

SmartSwarm™ 342

Quick Start Guide

1. Introduction

The SmartSwarm 342 IIoT Gateway provides configuration management, data aggregation, filtering and business logic for data recovered from a mesh-network of connected Wizzard™ mesh wireless nodes.



Safety

- Use the device in compliance with national and international law and in compliance with any special or additional restrictions regulating use of the Advantech B+B device in specific applications and environments.
- Use only the original accessories as provided by Advantech B+B. Using unapproved accessories can result in device damage, warranty termination, and/or violation of legal regulations.
- Unauthorized device or accessory modification can result in device damage, warranty termination, and/or violation of legal regulations.
- Do not open the device.
- When connecting the device to a power supply, do not exceed the defined voltage.
- Do not expose the device to extreme ambient conditions. Protect the device against dust, moisture and high temperature.



Hereby, Advantech B+B SmartWorx s.r.o. declares that the radio equipment type SmartSwarm **SG300** (versions with radio interface only), **SG303**, **SG305** is in compliance with Directive **2014/53/EU**. SmartSwarm SG300 versions without radio interfaces are in compliance with the essential requirements and other relevant provisions of Directives **2014/30/EU** and **2014/35/EU**.

The full text of the EU Declaration of Conformity is available at the following internet address: www.advantech.com

CE Declarations of Conformity

These products are in conformity with the provisions of the following directives when used in accordance with the instructions contained in the product documentation.

2014/35/EU Low Voltage Directive (LVD)

2014/53/EU Radio Equipment Directive (RED)

2011/65/EU Reduction of Hazardous Substances (RoHS) Directive

2012/19/EU Waste Electrical and Electronic Equipment (WEEE) Directive

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

Canadian Compliance Notice

For Class B Computing Devices

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulation of the Canadian Department of Communications.

"Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada."

Product Disposal

The Waste Electrical and Electronic Equipment: 2012/19/EU (WEEE) directive has been introduced to ensure that electrical/electronic products are recycled using the best available recovery techniques to minimize the impact on the environment. This product contains high quality materials and components which can be recycled. At the end of its life this product **MUST NOT** be mixed with other commercial waste for disposal. Check with the terms and conditions of your supplier for disposal information.



2. Connect Antennas



Connect a 2.4GHz antenna to the connector marked “MESH.”

If required, and if you have a cellular enabled version of SmartSwarm 342, connect the main cellular antennas to the device by screwing them into the ANT and DIV connectors.

3. Install SIM Card

If you intend to use this device to communicate over a cellular network, place an activated data-provisioned SIM card into the SIM1 card reader.



NOTE: SIM2 is not currently supported.

4. Connect Power

The device requires between +10 to +60V DC power. 4W typical; 11 W peak.

5. Connect Ethernet

An Ethernet cable may be connected to the ETH0, and/or ETH1, connector/s on the front panel. By default, the Ethernet ports are configured as follows:

PORT	PURPOSE	DEFAULT SETTING
ETH0	LAN port (default) Connect your laptop or PC to get a local web-server for device configuration and diagnostics.	DHCP Server IP Address: 192.168.1.1 NetMask: 255.255.255.0
ETH1	WAN port (default) Connect this port to your WAN to allow the device to obtain access to the remote device management service, SmartWorx Hub, over Ethernet.	DHCP Client: The device will automatically obtain an IP address from your DHCP server.

6. Configuration

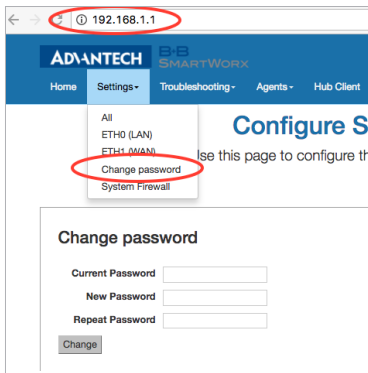
By default, the device will make a secure connection to the cloud-hosted device management service: SmartWorx Hub <https://hub.bb-smartworx.com>

This will automatically happen if there is an outbound WAN connection available via ETH1, with a route to the public Internet.

ALTERNATIVELY, you may want to use cellular. This requires a valid SIM card in SIM Slot 1.

In order to configure the cellular connection, connect your laptop or PC directly into ETH0, then point your web browser at: **192.168.1.1**.

You will be prompted to sign in. The default password is **"5mart5warm"**. We recommend that you change this default password after you login for the first time.



Enter the APN name and optional credentials, as required by your SIM card provider / network operator.

The WAN LED will turn ON amber when the cellular connection has been successfully established.



7. Remote Configuration Using SmartWorx Hub

The USR LED will turn ON (amber) when the device successfully makes a secure connection with SmartWorx Hub <https://hub.bb-smartworx.com>.

The SmartSwarm 342, and all of the connected Wizzard mesh wireless sensor nodes, can be configured remotely via the SmartWorx Hub cloud-hosted device management service. To access this service, go to: <https://hub.bb-smartworx.com>

If this is your first time accessing this service, you will need a SmartWorx Hub account.

If you do not have an account, you may create an account for yourself, using the “**Create Account**” option available on the login page at: <https://hub.bb-smartworx.com>

If you have an account, please login to claim and manage your devices.

7.1 Claim Your SmartSwarm Device

Go to the “**Devices**”->“**Claim/Release Device**” page to bring your new SmartSwarm device into your Managed Device Form on SmartWorx Hub.

Type in the entire Device-ID or Serial Number (this is written both on the device itself and on the box that you took your device out of).

Enter the entire MAC address (this is written both on the device itself and on the box that you took your device out of), then select “**Check Device ID**” to check that your device is available to be claimed by you. Assuming it is, then select “**Claim Device**”.

If this process fails, carefully re-enter the information indicated above. Be very careful not to confuse ‘8’ & ‘B’ or ‘0’ & ‘D’/‘C’. If the process still fails, please contact Advantech B+B technical support.

Dashboard > Devices > Claim/Release Device

This device is available to be claimed

Device ID or SN
203-01-6006405

MAC Address
00:0A:14:77:D9:66

Check Device ID Claim Device Cancel

Your device is now available for you to manage.

By selecting the “**Devices/View Devices**” screen we can see that the device is available, and that it is currently On-line.

In order to fully verify the installation, please check that the device is shown as “**Online**” in SmartWorx Hub:

Verify that they are online. The blue symbol means “online”

Find your device(s)

Device ID	Name	Model	Owner	Status	More	
203-01-6006405	NewUser_SmartSwarm	88-PlusC	Pat O'Connell	Operational		
203-01-6006405	NewUser_SmartSwarm	V3-LTE	88-PlusC	Pat O'Connell	Operational	
203-01-6006404	NewUser_Device1	V3-LTE	88-PlusC	Operational		

8. Check for Firmware & Application Updates

To provide optimal operation, check that the gateway has the most recent firmware and applications versions available.

NOTE: It is strongly recommended to follow the correct order in updating firmware and applications. Always wait for one step to complete before upgrading the next component.

1. Update the firmware first by selecting the latest selection in the dropdown list and clicking the **"Push"** button.

2. Next, update the Components-342 application by clicking the **"Add/Upgrade Apps"** button and selecting the Components-342 Check Box, and clicking the **"Add/Upgrade Selected"** button.

Name	Tag	Type	Version	Help	Added
<input type="checkbox"/> RSMesageBroker	RSMesageBroker	Application	1.0.4		15/06/2018 16:50:28
<input checked="" type="checkbox"/> Components-342	Components-342	Component	1.4.2		01/06/2018 21:52:00
<input type="checkbox"/> REF	REF	Package	1.0.0		01/06/2018 22:01:44
<input type="checkbox"/> Wizzard Mesh	Wizzard Mesh	Application	1.0.8		01/06/2018 21:52:00
<input type="checkbox"/> NodeRED	NodeRED	Application	1.0.10		01/06/2018 22:00:08

Add/Upgrade Selected		Cancel	
Name	Tag	Type	Version
<input type="checkbox"/> DustCLI	<input type="text"/>	Application	1.0.3
<input type="checkbox"/> NodeRED	<input type="text"/>	Application	1.0.14
<input type="checkbox"/> NodeRED	<input type="text"/>	Application	1.0.14
<input type="checkbox"/> RSMessageBroker	<input type="text"/>	Application	1.0.5
<input type="checkbox"/> Wzzard Mesh	<input type="text"/>	Application	1.2.0
<input checked="" type="checkbox"/> Components-342	<input type="text"/>	Component	1.5.2

3. Finally, update the Wzzard Mesh application by clicking the “**Add/Upgrade Apps**” button and selecting the Wzzard Mesh Check Box, and clicking the “**Add/Upgrade Selected**” button.

Save	Cancel	History	Device Status	Add/Upgrade Apps	Geo Location	Wzzard Mesh
Manage Apps						
<input type="button" value="Remove Selected"/>						
Name	Tag	Type	Version	Help	Added	
<input type="checkbox"/> RSMessageBroker	RSMessageBroker	Application	1.0.4		15/06/2018 16:50:28	
<input type="checkbox"/> Components-342	Components-342	Component	1.4.2		01/06/2018 21:52:00	
<input type="checkbox"/> REF	REF	Package	1.0.0		01/06/2018 22:01:44	
<input type="checkbox"/> Wzzard Mesh	Wzzard Mesh	Application	1.0.8		01/06/2018 21:52:00	
<input type="checkbox"/> NodeRED	NodeRED	Application	1.0.10		01/06/2018 22:00:08	

Add/Upgrade Selected		Cancel	
Name	Tag	Type	Version
<input type="checkbox"/> DustCLI	<input type="text"/>	Application	1.0.3
<input type="checkbox"/> NodeRED	<input type="text"/>	Application	1.0.14
<input type="checkbox"/> NodeRED	<input type="text"/>	Application	1.0.14
<input type="checkbox"/> RSMessageBroker	<input type="text"/>	Application	1.0.5
<input checked="" type="checkbox"/> Wzzard Mesh	<input type="text"/>	Application	1.2.0

9. WZZARD Mesh

There is no configuration required for Wzzard mesh wireless sensor nodes to join the SmartSwarm 342 IoT Gateway.

Any available Wzzard mesh wireless sensor nodes that are powered on, and in close proximity to the Gateway, will be automatically discovered.

They will automatically appear on SmartWorx Hub, in the **Manage Device -> Wzzard Mesh UI**.

Dashboard > Devices > Manage Device > Wzzard Mesh

00170d000058efee ●

00170d000059068b ●

- Temp F
- ai1
- ai2
- ai3
- di1
- vbatt

00170d000059069e ●

00170d00005906af ●

Refresh Status Open Network Close Network Advertising:

Mesh Network Status

Generated Date	09/10/2017 16:50:46
Health Color	●
Network Reliability	100 %

More Info

Please refer to the Wzzard mesh documentation for further information.

10. Factory Defaults

The unit may be reset to Factory Defaults at any time by pressing the Reset button on the back-panel of the device for more than 10 seconds.

11. Additional Documents

The User Manual for the SmartSwarm 342 can be found on the company web site:
https://support.advantech.com/support/DownloadSRDetail_New.aspx?SR_ID=1-1MCPC70&Doc_Source=Download

(Click on the **Primary** button to open the manual PDF file.)

12. LEDs

LED	COLOR	STATE	DESCRIPTION
PWR	Green	Off	No power
		On	Device is booting
		Blinking	Device is in normal operating mode
		Fast Blinking	Device is updating firmware. Do not power off
USR	Amber	Off	The device does not have a working session established with SmartWorx Hub
		On	The device has a working secure session established with SmartWorx Hub
PoE	n/a	n/a	Not used
Mesh Status	Yellow	Off	The Wizzard Mesh App on the Gateway is either not installed or not running.
		On	The Wizzard App is installed and running.
		Blinking	There is communication in progress on the DUST mesh network
DAT	Red	Off	There is no communication on the cellular interface at this moment
		Blinking	There is communication in progress on the cellular interface
SIM	Green	Off	Reset button pressed or the device is booting
		On	Ready for operation. SIM 1 is enabled
WAN	Amber	Off	There is no cellular connection between the Gateway and the cellular service provider
		On	A cellular connection has been successfully established between the Gateway and the cellular service provider
IN0	Green	Off	The default state
		On	Binary input no. 0 is active (user defined)
IN1	Green	Off	The default state
		On	Binary input no. 1 is active (user defined)
Out	Yellow	Off	The default state
		On	Binary output is active (user defined)
ETH0 ETH1	Green	On	10 Mb/s
		Off	100 Mb/s
ETH0 ETH1	Yellow	On	The network cable is not connected
		Off	Network cable is connected
		Blinking	Data transmission in progress

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