# Evolution

#### Guide to the Evolution Firmware



# Identifying micro controller and firmware grade

16.56 🕫			16.57 <del>-7</del>	
Kearby d	evices 💿		<b>K</b> Back Units [106]	Ç
BLUETOOTH DEVICES	10)	nRF52 with	8273: Zero 66 Zoom Single           1AA639C5087D         Cut	Evolution/29.75 Color -88 dBM stomer Products Espo Classic/26 0
CBO-ASD (0/1- Casambi	Unpaired Classic/26.0		5509: CBU-CESR EB5BA18D373E	-70 dBM Casambi 3rd floor/87
<pre># eldoLED LEDco eldoLED</pre>	de/2ch/Di ••000 @A_LEDcode Classic/26.0		3146: SSW60 2E8C7FCE09DE	Evolution/29.75 -63 dBM b0ef81482538/1
Zero 66 Zoom S Formalighting	Single Color @Customer devices/17 Classic/26.0	nRF51 with	8855: CBM Board RGB AE16C6BF2059	25.50 -79 dBM rntest/2
Dydell_Sphere_ Dydell	Top @Customer devices 26.0	classic firmware	5825: Linear F2A9A120D324	Evolution/30.14 -72 dBM Casambi 3rd floor/144
Dydell_Sphere_ Dydell	Bottom @Customer devices 26.0		8856: CBM Board #8856 BE696090EBBE	Evolution/29.75 -69 dBM Elena's/7
Dydell_Sphere_ Dydell	Bottom •0000 @Customer devices 26.0		8857: TEST CBM Board KO 50C23DCEA304	Evolution/29.78 -80 dBM 4d4a8670009f/3
CBU-PWM4 RG Casambi	BW •0000 @Customer devices Classic/26.0	nRF52 with	5509: CBU-CESR AD60E4062634	Evolution/29.75 -59 dBM Casambi 3rd floor/136
CBM Board #88 Casambi	856 ••••• @Elena's < Evolution/29.78	evolution firmware	5509: CBU-CESR 63044213A9B7	Evolution/29.75 -54 dBM Casambi 3rd floor/132
XY Test	●●●●○ @Elena's Evolution/29.79	and the second s	5828: Spot 4E408A51A55F	Evolution/29.75 -85 dBM Casambi 3rd floor/184
CBM Board #88	356			Evolution/29.75
Casamb	pi App		Utility App	)

# Changing between the Classic and Evolution firmwares



Unpaired units with **nRF52** can be changed between the Classic and the Evolution firmware from "Nearby devices"

# Changing between classic and evolution firmware

Rack II	.10 <b>-</b> 100 % 🗩 4
Update add-on firmwar	e –
Add-on release notes	
UNIT	
μController	nRF52
Address	FCB9A0544A85 >
Signal	-60 dBM
Condition	0x00 [10]
Network ID	Unpaired
Network name	?
Manager email	?
Unit ID	Unpaired
Radio mode	Unpaired
Crash report	N/A

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K Back U	nit 🦲	<b>&lt;</b> Back
FIXTURE		FIXTURE
Fixture	1000 >	Fixture
Vendor	Casambi	Vendor
Model	CBU-ASD (0/1-10)	Model
Mode	0-10V/1ch/Dim	Mode
Vendor ID	0	Vendor ID
FIRMWARE / CONFIG		EIDAAWAD
Firmware grade	Classic >	Firmwa
Current firmware	26.0	Current
Update status		Update status
Update / Refresh	>	Update / Refre
VENDOR FIRMWARE		
Current vendor firmware	-	Current vendo
Update vendor firmware	-	Update vendo



Unpaired units with nRF52 can be changed between the Classic and the Evolution firmware from the Unit details in the Utility App.

# Evolution network

- Supports only evolution firmware (and consequently nRF52)
- Supports larger amount of devices per network (up to 250)
  - Final optimisations still pending
- Default and recommended radio mode for evolution networks is "Better performance"
  - Enocean will be adding support for this radio mode also for their switches and sensors.





# Evolution network security

- Evolution networks support more fine-grained access control
- Three roles, similar to Sites:
  - User: can use the network
  - Manager: can use and edit the network, except sharing settings
  - Admin: can do anything
- Up to ten different passwords can be added
- Note that in order to make changes to passwords the mobile device has to have access to cloud and a Bluetooth connection to network.

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16.56 elisa 4G 16.56 100 % elisa 4G **1**00 % Settings Manage password Cancel Cancel SHARING Aa Name Administrator pas... Sharing Password protected > Sharing the network requires an internet connection Password ( Email x@company.com The email address is used for administrator access and User password recovery Administrator password Admin 🛧 > Manager Manager password Manager ★ > ₽ Admin User User ★ > User can use the network and manager can make changes to network's settings. Only administrator can remove network or adjust its sharing & password settings. Add a new password Network can have up to ten different passwords with configurable access level. Swipe left to delete password.

Note that when making password changes the Bluetooth connection to network must be available; it is also recommended to have all network devices devices powered

#### (?)

• Open: can be discovered and used by anyone. When used without password the access level is always user.

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- Password protected: can be discovered by anyone but password is needed to open it.
- Administrator only: can be discovered only with email address and password.
- Note that in all cases that granted access level depends on the role of used password.

### Sharing settings

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SHAR	ING				
iţi	Sharing	Passwo	ord protected	>	
Sharii	ng the network red	quires an internet	connection		
0	Email	)	@casambi.co	on	
The e passv	mail address is us vord recovery	ed for administra	tor access and		
୰	Administrato	r password	Admin 🗸	>	
୶	User		User	>	
୶	Manager		Manager	>	
•	Add a new pa	assword		>	
Netwo	ork can have up to gurable access lev	o ten different pas vel. Swipe left to c	swords with lelete password.		
Note conne recon	that when making action to network nmended to have	password change must be available all network device	es the Bluetooth ; it is also es devices powere	d	
UN.			(	?	
Wh are	en addir indicate	ng, new d with s	passwor tar symt	ds ool	





### Sharing settings



- When changing sharing settings a cloud and bluetooth connectivity is required in order for changes to be committed.
- It is also recommended to have as many devices powered ON as possible.
- Lack of either connectivity will either prevent the update from progressing or may leave the update to partially finished state.

# Evolution network security



- When the currently used password is changed by an admin, the mesh network will notify this with Access denied, immediately or next time when network is opened.
- Push notifications are also sent which might cause the network to synchronize and disappear for network list.
- In either case re-login to network might be needed.



- If edit action is attempted in 'access denied' state the application will enforce sync to cloud.
- Selecting 'yes' on above prompt will cause application to verify access to network with cloud.
- If admin level access is still OK the server provides client with a signature that allows the network's credentials to be rewritten to mesh network.
- Bluetooth connection is required this operation.

16.26 7	<b>?</b> []	16.26 ⋪		16.49 <i>7</i>	? 0
Ketup Setup		Kerk Kerker Kerk	Start	Kerk Kerker Kerk	
Upgrade to Evolution firmware	>			5 <sup>11</sup> 2	
Process to upgrade devices into Evolution firmware, and automatically move them to the new network that will be a this one.	copy of	Network upgrade		কাম্ Updating network firmware	
Network settings	>	Tap 'start' to commence the multi-step u Evolution firmware; please read the provideo step carefully.	pgrade process to d instructions for each	CBU-ASD (0/1-10) Transferring Evolution/29.78 (51 %	)
Manage common network settings.		Upgrade can be paused at any time and	continued later on.		1
Sharing settings Not shar	red >				
Select how this network can be accessed from other mobile devices.					
Control options	>				
Manage the luminaire control hierarchy and manual override	2.				
Add devices 1 dev	ice >				
Tool to add unpaired devices one-by-one to this network so they are also identified during the process.	o that				
Gateway Dis	abled	1			
Set up remote access to your network using this device.	-				

- Upgrade is found more More / Network setup.
- After starting the process application will first determine if upgrade can be performed. Note that it may be necessary to move around in the space so that application can determine this.
- If pre-requisites pass the application will upload the evolution firmware upgrade to network.
- Upgrade will not be immediately applied; instead is will be transferred to other devices in network as well.





After upgrade image is transferred to network the application will wait for all devices to receive the it. It is OK the exit the view at this point and return to it once all devices are ready to upgrade. Upgrade is spreading in network...

All units have received the upgrade. Process can be resumed.

Note that it may again be necessary for move around in the space.

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<b>〈</b> Back	Example	Continue	Cancel	Settings	Done		<b>〈</b> Back	Example	Continue
			SHARING						
			Sharing	Passwo	ord protected >				
	Update ready		Sharing the netwo	ork requires an internet	connection		Ur	date and network re	eady
			() Email	3	(@casambi.con		Tap 'continue' to	apply the extended fir all devices.	mware upgrade to
Tap 'continu	e' to create a new exten	nded network.	The email address password recover	s is used for administra Y	tor access and		Devices will un the	pair and application will e new network automati	pair them back to cally.
			Administ	trator password	Admin 🗸 🚿				
			💕 User		User >				
			Manager	r	Manager >				
			+ Add a ne	ew password	>				
			Network can have configurable acce	e up to ten different pas ess level. Swipe left to c	sswords with delete password.				
			Note that when m connection to net recommended to ON.	aking password chang work must be available have all network device	es the Bluetooth ; it is also es devices powered				
					3				

- After all devices in network has received the upgrade the process can continue
- A new evolution network is created by copying the classic network
- · Sharing settings should be updated at this time

• Note that application automatically uses the evolution network that was created earlier from this view. Should you want to recreate the network the previously created one needs to be deleted first.



Following steps need to be performed in one session.

- Application issues a command to network that will execute the pending evolution firmware upgrade.
- Devices will apply the update and appear as unpaired devices. Application then adds them to evolution network one by one.
- Battery powered switches are individually unpaired, updated and added to evolution network.
- It is necessary to activate the discovery mode on these devices.

## Adding the missing devices



- If upgrade process was cancelled it is also possible to pair the unpaired evolution devices to new network.
- Add upgrade devices will appear in Network setup if application has detected such devices near by.
- Tapping it will automatically pair the upgraded & unpaired devices to network.
- Also when using 'Replace device' function the 'Nearby devices' view will indicate matching bluetooth address for easier identification.

#### Device verification



- · For development purposes we sometimes give firmware image to customers
- These images are untrusted and appear with "Prototype" banner in Nearby devices
  - Automatic pairing is also disabled to them
- In order to use them in the evolution network a "Allow prototype devices" option has to be enabled when network is created
  - Option only appear is #utility features have been enabled
  - Note that network's security will be weaker if this option is selected and it is not recommended to be enabled by default.

#### Security & performance options

These options determine what unpair options are available for device in this network.

Note that disabling all options is not recommended.

As a fallback the Utility unpair will always be available for **one minute** after unit has been powered ON.

These options determine if the devices in network appear in **Nearby devices** or in the Utility App.

If limited visibility is selected, unit will appear for certain duration after it has been powered ON.

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These options alter the performance of mesh network.

During the beta they will be replaced with automatic adjustment or other user friendly approach.

Firmware updates can be performed for device in this network.

Note that fixture profile **change** or **refresh** is also considered a firmware update.