtender-40D

The FortiExtender-40D is a FortiExtender model with an embedded Sierra Wireless modem and has the following capabilities:

- LTE support
- Global operator support with Firmware upgrades
- Dual SIM function support
- Modem Firmware upgrade and switch support via GUI/CLI only

- Individual SIM slot modem firmware and PRL load only via GUI and CLI commands
- Dual SIM failover support
- SIM hot plug support
- Supports all the same Fortigate configurations and diagnose commands

For the FortiExtender-40D, the following FortiExtender CLI commands are supported:

- CLI command to config the max time to elapse before system reboot during call connection
- CLI command to set the active SIM slot
- CLI command to set modem operating mode

## Noteworthy Improvements over FortiExtender 3.0.1

There are several improvements in FortiExtender 3.0.2 in comparison with the previous version of FortiExtender 3.0.1.

These include the following improvements for the FortiExtender-40D:

- Reports the condition of SIMs that aren't detected to the FortiGate.
- Handles payloads larger than the Ethernet MTU received via LTE WAN interface.
- Reports the active SIM's IMSI number and its corresponding SIM slot number.

There have also been improvements for the FortiExtender-20D:

- Handles payloads larger than the Ethernet MTU received via LTE WAN interface.



# Special Notices

This section highlights some of the operational changes that administrators should be aware of in v3.0.2.

## FortiExtender-20D

FortiExtender-20D requires an external USB modem from the FortiExtender-20D supported modem list on ["Product Integration and Support"](#) on page 1.

## FortiExtender-40D-NAM

FortiExtender-40D-NAM has a built-in Sierra internal modem EM7355 for North America.

FortiExtender-40D-NAM is capable of holding two SIM cards, but can only use one SIM card at a time. The FortiExtender-40D-NAM is also capable of working with just one SIM card inserted in either SIM card slot.

For faster deployment options, the FortiExtender-40D-NAM model stores two modem firmwares in its flash which can be used if compatible with any of the SIM cards inserted.

See the details below:

- Generic modem software capable of working on AT&T and T-Mobile Networks mapped to SIM slot 1.
- Verizon specific software capable of working only on Verizon Network mapped to SIM slot 2.
- For operating on SPRINT or any other Canadian Networks the modem has to be reflashed with compatible modem firmware and PRI file onto the corresponding SIM slot.

The FortiExtender-40D-NAM will try to activate the Internet connection with SIM1 using one of the compatible modem firmwares stored on the flash. If SIM1 fails, then it will use SIM2 by flashing the modem firmware from secondary flash partition (if SIM2 requires a different modem firmware).

## FortiExtender-40D-INTL

FortiExtender-40D-INTL has a built in Sierra internal modem EM7305 for countries outside of North America.

FortiExtender-40D-INTL is capable of holding two SIM cards, but can only use one SIM card at a time. The FortiExtender-40D-INTL is also capable of working with just one SIM card inserted in either SIM card slot.

For faster deployment options, the FortiExtender-40D-INTL model stores two modem firmwares in its flash which can be used if compatible with any of the SIM's inserted.

See the details below:

- Generic modem software networks like SFR, FREE, 02, and etc mapped to SIM slot 1.
- Vodaphone Specific software capable of working on only Vodaphone Network mapped to SIM slot 2.

- For operating on any other ISP networks the modem has to be reflashed with compatible modem firmware and PRI file onto the corresponding SIM slot.

The FortiExtender-40D-INTL will try to activate the Internet connection with SIM1 using one of the compatible modem firmwares stored on the flash. If SIM1 fails, then it will use SIM2 by flashing the modem firmware from secondary flash partition (if SIM2 requires a different modem firmware).

## Modem firmware compatibility

The modem firmware running on the Sierra built-in internal modem must be compatible with the SIM card inserted. Often this requires that you program it with the compatible operator specific modem firmware.

## Access Point Name

Access Point Name configuration for the FEXT models is available from the FortiGate CLI and GUI.

# Upgrade Information

## Upgrading to FortiExtender v3.0.2

FortiExtender-20D and FortiExtender-40D are capable of operating on v3.0.0 GA build 69 and above.

The built-in modems residing in FEXT-40D-NAM and FEXT-40D-INTL can also be upgraded with compatible operator specific modem firmware.

## Firmware upgrade procedure

### Firmware Information:

The Sierra EM7355/EM7305 Modem Software comprises of two files:

- A PRL file with the file name ending ".nvu"
- A firmware file with the ending ".cwe"

Both files are required to be flashed onto the Modem to connect to the operator of your choice.

Upgrade instructions and the MODEM firmware have been uploaded to [Fortinet Customer Support site](#) in the download directory under: ".../FortiGate/v5.00/5.4/Sierra-Wireless-3G4G-MODEM-Upgrade/".

### Firmware upgrade via the FortiExtender GUI:

1. Login to the web-based GUI of the FortiExtender with the default credentials. For the username enter *admin* and leave the password blank.
2. In the FortiExtender GUI from in the bottom right corner, click **Choose Firmware** and select the corresponding SIM1 firmware from the dropdown menu and flash it. I.e. the firmware ending in ".cwe".
3. Select the corresponding SIM1 PRL, i.e the ".nvu" file from the list (as per ISP).
4. After the upgrade is completed, click on the **RESTART** button and confirm with a **YES**.
5. This procedure can take 3 to 5 minutes to finish. Wait for the reboot and make sure the SIM1 slot is holding the SIM.
6. If you are using two SIM cards, repeat these instructions for your second SIM card by selecting SIM2 PRL and SIM2 firmware options.

## Firmware image checksums

The MD5 checksums for all Fortinet software and firmware releases are available at the Fortinet Customer Service & Support portal located at <https://support.fortinet.com>. After logging in select **Download > Firmware Image Checksums**, enter the image file name including the extension, then select **Get Checksum Code**.

# Product Integration and Support

## Modes of operation

FortiExtender supports Connected UTM mode of operation only.

### Connected UTM mode

This is the default mode of operation where the FortiGate provides centralized management of the FortiExtender infrastructure. In this mode the device discovers the FortiGate using the CAPWAP protocol and WAN traffic is tunneled to the FortiGate's wireless WAN virtual interface. For connect UTM mode, FortiGates must run FortiOS v5.2.0 or later.

## FortiExtender v3.0.2 support

The following table lists FortiExtender product integration and support information.

| FortiExtender 3.0.2 Support    |                                                                               |
|--------------------------------|-------------------------------------------------------------------------------|
| <b>Web Browsers</b>            | Microsoft Internet Explorer versions 10 and 11                                |
|                                | Mozilla Firefox version 33                                                    |
|                                | Other web browsers may function correctly, but are not supported by Fortinet. |
| <b>FortiOS/FortiOS Carrier</b> | v5.2.0 and later                                                              |
| <b>FortiManager</b>            | v5.0.7 and later                                                              |
|                                | v5.2.0 and later                                                              |

## USB modem support

The following tables list USB modems that are supported for various models.

### FortiExtender-20D

The following table lists USB modems that are supported by the FortiExtender-20D:

| Brand   | Modem Model | Operator / Area           |
|---------|-------------|---------------------------|
| Netgear | 340U        | AT&T (USA)                |
| Sprint  | 341U        | Sprint (USA)              |
| Sierra  | 313         | AT&T (USA)                |
| Pantech | 295         | Verizon                   |
| ZTE     | 820B        | Claro (Puerto Rico)       |
| ZTE     | MF683       | T-Mobile                  |
| Novatel | MF620L      | Verizon                   |
| Huawei  | E398        | Any GSM/LTE               |
| Huawei  | UMG1691     | T-Mobile                  |
| Huawei  | E173        | Any GSM, 3G, HSPA network |
| Huawei  | E3276       | Any GSM/LTE               |
| TPLINK  | MA260       | Any GSM/3G                |
| TPLINK  | MA180       | Any GSM/3G                |
| ZTE     | K3520-Z     | HSDPA, WCDMA              |
| ZTE     | K3563-Z     |                           |
| ZTE     | K3565-Z     | HSDPA 3.6/0.38            |
| ZTE     | K3570-Z     | HSDPA 3.6/0.38            |
| ZTE     | K3571-Z     | HSDPA 7.2/0.38            |
| ZTE     | K4505-Z     | HSPA+ 21.6/5.76           |
| ZTE     | K5006-Z     | LTE CAT3                  |
| ZTE     | MF30        | HSDPA 7.2 HSUPA 5.76      |
| ZTE     | MF60        | HSPA+ 21.6/5.76           |
| ZTE     | MF100       | HSDPA 3.6/0.38            |
| ZTE     | MF110       | HSDPA 7.2 HSUPA 5.76      |

| Brand  | Modem Model | Operator / Area      |
|--------|-------------|----------------------|
| ZTE    | MF112       | HSDPA 7.2 HSUPA 2.0  |
| ZTE    | MF170       | HSDPA 3.6/0.38       |
| ZTE    | MF190       | HSDPA 7.2 HSUPA 2.0  |
| ZTE    | MF626       | HSDPA 3.6/0.38       |
| ZTE    | MF627       | HSDPA 7.2 HSUPA 5.76 |
| ZTE    | MF632       | HSDPA 7.2 HSUPA 3.6  |
| ZTE    | MF633       | HSDPA 7.2 HSUPA 5.76 |
| ZTE    | MF636       | HSDPA 7.2 HSUPA 5.76 |
| ZTE    | MF637       | HSDPA 7.2 HSUPA 5.76 |
| ZTE    | MF637U      | HSDPA 7.2 HSUPA 5.76 |
| ZTE    | MF662       | HSPA+ 21.6/5.76      |
| ZTE    | MF668       | HSPA+ 21.6/5.76      |
| ZTE    | MF668A      | HSPA+ 21.6/5.76      |
| ZTE    | MF669       | HSPA+ 21.6/5.76      |
| ZTE    | MF680       | DC-HSPA+ 42.2/5.76   |
| ZTE    | MF683       | DC-HSPA+ 42.2/5.76   |
| ZTE    | MF820D      | LTE CAT3             |
| ZTE    | MF821       | LTE CAT3             |
| ZTE    | MF821D      | LTE CAT3             |
| ZTE    | MF880       | LTE CAT3             |
| ZTE    | MT505UP     | HSUPA                |
| ZTE    | MT512HS     | HSDPA 7.2 HSUPA 3.6  |
| ZTE    | MT8205      | LTE CAT3             |
| HUAWEI | B81         | HSDPA 7.2 HSUPA 5.76 |

| Brand  | Modem Model | Operator / Area      |
|--------|-------------|----------------------|
| HUAWEI | D33HW       | HSPA+ 21.6/5.76      |
| HUAWEI | D41HW       | DC-HSPA+ 42.2/11.5   |
| HUAWEI | E153        | HSDPA 3.6/0.38       |
| HUAWEI | E156G       | HSDPA 3.6/0.38       |
| HUAWEI | E171        | HSDPA 7.2 HSUPA 5.76 |
| HUAWEI | E173        | HSDPA 7.2 HSUPA 5.76 |
| HUAWEI | E180V       | HSDPA 7.2 HSUPA 5.76 |
| HUAWEI | E200        | HSDPA 3.6            |
| HUAWEI | E261        | HSDPA 7.2 HSUPA 5.76 |
| HUAWEI | E270+       | HSPA+ 21.6/5.76      |
| HUAWEI | E303F       | HSPA+ 21.6/5.76      |
| HUAWEI | E352        | HSPA+ 21.6/5.76      |
| HUAWEI | E353W-u1    | HSPA+ 21.6/5.76      |
| HUAWEI | E367        | DC-HSPA+ 28.8/5.76   |
| HUAWEI | E372        | DC-HSPA+ 42.2/5.76   |
| HUAWEI | E389        | LTE CAT3             |
| HUAWEI | E392        | LTE CAT3             |
| HUAWEI | E398        | LTE CAT3             |
| HUAWEI | E398u-15    | LTE CAT3             |
| HUAWEI | E1552       | HSDPA 3.6/0.38       |
| HUAWEI | E1690       | HSDPA 7.2 HSUPA 5.76 |
| HUAWEI | E1691       | HSDPA 7.2 HSUPA 5.76 |
| HUAWEI | E1692       | HSDPA 7.2 HSUPA 5.76 |
| HUAWEI | E1731Bu-1   | HSPA+ 21.6/5.76      |

| Brand  | Modem Model    | Operator / Area      |
|--------|----------------|----------------------|
| HUAWEI | E1762          | HSDPA 7.2 HSUPA 5.76 |
| HUAWEI | E1800          | HSDPA 7.2 HSUPA 5.76 |
| HUAWEI | E1815          | HSPA+ 21.6/5.76      |
| HUAWEI | E1820          | HSPA+ 21.6/5.76      |
| HUAWEI | E1823          | HSPA+ 21.6/5.76      |
| HUAWEI | E3131s-2       | HSPA+ 21.6/5.76      |
| HUAWEI | EC122          | CDMA2000             |
| HUAWEI | EC176-2        | CDMA EV-DO Rev.A     |
| HUAWEI | EC178          | CDMA EV-DO Rev.A     |
| HUAWEI | EC189          | HSDPA 7.2 HSUPA 5.76 |
| HUAWEI | EC306          | HSPA+ 21.6/5.76      |
| HUAWEI | EC1270         | DC-HSPA+ 42.2/11.5   |
| HUAWEI | Speedstick LTE | HSDPA 3.6/0.38       |
| HUAWEI | E3372          | LTE CAT4             |



# Resolved Issues

The following issues have been fixed in version v3.0.2. For inquiries about a particular bug, please contact [Customer Service & Support](#).

| Bug ID  | Description                                                                                                                                         |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| N/A     | [20D] Huawei E3372's reported modem bugs were resolved.                                                                                             |
| N/A     | [20D] Novatel 620's reported modem bugs were resolved.                                                                                              |
| N/A     | [40D] SPRINT certification support.                                                                                                                 |
| 0386466 | [40D] The report of a FortiGate with an incompatible modem firmware (or a mismatch between the firmware and PRI pairs for syslogging) now resolved. |
| 0386702 | [40D] Fixed issues with the Modem Manager regarding handling modem firmware upgrades.                                                               |
| 0378992 | [40D] CLI bug fixes for modem firmware upgrades and displaying of the currently stored modem firmwares on the flash.                                |
| 372352  | [40D] Signal LED synchronization.                                                                                                                   |
| N/A     | [20D] [40D] Minicom serial utility bugs were resolved.                                                                                              |
| N/A     | [20D] [40D] Improvements in handling payloads larger than the Ethernet MTU received via LTE WAN interface.                                          |

# Known Issues

The following issues have been identified in v3.0.2. For inquiries about a particular bug, please contact [Customer Service & Support](#).

## FortiExtender 40D:

| Bug ID  | Description                                                                                                                                                               |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| N/A     | [40D] The 40D Sprint Cert is missing fields like DRC, PN code, PN offset, and etc in the EVDO AT command output.                                                          |
| 0381291 | [40D ]The FortiExtender may not get connected during repeated dial/ hangups and commands executed manually, such as stopping LTE sessions during hangup, might take time. |
| 0378848 | [40D] Changing from CAPWAP to VLAN mode and vice-versa requires a reboot.                                                                                                 |
| N/A     | [40D] If the firmware download fails, manual recovery may be necessary.                                                                                                   |
| N/A     | [40D] The physical insertion of a SIM card requires a FortiExtender power cycle.                                                                                          |

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