

Battery Backup Unit (BBU)

This reference provides technical specifications and functional details for the Battery Backup Unit (BBU).

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Battery Backup Units

The integrated modular battery backup unit (BBU) is a smart charging and monitoring system for the IR8100 router.

- Supplies power to the router when AC power is turned off.
- Allows graceful shutdown of router events based on configured voltage level thresholds.
- Supports up to three BBU units installed on the system.

Battery Backup Unit reference information

The BBU Product ID (PID) for the IR8100 is CGR-BATT-4AH.

BBU mode configurations

The BBU (Battery Backup Unit) mode determines whether the router uses battery power when AC power is unavailable. Disabling or enabling the BBU affects battery life and system operation.

- Disabling the BBU preserves battery life during storage, shipping, or transportation.
- Disabling the BBU allows safe battery replacement in an operating router.

BBU mode configuration details

The BBU automatically supplies power to the router when AC power is not available. You can enable or disable the BBU as needed.

Note When the BBU is disabled by the `request platform hardware battery disable` command, the router will shut down if not powered by AC power. The BBU cannot be charged while disabled.

Enable BBU

To enable the BBU in the router, follow these steps.

Procedure

Step 1 Use the **enable** command to enable the router and enter the privileged EXEC mode.

Example:

```
Router> enable
```

Step 2 Use the **request platform hardware battery enable** command to enable the battery.

Example:

```
Router# request platform hardware battery enable
```

Step 3 Confirm the action when prompted.

Example:

```
Proceed with enabling battery?[confirm]
Battery enabled.
Router# Aug 16 22:26:01.473: %BBU-5-CLI_OK: R0/0: bbu: Command Battery enabled
```

Step 4 Use the **show platform hardware battery unit** command to check the BBU status.

Example:

```
Router# show platform hardware battery unit
Battery pack state: Operational
Battery unit                 0           1           2
---------------------------+-----------+-----------+-----------
Status ...................          Idle        Idle        Full
Battery Mode .............       enabled     enabled     enabled
Charge level .............           90%         91%         96%
Capacity Remaining   (mAh)          5235        5225        5545
Full Charge Capacity (mAh)          5739        5739        5739
Voltage ............. (mV)         11736       11714       11869
Current ............. (mA)             0           0           0
Temperature ......... ('C)            30          31          31
Firmware version .........          1224        1224        1224
```

Disable BBU

To disable the BBU in the router, follow these steps.

Procedure

Step 1 Use the **enable** command to enable the router and enter the privileged EXEC mode.

Example:

```
Router> enable
```

Step 2 Use the **request platform hardware battery disable** command to disable the BBU.

Example:

```
Router# request platform hardware battery disable
```

Step 3 Confirm the action when prompted.

Example:

```
Router will shut down if not powered by AC Power. Proceed with disabling battery?[confirm]
Battery disabled.
Router# Aug 16 22:26:16.647: %BBU-5-CLI_OK: R0/0: bbu: Command Battery disabled
```

Step 4 Use the **show platform hardware battery unit** command to check the BBU status.

Example:

```
Router# show platform hardware battery unit
Battery pack state: Operational
Battery unit                 0           1           2
----------------------------+-----------+-----------+-----------
Status ...................          Idle        Idle        Full
Battery Mode .............      disabled    disabled    disabled
Charge level .............           91%         91%         96%
Capacity Remaining   (mAh)          5236        5219        5534
Full Charge Capacity (mAh)          5739        5739        5739
Voltage ..... (mV)                 11732       11714       11869
Current ..... (mA)                     0           0           0
Temperature ......... ('C)            30          31          31
Firmware version .........          1224        1224        1224
```

Reset BBU

To reset the BBU in the router:

Procedure

Step 1 Use the **enable** command to enable the router and enter the privileged EXEC mode.

Example:

```
Router> enable
```

Step 2 Use the **request platform hardware battery reset enable** command to disconnect the communications with the battery.

Example:

```
Router# request platform hardware battery reset enable
```

Step 3 Confirm the action when prompted.

Example:

```
Proceed with enabling reset?[confirm]
Battery reset enabled.
```

Step 4 Use the **request platform hardware battery reset enable** command to verify the BBU status.

Example:

```
Router# show platform hardware battery unit
Battery is not ready
Battery pack state: Not available
```

Step 5 Use the **request platform hardware battery reset disable** command to reconnect communications with the battery.

Example:

```
Router# request platform hardware battery reset disable
```

Step 6 Confirm the action when prompted.

Example:

```
Proceed with disabling reset?[confirm]
Battery reset disabled.
```

Step 7 Use the **show platform hardware battery unit** command to verify the BBU status.

Example:

```
Router# show platform hardware battery unit
Battery pack state: Operational
Battery unit                 0           1
---------------------------+-----------+-----------
Status ...................          Full        Full
Battery Mode .............       enabled     enabled
Charge level .............           87%        100%
Capacity Remaining   (mAh)          5907        6875
Full Charge Capacity (mAh)          6821        6944
Voltage ..............  (mV)         11996       12244
Current ..............  (mA)             0           0
Temperature .........  ('C)            30          31
Firmware version .........          6273        6273
```

Enable or disable transportation mode on the router

When the router has the BBU transportation mode set, inhibit discharge is enabled when AC is ON and inhibit discharge is disabled when AC is OFF. So, effectively the battery can be charged, but does not discharge. Transportation mode setting is persistent on system reload.

To enable the BBU to transportation mode in the router:

Procedure

Step 1 Use the **enable** command to enable the router and enter the privileged EXEC mode.

Example:

```
Router> enable
```

Step 2 Use the **request platform hardware battery transportation-mode enable** command to enable the transportation-mode.

Example:

```
Router# request platform hardware battery transportation-mode enable
```

Step 3 Confirm the action when prompted.

Example:

```
Proceed with enabling transportation-mode?[confirm]
Battery transportation-mode enabled.
```

Step 4 Use the **show platform hardware battery unit** command to verify the BBU status.

Example:

```
Router# show platform hardware battery unit
Battery pack state: Operational (Transportation mode)
Battery unit                 0           1
---------------------------+-----------+-----------
Status ...................          Full        Full
Battery Mode .............       enabled     enabled
Charge level .............           87%        100%
Capacity Remaining   (mAh)          5907        6875
Full Charge Capacity (mAh)          6821        6944
Voltage ............. (mV)         11994       12245
Current ............. (mA)             0           0
Temperature ......... ('C)            30          31
Firmware version .........          6273        6273
```

Step 5 Use the **request platform hardware battery transportation-mode disable** command to disable the transportation mode.

Example:

```
Router# request platform hardware battery transportation-mode disable
```

Step 6 Confirm the action when prompted.

Example:

```
Proceed with disabling transportation-mode?[confirm]
Battery transportation mode disabled.
```

Upgrade the BBU

It is recommended that you keep the software up to date to ensure that the router works with the latest features and bug fixes.

To upgrade the BBU in the router:

Before you begin

Ensure your device is running IOS-XE 17.9.1 or later before proceeding with the upgrade.

Procedure

Step 1 Use the **enable** command to enable the router and enter the privileged EXEC mode.

Example:

```
Router> enable
```

Step 2 Use the **bbu_fw** command to create a new directory.

Example:

```
Router# mkdir bootflash:/bbu_fw
Create directory filename [bbu_fw]?
Created dir bootflash:/bbu_fw
```

Step 3 Copy the firmware file (**BMZ_06273.bin.SPA**) to the **bbu_fw** directory using SCP or another file transfer method.

Example:

```
Router# dir bootflash:/bbu_fw
Directory of bootflash:/bbu_fw/
259127  -rw-            27624   Oct 7 2024 20:23:23 +00:00  BMZ_06273.bin.SPA7228108800
bytes total (5388279808 bytes free)
```

Note An image stored in a local file will be used to upgrade the BBU firmware through the cli. Prior to installation, the firmware image will be signed and verified. BBU firmware images and IR1840 images will be posted to Cisco.com. For more information, contact Cisco Support.

Step 4 Use the **show platform hardware battery short** command to verify AC power supply is on and the firmware version is the old version (**8302**).

Example:

```
Router# show platform hardware battery short
AC power supply ......... ON
Battery present ......... YES
Battery ready ........... YES
Transportation mode ..... NO
Number of battery units . 1
Time to empty ........... 3:15
Unit#  Charge  Time to empty  State        Firmware  Battery Mode
------+-------+-------------+------------+---------+--------------------
0     37%           3:15         Idle

8302

enabled
```

Step 5 Use the **request platform hardware battery firmware-update install** command to upgrade the firmware.

Example:

```
Router# request platform hardware battery firmware-update install
bootflash:/bbu_fw/BMZ_06273.bin.SPA
Proceed with bbu firmware upgrade?[confirm]
Battery firmware upgrade starting
```

Example:

```
Oct  7 20:35:47.039: %BBU-5-CLI_OK: R0/0: bbu: Command Battery firmware upgrade starting
Oct  7 20:35:47.477: %BBU-7-FSM_TRANSITION: R0/0: bbu: FSM transition (3, 2) -> 2
Oct  7 20:35:48.478: %BBU-4-FW_UPGRADE_STARTED: R0/0: bbu: Firmware upgrade to version 6273
 started
Oct  7 20:35:59.637: %BBU-3-COMM_ERR: R0/0: bbu: Battery communication error: select timed
 out
Oct  7 20:36:07.598: %BBU-5-FW_UPGRADE_FINISHED: R0/0: bbu: Firmware upgrade finished
successfullyOct  7 20:36:07.599: %BBU-7-FSM_TRANSITION: R0/0: bbu: FSM transition (2, 2)
-> 0
Oct  7 20:36:14.807: %BBU-5-BBU_EVT_LOG: R0/0: bbu: Battery Event Log - BBU Event Data is
written to log file:success
Oct  7 20:36:14.811: %BBU-7-FSM_TRANSITION: R0/0: bbu: FSM transition (0, 2) -> 3
```

Note Do not interrupt the process until it is complete.

Step 6 Use the **show platform hardware battery short** command to verify that the firmware upgrade is successful.

```
Router# show platform hardware battery short
AC power supply ......... ON
Battery present ......... YES
Battery ready ........... YES
Transportation mode ..... NO
Number of battery units . 1
Time to empty ........... 2:39
Unit#  Charge  Time to empty  State        Firmware  Battery Mode
------+-------+--------------+------------+---------+--------------------
0     37%           2:39     Charging
6273
enabled
```