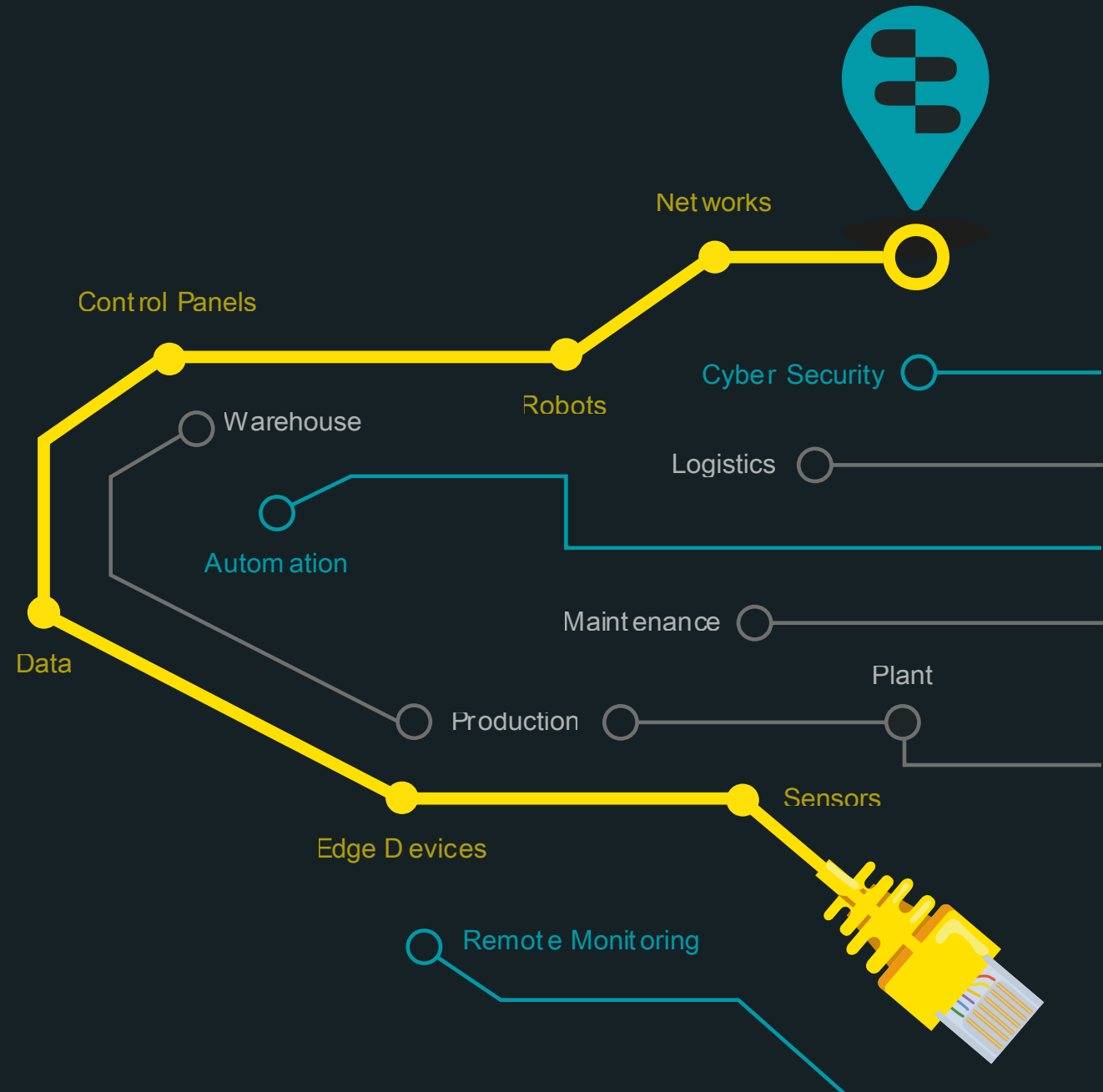




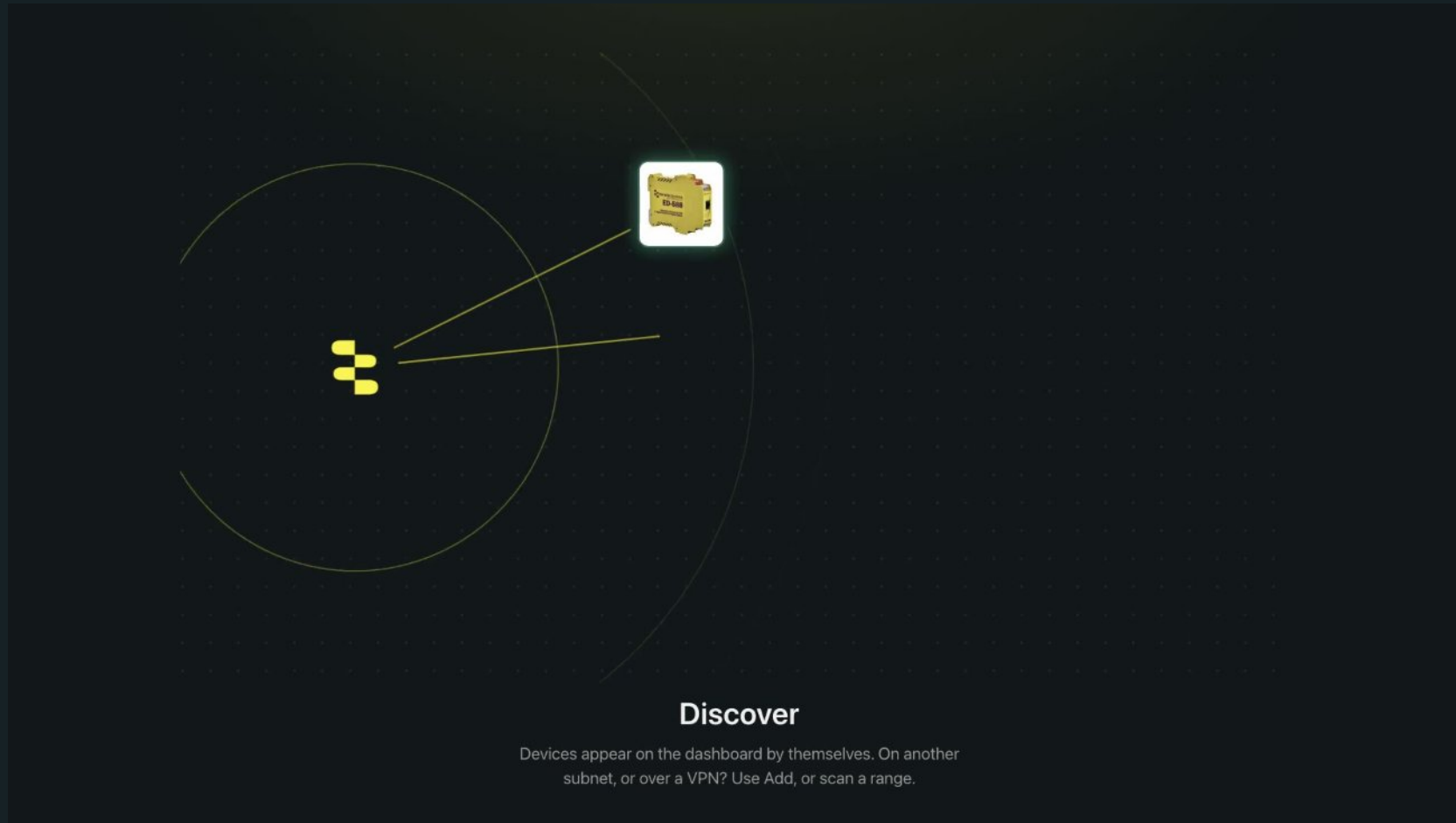
Brainboxes
Trusted Connectivity

BB Eco Brainboxes Ecosystem

Keep the Work Moving



BB Eco in One Minute



BB Eco at a Glance

Free

**For Brainboxes
hardware**

No licence key, no
account

ED + ES

**One app for both
families**

Also finds BB-400s
and switches

Offline

**Works without
internet access**

Firmware cached for
later

CLI

**Every function
scriptable**

Table, JSON or CSV
output

Replaces **Boost.IO Manager** (ED) and **Boost.LAN** (ES) with one app

Per-user installer: no administrator rights to install or update

Keeps itself up to date

BB Eco Key Features



Discover

Plug in a device and it simply appears. No addresses to type, nothing to press.



Upgrade safely

Pre-flight checks before a single byte is sent. Then follow it stage by stage.



Configure once

Get one device right, save it as a template, apply it to the next hundred.



Catch drift

When a setting changes by hand, BB Eco notices. Put it back with one apply.

Also in the box: Update all and automatic firmware updates · stuck-device recovery · templates for many devices at once · command line · built-in support · a public software bill of materials



Device Discovery

The screenshot displays the 'Dashboard - BB Eco' interface. At the top, there is a search bar labeled 'Search devices...', a 'Filter' button, and buttons for 'Update all (1)', 'Export', and 'Add'. The main area shows a grid of device cards. Each card includes a status indicator (Online or Offline), a device icon, a model name, specifications, MAC address, IP address, a 'Wired' status, and a version number with an 'Update' or 'Latest' button. The devices shown are:

- ED-549 4DI 4DO 4AI** (Online, ED-549): 8 Analogue Inputs, MAC: 00:0A:4F:06:4A:EE, IP: 192.168.1.101, Version: 2.0.1, Update button.
- ED-560 16DI 16DO** (Offline, ED-560): 4 Analogue Outputs, MAC: 00:0A:4F:06:4C:9C, IP: 192.168.1.103, Version: 1.0.0, ED button.
- ED-588 8DI 8DO** (Online, ED-588): 8 Digital In / 8 Digital Out, MAC: 00:0A:4F:05:D3:F6, IP: 192.168.1.100, Version: 1.2.3, Latest button.
- ES-257 2-Port RS232** (Online, ES-257): 2 Port RS-232, MAC: 00:0A:4F:06:46:F8, IP: 192.168.1.102, Version: 3.1.0, Latest button.
- ES-522 2-Port RS422/485** (Online, ES-522): 2 Port RS-232/422/485 Industrial, MAC: 00:0A:4F:05:22:B4, IP: 192.168.1.107, Version: 3.2.0, Latest button.

The Brainboxes logo and 'Trusted Connectivity' tagline are at the bottom right. A note at the bottom states: 'An orange Update pill means newer firmware is available'.

- Brainboxes devices appear by themselves
 - ED, ES, BB-400 and managed switches
- Group by:
 - Location, family or status
- Search and filter the dashboard
- Locate flashes the device's LED: which box is it?

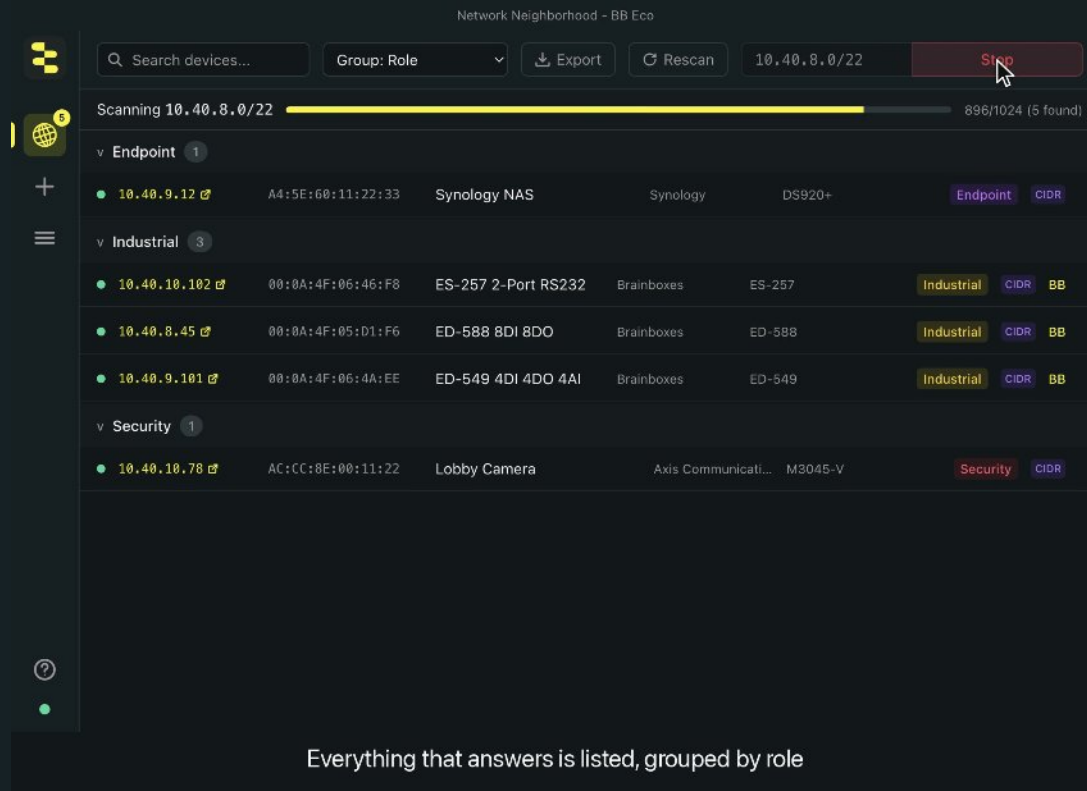
Discover Other Devices Too

Network Neighborhood - BB Eco

- Also discovers other devices
- A general-purpose discovery tool for automation engineers
 - mDNS
 - SSDP / UPnP
 - WS-Discovery
- Grouped by role: industrial, endpoint, security...

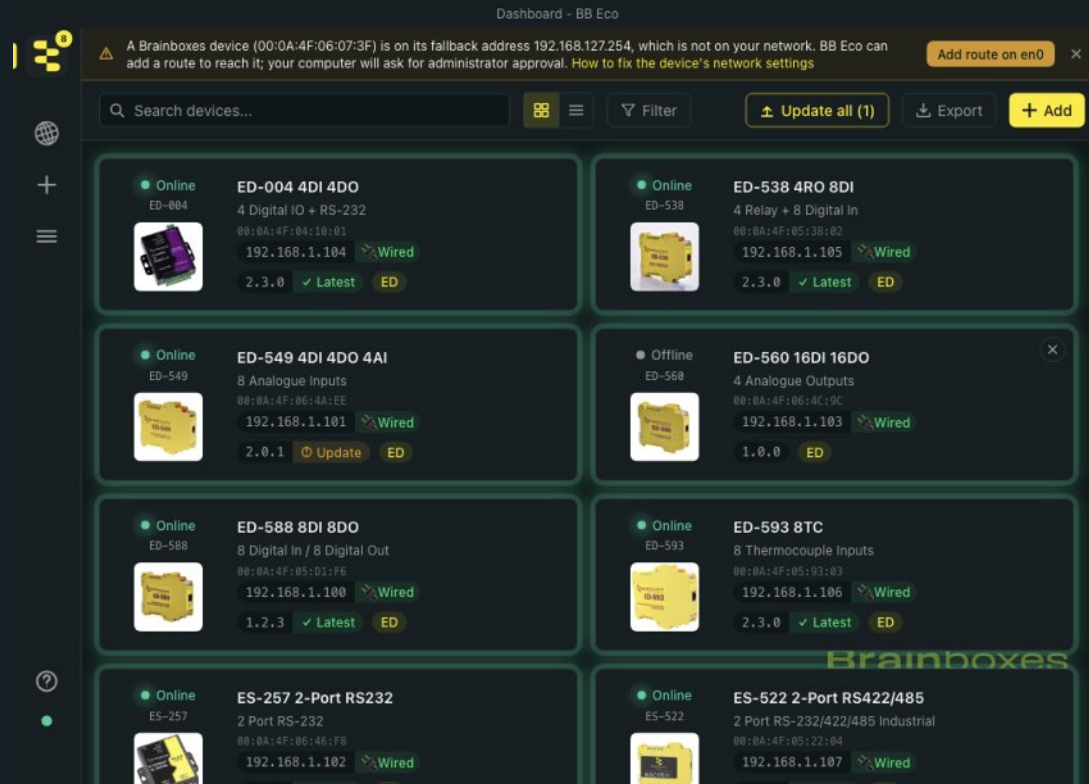


Across VPNs and Subnets



- Discovery works:
 - Over VPNs – remote sites
 - Across different subnets
- Using a CIDR scan
 - Type a range, e.g. 10.40.8.0/22 (Classless Inter-Domain Routing)
- Remembers devices for the next session

Reach the Hard-to-Reach Devices



- A device with no DHCP server falls back to 192.168.127.254
- BB Eco spots it and adds the network route in one click
- Add by IP when discovery cannot see a device
- Devices on routed networks are updated too

Firmware Upgrade

The screenshot displays the Brainboxes dashboard interface. On the left, a sidebar contains navigation icons. The main area shows a list of devices. The top device, ED-549 4DI 4DO 4AI, is highlighted with a yellow background and a 'Wired' status. Below it, two other devices are listed: ED-588 8DI 8DO and ES-522 2-Port RS422/485. The right panel shows the 'Firmware' tab for the selected device. It displays the current firmware version (2.0.1) and an 'Update' button. Below this, the 'UPDATE AVAILABLE' section shows the target version (2.1.0) and release notes. The 'UPGRADE IN PROGRESS' section features a progress bar for 'Stage 2' (FirmwareAppUpgrade: Block 287/612) at 47% completion. At the bottom, there are buttons for 'Check for Updates', 'Upgrade from File', 'Reboot', 'Locate', 'Open Web UI', and 'Docs'.

Dashboard - BB Eco

Search devices...

ED-549 4DI 4DO 4AI
192.168.1.101

Info Web Config Firmware

CURRENT FIRMWARE

Version 2.0.1 Update

UPDATE AVAILABLE

2.0.1 → 2.1.0

RELEASE NOTES

Adds support for new analog input ranges; improves Modbus stability.

Install Update Downloaded

UPGRADE IN PROGRESS

Stage 2: FirmwareAppUpgrade: Block 287/612

47% (287/612)

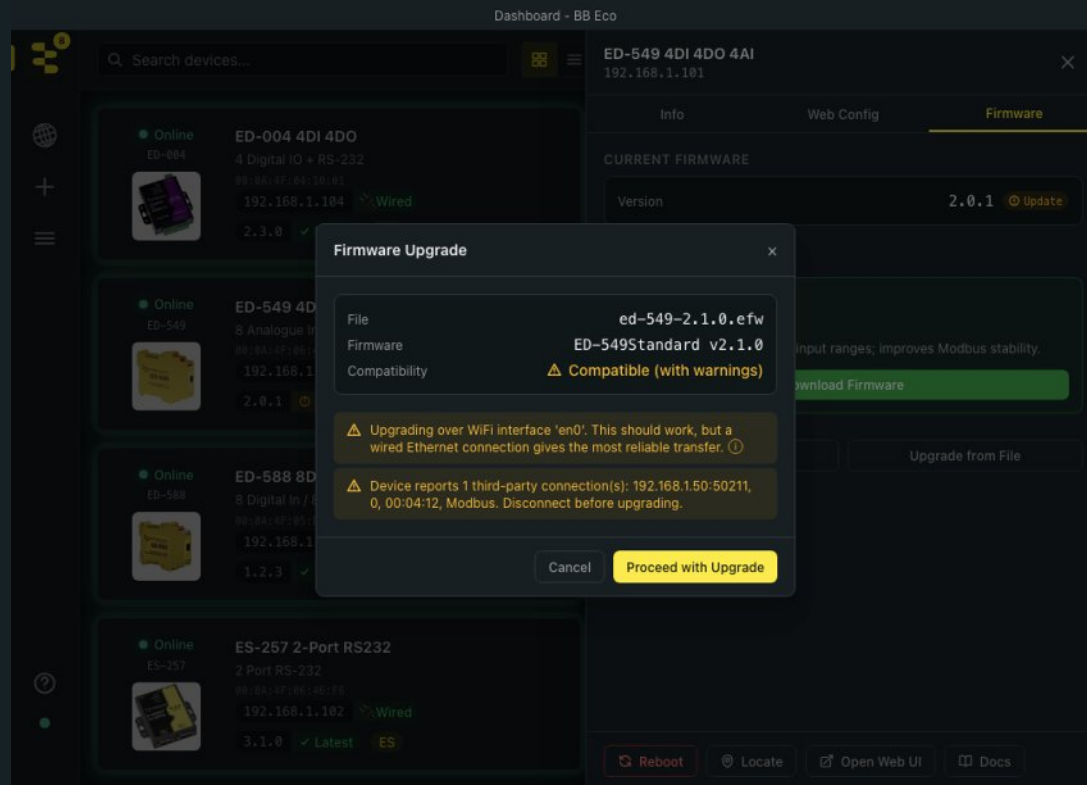
Check for Updates Upgrade from File

Reboot Locate Open Web UI Docs

The firmware transfers in two stages; the card shows which

- 1-click firmware upgrades
- No manual downloading of firmware from the Brainboxes website
- Release notes shown before you update
- Pre-flight checks before a single byte is sent
- Live progress, stage by stage

Firmware Upgrade – Safe and Offline



- Works offline
 - Firmware downloaded automatically when online, and cached
- Pre-flight warnings before upgrading:
 - Over Wi-Fi
 - While another program is connected to the device
- Every firmware file is checked against its published fingerprint just before it is sent

Update All

The screenshot shows the 'Dashboard - BB Eco' interface. At the top, there's a search bar 'Search devices...', a 'Filter' button, and 'Export' and 'Add' buttons. The main area displays a grid of device cards. One card, 'ED-549 4DI 4DO 4AI', is in the 'Upgrading' state, showing 'S2/2: Firmware 18%' progress. Other cards are 'Online' or 'Offline'. A bottom status bar indicates 'Updating firmware: 0/3 devices updated, about 3 min left' and 'ED-549: FirmwareAppUpgrade 18%'. A 'Stop after this device' button is also present. The Brainboxes logo and tagline 'Trusted Connectivity' are at the bottom right of the dashboard area.

Dashboard - BB Eco

Search devices... Filter Export Add

Upgrading ED-549 4DI 4DO 4AI
8 Analogue Inputs
00:0A:4F:06:4A:EE
192.168.1.101 Wired
2.0.1 S2/2: Firmware 18% ED

Offline ED-560 16DI 16DO
4 Analogue Outputs
00:0A:4F:06:4C:9C
192.168.1.103 Wired
1.0.0 ED

Online ED-588 8DI 8DO
8 Digital In / 8 Digital Out
00:0A:4F:05:D1:F6
192.168.1.100 Wired
1.2.3 Update ED

Online ES-257 2-Port RS232
2 Port RS-232
00:0A:4F:06:46:F8
192.168.1.102 Wired
3.1.0 Update ES

Online ES-522 2-Port RS422/485
2 Port RS-232/422/485 Industrial
00:0A:4F:05:72:04
192.168.1.107 Wired
3.2.0 Latest ES

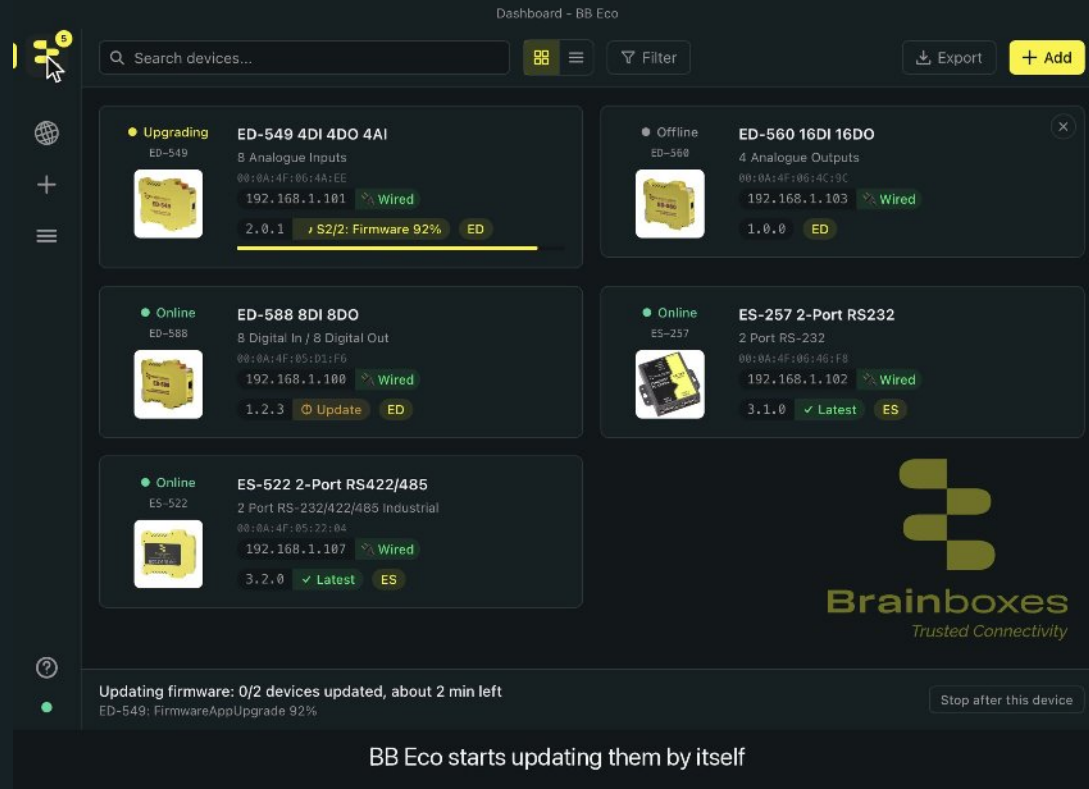
Updating firmware: 0/3 devices updated, about 3 min left
ED-549: FirmwareAppUpgrade 18% Stop after this device

Brainboxes
Trusted Connectivity

One device at a time, while you keep working

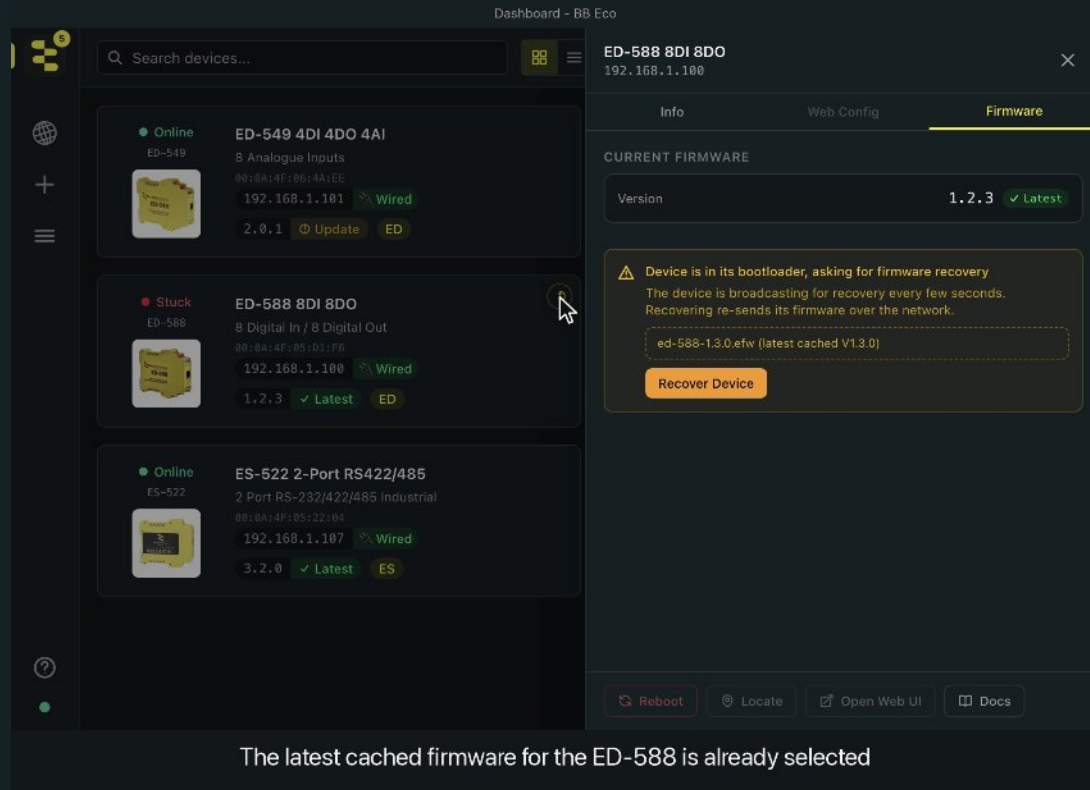
- Every out-of-date ED and ES device in one batch
- One device at a time, while you keep working
- Devices in use are skipped, not interrupted
- A report says what happened to each device, and why
- Command line: **bb-eco upgrade all**

Automatic Firmware Updates



- Optional: switch it on once in Settings
- BB Eco updates ED and ES devices as soon as it sees them on older firmware
- Devices in use are left until later
- Never applies an update that would reset settings to factory
- A notice says when it is done

Stuck-Device Recovery



The screenshot shows the BB Eco dashboard with a list of devices on the left and a detailed view of a stuck device on the right. The left sidebar shows three devices: ED-549 (Online), ED-588 (Stuck), and ES-622 (Online). The right panel shows the 'Firmware' tab for ED-588, which is in its bootloader. A warning message states: 'Device is in its bootloader, asking for firmware recovery. The device is broadcasting for recovery every few seconds. Recovering re-sends its firmware over the network.' Below this, the firmware 'ed-588-1.3.0.fw (latest cached V1.3.0)' is selected, and a 'Recover Device' button is visible. At the bottom, a message states: 'The latest cached firmware for the ED-588 is already selected'.

Dashboard - BB Eco

Search devices...

ED-588 8DI 8DO
192.168.1.100

Info Web Config Firmware

CURRENT FIRMWARE

Version 1.2.3 ✓ Latest

⚠ Device is in its bootloader, asking for firmware recovery
The device is broadcasting for recovery every few seconds.
Recovering re-sends its firmware over the network.

ed-588-1.3.0.fw (latest cached V1.3.0)

Recover Device

Reboot Locate Open Web UI Docs

The latest cached firmware for the ED-588 is already selected

- Upgrade interrupted? The device waits in its bootloader
- BB Eco hears it asking for firmware and marks it Stuck
- One click sends the firmware again, over the network
- ED and ES devices
- Back in service on site

Templates – Config as Code

The screenshot displays the BrainInboxes dashboard with a list of devices on the left and a detailed configuration view for device ED-549 on the right. The device list includes:

- ED-549 4DI 4DO 4AI** (Online): 8 Analogue Inputs, IP 192.168.1.101, Version 2.0.1, Status Wired.
- ED-588 8DI 8DO** (Online): 8 Digital In / 8 Digital Out, IP 192.168.1.100, Version 1.2.3, Status Latest.
- ES-522 2-Port RS422/485** (Online): 2 Port RS-232/422/485 Industrial, IP 192.168.1.107, Version 3.2.0, Status Latest.

The configuration view for ED-549 shows the following details:

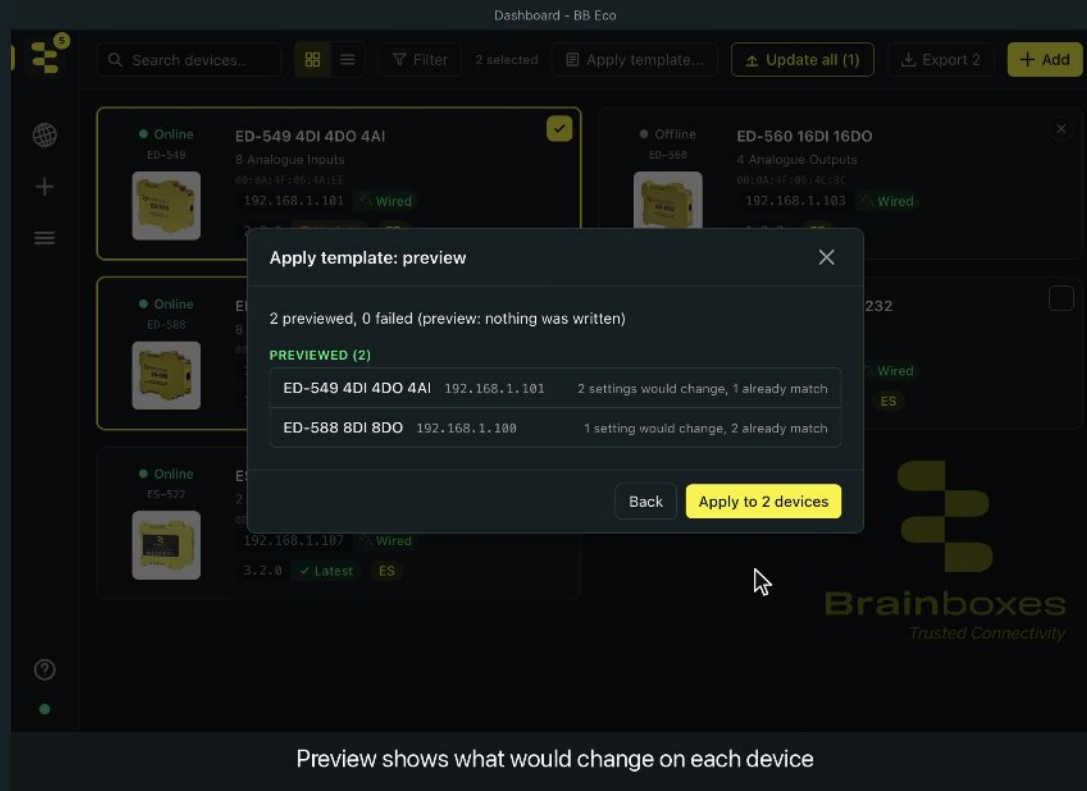
- Info:** Version 2.0.1 (Update), Type -.
- NETWORK:** IP Address 192.168.1.101, Addressing DHCP, Interface en0, Network Type Wired, Config Port 80, Web Port 80.
- CONFIGURATION STATUS:** In sync, Last seen Less than 1m ago, Baseline Config recorded 2d ago.
- Actions:** Refresh baseline, Download Template, Apply Template, Reboot, Locate, Open Web UI, Docs.

A notification at the bottom states: "Download Template saves the settings as a JSON file".

- Save a device's configuration as a template file
- Settings grouped like the device's own web page
- Preview every change before it is written
- Only the settings in the template are changed
- A template is cached automatically for every device

Templates – Apply to Many Devices

- Tick the devices on the dashboard
- Apply template... previews what would change on each one
- Apply writes it to every device that passed the preview
- Each device's new settings become its baseline
- [How-to guide](#)



Drift Detection

Dashboard - BB Eco

Search devices...

ED-549 4DI 4DO 4AI
192.168.1.101

Info Web Config Firmware

IP Address 192.168.1.101

Addressing DHCP

Interface en0

Network Type Wired

Config Port 80

Web Port 80 → 8080

Gateway 192.168.1.1 → 192.168.1.254

CONFIGURATION STATUS 3 changes
Last seen Less than 1m ago
Baseline Config recorded 3d ago

3 CHANGES SINCE BASELINE

Device > Device Name
Line A 01 → Line A 01

Network > Web Server Port
80 → 8080

Network > Gateway Address
192.168.1.1 → 192.168.1.254

Reboot Locate Open Web UI Docs

Configuration Status lists every change since the baseline

- If settings change, BB Eco detects it automatically and reports it to the user
- Old value, arrow, new value – right in the device panel
- Put it back with one template apply, or accept it as the new baseline

Command Line

- All the functions of the app are available in the command line
- Script whole-site upgrades and template applies
- Table, JSON and CSV output for automation

```
bb-eco

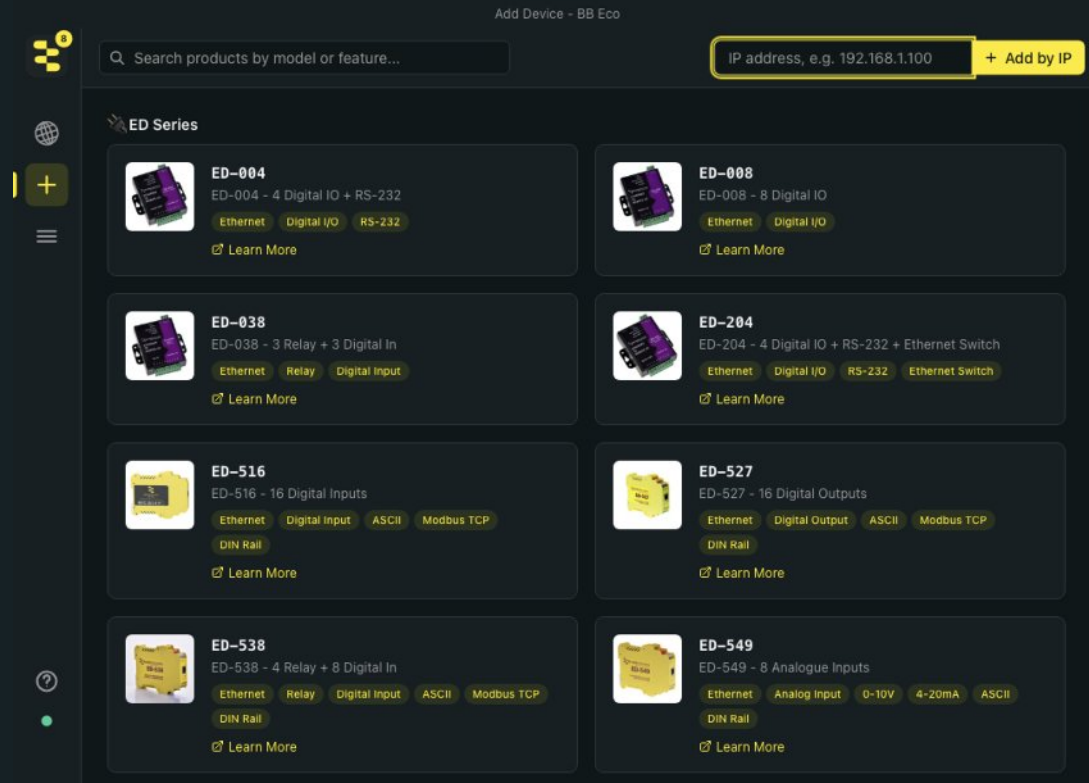
$ bb-eco list
IP            MAC            Model  Name            Last Seen            Config Port
-----
192.168.1.107 00:0A:4F:05:28:DB ES-522 Brainboxes ES-522 Ethernet to Serial 2026-08-14 16:39:23 80
192.168.1.101 00:0A:4F:06:4A:EE ED-549 ED-549           2026-08-14 16:39:24 80
192.168.1.100 00:0A:4F:05:AF:E5 ED-588 ED-588           2026-08-14 16:39:24 80

$ bb-eco upgrade all
3 device(s) to update, 2 skipped.
Model  IP            MAC            Current  Target  Action
-----
ED-588 192.168.1.100 00:0A:4F:05:F7:CA 8.25     8.33    Update
ED-549 192.168.1.101 00:0A:4F:06:4A:EE 8.25     8.33    Update
ES-522 192.168.1.107 00:0A:4F:05:28:DB 4.69     7.02    Update
ED-560 192.168.1.103 00:0A:4F:05:B1:10 8.33     -       Skip: AlreadyLatest - already on 8.33
ED-004 192.168.1.104 00:0A:4F:05:E0:FF 8.30     -       Skip: ThirdPartyConnections - 192.168.1.20:9500, 0, 00:12:40, Modbus

Type CONFIRM to update 3 device(s): CONFIRM
[1/3] ED-588 00:0A:4F:05:F7:CA: starting (about 5 min left)
[1/3] ED-588 00:0A:4F:05:F7:CA: BootloaderUpgrade 12%
...

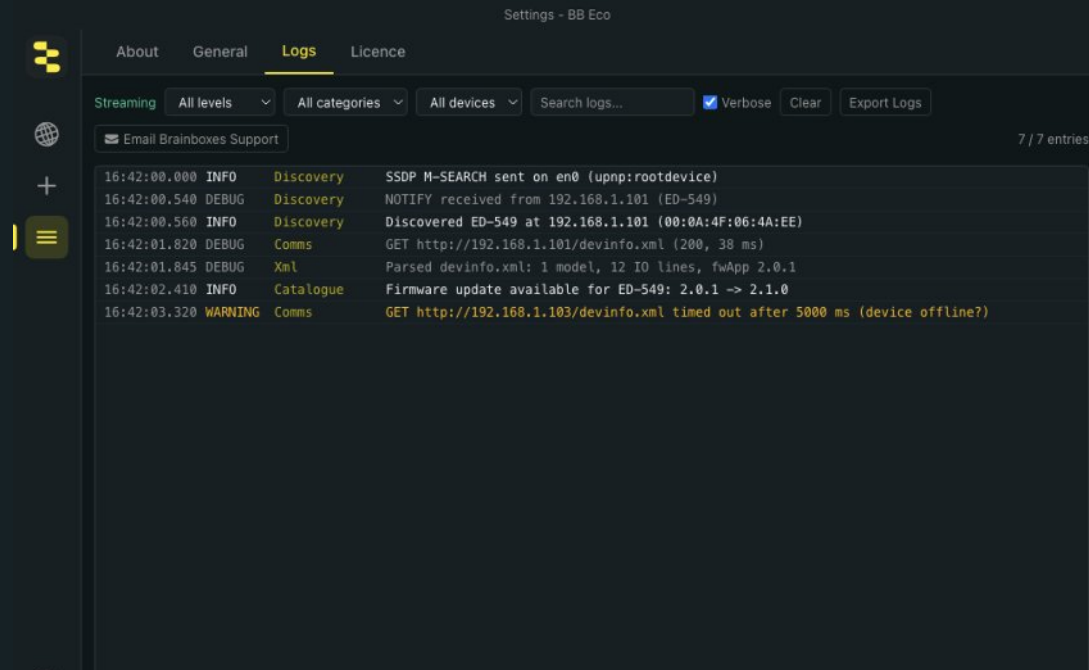
$ bb-eco template apply --all es-522-baseline.json --dry-run
```

Browse the Brainboxes Range



- Browse the Brainboxes product catalogue from within BB Eco
- Search by model, name or feature, e.g. "RS-485"
- Includes the unmanaged switch range
- Learn More opens the product page

Support Built In



- Live logs of every conversation with every device
- Email Brainboxes Support: logs attached, email pre-filled
- After a failed update: one click to email support, logs included
- Help menu: documentation, release notes, welcome tour

Security and Transparency

Cyber Resilience Act theme	What BB Eco does
Know what is inside	CycloneDX SBOM published with every release; Export SBOM in the app
Security updates	Free: the app updates itself; Update all keeps device firmware current
Integrity	Signed installer; firmware checked against its published SHA-256 before sending
Secure by default	No administrator rights; firewall rule limited to BB Eco's own program
Record relevant activity	Logs of every device conversation, easy to view, filter and export
Minimal data, easy removal	No account or cloud; passwords never saved in templates; Reset App Data
Vulnerability reporting	security-reports@brainboxes.com, and a published CRA statement

Brainboxes and the EU Cyber Resilience Act: [CRA statement](#)

Public SBOM and Visible Logging

Software you agree to this Agreement. If you do not agree, do not install or use the Software.

1. Licence

1.1 Brainboxes grants you a free, non-exclusive, non-transferable licence to install and use the Software on computers that you own or control, for the purpose of managing Brainboxes hardware on your network, including discovering the devices on that network and configuring, monitoring and updating the Brainboxes hardware among them.

► Third-party software

Software bill of materials

Save the CycloneDX JSON listing every component in this build (bb-eco-1.1.0-sbom.cdx.json).

Export SBOM

- **BB Eco publishes its software bill of materials**

- CycloneDX format, published with every release
- Export SBOM in Settings > Licence: the exact build you run
- Every third-party licence listed in the app

- **Logs you can see**

- Settings > Logs: live, filterable, exportable
- Plain-text files, one per day, timestamped in UTC

What BB Eco Replaces

Task	Before	With BB Eco
Find devices	Boost.IO (ED), Boost.LAN (ES), Windows only	Automatic discovery, plus VPN and subnet scans
Configure a device	Its web page, one device at a time	The web page inside BB Eco, plus reusable templates
Upgrade firmware	Download the file, then Boost.IO or Boost.LAN	One click, with pre-flight safety checks
Many devices at once	One device at a time	Update all for firmware, Apply template for settings
Interrupted upgrade	A support case	Detected and recovered over the network

Find Out More

- Landing page: www.brainboxes.com/bb-eco
- Download and get started: docs.brainboxes.com
- What's new: [release notes](#)
- Moving from Boost.IO or Boost.LAN: [migration guide](#)
- Security: [CRA statement](#)



Scan: www.brainboxes.com/bb-eco



Keep the Work Moving

Free for Brainboxes hardware

Windows | macOS | Linux | CLI

brainboxes.com/bb-eco

