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ROBOTICS

# **Product manual**

## Connected Services



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**Product manual  
Connected Services  
1.23 SP5**

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Revision: E**

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# Overview of this manual

## About this manual

This manual describes how to install the Connected Services Kit in DSQC1016 - 3G and DSQC1023 - WiFi in ABB Robot Controllers.

## Usage

This manual should be used during installation of the Connected Services Kit.

## Who should read this manual?

This manual is intended for qualified Field Service Engineers (FSEs) at ABB.

## Prerequisite

The reader should have the knowledge of mechanical and electrical installation of ABB Robot Controllers IRC5P, IRC5 Single and Dual Cabinet.

## Organization of chapters

The manual is organized in the following chapters:

Chapter	Contents
Safety	Important safety information that must be read before any installation or service of the control cabinet.
Introduction to the Connected Services kit	An introduction to the installation and purpose of Connected Services kit.
Installation	Contains mounting and cabling instructions for the service box.
Network Service Box	Describes installing and configuring Network Service Box on local network with Internet access for Connected Services.
Troubleshooting	Explains how to correct the most common problems with the installation.

## References

Reference	Document ID
<i>Product manual - IRC5</i>	3HAC021313-001
<i>Product manual - IRC5P</i>	3HNA009834-001
<i>Operating manual - IRC5 with FlexPendant</i>	3HAC050941-001

## Revisions

Revision	Description
-	First edition.
A	Released with Iteration 1.23 SP1. Information about enabling Service box as Gateway in WebConfig is described, see <a href="#">Defining a Service Box as Gateway in Service Agreement on page 149</a> . Updated Service Agreement screen images.

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## Overview of this manual

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*Continued*

Revision	Description
B	Released with Iteration 1.23 SP2. Minor corrections.
C	Released with Iteration 1.23 SP3. Updated the section <a href="#"><i>Configuring a Service Box as Gateway</i> on page 149</a> .
D	Released with Iteration 1.23 SP4. Following is the update: <ul style="list-style-type: none"><li>• Added the section <a href="#"><i>Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B</i> on page 30</a>.</li></ul>
E	Released with Iteration 1.23 SP5. Following is the update: <ul style="list-style-type: none"><li>• Added the section <a href="#"><i>Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen from 19B</i> on page 43</a>.</li></ul>

# Network security

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## Network security

This product is designed to be connected to and to communicate information and data via a network interface. It is your sole responsibility to provide, and continuously ensure, a secure connection between the product and to your network or any other network (as the case may be).

You shall establish and maintain any appropriate measures (such as, but not limited to, the installation of firewalls, application of authentication measures, encryption of data, installation of anti-virus programs, etc) to protect the product, the network, its system and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information. ABB Ltd and its entities are not liable for damages and/or losses related to such security breaches, any unauthorized access, interference, intrusion, leakage and/or theft of data or information.

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# 1 Safety

## 1.1 General safety information

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### Read safety chapter in controller manual

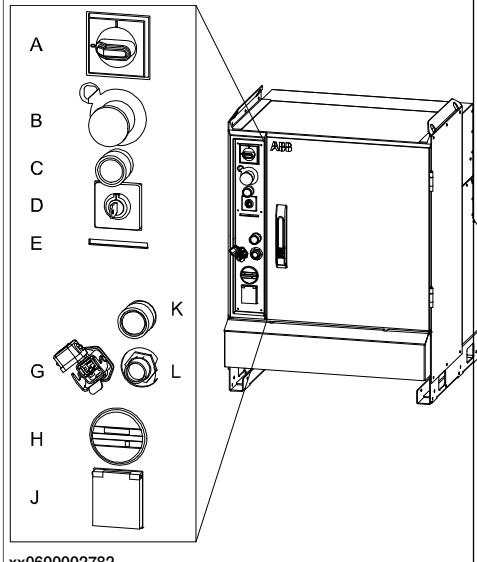
Before beginning work with the robot system, make sure you are familiar with the safety regulations described in the product manual for the controller, see [References on page 7](#).

## 1 Safety

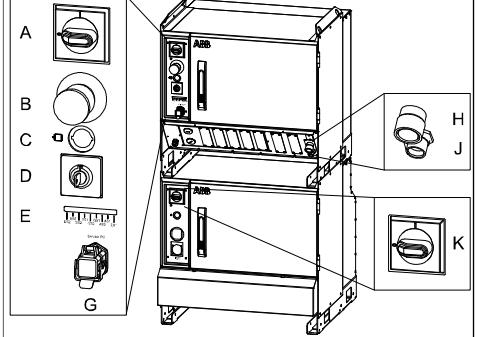
1.2 Danger - Make sure that the main power has been switched off!

### 1.2 Danger - Make sure that the main power has been switched off!

#### Elimination, IRC5 Single Cabinet Controller

	Action	Note/Illustration
1	Switch off the main switch on the controller cabinet.	 <p>xx0600002782 A: Main switch</p>

#### Elimination, IRC5 Dual Cabinet Controller

	Action	Note/Illustration
1	Switch off the main switch on the Drive Module.	 <p>xx0600002783 K: Main switch, Drive Module</p>
2	Switch off the main switch on the Control Module.	A: Main switch, Control Module

## 2 Introduction to the Connected Services Kit

### 2.1 Introduction

#### Overview

This section describes the purpose of the Connected Services Kit and the platform on which to install it.

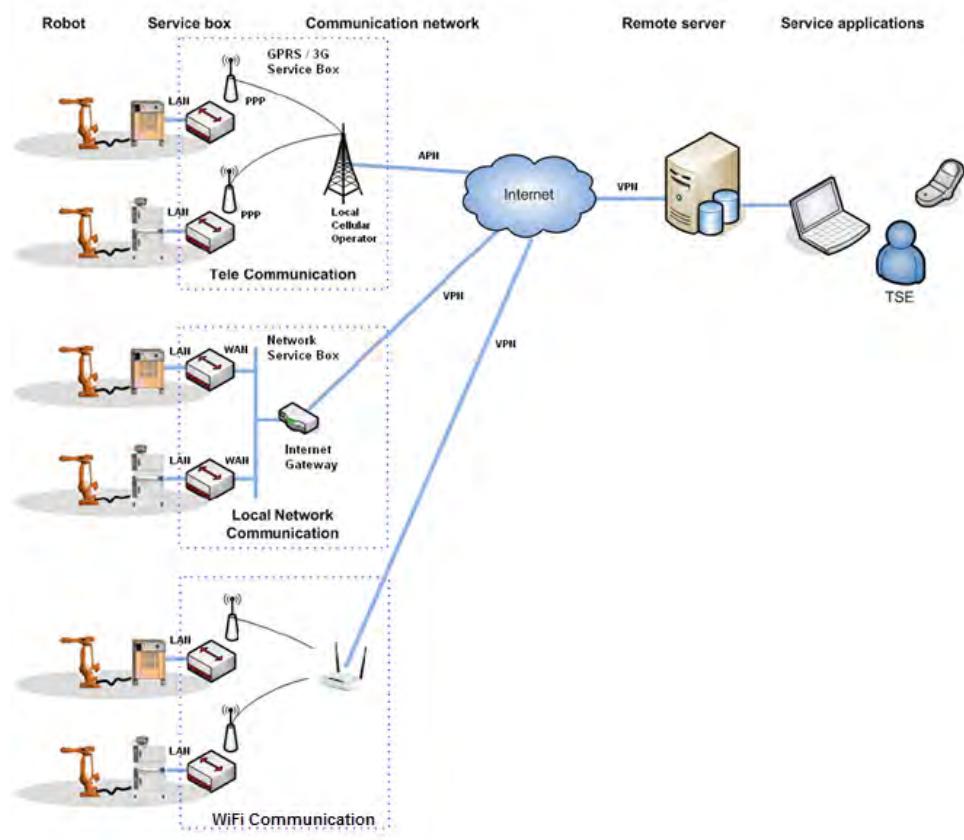
#### Target platform

The target platform for installing the Connected Services Kit is the robot controllers IRC5P, IRC5 Single, and Dual Cabinet.

#### Concept

The Connected Services Kit acts as a bridge between the robot controller and the Remote server. The Service box and Remote server communicates over the internet either through wireless 3G/ WiFi technology or through an external WAN port. The information from the robot is buffered, parsed, and filtered through the ethernet port to obtain valuable service information in the connected services application.

The following illustration provides an overview of the Connected Services with the Service Box.



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## 2 Introduction to the Connected Services Kit

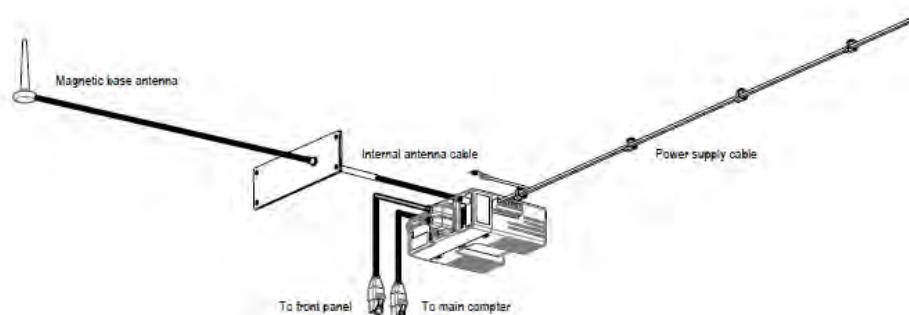
### 2.1 Introduction

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#### Outline

The following picture shows the service box and the cables of the Connected Services Kit.

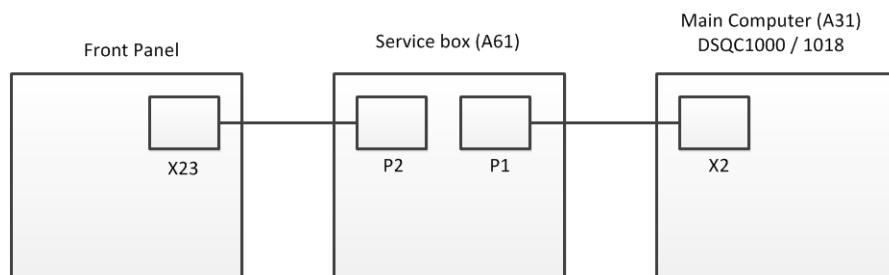


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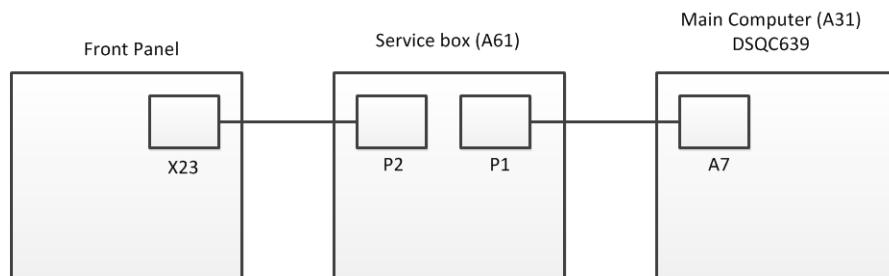
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#### Service port connection

The following illustration shows how to connect the ethernet cables to maintain the service port functionality on the front panel of the controller.



en1600001576

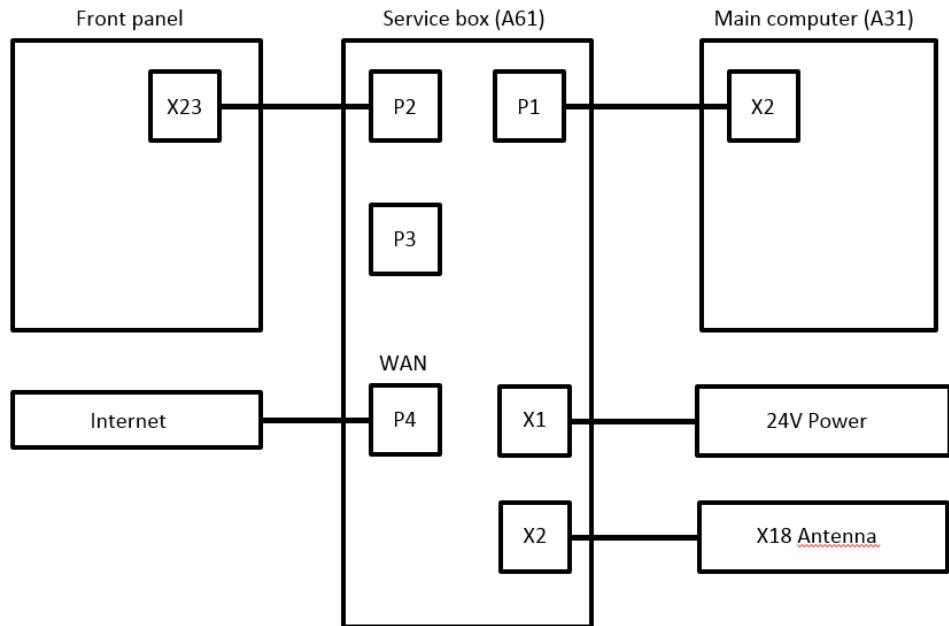


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#### WAN port connection

The following illustration shows how the Service Box is connected through the internet to the WAN port:



en1600001441

## **2 Introduction to the Connected Services Kit**

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### **2.2 Service Box DSQC1016 and DSQC1023**

#### **Overview**

DSQC 680 was the original service box.

This service box is now replaced with the following two variants:

- DSQC1016 3G
- DSQC1023 WiFi



#### **Note**

The older versions of DSQC 680 can still be used but is not produced anymore.

#### **DSQC1016 3G**

The service box DSQC1016 3G (3HAC049807-001) is the replacement for DSQC 680. It is an universal service box that can be connected either with a 3G modem or through Internet.

This service box is included in :

- Retrofit kit 3G + Internet (3HAC060577-001)
- Connected Services 3G Factory option (890-4)

#### **DSQC1023 WiFi**

The service box DSQC1023 WiFi (3HAC058038-001) is the replacement for DSQC 680 without modem. It can be connected only through Internet, wired or wireless. It does not have modem and SIM holder.



#### **Note**

Do not look for instructions related to modem and SIM holder while referring to DSQC1023 WiFi.

This service box is used in large installations having Internet and is included with the following:

- Retrofit kit WiFi + Internet (3HAC060577-002)
- Connected Services WiFi Factory Option (890-5)

*Continues on next page*

#### Configuring Service Box DSQC1016 3G and DSQC1023 WiFi

The service boxes can be used with a wireless 3G Direct connection by default or with a connection through wired or wireless Internet.



##### Note

- If you intend to use the service box with Direct 3G connection then you do not need to configure the box.
- If you intend to use the service box with wired or wireless Internet connection or for some advanced wireless configuration, go to Configuration web page, see [Set up Network Service Box for Connected Services on page 67](#). This is only for advanced configuration.

#### Retrofit Kits

The following are the different retrofit kits available on the [Connected Services Service support](#) page.

- Two Retrofit Kits
  - [Retrofit Kit 3G +Internet](#) (3HAC060577-001)
  - [Retrofit Kit WiFi+Internet](#) (3HAC060577-002)
- Two Factory Option
  - Factory Option, 890-4 (3G + Internet)
  - Factory Option, 890-5 (WiFi+Internet)
  - Access in Parts Online to see the details of Kits
  - [ABB Parts OnLine](#)

If a specific pre-installation is required for new robots delivery, then contact the Connected Services product manager for definition and price.

#### Table DSQ/Option per version

This table describes which DSQ box to use according to the RobotWare version and the type of controller. Here, DSQC1016 is Cosy 131 3G and DSQC1023 is Cosy 131 WiFi.

RW version	≤ 5.11				≥ 5.11			
	N/A		< 16.2		≥ 16.2		≥ 17.1	
HW Release	FO	RF	FO	RF Now	RF	FO	RF	
IRC5	-	DSQC680	890.1	DSQC680	DSQC680, DSQC1016 & DSQC1023	890.1, 890.4 & 890.5	(DSQC680), DSQC1016 & DSQC1023	890.4 & 890.5 (DSQC680), DSQC1016 & DSQC1023
PMC	-	DSQC680	890.1	DSQC680	DSQC680, DSQC1016 & DSQC1023	890.1, 890.4 & 890.5	(DSQC680), DSQC1016 & DSQC1023	890.4 & 890.5 (DSQC680), DSQC1016 & DSQC1023
IRCSP	-	DSQC680	890.1	DSQC680	DSQC680, DSQC1016 & DSQC1023	890.1, 890.4 & 890.5	(DSQC680), DSQC1016 & DSQC1023	890.4 & 890.5 (DSQC680), DSQC1016 & DSQC1023
IRC5C	-	N/A	890.1	DSQC680	DSQC680	890.1	DSQC680	890.1 DSQC680

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## 2 Introduction to the Connected Services Kit

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### 2.3 Service Box Features

#### 2.3 Service Box Features

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##### Overview

This section describes the different features of the Service Box and how it can be used.

The box has different features which could be adapted at first installation according to customer needs. The Service Box can act in two distinct modes (Retrofit or Gateway).

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##### Retrofit mode

In Retrofit mode, the Service Box act as the existing DSQC 680 box, where all the service data monitoring and ABB secure connectivity is done by the box and can be installed in any controller from RobotWare 5.11 to 6.XX. The controllers before RobotWare 5.11 still requires a box DSQC 680 as communication is done with serial port on these controllers. One Service box must be installed by controller, connected to the service port.

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##### Gateway mode

In Gateway mode, the Service Box act as an Internet Gateway and can be used with multiple robots equipped with Embedded Connected Services. In this case, the service data monitoring and ABB secure connectivity is done by the robot controller, whereas the box acts only as a Gateway. The box as gateway still connect to ABB to be monitored for connectivity and when needed to get Remote Access authorization.

---

##### Additional features

Some additional features of the Service Box are listed below:

- The box can be used to provide Remote Access to the devices connected via Ethernet on the LAN port of the Service Box.
- The Remote Access and gateway features are possible now when the box is connected to Internet on the WAN port wired, WiFi or 3G with customer SIMs.
- The default features are Retrofit and Remote Access. This can be changed in User Setup. These features should match with the features defined in the Service Agreement to have them fully active and running.

## 2.4 Before Installation of Service Box in Robot Controllers

### Overview

This section explains the steps to be taken before starting the installation.

### Delivery check

Before you start the installation, compare the contents of the Connected Services Kit with the delivery note and ensure that the kit is complete.

### Prerequisite



#### Note

The Connected Services Kit can operate if wireless communication (3G/WiFi) or wired internet is available.



#### DANGER

Before working inside the controller modules, read the safety information in chapter *Danger - Make sure that the main power has been switched off! on page 12*

	Action	Note/Illustration
1	<p>Check that there is space in the robot controller to mount the Service Box, see:</p> <ul style="list-style-type: none"><li>• <i>Installation of the Service Box in IRC5 Single and Dual Cabinet on page 25</i></li><li>• <i>Installation of the Service Box in the IRC5P controller on page 28</i></li></ul>	

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## 3 Installation of Service Box in Robot Controllers

### 3.1 General for IRC5 and IRC5P Controllers

#### 3.1.1 Overview

This section describes:

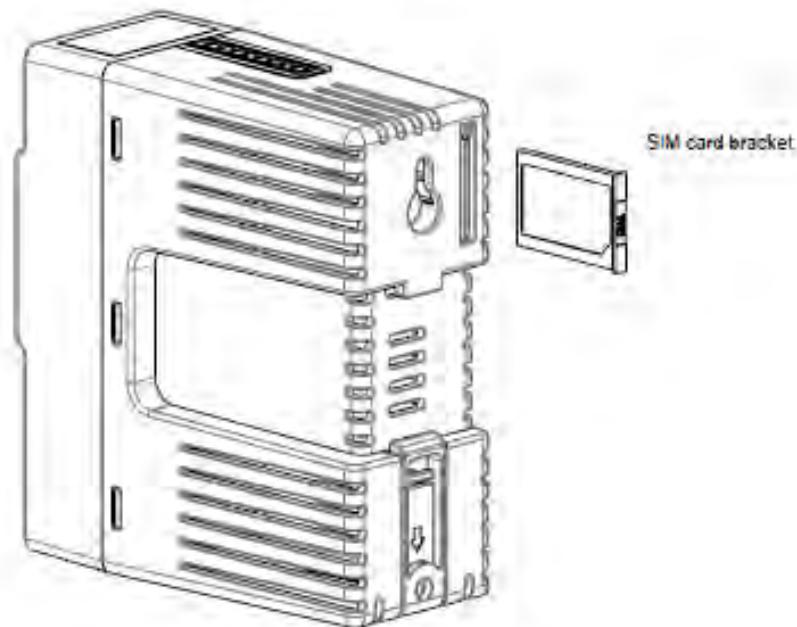
- installing the SIM card. See [SIM card installation for DSQC1016 3G on page 22](#).
- mounting instruction. See [Mounting instructions on page 23](#).

### 3 Installation of Service Box in Robot Controllers

#### 3.1.2 SIM card installation for DSQC1016 3G

##### 3.1.2 SIM card installation for DSQC1016 3G

Installing the SIM card:



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Action	Note/Illustration
1 Unpack the plastic card containing the SIM card.	
2 Write down the SIM card number.	<p>12345 67891 01112 13141</p> <p>SIMCardNumbe</p>
3 Remove the SIM card from the plastic card by gently pushing on it from the back.	
4 Press the SIM card button carefully (do not use tools that may destroy the Service Box) to eject the SIM card holder.	
5 Place the SIM card into the SIM card holder.	
6 Close the SIM card holder by gently pushing on it from the back.	

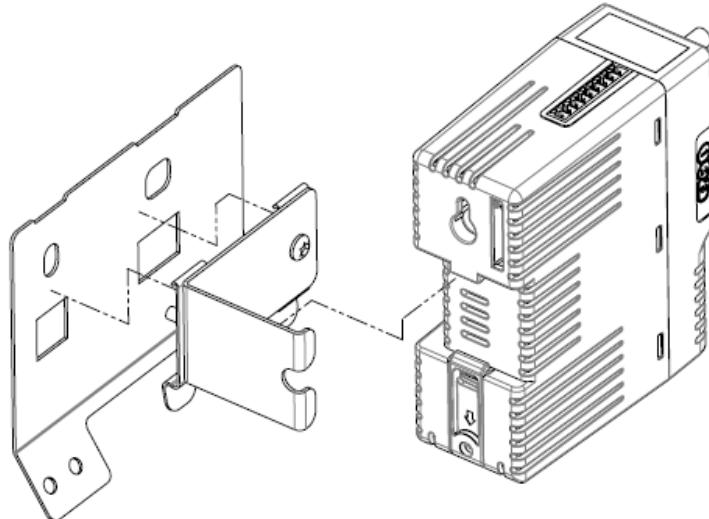
##### 3.1.3 Mounting instructions

###### Alternative 1 mounting

Standard mounting of the Service box (mounting plate).

For more information, see:

- [Installation of the Service Box in IRC5 Single and Dual Cabinet on page 25](#)
- [Installation of the Service Box in the IRC5P controller on page 28](#)



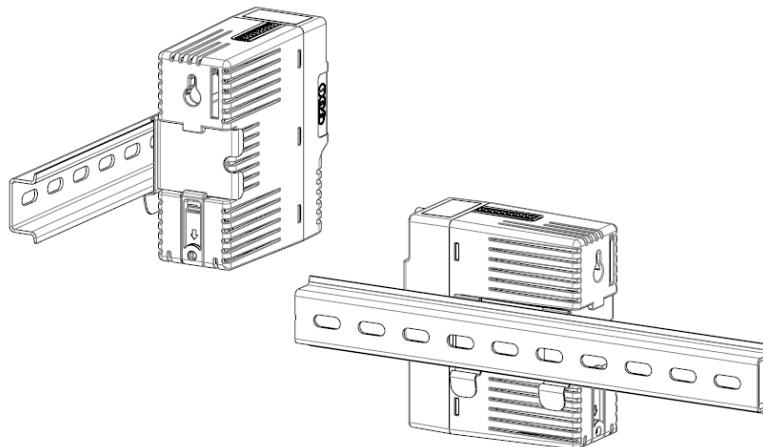
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###### Alternative 2 mounting

Alternative mounting of the Service box (DIN rail).

For more information, see:

- [Installation of the Service Box in IRC5 Single and Dual Cabinet on page 25](#)
- [Installation of the Service Box in the IRC5P controller on page 28](#)



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### 3 Installation of Service Box in Robot Controllers

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#### 3.1.3 Mounting instructions

*Continued*

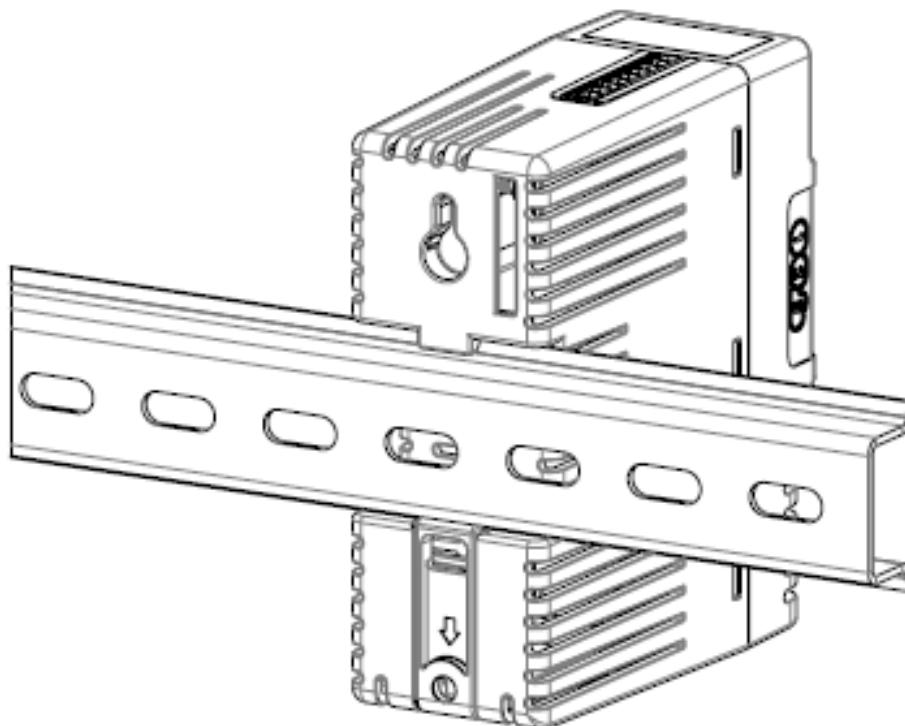
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#### Alternative 3 mounting

Alternative mounting of the Service box (mounting plate and DIN rail)

For more information, see:

- [Installation of the Service Box in IRC5 Single and Dual Cabinet on page 25](#)
- [Installation of the Service Box in the IRC5P controller on page 28](#)



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#### Cable handling



##### CAUTION

Be careful,

- When handling the antenna cable. The minimum bending radius is 5 cm. The cable can be damaged if it is wrongly handled.



##### CAUTION

When attaching antenna cables, screw the cable tight, but with a torque not exceeding 0.5 Nm firmly by hand. A higher torque can damage the connector.

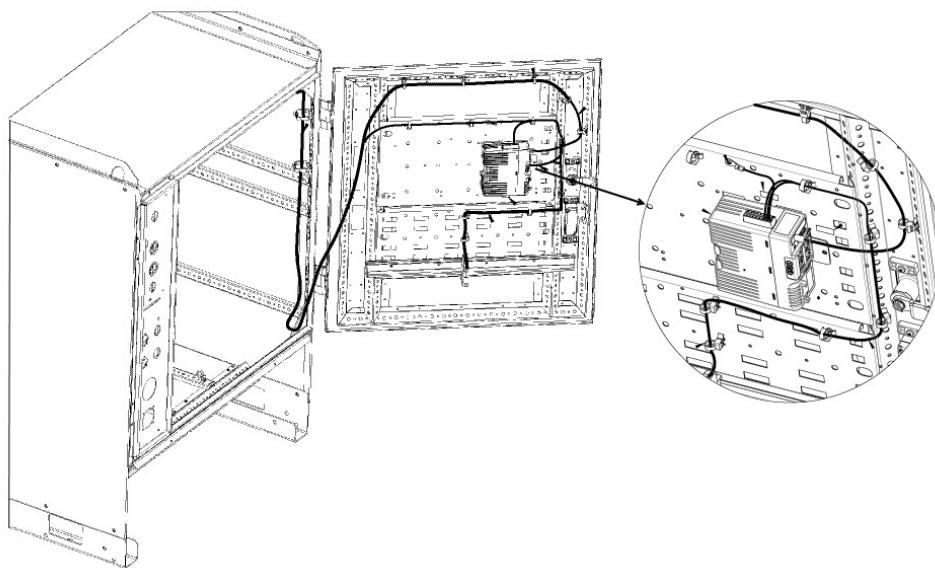
## 3.2 Installation of the Service Box in IRC5 Single and Dual Cabinet

### Overview

This section explains where the Service Box should be mounted in the robot controller IRC5 Single and Dual Cabinet.

### Location in IRC5 Single and Dual Cabinet

The standard position of the Service Box in IRC5 Single is the inside of the door.



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This illustration shows the Service Box position for a flat fronted cabinet (design 2006). For a curve front cabinet (design 2004), we recommend that the Service Box is fitted to DIN rail in the back of the cabinet, near the I/O units.

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.2.1 Connected Services kit

##### 3.2.1 Connected Services kit

###### Procedure

The following procedure provides information about the mechanical and electrical installation of the Service Box in the controller.

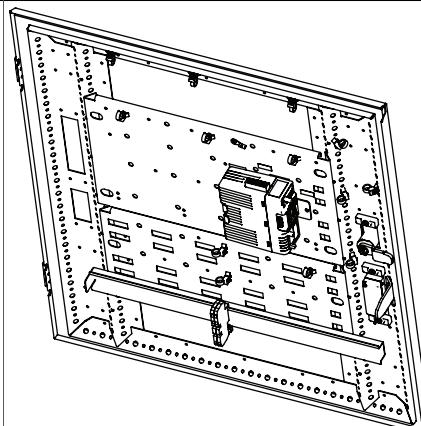
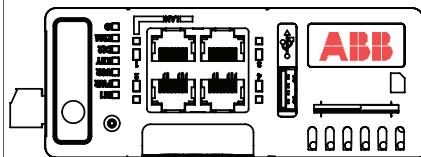
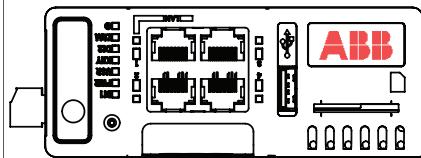
Action	Note/Illustration
1  <b>DANGER</b> Before commencing any work inside the cabinet, read the safety information in section <i>Danger - Make sure that the main power has been switched off!</i> on page 12.	
2 Write down the serial number of the Service Box and the serial number of the robot controller.	
3 Disconnect the existing Ethernet service cable at both ends, from the main computer and from the inside of the service port on the front (X23).	This cable is not used, but due to its complicated strapping we recommend that you leave it in the controller.
4 Connect a new Ethernet cable (supplied in the kit) to the service port on the main computer. Mark the cable with labels for the main computer service port and A61.P1.	Labels for the main computer service port: <ul style="list-style-type: none"><li>• Main computer DSQC 639 - A32.A7</li><li>• Main computer DSQC1000 - A31.1.X2</li></ul>
5 Connect a new Ethernet cable (supplied in the kit) to the service port on the front panel (X23). Mark the cable with labels X23 and A61.P2.	
6 Connect the power supply cables. Cable 745 (supplied in the kit) to the 24 V connection on XT31 in the controller. Cable 746 (supplied in the kit) to the 0 V connection on XT31 in the controller. Earth connection mounted close to Service box.	If the 24 V terminal is missing in the controller it can be ordered by the option 727-1 24 V, 8 A Power supply. Option 727-3 24 V, 4A Power supply is also a valid option.
7 Remove one of the original cover plates from the controller and replace it with the adapter cover plate, attached to the internal antenna cable, supplied in the kit.	
8 Route the Ethernet, power supply and antenna cables together with existing cables in the cabinet.	

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.2.1 Connected Services kit

*Continued*

Action	Note/Illustration
9 Mount the Service Box on the inside of the door using the supplied bracket.	 en1600001569
10 Connect the power supply cable to connector A61.X1 on the Service Box.	
11 Connect the Ethernet cable from the service port on the main computer to Ethernet port A61.P1 on the Service Box.	The same cable as in step 5.  en1600001570
12 Connect the Ethernet cable from the service port on the front panel to Ethernet port A61.P2 on the Service Box.	The same cable as in step 6.  en1600001570
13 Connect the internal antenna cable to the Service Box, connector A61.X2.	
14 Insert dust protectors (supplied in the kit) in all empty Ethernet ports of the Service Box.	
15 Connect the external antenna cable to the adapter cover plate on the outside of the controller.	
16 Place the antenna on top of the controller.	For best reception, place the antenna high and upright. For best magnetic adhesion, place the antenna on a clean surface.

### 3 Installation of Service Box in Robot Controllers

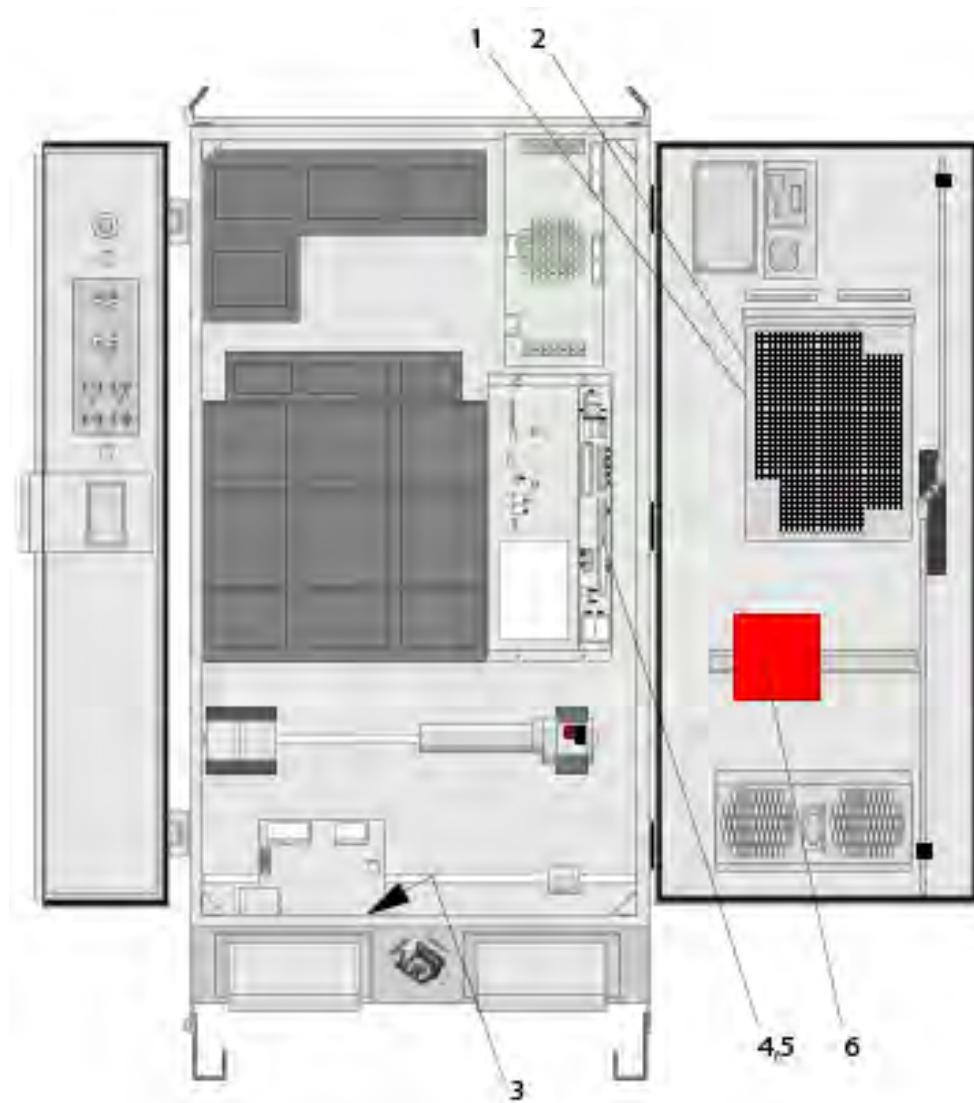
#### 3.3 Installation of the Service Box in the IRC5P controller

##### Overview

This section explains where the Service Box should be mounted in the robot controller IRC5P.

##### Location in IRC5P controller

The standard position of the Service Box in the IRC5P controller is on the back wall of the cabinet.



S4P+ Compact

1	Ethernet connection on service port
2	Ground connection
3	+24 VDC connection on X18 pin 2
4	0 VDC connection on X18 pin 1
6	Connected Services Box

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.3 Installation of the Service Box in the IRC5P controller

*Continued*

##### Procedure

The following procedure provides information about the mechanical and electrical installation of the Service Box in the cabinet.

Action	Note/illustration
1	 <b>DANGER</b>
	Before any work inside the cabinet, read the safety information in section <a href="#">Danger - Make sure that the main power has been switched off!</a> on page 12.
2	Write down the serial number of the Service Box and the serial number of the robot controller.
3	Disconnect the existing Ethernet cable from the robot main computer and connect the new Ethernet cable supplied in the kit to the main computer.
4	Place the Connected Services label supplied in the kit below the Rating label on the controller/cabinet.
5	Route the Ethernet cable together with existing cables in the cable protector on the inside of the cabinet.
6	Connect the power supply cable 1295 (24 V) supplied in the kit to the 24 V terminal X18 pin 2 in the controller.
7	Connect the power supply cable 1296 (0 V) supplied in the kit to the 24 V terminal X18 pin 1 in controller.
8	Route the power supply cables together with existing cables in the cable protector on the inside of the cabinet.
9	Remove one of the original cover plates from the robot controller and replace it with the adapter cover plate, attached to the internal antenna cable, supplied in the kit.
	Use the fastite screws delivered with the kit.
10	Route the antenna cable together with existing cables in the cable protector on the inside of the cabinet.
11	Mount the mounting plate on the DIN rail on the back wall of the cabinet.
12	Connect the power supply cable 1295 (24 V) and 1294 (0 V) to the 24 VDC connector on the Service Box.
13	Mount the Service Box on the mounting plate.
14	Connect the Ethernet cable to the Ethernet port on the Service Box.
15	Connect the internal antenna cable to the Service Box.
16	Connect the external antenna cable to the adapter cover plate on the outside of the controller.
17	Place the antenna on top of the controller.  For best reception, place the antenna high and upright. For best magnetic adhesion, place the antenna on a clean surface.

### 3 Installation of Service Box in Robot Controllers

#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B

#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B

##### Overview

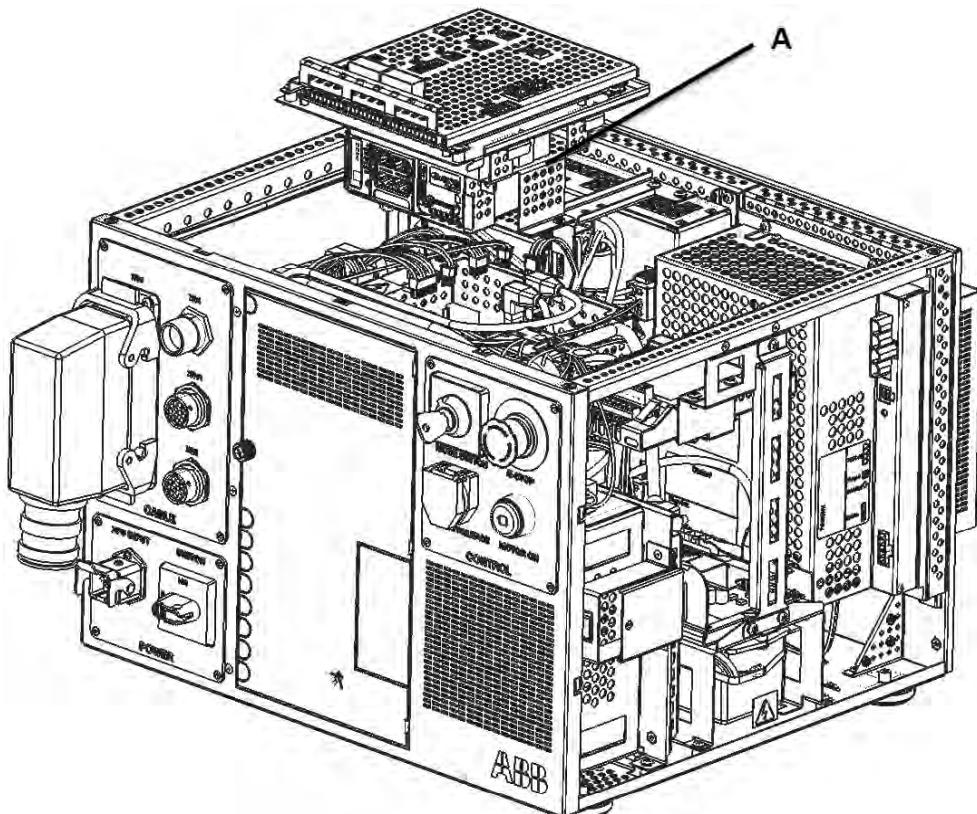
This section explains about the installation or the replacement of the 3G/Wi-Fi service box (DSQC 1016 3G or DSQC 1023 Wi-Fi) in the IRC5C 2nd robot controller that is released before 19B.



##### Note

DSQC 680 is deprecated for the IRC5C 2nd robot controller.

##### Location



xx1800003472

A	Connected Services box
---	------------------------

*Continues on next page*

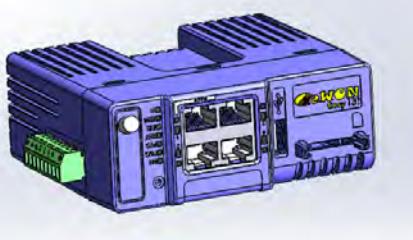
### 3 Installation of Service Box in Robot Controllers

#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B

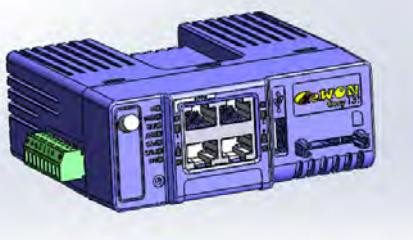
*Continued*

##### Required equipment

###### Equipment required for 3G service box

Spare Part No.	Equipment	Illustration
3HAC049807-001	DSQC 1016 3G	 xx1900000207
3HAC028459-001	Magnetic roof antenna	 xx1800003474
3HAC042958-001	SIM card	 xx1800003475

###### Equipment required for WiFi service box

Spare Part No.	Equipment	Illustration
3HAC058038-001	DSQC 1023 WiFi	 xx1900000207
3HAC059424-001	WiFi Antenna	 xx1800003476

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B

*Continued*

##### Common equipment required for both 3G and WiFi service box

Spare Part No.	Equipment
3HAC069612-001	Retrofit kit

##### Required tools

Tools
φ10 drill
φ4 drill
M2 screw driver
M4 screw driver
File
Electric screw driver

##### Procedure

Use the following procedure to install or replace the 3G/WiFi service box in the IRC5C 2nd controller:

1



##### DANGER

Before any work inside the cabinet, read the safety information in section [\*Danger - Make sure that the main power has been switched off! on page 12.\*](#)

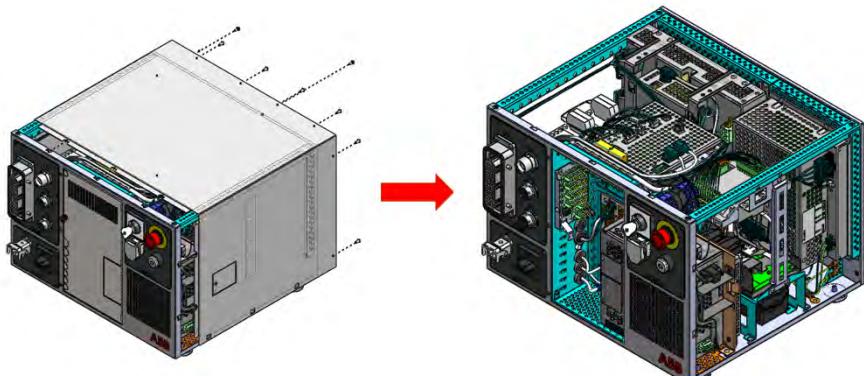
2 Disassemble the top cover.

Unscrew the 8 pieces of M4 screws from the back cover. Then the top cover can be taken easily. The front door also need to be removed.



##### Note

If antenna is connected, disconnect and remove it.



xx1800003179

3 Remove the cable and connectors which are connected to the following:

- Safety board
- Connected Services Box (if installed)

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B

*Continued*

- Ethernet switch (if installed)



**Note**

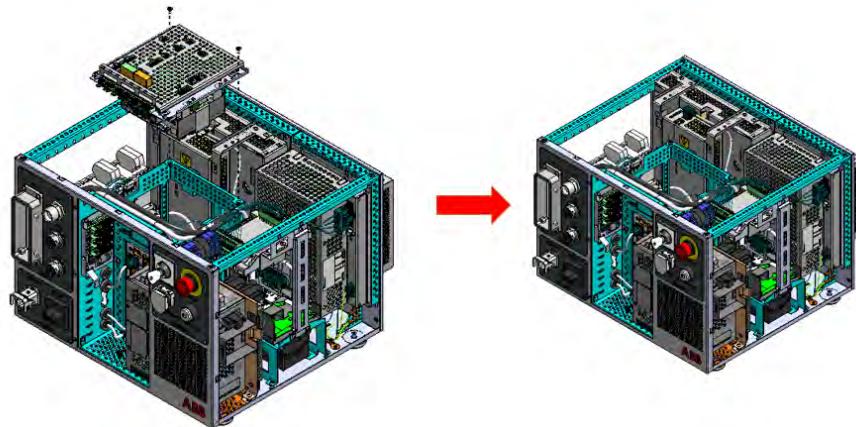
Keep these connectors, as you need them in the assembly steps.

- 4 Disassemble the whole module (including Safety Board).



**Note**

Disassemble the Ethernet Switch and Connected Services Box also from the module, if installed.



xx1800003180

- 5 Take out the Safety Board from the module.



**Note**

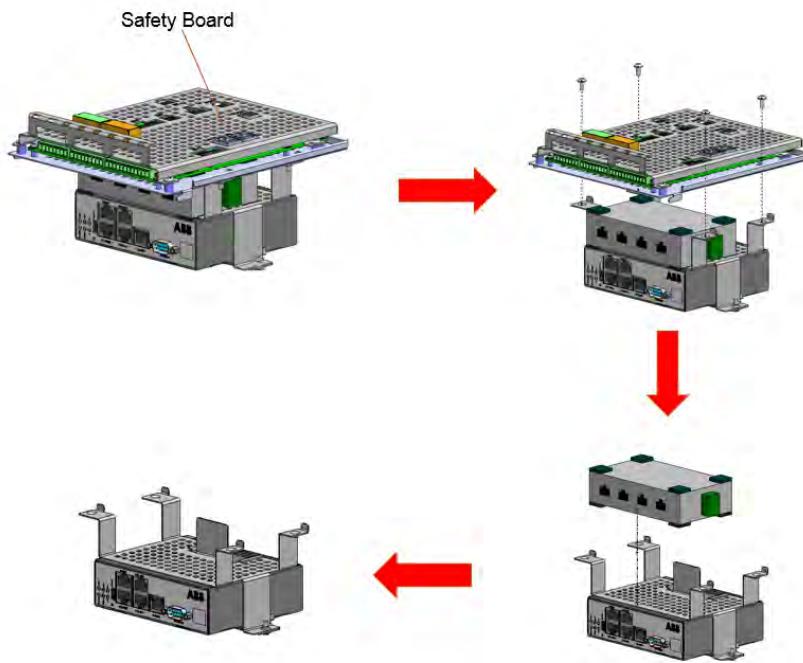
Also take out the Ethernet Switch and Connected Services Box from the module, if installed.

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

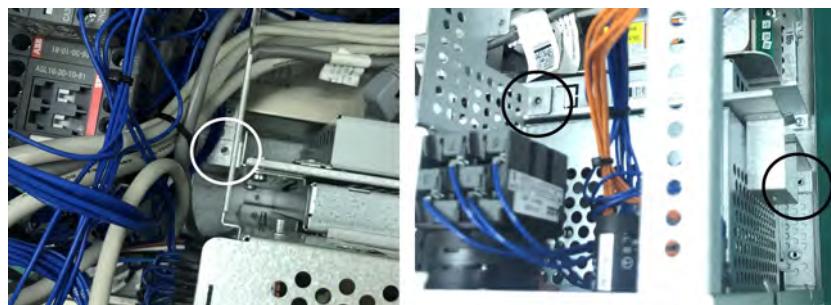
#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B

*Continued*



xx1800003181

- 6 Disconnect the cables connected to the main computer and unscrew the three pieces of M4 screws. The location of the three M4 screws is shown in the following image.



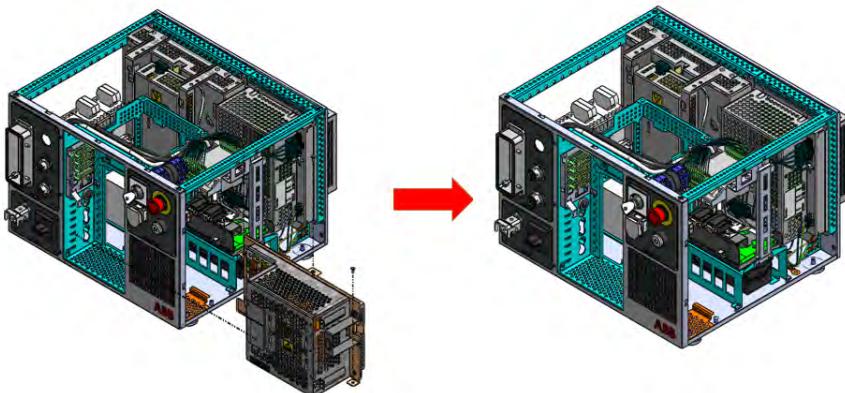
xx1800003375

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B *Continued*

- 7 Take out the main computer and axis computer module.



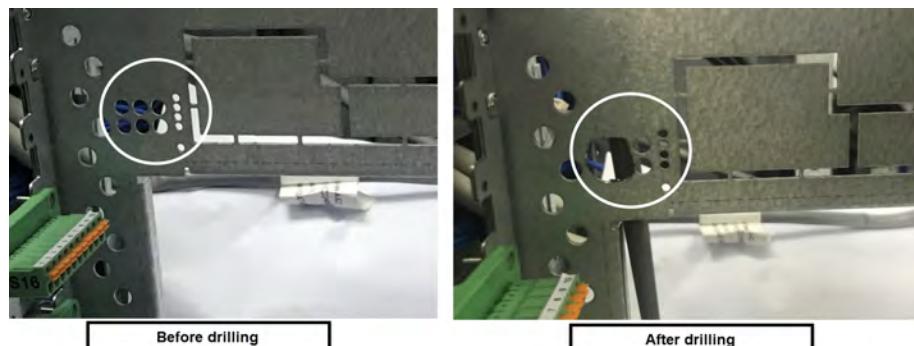
xx1800003182

- 8 Drill the front panel using the φ10 driller. While drilling, to avoid the steel chips falling in to the controller, place a paper on the surface and collect it as shown in the following image.



xx1800003376

- 9 Use the file to enlarge and smooth the hole. This hole is used for the antenna.



xx1800003367

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B

*Continued*

##### 10 Remove the kick-off holes.



###### Note

Remove the kick-off holes, only if the Ethernet Switch and Connected Services box is installed newly in the controller.



###### Note

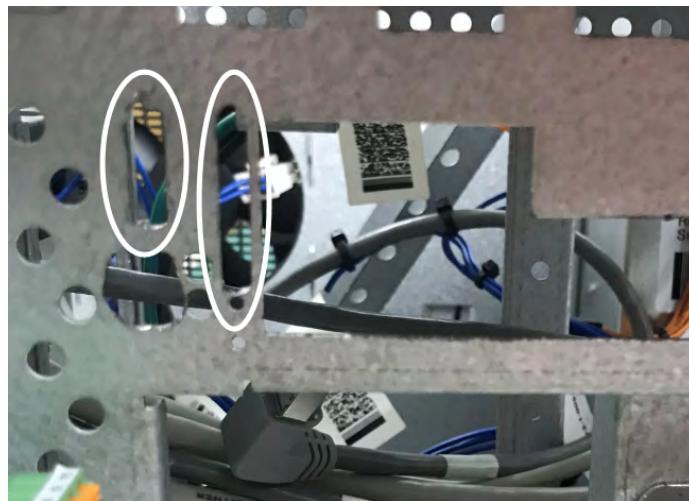
If you choose to install the ethernet switch, remove the top four kick-off holes.



xx1900000319

##### 11 Remove the sheet metal pieces from the front panel.

##### 12 Use the φ4 driller to drill the LED holes.



xx1800003368

##### 13 Assemble back the main computer and axis computer module and reconnect the cables.

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B

*Continued*

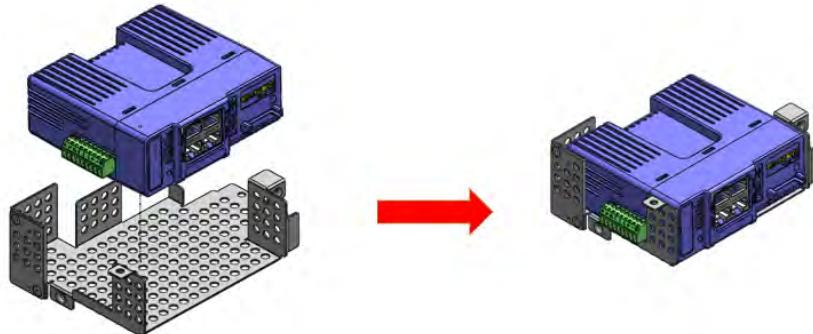
14 Add the SIM card to the new Connected Services Box.



**Note**

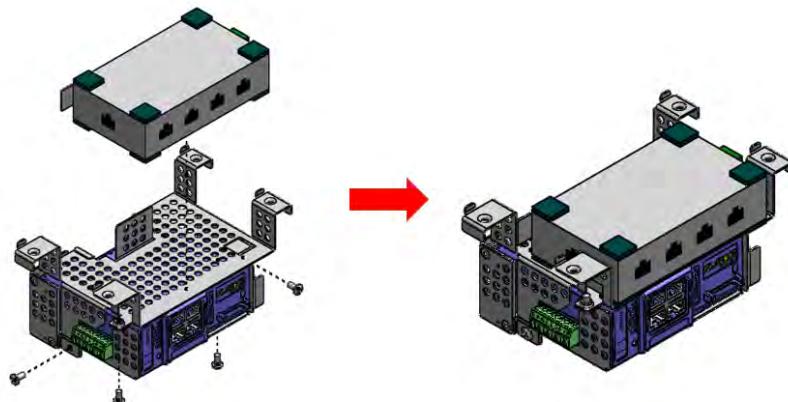
This step of adding SIM card is required only if you are installing a 3G service box (DSQC 1016).

15 Assemble the Connected Services Box in to the new bracket.



xx1800003183

16 If you are using Ethernet switch module then you need four pieces of M4 screws to assemble it.



xx1800003184

17 Assemble the adapter cable.

*Continues on next page*

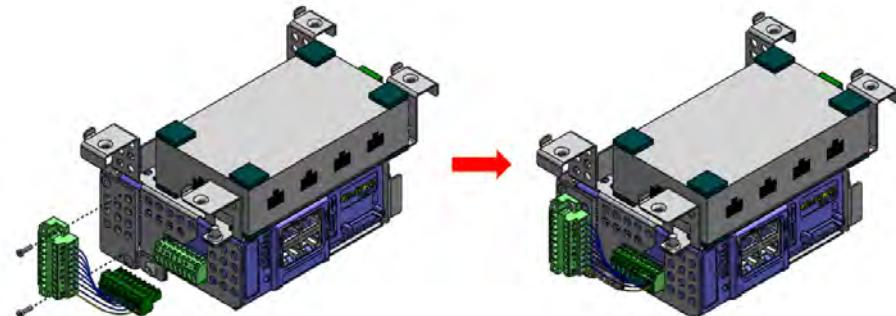
### 3 Installation of Service Box in Robot Controllers

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#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B

*Continued*

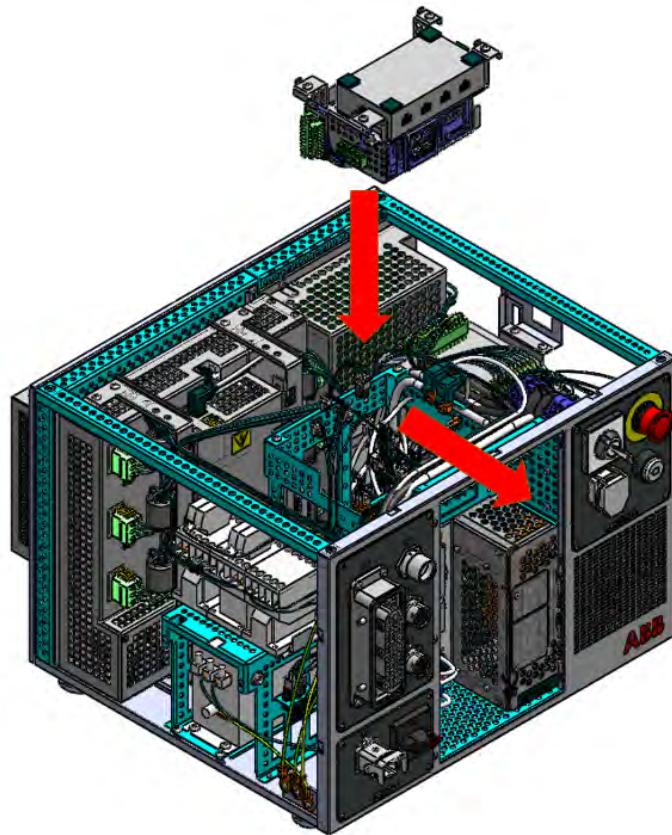
You need to remove the original connector in Connected Service box. Two pieces of M2 screws are needed for this.



xx1800003185

18 Assemble the Connected Services box and Ethernet switch into the controller.

Assemble it from the top and you need to push it forward to align with the holes:



xx1800003186

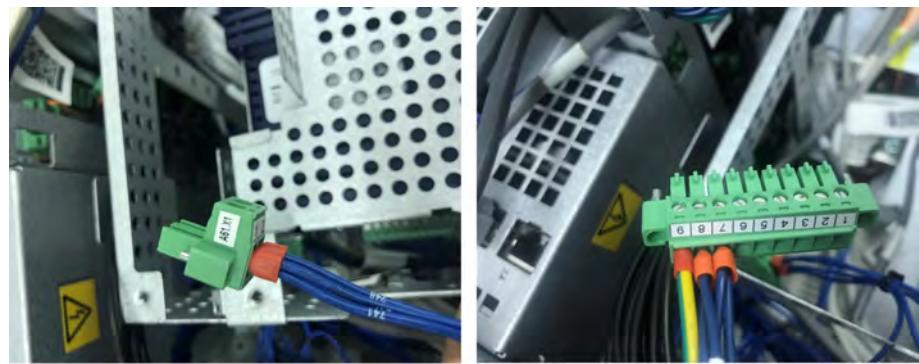
19 Take off the wire from the 2-Pin connector (A61.X1), and connect to the 9-pin connector.

*Continues on next page*

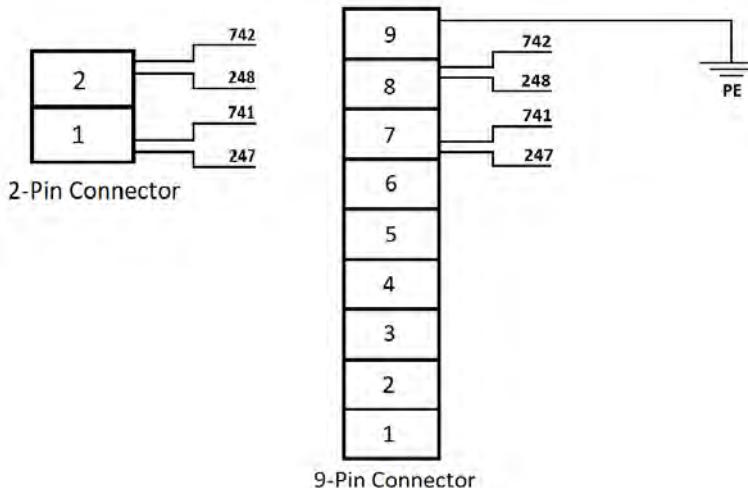
### 3 Installation of Service Box in Robot Controllers

#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B *Continued*

Remove the wires (wire No.741 and 247) from the pin 1 of the 2-pin connector and connect it to the pin 7 of the 9-Pin connector. Also remove the wires (wire No. 742 and 248) from the pin 2 of the 2-pin connector and connect it to the pin 8 of the 9-pin connector. The pin 9 of the of the 9-pin connector is connected to PE (Protective earthing conductor).



xx1800003369



xx1900000208

*Continues on next page*

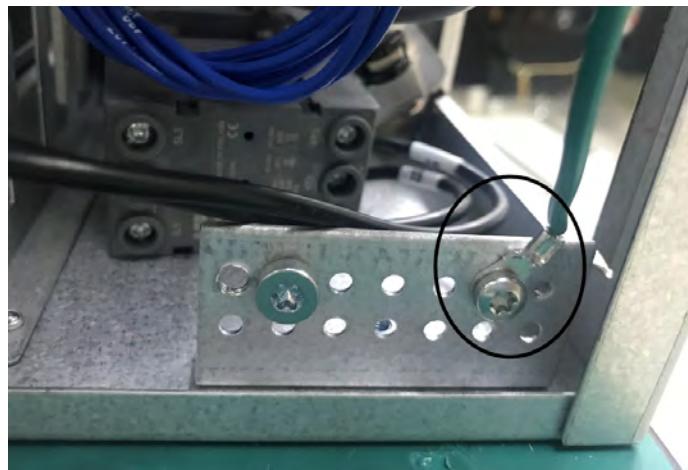
### 3 Installation of Service Box in Robot Controllers

---

#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B

*Continued*

- 20 The other side of the PE is connected to the ground using an M4 screw as shown in the following image.



xx1800003377

- 21 Assemble back the safety board to the controller.



xx1800003370

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B *Continued*

- 22 Connect the cable between the main computer and the Connected Service Box, that is, from X2 to LAN port 1.



xx1800003341

- 23 Connect the antenna to the Connected Services Box.



##### Note

Use magnetic roof antenna for 3G service box.

Use Wi-Fi antenna for Wi-Fi service box.



xx1800003371

*Continues on next page*

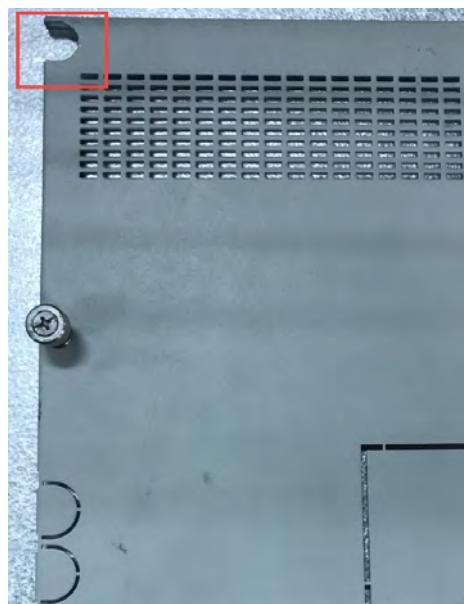
### 3 Installation of Service Box in Robot Controllers

---

#### 3.4 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen before 19B

*Continued*

- 24 Remove the sheet metal in the door's upper left corner and assemble the door.



xx1800003372

- 25 Assemble back the top cover.

The installation/replacement of the Connected Service box is done.



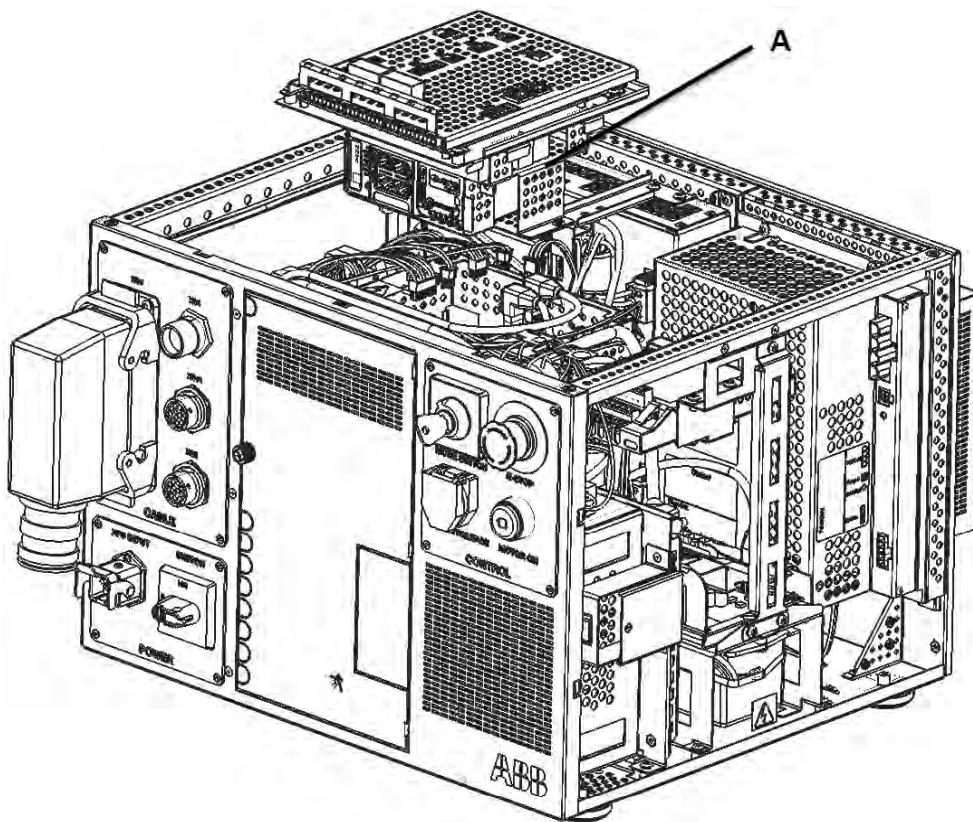
xx1800003342

#### 3.5 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen from 19B

##### Overview

This section explains about the installation of the 3G/Wi-Fi service box (DSQC 1016 3G or DSQC 1023 Wi-Fi) in the IRC5C 2nd robot controller that is released from 19B.

##### Location



xx1800003472

A	Connected Services box
---	------------------------

##### Required equipment

###### Equipment required for 3G service box

Spare Part No.	Equipment	Illustration
3HAC049807-001	DSQC 1016 3G	xx1900000207

*Continues on next page*

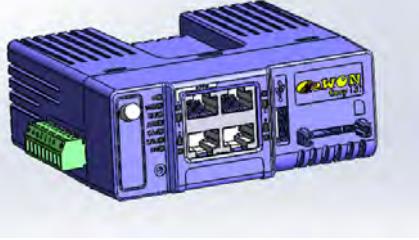
### 3 Installation of Service Box in Robot Controllers

#### 3.5 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen from 19B

*Continued*

Spare Part No.	Equipment	Illustration
3HAC028459-001	Magnetic roof antenna	 xx1800003474
3HAC042958-001	SIM card	 xx1800003475

#### Equipment required for WiFi service box

Spare Part No.	Equipment	Illustration
3HAC058038-001	DSQC 1023 WiFi	 xx1900000207
3HAC059424-001	WiFi Antenna	 xx1800003476

#### Common equipment required for both 3G and WiFi service box

Spare Part No.	Equipment
3HAC069612-001	Retrofit kit

#### Required tools

Tools
M2 screw driver
M4 screw driver

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.5 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen from 19B

*Continued*

##### Tools

Electric screw driver

#### Procedure

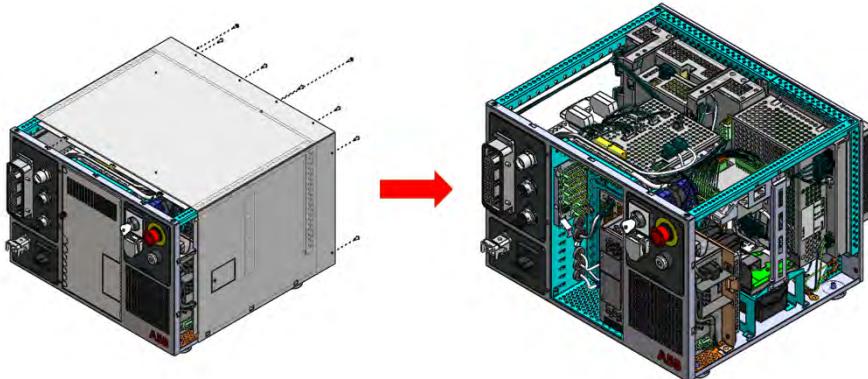
Use the following procedure to install the 3G/WiFi service box in the IRC5C 2nd controller:



Before any work inside the cabinet, read the safety information in section [\*Danger - Make sure that the main power has been switched off! on page 12.\*](#)

2 Disassemble the top cover.

Unscrew the 8 pieces of M4 screws from the back cover. Then the top cover can be taken easily. The front door also need to be removed.



xx1800003179

3 Remove the cable and connectors which are connected to the following:

- Safety board
- Ethernet switch (if installed)
- Connected Services Box (if installed)



**Note**

Keep these connectors, as you need them in the assembly steps.

4 Disassemble the whole module (including Safety Board).



**Note**

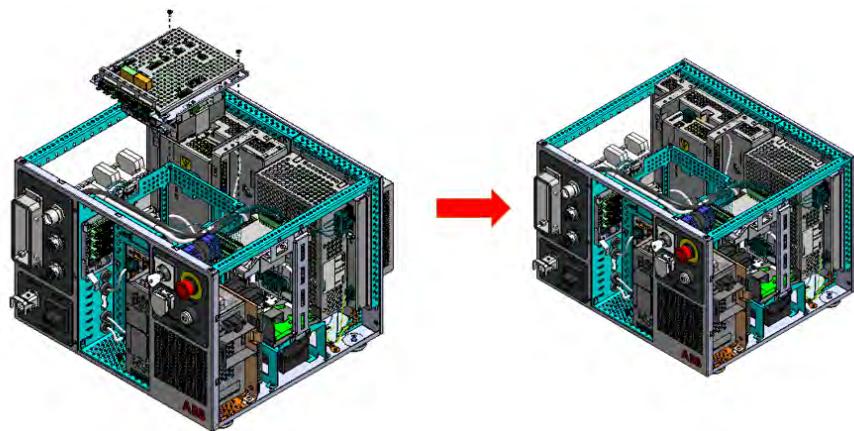
Disassemble the Ethernet Switch and Connected Services Box also from the module, if installed.

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.5 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen from 19B

*Continued*



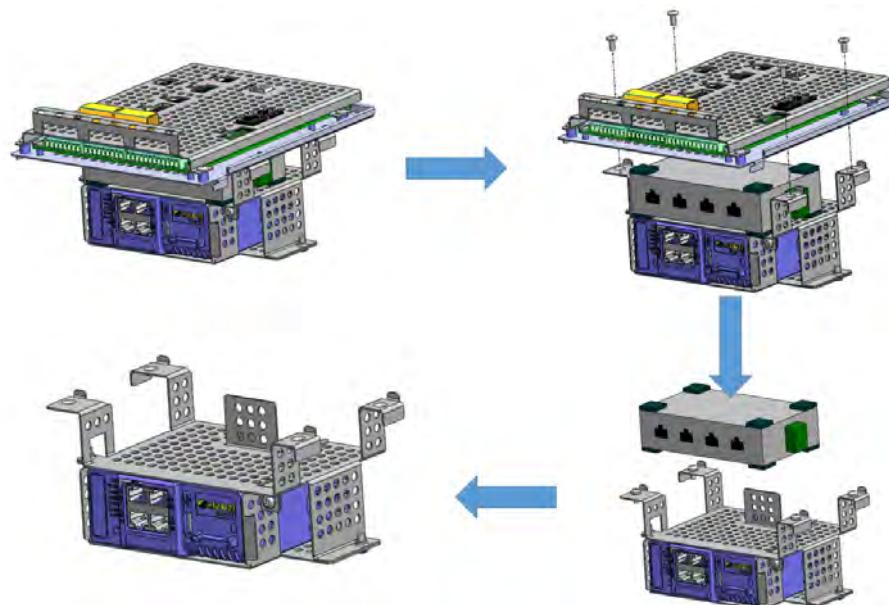
xx1800003180

##### 5 Take out the Safety Board from the module.



###### Note

Also take out the Connected Services Box and Ethernet Switch from the module, if installed.



xx1900000317

##### 6 Remove the kick-off holes in the front panel.



###### Note

Remove the kick-off holes, if the Ethernet Switch and Connected Services box is installed newly in the controller.

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.5 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen from 19B

*Continued*



##### Note

If you choose to install the ethernet switch, remove the top four kick-off holes.

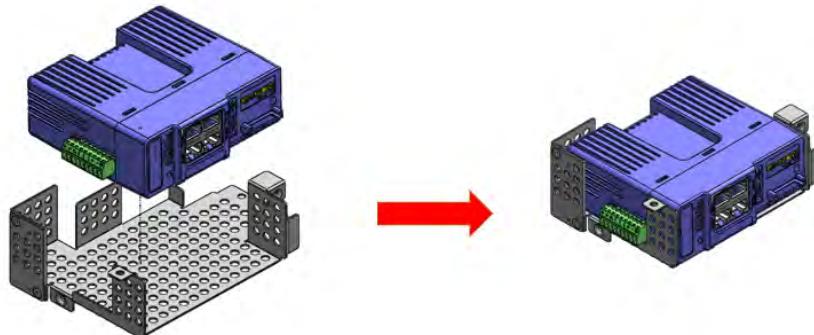
- 7 Add the SIM card to the new Connected Services box.



##### Note

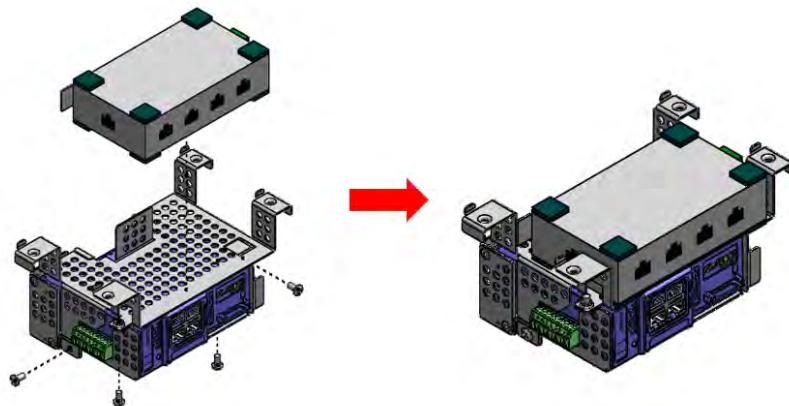
This step of adding SIM card is required only if you are installing a 3G service box (DSQC 1016).

- 8 Assemble the Connected Services box in to the new bracket.



xx1800003183

- 9 If you are using Ethernet switch module then you need four pieces of M4 screws to assemble it.



xx1800003184

- 10 Assemble the adapter cable.

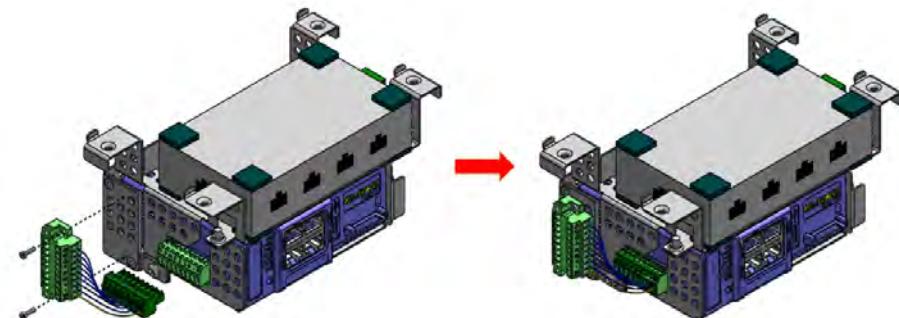
*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.5 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen from 19B

*Continued*

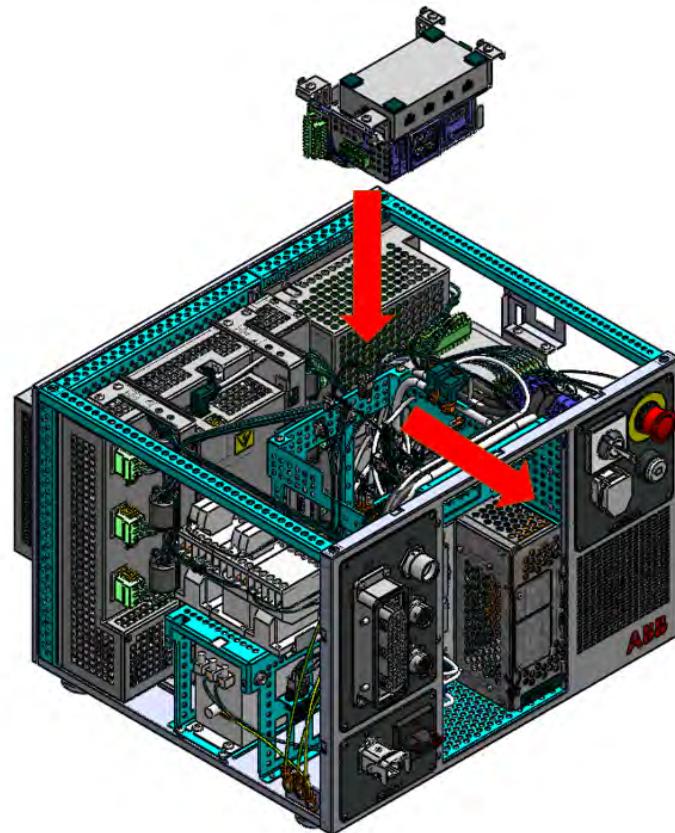
You need to remove the original connector in Connected Service box. Two pieces of M2 screws are needed for this.



xx1800003185

11 Assemble the Connected Services box and Ethernet switch into the controller.

Assemble it from the top and you need to push it forward to align with the holes.



xx1800003186

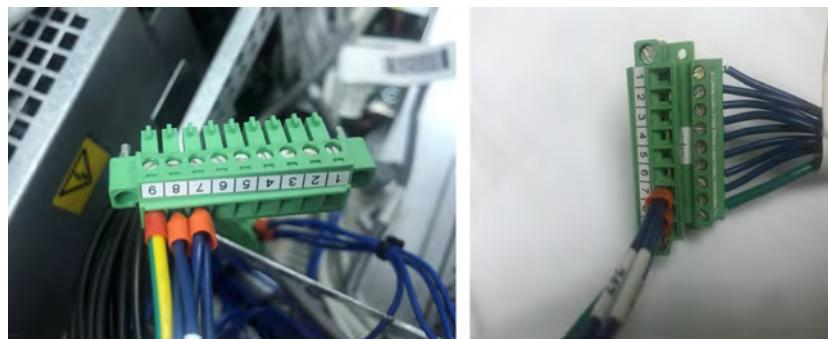
*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.5 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen from 19B

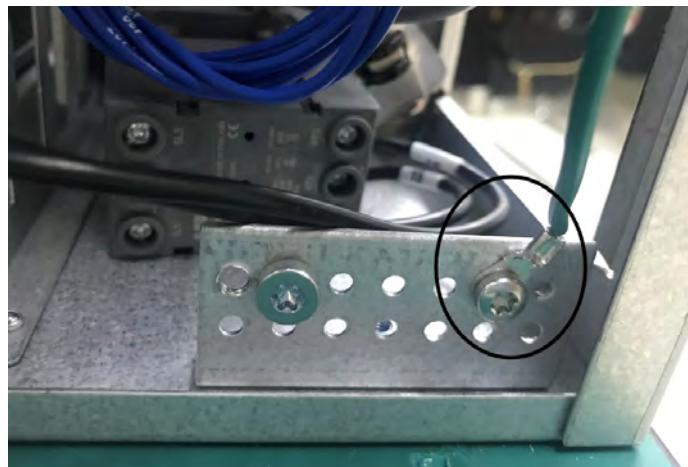
*Continued*

- 12 Connect the cable 3HAC068451-002 to the cable 3HAC068464-002 using the 9-pin connector. Use the two M2 screws to tighten the connector on both sides. The pin 9 is connected to PE.



xx1800003651

- 13 The other side of the PE is connected to the ground using an M4 screw as shown in the following image.



xx1800003377

- 14 Assemble back the safety board to the controller.



xx1900000463

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.5 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen from 19B

*Continued*

- 15 Connect the cable between the main computer and the Connected Service box, that is, from X2 to LAN port 1.



xx1900000462

- 16 Connect the antenna to the Connected Services box.



#### Note

Use magnetic roof antenna for 3G service box.

Use Wi-Fi antenna for Wi-Fi service box.



xx1900000464

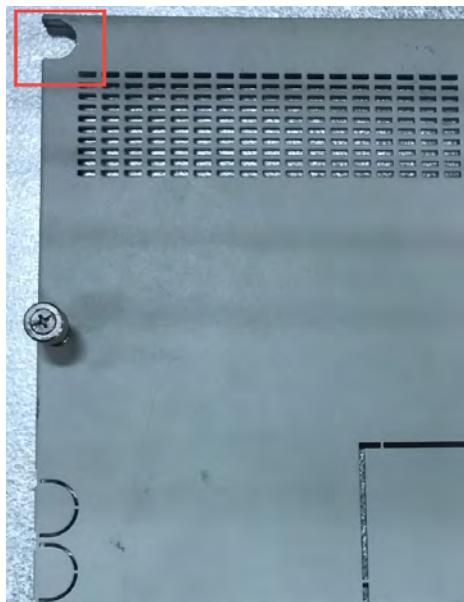
*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.5 Installing or replacing DSQC 1016/1023 in IRC5C 2nd Gen from 19B

*Continued*

- 17 Remove the sheet metal in the door's upper left corner and assemble the door.



xx1800003372

- 18 Assemble back the top cover.

The installation of the 3G/WiFi service box is done in the IRC5C 2nd robot controller .



xx1800003342

### 3 Installation of Service Box in Robot Controllers

#### 3.6 Installation of Network Service Box

#### 3.6 Installation of Network Service Box

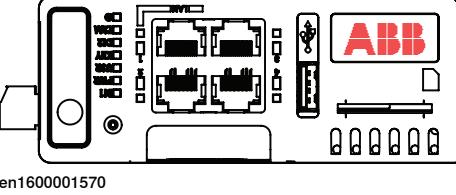
##### Connecting Network Service Box

The following procedure describes the installing of Network Service Box on local network with internet access for Connected Services.



##### Note

The installation of the Network Service Box on the controllers (IRC5 and IRC5P) are similar to the standard Service Box installation except that the connection to internet is done through a WAN port (Port 4) instead of an external antenna (3G WiFi connection).

	Action	Note/illustration
1	Connect the Internet cable to port WAN4 of the Network Service Box.  Note  Do not connect external antenna if 3G WiFi connection is not used.	
2	Configure Network Service Box for Internet connection.	For more information on configuring Network Service Box, see <a href="#">Set up Network Service Box for Connected Services on page 67</a> .

## 3.7 Verifying the installation of the service box

### Overview

This section describes about LEDs to verify that the Service Box is active. It also provides an instruction to make a notification to get traceability.



#### Note

The robot controller must be in operating mode before the LEDs can be checked.



#### Note

In case of any problem during installation, report the case in RobDesk.



#### Note

The SD card slot and USB slot of the service box are not used. Keep the stickers blocking them, otherwise warranty will not be applicable.

### LEDs



en1600001572

LEDs in the front of the Service Box indicate if the box is functioning. The LEDs should be lit as follows:

LED	Indication
BL1	Indicates that the reset button is pressed

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.7 Verifying the installation of the service box

*Continued*

LED	Indication
KEY	Digital Input used for remote Access Key
PWR	Green when power is connected.
USR	Off or flashing during the initialization phase. Green when the initialization finished successfully.
ST	Green after approximately 5 minutes if WAN internet transmission is possible (3G/ WiFi).
@	Green when connection to the ABB server is successful.
DI2	Digital Input 2 (Not used)
T2M	Should be green when Talk2M connection is used (Wired, WiFi or 3G with customer SIMs)
LINK/ACT	Flashing green when the information is sent through the corresponding Ethernet connection.
WAN/LED	Green for LAN ports (1,2,3), Red for port WAN (4)

If the LEDs do not follow the preceding scheme, see [LEDs on page 89](#).



#### Note

In some countries, it could take up to 15 minutes to initiate the 3G communication (ST, USER and @ LEDs green) at the first installation or after a reset of the Service Box.

#### Connection and test

	Action	Note
1	Transfer the following to the Technical Service Engineer / Field Service Engineer: <ul style="list-style-type: none"><li>• SIM card number</li><li>• serial number of the Service Box</li><li>• serial number of the robot controller</li></ul>	The Service Box is marked with a unique serial number on a label. This information together with the serial number of the robot controller and the SIM card number is valuable information to get traceability about which Service Box is connected to which robot controller.
2	The Technical Service Engineer / Field Service Engineer will make a connection between the Service Box and the controller in the Connected Services application.	
3	Test the connection by creating a test alarm.	First example of test alarm: Disconnect the communication cable for an I/O device that is successfully communicating with the robot. The resulting error is: 71058 Lost communication with I/O unit. Second example of test alarm: Press the emergency stop button. The resulting error is: 10013 Emergency stop state.

*Continues on next page*

### 3 Installation of Service Box in Robot Controllers

#### 3.7 Verifying the installation of the service box

*Continued*

	Action	Note
4	When the installation is finished, close the cabinet door.	The cabinet door must be closed properly when the robot system is in production. If the door is not properly closed, the cabinet does not comply with the protection class IP54 and the shield for Electro Magnetic Compatibility is also affected.

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# 4 Service Box configuration

## 4.1 General Configuration

### Configuring the Service Box



#### Note

Configure a Service Box and get additional information for troubleshooting through web pages.

The following procedure provides information about configuring the Network Service Box on local network with internet access and advanced configuration information for 3G/WiFi boxes:

	Action	Note
1	Connect a PC to the LAN port of the Network Service Box.	Connect the PC to the box through the external Controller Service Port. If the box is yet to be installed in the Controller, use the Port 3.
2	Configure the IP address of the PC as 192.168.125.84 and Subnet mask as 255.255.255.0.	The IP address is fixed and no gateway setting is required.
3	Open <a href="http://192.168.125.83">http://192.168.125.83</a> .	Verify that this range of IP address is accessible as local address, if the proxy setting is enabled in the browser. When connected, a login window is displayed.
4	Type <b>config</b> as both user login and password.	After successful validation, the web page is displayed.  <div data-bbox="949 1304 1008 1365" data-label="Image"> </div> <div data-bbox="1038 1320 1102 1349" data-label="Section-Header"> <h4>Note</h4> </div> <p>Wait for a minute and refresh the page manually if,</p> <ul style="list-style-type: none"> <li>the web pages are slow to refresh after a startup or reboot of the Network Service Box .</li> <li>the web pages display a red message indicating that the initialization is not yet finished.</li> </ul>

### Service Box web page

This section describes the available menus and options in the Service Box web page.

#### Information Menu

<b>ABB</b>	Home	Diagnostic	Configuration Menu >>
	Support Information	Support Files	Log off

en1600001523

*Continues on next page*

## 4 Service Box configuration

### 4.1 General Configuration

*Continued*

The following table shows the available options in Information Menu page:

Menu	Description
Home	To view the current user session
Diagnostic	To view the status and logs. <ul style="list-style-type: none"><li>• Event log - contains global historical logs</li><li>• Status - information about System Counters, I/O Servers Counters, System info and so on.</li><li>• Scheduled Actions - list of HTTP/FTP commands and status</li><li>• Real Time Logs - detailed logs of the current session</li></ul>
Support Information	To view support information. <ul style="list-style-type: none"><li>• Connection status, Modem status, Switch status</li><li>• Box memory</li><li>• Time, date, and RobotWare version</li><li>• User Disk information</li><li>• Connection mode and so on.</li></ul>
Support Files	To extract information and logs as text files. <ul style="list-style-type: none"><li>• AllLogs.txt</li><li>• HistoricalEvents.txt</li><li>• SystemStatus.txt</li><li>• ScheduledStatus.txt</li><li>• RealTimeEvents.txt</li><li>• VPNWizard.txt</li><li>• SupportInformation.txt</li></ul>
Log off	To log off the Network Service Box web pages
Configuration Menu >>	To switch to the Configuration Menu page



#### Note

The information available on the Information Menu pages are for advanced support. In case of a problem, save all logs as a file for ABB Support.

- 1 Click Information Menu and select Support Files.
- 2 Right-click AllLogs.txt and select Save Target As to save the logs in a file.

### Configuration Menu



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The following table shows the available options in Configuration Menu page:

Menu	Description
User Setup	To configure the user login/password, to reset to default or factory configuration and define features/restrictions.
Connection Setup	To setup the external connectivity
Local Setup	To setup local network configuration
Connection Status	To view VPN Authentication status
Log off	To log off the Service Box web pages

*Continues on next page*

Menu	Description
Information Menu >>	To switch to the Information Menu page

### Configuring the user

User Setup

User Configuration

User Login:	config	Verify that user is config
Password:	*****	Modify password value to secure config access
Confirm Password:	*****	Confirm password value to secure config access
<input type="checkbox"/> Reset to Default configuration		This will reset to default Connectivity Configuration.
<input type="checkbox"/> Reset to Factory configuration		This will reset to default Connectivity Configuration, Features and Restrictions.

Features       **Modify Features**

<input checked="" type="checkbox"/> Enable Remote Access through the Service Box (Factory:Enabled)	Remote Access to the equipments attached to the LAN Port of the Service Box will be possible. Disabling it will forbid and block the Remote Access features.
<input type="checkbox"/> Enable Remote Configuration from Server (Factory:Enabled)	The configuration of some parameters could be done remotely by the ABB Server. Disabling it will not allow configuration through MyRobot for some parameters (only local configuration will be possible).
<input type="checkbox"/> Enable Embedded Connected Services Gateway (Factory:Disabled)	The Service Box will act as Gateway to Internet for the Robot Controller(s) equipped with Embedded Connected Services. Disabling it will activate the local Service Data gathering directly by the Service Box (only possible on Service Port)

Restrictions       **Modify Restrictions**

<input checked="" type="checkbox"/> Enable ABB Local Account (Factory:Disabled)	The ABB Local account used for validation and troubleshooting will be available. Disabling it will prevent ABB to make local advanced troubleshooting.
<input checked="" type="checkbox"/> Enable ABB Remote Account (Factory:Enabled)	The ABB Remote account used to send command to the box will be available. Disabling it will block all the manual commands from the Web Server User Interface by the Customer or ABB.

**Update User/Features/Restrictions Configuration**

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### To configure the User setup:

Action	Note
1 Open <a href="http://192.168.125.83">http://192.168.125.83</a> .	
2 Type <b>config</b> as both user login and password.	In case, you have changed the password to anything other than <b>config</b> , type the new password.
3 Click Configuration Menu and select User Setup.	The User Setup page appears.
4 Change the password in the password field and click <b>Update Password</b> to change the user login password.	Ensure to memorize the new config password of the box, or the box needs to be fully reset to return to default one.
5 Click <b>Reset to Default Configuration</b> to reset the default value.	
6 Select <b>Reset to Factory Configuration</b> to reset the connectivity, features, and restrictions to the default values.	
7 Select <b>Modify Features</b> to change the Features	Select the features to change
8 Select <b>Modify Restrictions</b> to change the Restrictions	Select the restrictions to change
9 Validate by <b>Update Configuration</b>	

*Continues on next page*

## 4 Service Box configuration

### 4.1 General Configuration

*Continued*

This table describes the features of the Cosy 131 box.

Code	Name	Setup by	Default	Description
S	Connected Services	Disabling Embedded Connected Service Gateway	Enabled	Service data collection and connectivity is managed by Service Box. No need to use Embedded Connected Service.
A	Remote Access	Enabling Remote Access through the Service Box	Enabled	Provide the Remote Access feature to the devices connected to the Service Box.
R	Remote Configuration	Enabling Remote Configuration from Server	Enabled	The Remote Access credentials can be defined from the server (MyRobot).
P	Passthrough Gateway	Enabling Embedded Connected Service Gateway	Disabled	Service data collection is managed by Embedded Connected Services. Connectivity is done through the box (used as gateway) to internet.
L	LAN Configuration	Enabling Embedded Connected Service Gateway	Disabled	Configuration of LAN Service Box is possible for connection outside the controller (Controller WAN used instead of service port).

This table describes the limitations of the Cosy 131 box.

Code	Name	Setup by	Default	Description
1I	Local ABB Account	Enabling ABB Local Account	Disabled	The ABB Local Account used for troubleshooting are available. This can be disabled by the customer if needed.
R	Remote ABB account	Enabling ABB Remote Account	Enabled	The ABB Remote account used for receiving commands from server is available. Disabling the command will block the Connected Services standard behavior.
C	Controller Communication	Enable Communication to the Robot Controller	Enabled / Hidden	The communication with the Robot controller is available. Disabling the command will block the Connected Services standard behavior.
S	Server Communication	Enable Communication to the Server	Enabled / Hidden	The communication with ABB Server is available. Disabling the command will block the Connected Services standard behavior.



#### Note

To maintain high cyber security, it is recommended to change the configuration password and keep the local ABB account disabled. If the password is lost, the Service Box must be fully reconfigured.

*Continues on next page*

#### Configuring the Local Connectivity configuration

##### Configuring the LAN setup

Local Setup		
Box LAN IP Setup		
IP Type	Static LAN IP	Static IP
IP address	192.168.125.83	LAN IP address (Ex: 192.168.125.83) : Mac Address LAN = 00:03:27:42:e2:e4
Subnet mask	255.255.255.0	LAN subnet mask (Ex: 255.255.255.0)
Remote Access Setup		
Remote Access Account	CustXX-Account	Talk2m Account
Remote Access User Name	User-RA-Admin	Talk2m User Name
Remote Access Password	*****	Talk2m Password
Remote Access Box Name	1234-5555-ON-12400-56	Box Name used for Talk2m registration of this box

Change Configuration

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##### To configure the LAN setup:

	Action	Note
1	Open <a href="http://192.168.125.83">http://192.168.125.83</a> .	
2	Type <b>config</b> as both user login and password.	In case, you have changed the password to anything other than <b>config</b> , type the new password.
3	Click Configuration Menu and select Local Setup.	The Local Setup page appears.
4	Configure the Box LAN IP configuration of the Service Box.	
5	Click Change configuration.	Validates the change and the box is rebooted.

##### Configuring advanced setup

Local Setup		
Box LAN IP Setup		
IP Type	Static LAN IP	Static IP
IP address	192.168.125.83	LAN IP address (Ex: 192.168.125.83) : Mac Address LAN = 00:03:27:43:3c:8c
Subnet mask	255.255.255.0	LAN subnet mask (Ex: 255.255.255.0)
Remote Access Setup		
Remote Access Account		Talk2m Account
Remote Access User Name		Talk2m User Name
Remote Access Password		Talk2m Password
Remote Access Box Name		Box Name used for Talk2m registration of this box

Change Configuration

If the box has Remote Access features, the credentials configuration is displayed. For more details, see [Remote Access on page 107](#).

	Action	Description
1	Type the Talk2M account credentials.	Type the credentials in the fields <b>Remote Access Account</b> , <b>Remote Access User Name</b> and <b>Remote Access Password</b> .
2	Define the name of the box in the <b>Remote Access Box Name</b> field.	For example, RSA-BOX-0821-0002-56 or ROB-12-34567.

*Continues on next page*

## 4 Service Box configuration

### 4.1 General Configuration

*Continued*

	Action	Description
3	Click Change configuration.	Validates the change and the box is rebooted.



#### Note

If the Feature Remote Configuration is Enabled , then the credentials are displayed read-only and are modifiable only from MyRobot.



#### Note

If the Feature Embedded Connected Services Gateway is disabled, then the Box LAN IP setup are displayed (read-only) as the box is connected to the Service port only.

## 4.2.1 Set up 3G Service Box for Connected Services

## 4.2 3G or WiFi Service Box

## 4.2.1 Set up 3G Service Box for Connected Services

## Overview

The service box with a modem DSQC1016 has 3G connection as their default configuration. You do not need to configure anything when such a service box is installed with ABB SIMs. In case, you need to enhance 3G connectivity, you can do so by configuring it from the Connection Setup page. See [Configuring WAN Port using 3G on page 63](#).

## Configuring WAN Port using 3G



## Note

While using customer SIMs for connectivity, refer to [Network Service Box prerequisites on page 67](#).

	Action	Note
1	Open <a href="http://192.168.125.83">http://192.168.125.83</a> .	
2	Type <b>config</b> as both user login and password.	In case, you have changed the password to anything other than <b>config</b> , type the new password.
3	Click Configuration Menu and select Connection Setup.	The WAN Setup page is displayed.
4	Select <b>Force Date Change</b> from Date Setup. The Date and Time fields are displayed. <ul style="list-style-type: none"> <li>• Enter Date in DD/MM/YYYY format</li> <li>• Enter Time in HH:MM:SS format</li> </ul>	If the connection is through ABB Private SIM, then <b>Force Date Change</b> is not required.
5	Select an option from the <b>WAN Setup</b> list. <ul style="list-style-type: none"> <li>• Select <b>WAN internal (Modem)</b> for default configuration (3G connection).</li> </ul>	
6	Select the type of 3G modem connection from the <b>Wireless Network selection</b> list. <ul style="list-style-type: none"> <li>• <b>WCDMA preferred then GSM</b></li> <li>• <b>WCDMA only</b></li> <li>• <b>GSM only</b></li> </ul>	
7	Select the band for GSM mode in 3G modem from the <b>GSM band selection</b> list.	
8	Enter the ID of the operator to be forced during the initial 3G connection in the <b>Force Operator for 3G connection</b> .  To force the modem to detect the best operator by itself put 0 as operator ID, leave blank for a Mix of AUTO DETECTION and test of all available operators.	This option is used only by Advanced users. Do not enter incorrect ID as it results in delay of GPRS/3G connection. To view the operator ID available, navigate to <b>Information</b> menu, and then select <b>Support Information</b> page.

Continues on next page

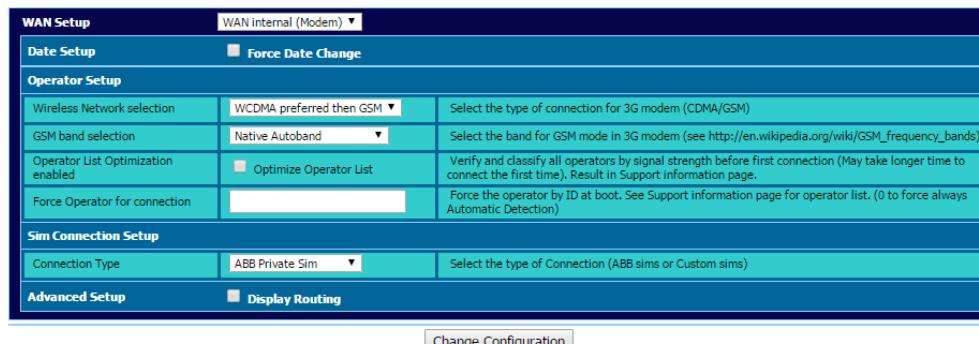
## 4 Service Box configuration

### 4.2.1 Set up 3G Service Box for Connected Services

Continued

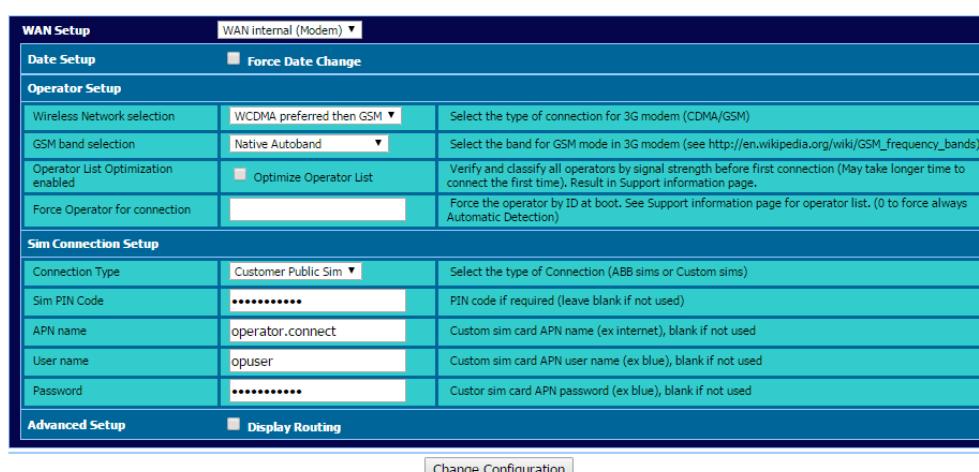
Action	Note
9 Check to Optimize Operator list.   <b>Note</b>  This optimization can take a very long time and is needed only if connection issues.	
10 Select the Connection Type (ABB Private Sims or Customer Public Sim)   <b>Note</b>  Customer public sims requires to support internet access and need to be configured for PIN, APN and credentials.	For using the service box connected in 3G with remote access feature enabled or as a Gateway, a customer public sim is required. For more information, see <i>Initial configuration on page 109</i> and <i>Overview on page 147</i>
11 Click Change Configuration.	

#### Configuring with ABB Private SIMs



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#### Configuring with Customer Public SIMs



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## 4.2.2 Set up WiFi Service Box for Connected Services

### Overview

The Service Box with WiFi (DSQC1023) has WiFi connection as the default configuration. Additional configuration is required for WiFi connection, which can be done from the Connection Setup page. See [Configuring WAN Port using WiFi on page 65](#).

### Configuring WAN Port using WiFi



#### Note

While using customer WiFi for connectivity, refer to [Network Service Box prerequisites on page 67](#).

	Action	Note
1	Open <a href="http://192.168.125.83">http://192.168.125.83</a> .	
2	Type config as both user login and password.	In case, you have changed the password to anything other than config, type the new password.
3	Click Configuration Menu and select Connection Setup.	The WAN Setup page is displayed.
4	Select Force Date Change from Date Setup. The Date and Time fields are displayed. <ul style="list-style-type: none"> <li>• Enter Date in DD/MM/YYYY format</li> <li>• Enter Time in HH:MM:SS format</li> </ul>	If the connection is through ABB Private SIM, then Force Date Change is not required.
5	Select an option from the WAN Setup list. <ul style="list-style-type: none"> <li>• Select WAN internal (Wi-Fi).</li> </ul>	
6	Select Network Selection (list or manual)	List define automatically the security mode of Wi-Fi.
7	Enter the WiFi network Name (SSID), password and select the security option (if manual).	
8	Select an option from the Address Setup list. <ul style="list-style-type: none"> <li>• Select Static WAN IP to configure the WAN IP and DNS IP manually.</li> <li>• Select DHCP WAN IP to configure the WAN IP and DNS IP automatically.</li> </ul>	
9	Select Via DHCP from DNS Setup to configure DHCP Config.	Once you select Via DHCP, the WAN IP and DNS IP fields are disabled.
10	Select User Proxy from Proxy Setup to configure the proxy server. (If a proxy is needed to connect to the internet.)	Proxy can be configured: <ul style="list-style-type: none"> <li>• with proxy authentication</li> <li>• without proxy authentication</li> </ul>

*Continues on next page*

## 4 Service Box configuration

### 4.2.2 Set up WiFi Service Box for Connected Services

*Continued*

	Action	Note
11	Click Change Configuration.	This reboots the Network Service Box and takes few minutes for re-connecting. The Network connection status can be tracked through the ABB VPN Status page. For more information, see <a href="#">Verifying Network Connection on page 72</a> .

#### Configuring with WiFi

The screenshot shows the 'WAN Setup' configuration page for a WiFi connection. The page is titled 'WAN Internal (Wifi)'. It includes sections for Date Setup, Network Selection, Address Setup (Wifi), DNS Setup (Wifi), DHCP Config (Wifi), Proxy Setup, and Advanced Setup. The 'Address Setup (Wifi)' section is set to 'DHCP WAN IP'. The 'DNS Setup (Wifi)' section has 'Via DHCP' checked. The 'DHCP Config (Wifi)' section shows a network name field. The 'Proxy Setup' and 'Advanced Setup' sections have their respective checkboxes checked. At the bottom right is a 'Change Configuration' button.

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## 4.3.1 Set up Network Service Box for Connected Services

## 4.3 Network Service Box Configuration

### 4.3.1 Set up Network Service Box for Connected Services

#### Overview

The Network Service Box is similar to the standard Service Box. But the connection to remote server is through the external port WAN4, connected to Internet instead of internal wireless port (3G or WiFi). The WAN port is configured with an external PC to define the connection to internet (DHCP, static address, proxy, and so on).

#### Network Service Box prerequisites

To connect the Network Service Box for Connected Services on a local network with Internet access, the following must be defined:

 Note	
Prerequisite	Description
WAN IP of the Network Service Box	<ul style="list-style-type: none"> <li>• Through DHCP (no configuration required)</li> <li>• Statically (configure IP, Subnet Mask , Gateway)</li> </ul>
DNS IP of the Network Service Box	<ul style="list-style-type: none"> <li>• Through DHCP (no configuration required)</li> <li>• Statically (configure Primary/Secondary DNS IP)</li> <li>• Verify DNS lookup for all the VPN Servers (see Note in the section <a href="#">Connecting the Network Service Box to the local network and Internet on page 68</a>).</li> </ul>
Access to internet	<ul style="list-style-type: none"> <li>• without proxy (no configuration required)</li> <li>• proxy without authentication (provide proxy IP address and port)</li> <li>• proxy with authentication (provide proxy IP address, port, user login and password for authentication)</li> <li>• Basic and NTLM proxy authentications are supported.</li> </ul>
Firewall	<ul style="list-style-type: none"> <li>• No firewall (no configuration required)</li> <li>• Firewall activated (provide access to internet on Port 443 (HTTPS) for the Network Service Box, all other ports can be closed)</li> </ul>
IP Filtering	<ul style="list-style-type: none"> <li>• No IP Filtering (no configuration required)</li> <li>• IP Filtering (provide outbound access to ABB Servers, see Note in the section <a href="#">Connecting the Network Service Box to the local network and Internet on page 68</a>, all Inbound connections can be closed)</li> </ul>

*Continues on next page*

## 4 Service Box configuration

### 4.3.1 Set up Network Service Box for Connected Services

*Continued*

#### Connecting the Network Service Box to the local network and Internet

The Network Service Box is connected to an Internet Gateway through its external WAN port. The connection can be either through ADSL/3G modem or internal router and/or proxy. The Network Service Box is configured to use the external WAN port instead of the internal GPRS connection. The WAN port can be defined with static or DHCP IP address. The access to Internet can be configured to be direct or via a proxy authenticated or not. The supported proxy authentications are Basic or NTLM.



#### Note

The connection is secured using HTTPS (port 443) to initiate an outbound connection and to create a secured VPN tunnel to the ABB server.

The Network Service Box connects the outbound to the following Connection Service addresses:

- Firmware >= 0200
  - as.pro.talk2m.com (92.52.111.210) to initiate and certify the connection.
  - device.vpnX.talk2m.com (X = 1-10) for tunnel connections.

If a firewall is used on the local network, HTTPS port and the ABB Service addresses should be reachable.

#### Quick set up of Network Service Box

Use this procedure for quick set up of Network Service Box.

	Action	Note
1	Connect the WAN port of the Network Service Box to the internet gateway.	
2	Connect a PC (IP: 192.168.125.84) to the external service port of the controller.	
3	Open <a href="http://192.168.125.83">http://192.168.125.83</a> .	
4	Type config as both user login and password.	For more information about setting up the user, see <a href="#">Configuring the user on page 59</a> .
5	Click Configuration Menu and select WAN Setup.	For more information about setting up the WAN port, see <a href="#">Configuring WAN Port using 3G on page 63</a> .
6	Click Configuration Menu and select ABB VPN Status.	For more information about the status of VPN connection, see <a href="#">Verifying Network Connection on page 72</a> .
7	Verify that the connection to the ABB server is correct.	The LED of the Modem turns green.

#### Configuring WAN Port using Internet

	Action	Note
1	Open <a href="http://192.168.125.83">http://192.168.125.83</a> .	

*Continues on next page*

## 4.3.1 Set up Network Service Box for Connected Services

*Continued*

Action	Note
2 Type config as both user login and password.	In case, you have changed the password to anything other than config, type the new password.
3 Click Configuration Menu and select WAN Setup.	The WAN Setup page is displayed.
4 Select Force Date Change from Date Setup. The Date and Time fields are displayed. <ul style="list-style-type: none"><li>• Enter Date in DD/MM/YYYY format</li><li>• Enter Time in HH:MM:SS format</li></ul>	This is optional and is needed only if the date is completely invalid i.e. if the current date of the box is different from the present date and if the connection is not possible.  To view the current date of the box, navigate to Information menu, and then select Home page.
5 Select an option from the WAN Setup list. <ul style="list-style-type: none"><li>• Select WAN external (X14) to configure the WAN IP address, DNS IP address and Web proxy through an Internet Gateway (Network Service Box).</li></ul>	
6 Select an option from the Address Setup list. <ul style="list-style-type: none"><li>• Select Static WAN IP to configure the WAN IP and DNS IP manually.</li><li>• Select DHCP WAN IP to configure the WAN IP and DNS IP automatically.</li></ul>	
7 Select Via DHCP from DNS Setup to configure DHCP Config.	Once you select Via DHCP, the WAN IP and DNS IP fields are disabled.
8 Select User Proxy from Proxy Setup to configure the proxy server. (If a proxy is needed to connect to the internet.)	Proxy can be configured: <ul style="list-style-type: none"><li>• with proxy authentication</li><li>• without proxy authentication</li></ul>
9 Click Change Configuration.	This reboots the Network Service Box and takes few minutes for re-connecting.  The Network connection status can be tracked through the ABB VPN Status page. For more information, see <a href="#">Verifying Network Connection on page 72</a> .

*Continues on next page*

## 4 Service Box configuration

### 4.3.1 Set up Network Service Box for Connected Services

*Continued*

#### Configuring with wired Internet

WAN Setup		WAN external (4)
Date Setup		<input type="checkbox"/> Force Date Change
Address Setup (Wired)		DHCP WAN IP
IP address	10.33.53.78	WAN IP address (Ex: 192.168.111.222) : Mac Address WAN = 00:03:27:03:3b:02
Subnet mask	255.255.254.0	WAN subnet mask (Ex: 255.255.0.0)
Default gateway	10.33.52.1	Leave blank (or 0.0.0.0) if no gateway
DNS Setup (Wired)		<input checked="" type="checkbox"/> via DHCP
Primary DNS IP address	10.33.72.4	DNS is mandatory
Secondary DNS IP address	10.33.141.4	Leave blank (or 0.0.0.0) if no secondary DNS
DHCP Config (Wired)		
Network name		Ex: myabbbox or myabbbox.box123.com (a-z,0-9, Cfr: RFC 4702), value common to LAN and WAN
DHCP Timeout	45000	DHCP timeout in MSec
Proxy Setup		<input checked="" type="checkbox"/> Use Proxy
Proxy server IP address	proxy.cust.com	Proxy server IP address (name possible only if recognized by the DNS)
Proxy server IP Port	8080	Proxy server IP port (ex 8080)
Proxy User Name	custuser01	Proxy user name if proxy authenticated or blank
Proxy Password	*****	Proxy password if proxy authenticated or blank
Advanced Setup	<input type="checkbox"/> Display Routing	
<input type="button" value="Change Configuration"/>		

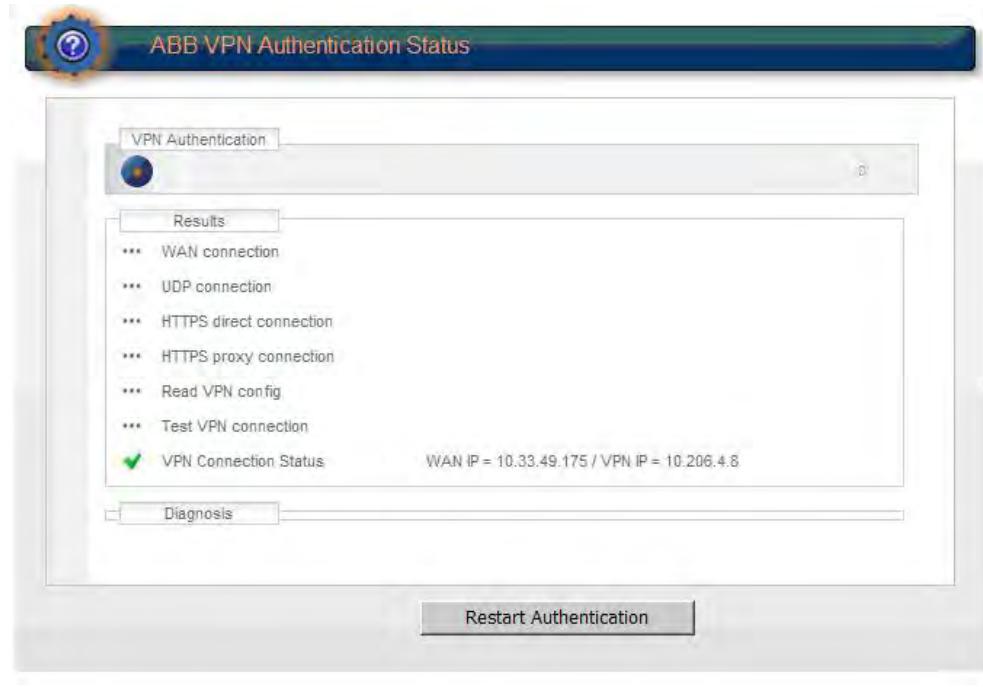
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#### VPN Connection Status

After a successful complete VPN authentication, when all the certification have been stored only the VPN Connection Status is displayed.

The following are the different scenarios of VPN Connection Status:

VPN Connection Status successful



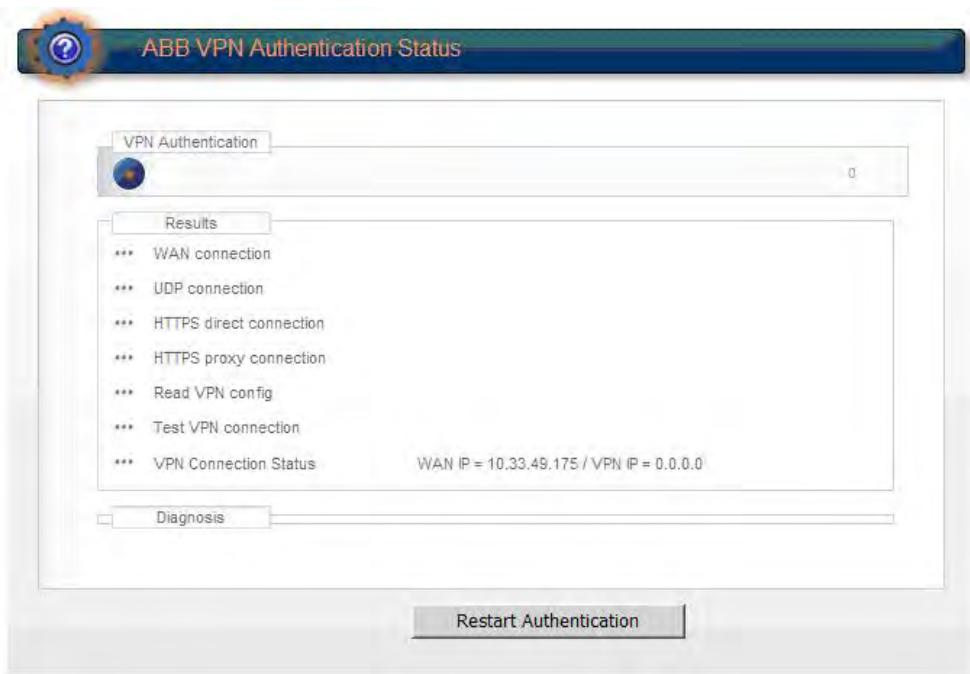
VPN\_Connecti

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### 4.3.1 Set up Network Service Box for Connected Services

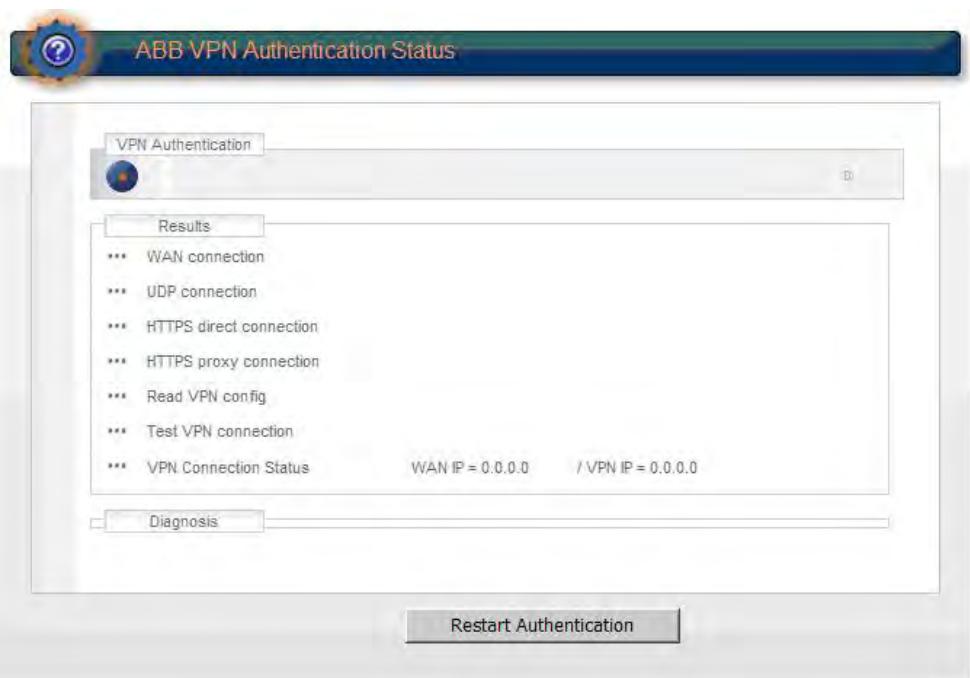
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VPN Connection Status not yet Successful (No VPN IP)



VPN\_Connecti

VPN Connection Status not yet successful (No WAN IP)



VPN\_Connecti

## 4 Service Box configuration

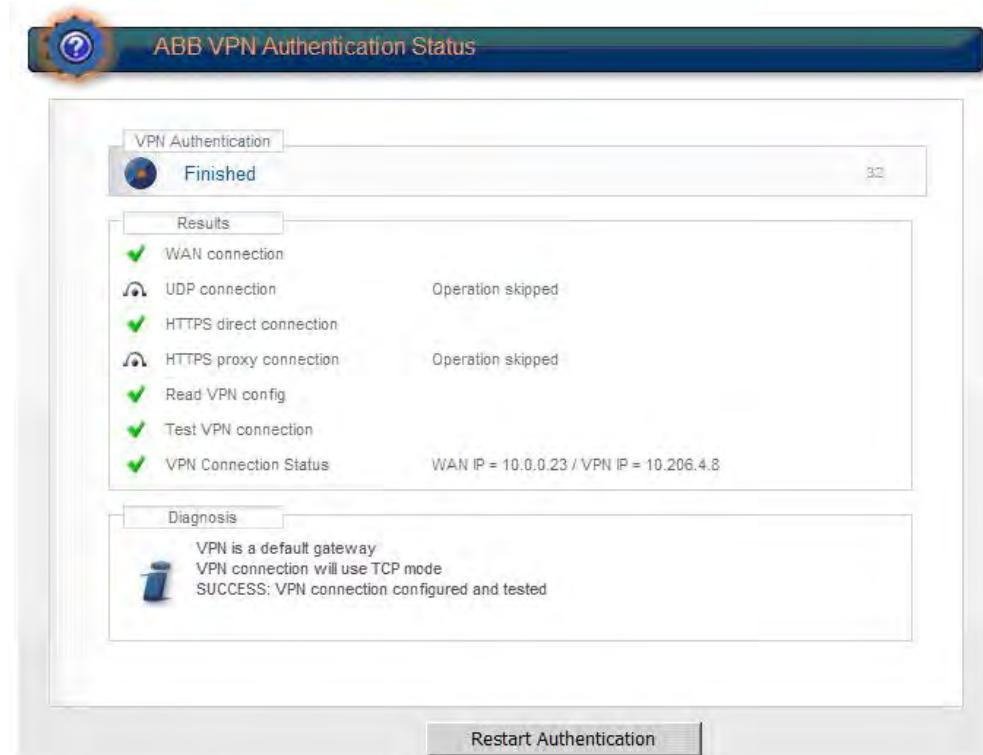
### 4.4 Verifying Network Connection

#### 4.4 Verifying Network Connection

##### Overview

This section describes the VPN authentication and network connection status after the configuration. The VPN authentication is used for wired or WiFi connection or 3G with customer public SIMs. It is not used with ABB SIMs.

	Action	Note
1	Open <a href="http://192.168.125.83">http://192.168.125.83</a> .	
2	Type config as both user login and password.	In case, you have changed the password to anything other than config, type the new password.
3	Click Configuration Menu and select ABB VPN Status.	The ABB VPN Authentication Status page appears.



VPN\_Authenti

The ABB VPN Authentication Status page has the following tabs:

##### VPN Authentication

Menu	Description
Process Indicator icon	Indicates the status of the VPN authentication. <ul style="list-style-type: none"><li>• Rotate - indicates establishing VPN connection.</li><li>• Stop - indicates VPN authentication is completed.</li></ul>
Counter	Indicates the duration of VPN authentication in seconds

*Continues on next page*

**Results**

Menu	Description
WAN connection	Indicates the box has a WAN address
UDP connection	Indicates if the connection to the internet is done through UDP. If UDP is not available, then the connection is done through TCP and the message <i>Operation skipped</i> is displayed.
HTTPS direct connection	Indicates if the connection to the internet is through HTTPS without proxy. If not, then the message <i>Operation skipped</i> is displayed.
HTTPS proxy connection	Indicates if the connection to the internet is through HTTPS with proxy. If not, then the message <i>Operation skipped</i> is displayed.
Read VPN config	Indicates if the VPN configuration parameters are secured correctly
Test VPN connection	Indicates if the VPN connection is validated correctly
VPN Connection Status	Indicates if the VPN connection is implemented correctly
WAN / VPN	Indicates if the WAN and VPN IP address are defined correctly

**Diagnosis**

Displays information, warning, or error reports about authentication process.

**Restart authentication**

This button allows to restart the authentication process.

**Note**

The complete authentication of process is done to validate and secure the channel and receive ABB certificates -

- after modifying the configuration
- after forcing an authentication through the Restart authentication button
- if there is a problem to setup the connection correctly or if the connection is lost

**Note**

The LED color of the modem (ST LED) indicates the status of the network connection to the server by wireless connection.

- Green indicates the connection is successful.
- Off indicates the connection is not successful.

**Note**

T2M LED is green if Talk2M is used for connectivity.

@ LED is green when the connection to ABB is successful.

## 4 Service Box configuration

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### 4.5 UAS requirements for Connected Services

#### 4.5 UAS requirements for Connected Services

##### UAS rights required for Connected Services

For IRC5 Controllers with RobotWare 5.11 and above, the user must have the following UAS rights:

- Read access to Controller disks (UAS\_FTP\_READ).
- Write access to Controller disks (UAS\_FTP\_WRITE).
- Backup and save (Controller backup, save CFG to file) (UAS\_BACKUP).
- Write access to Controller I/O signal (scheduled MCC2, Paint IPS backup) (UAS\_IO\_WRITE).
- Write access to Controller properties (clock synchronization) (UAS\_CONTROLLER\_PROPERTIES\_WRITE).



##### Note

The service box needs to be restarted if rights are changed on the user in RobotWare, as the user needs to be re-logged in by the service box for the new rights to take effect.



##### Note

User Authorization System (UAS) accounts is administered from *RobotStudio*. For more information on User Authorization, see *Operating manual - RobotStudio*.

# **5 Network Service Box connectivity**

## **5.1 Overview**

This section describes the connectivity and installation of the service box for large installations or when connected with WiFi or 3G with customer SIMs. This mode is also required when Remote Access is enabled. Every user has their own networking rules; the connectivity needs to be customized to their network requirements.

## 5 Network Service Box connectivity

### 5.2 Connectivity

#### 5.2 Connectivity

##### Network Service Box Description

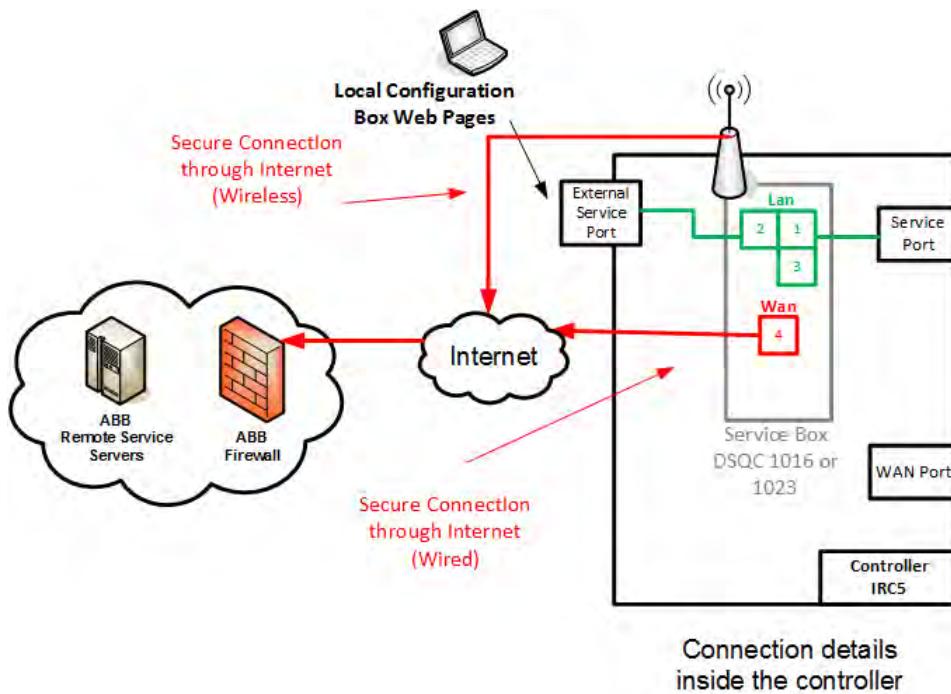
The Network Service box has:

- a three port 10/100 Mb LAN switch for robot connectivity (LAN1, LAN2, LAN3).
- a WAN port for ABB secure connectivity through Internet (WAN4).
- The Service Box Connected WiFi, 3G or with customer SIMs follow the same principles of connectivity (but wireless).

##### Network Service Box Connection

The Network Service Box needs to be installed inside the Controller and requires Internet access to create secure communication to ABB.

- The LAN port of the box is connected to the robot for internal communication and event supervision through the ethernet Service port. The Service port is replicated outside the Controller for local configuration of the Robot Controller and the Network Service Box (green).
- The WAN port must have an outbound access to Internet to create a secure direct connection to ABB (red).

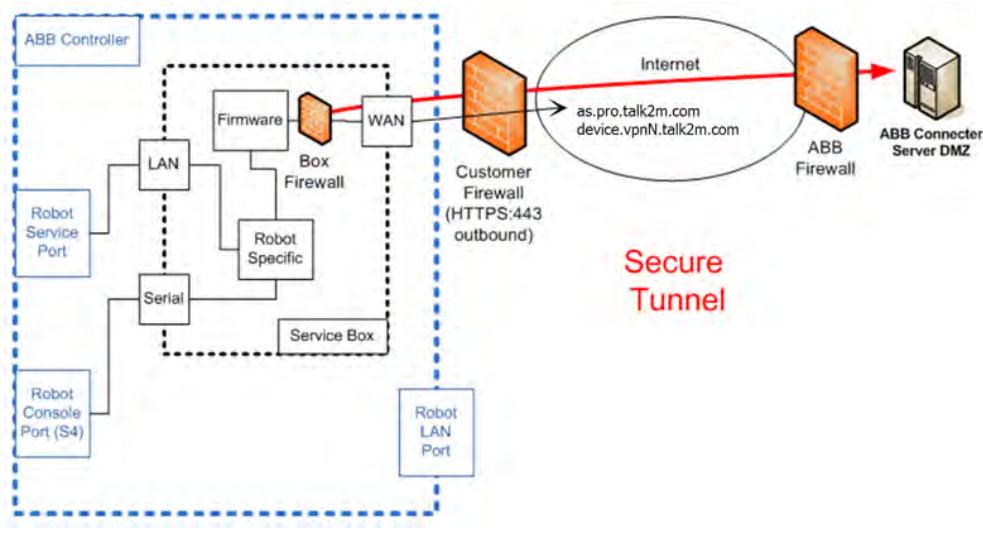


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**Connection Security**

The following illustration provides an overview of the connectivity between a Service Box installed inside a Robot Controller and ABB server and the different security layers.



en1600001561

The Service box creates a secure connection point to point from the box to ABB connector server.

The box should communicate outbound on Internet (from inside to outside) using one port (HTTPS:443) and some IP addresses:

- *as.pro.talk2m.com for authentication and certifications*
- *device.vpn1.talk2m.com, device.vpn2.talk2m.com ... device.vpn10.talk2m.com to create the secure tunnel*

The firewall stays closed to any inbound (from external) requests.

**Note**

ABB has secured the end of connection inside a secure ABB server managed by a corporate firewall in the DMZ zone.

For additional security, the box is equipped with an internal firewall and security rules that:

- allows traffic inside the tunnel to the box only using HTTP:80 and FTP21: ports.
- allows outside HTTP/FTP commands from ABB only up to the firmware of the box.
- prevents access or routing to the local LAN or WAN port from external connections

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## 5 Network Service Box connectivity

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### 5.2 Connectivity

*Continued*



#### Note

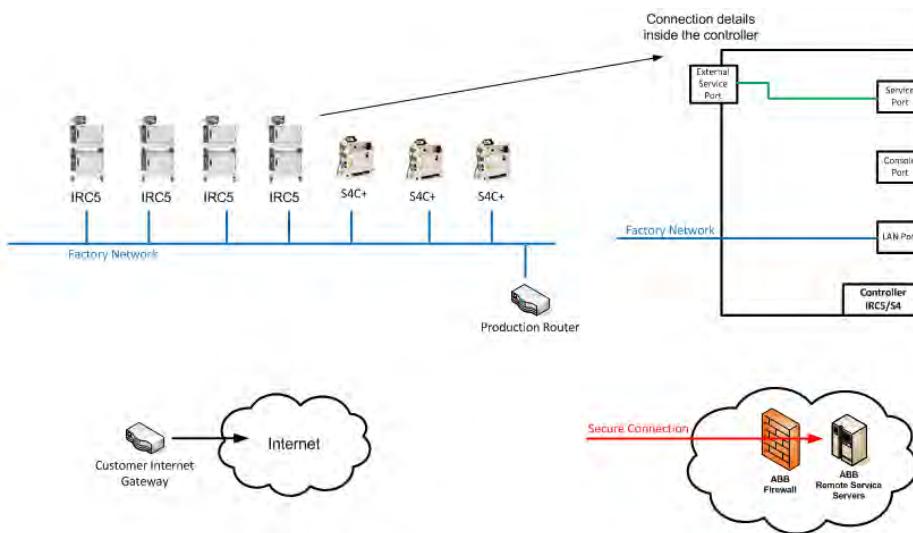
- This will keep the equipments, Robot Controller, and the network secure even when the box is connected securely to ABB.
- For more information on ABB Connected Services IT Security, download a copy of ABB Connected Services - IT security white paper Ver 2.3.pdf from the ABB library. See [ABB Remote Service - IT security white paper Ver 2.3.pdf](#).

## 5.3 Topology

### Large installation

The topology of the large installation network consists of

- the factory network aggregated through factory routers. The Robot Controllers are connected to the factory network through their internal LAN Port (called as WAN port)
- the customer Internet gateway to provide access to equipment's requiring Internet access. This access is often restricted to security, not connected directly to factory network and with external connection only.



xx1300002135

The installation of Connected Services in large installation consists of

- implementing a Network Service box in every Robot Controller
- creating a secure connection from the WAN port of the box to ABB RS Servers through the Customer Internet gateway by using the benefits of the existing Internet connectivity and local networking.

Different topologies exist to provide access to Internet depending on the user policy and availability of Internet connection in industrial equipments.

- Connection through the factory network
- Connection using a separate service network

### Connection through the factory network

This type of connection is used when Internet access through the existing factory network is allowed. The secure connection from the Service Box will be done through this factory network.

- This type of connection uses the existing factory network to bridge the Internet gateway and to provide the service boxes an external internal access for creating the secure connection to ABB.
- The connection to Internet will be provided by an access to Internet on the factory network.

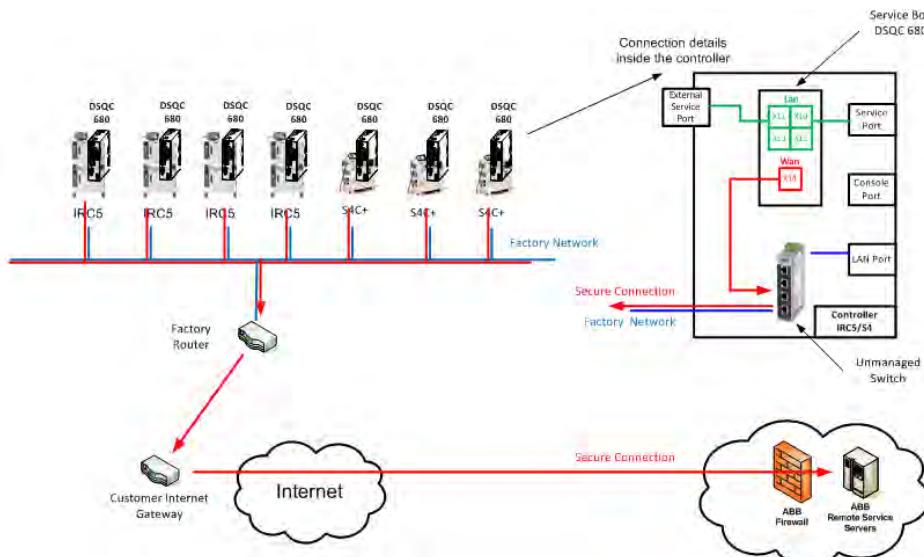
*Continues on next page*

## 5 Network Service Box connectivity

### 5.3 Topology

*Continued*

- In this case, a switch is needed to reuse the existing physical connection to the LAN inside the Robot Controller and to split between robot LAN and Service Box WAN.
- In some cases, a switch already exists and can be reused instead of installing a specific one.



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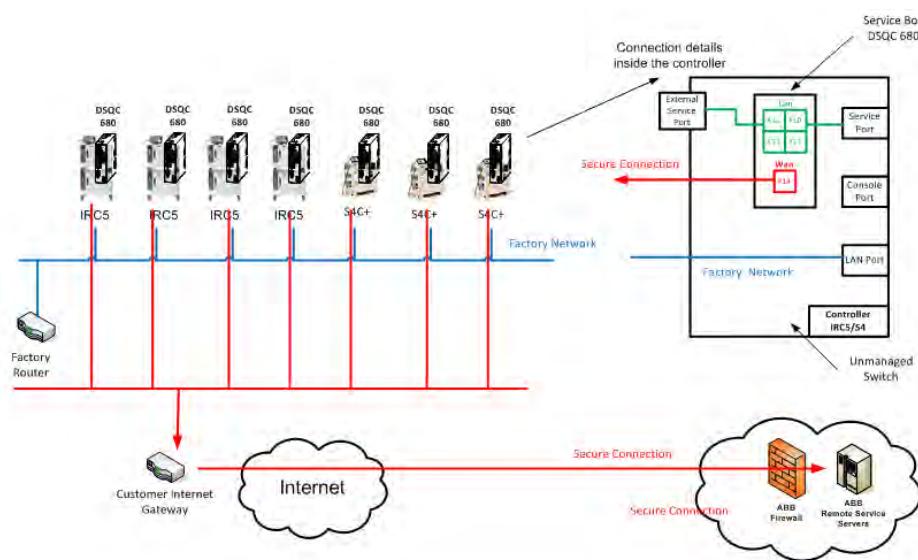
### Connection using a separate network

This type of connection is used when Internet access through the existing factory network is not allowed. This could be due to IT requirements such as separation of network and/or separation of traffic between Production traffic and Service traffic.

The network technology allows multiple communications through the same network, but some users prefer separate network.

- This type of connection creates a separate local network across service boxes connected to the Internet gateway.
- In this case, no switch is required in the Robot Controller. Two cables are connected to the Controller; one to the factory network and the other to the service network.

*Continues on next page*



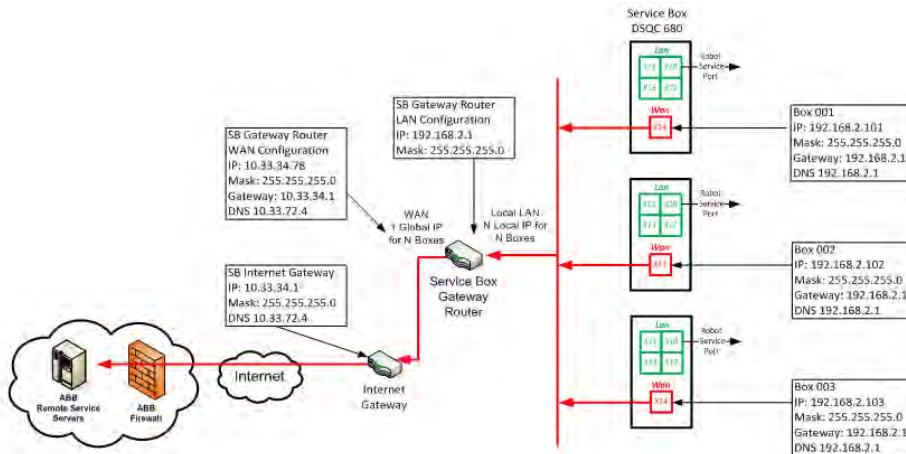
xx1300002134

### Concentrating Communication

Some large customers will connect the service boxes through an additional local router, so that it need not have a direct Internet connection and to minimize the number of IP addresses that connect to Internet. In such case, only the router will have Internet access which will dispatch the access through a local sub network to the service boxes.

This is a part of the local networking and will not be part of the standard delivery of Connected Services. But, it will be defined with the customer according to its own IT rules and recommended network hardware.

When such a router is used, there is no need to provide global IP addresses for the WAN of the service boxes. Only one global address to the service box router will be used as a gateway for the service boxes.



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As explained in the preceding example, all Service boxes are connected using an intermediate local network between the WAN port of the box and a Service box

Continues on next page

## **5 Network Service Box connectivity**

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### **5.3 Topology**

*Continued*

router used as Gateway. This gateway will route all traffic from the boxes to the Internet gateway which then will see only one IP address for all the service boxes. The configuration is then simplified on the service boxes which has to be configured for connection to the gateway router.

## 5.4 Internet Connectivity

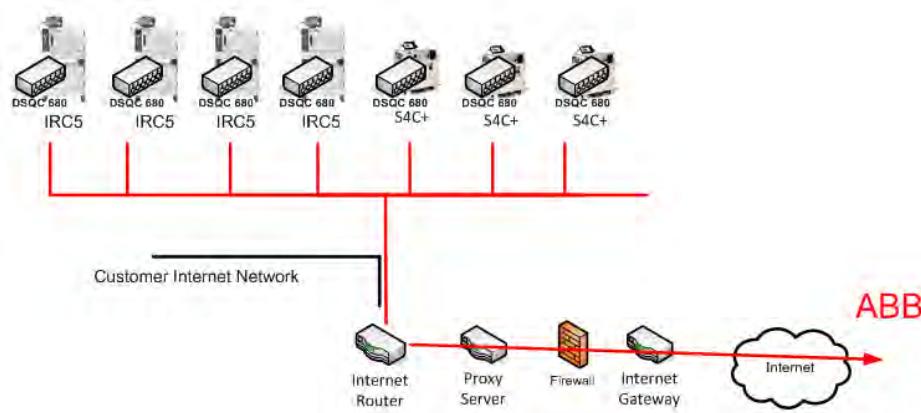
### Overview

You can connect the Service box in different ways like Internal with/without proxy, Direct Access, ADSL, 3G. The most common way is to use the internal existing Internet connectivity, but it could also be possible to provide access to Internet separately using a local 3G router with local SIM.

### Connection using the internal network access

By using the existing customer Internet access, the principles is to connect the service boxes to the existing Internet network.

The customer IT must be involved follow his rules of networking and IP mapping.



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The connection can be done using or not a proxy server and can be also completed with a firewall which usually exists.

*Continues on next page*

## 5 Network Service Box connectivity

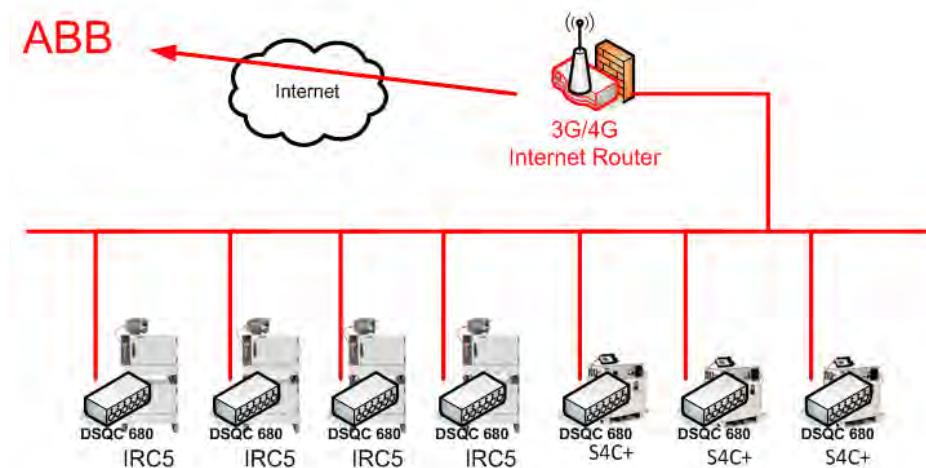
### 5.4 Internet Connectivity

*Continued*

#### Connection using a local 3G router

In some cases it is not easy or not recommended by the customer to connect the Service box to the existing Internet access. It is then possible to connect the service boxes locally to a 3G router with local customer contracts.

update the figure below.



xx1300002137

The connection with 3G router usually doesn't include Proxy server and can be also completed with a firewall if required.

#### Traffic Volume

The service boxes are doing only outbound communication (from box to ABB server) to setup the secure tunnel connection. This connection must be kept open and secure by constant "keep alive" ping and secure key renewal.

The estimated traffic for each box is estimated to 250 Mb a month in average.

This is not important for normal Internet connection but need to be taken into account for 3G connection where the Internet connection paid by the customer is usually volume based. When a Gateway is used, consider the volume of traffic from multiple controllers as these controllers are communicating through the Gateway Service Box.

#### IP Mapping

The service boxes would require an IP address on the WAN port and a gateway and a DNS to access Internet. This needs to be configured with the customer to match its global IP mapping with either a Global IP or local IP with intermediate router.

The configuration of the WAN port can be done in the Service box either statically by entering the IP address gateway and DNS, or through a DHCP server.

#### Proxy Server

The connection to Internet is facilitated if there is no need to go through a proxy to access Internet. It is then recommended to ask if the customer could provide a direct Internet access which could be dedicated to the service boxes.

*Continues on next page*

If a proxy server is required to go through the Internet, the proxy server IP/name/port and possible credentials must be configured in the service boxes.

---

### Firewall

The communication between the service box and ABB is firewall friendly as it doesn't require opening any inbound connectivity in the firewall. The firewall can even be configured to block any communication from the service boxes to Internet at the exception of what is needed for the boxes to create its secure tunnel as defined in the security chapter.

The customer only needs to let the box communicate outbound on Internet (from inside to outside) using one port (HTTPS:443) and some IP addresses:

- *as.pro.talk2m.com for authentication and certifications*
- *device.vpnN.talk2m.(N=1 to 20) to create the secure tunnel*

The firewall can stay closed to any inbound (from external) requests

## 5 Network Service Box connectivity

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### 5.5 Disclaimer

#### 5.5 Disclaimer

##### Terminology

**ABB GCS:** ABB Global Customer Service (Administrator of Connected Services Solution)

**ABB LBU:** ABB Local Business Unit (Local customer contact for Service contracts)

##### ABB Global Customer Service Delivery

The Service box and an additional switch in the robot is provided by ABB GCS part of the Connected Services contract. The equipment can be delivered as Retrofit Kit or preinstalled in the Controller part of the RS factory Option or as a specific delivery for large orders.

The ABB GCS will verify remotely the connectivity of the service boxes and solve any problem outside of the customer. When the problem is identified as coming from the customer, ABB GCS will inform local ABB LBU to reestablish connectivity to insure the continuity of service.

The ABB GCS could provide expert or training on demands to analyze specific demands by ABB LBU.

The ABB GCS keep also the global documentation required for the Service, and will update them as required.

##### Local ABB requirements

The ABB LBU shall define with the customer how the box will be connected to Internet.

The ABB LBU shall define with the customer the best way to connect the service boxes to Internet inside the existing customer network and follow their IT and network rules and requirements, including additional routers and networking if needed.

The ABB LBU shall setup the initial installation of Connected Services by installing and configure service boxes with the customer.

When the configuration is setup a report should be provided to the customer and training on how to reconfigure it, for if the customer change its network and or Internet access.

The customer will also be trained by ABB LBU to realize basic connectivity check, when required for verifications.

##### Customer requirements

The Internet connectivity shall be provided by the customers.

If the connection is done using a 3G router, the customer shall provide also the local SIM cards, to avoid any legal issues on misusage of the Internet connection.

The customer shall be trained and documented by LBU to be able to reconfigure a box and verify connectivity from the boxes to ABB servers on request of LBU.

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### **Gateway requirements**

If the service box is used as a Gateway, there is no firewall to prevent access to internet through the service box. In that case, the customer should limit which devices are connected to the Gateway. Otherwise, implement an intermediate firewall when possible (WiFi).

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# 6 Troubleshooting

## 6.1 Troubleshooting with the Connected Services Kit installation

### Overview

This chapter gives information on how to troubleshoot the most common problems with the Connected Services Kit installation.



#### Note

If the Service Box is faulty, a warranty order should be initiated. Follow the standard procedure.



#### Note

Before returning a Service Box according to warranty procedure, remove the SIM card from the Service Box. Keep the SIM card and reuse it with any replacement Service Box.



#### Note

Never open the Service Box. The warranty would be void.

### LEDs

- If the PWR LED stays off, check the connection of the 24 V power supply cable.
- If a LINK/ACT LED stays off, check the connection of the corresponding Ethernet cable.
- If the MODEM LED (ST) does not stay green after 3 minutes or is flashing. For Service Box (3G or WiFi), verify the connection of the antenna cables and the 3G or WiFi coverage.
- If the @ LED is in Off mode and T2M LED is off, then there is no connectivity to ABB (ABB SIMs used).
- If the @ LED is in Off mode and T2M LED is green, then there is no IP received or configured, or the VPN connectivity to ABB is not successful. Verify internet connectivity, firewall, and configuration.
- If the USER LED stays red, the initialization is failed. Try to switch the power off and on again. If the problem persists, contact ABB support.
- If the USER LED blinks red twice, the server connection is failed. Try to switch the power off and on again. If the problem persists, contact ABB support.

*Continues on next page*

## 6 Troubleshooting

### 6.1 Troubleshooting with the Connected Services Kit installation

*Continued*

#### Service Box Information on FlexPendant and RobotStudio

Information about the Service Box when connected through 3G/ WiFi and wired network can be found on the FlexPendant or in RobotStudio in RobotWare 5.11 or later.



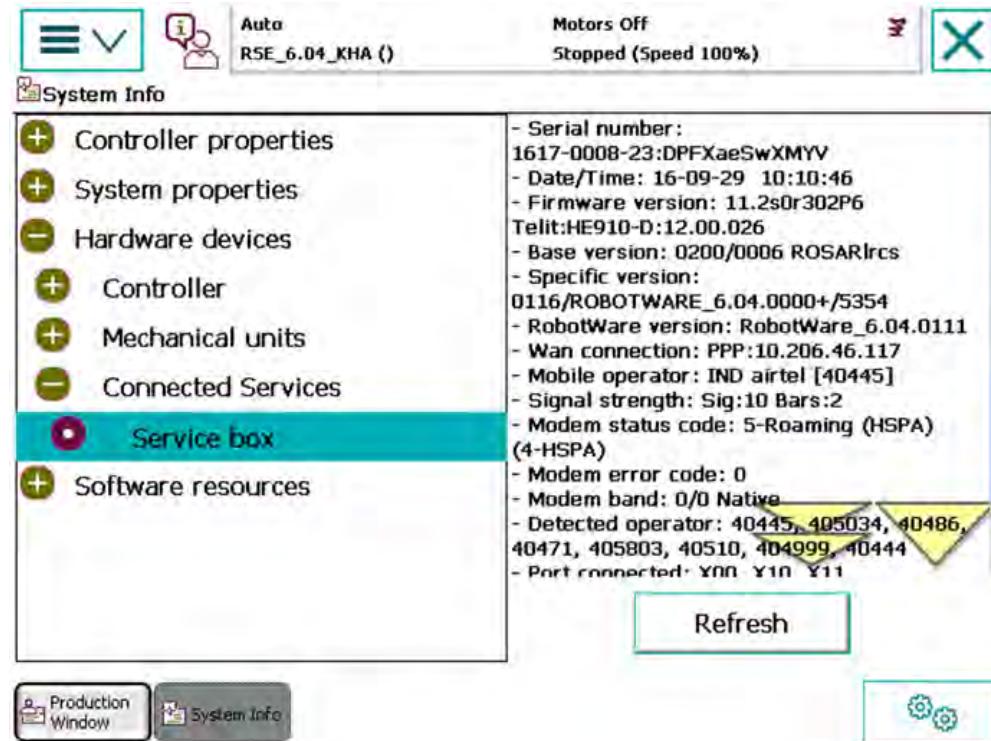
##### Note

The FlexPendant information is not available if the Service Box is configured as Gateway. The information is available by connecting a PC to the Service Box. See [Service Box log information on page 97](#).

#### FlexPendant

In the ABB menu tap **System Info**. Tap on **Hardware devices** followed by **Connected Services** and **Service box** to view data about the Service Box.

Service Box (3G ABB SIMs)



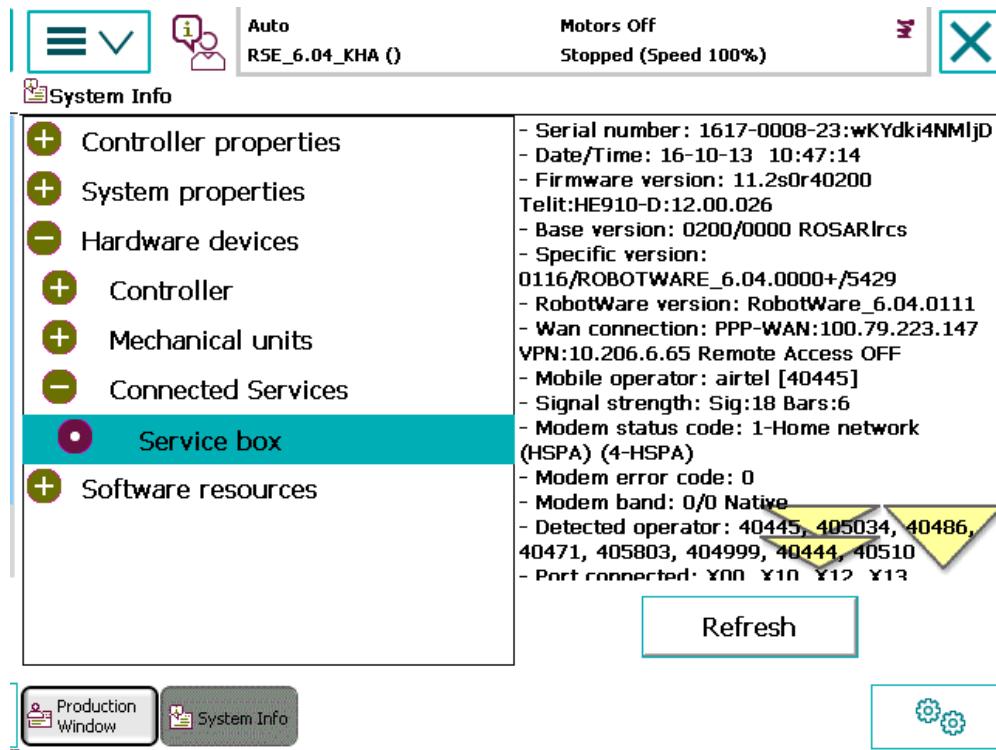
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## 6 Troubleshooting

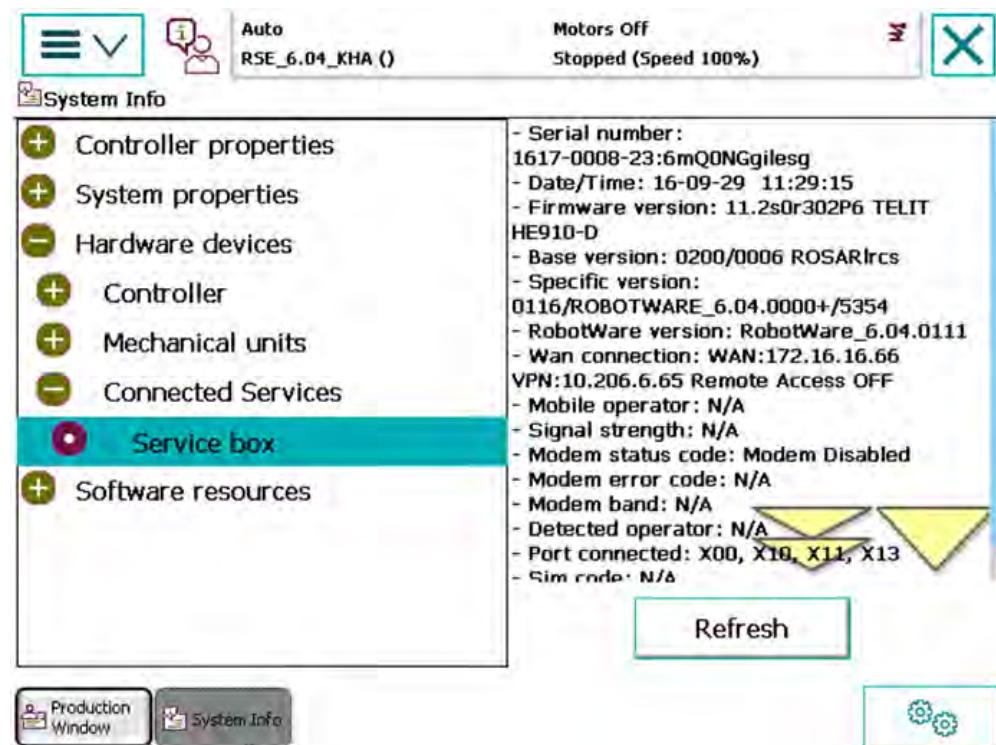
### 6.1 Troubleshooting with the Connected Services Kit installation *Continued*

#### Service Box (3G Public SIMs)



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#### Network Service Box



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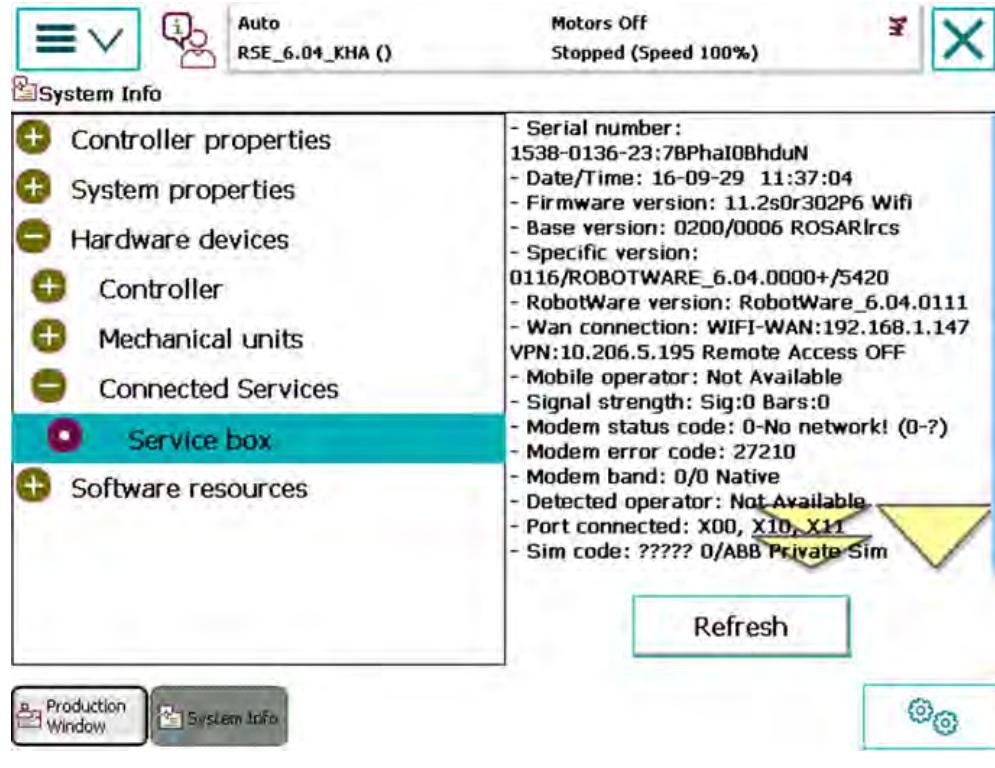
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## 6 Troubleshooting

### 6.1 Troubleshooting with the Connected Services Kit installation

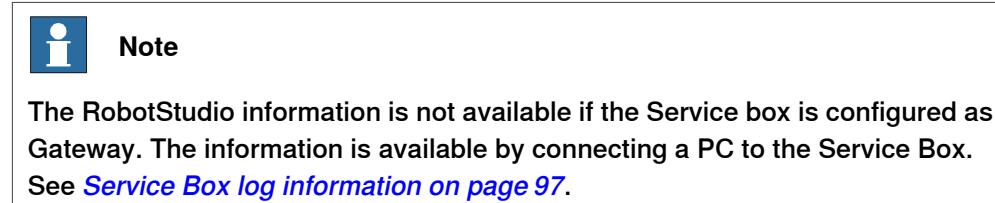
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#### WiFi Service Box



en1600001490

#### RobotStudio



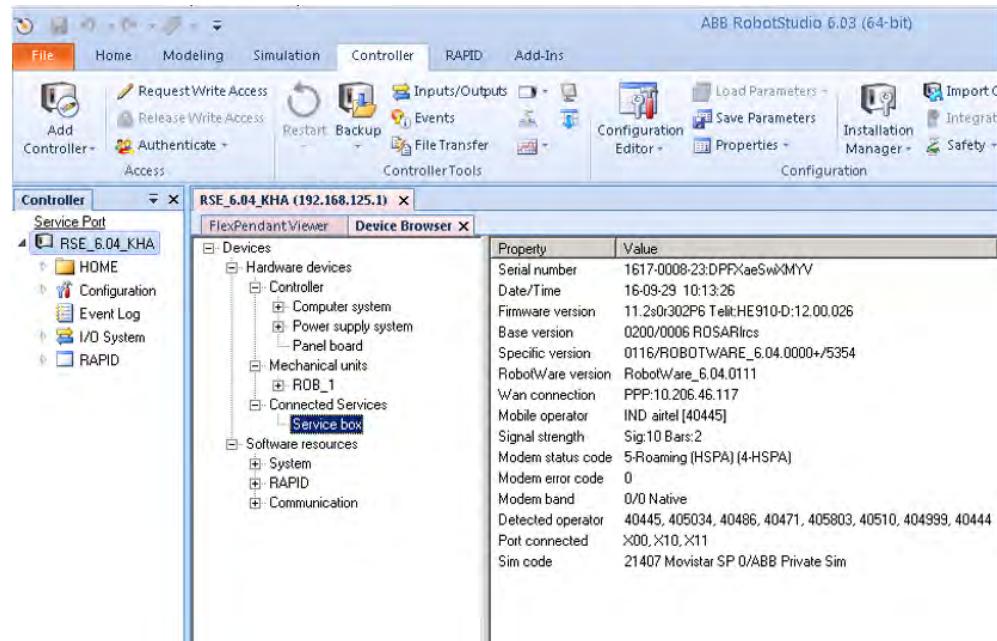
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## 6 Troubleshooting

### 6.1 Troubleshooting with the Connected Services Kit installation

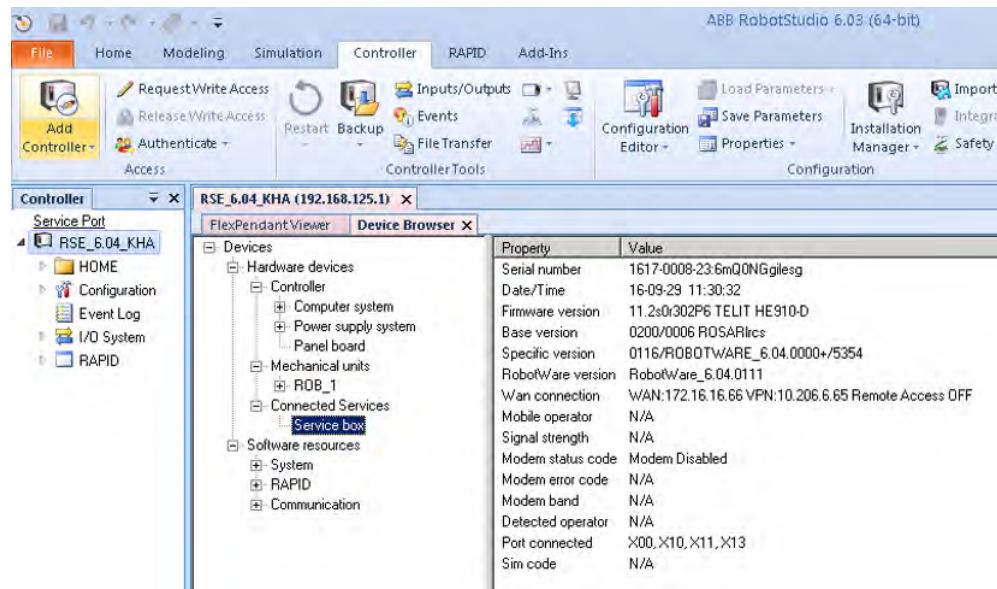
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#### Service Box (3G)



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#### Network Service Box



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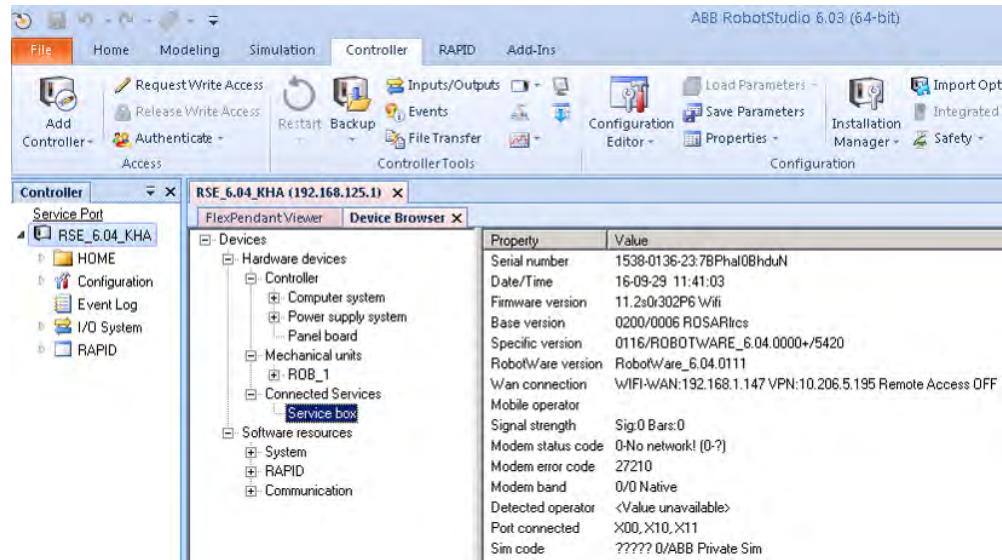
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## 6 Troubleshooting

### 6.1 Troubleshooting with the Connected Services Kit installation

*Continued*

#### WiFi Service Box



en1600001493

#### Descriptions

The following table describes about the information displayed on the FlexPendant and in RobotStudio:

Caption	Description
Serial number	The Service Box serial number as displayed on the sticker.
Date/Time	The Service Box current date/time.
Firmware version	The version of the pre installed Service Box firmware (including Modem firmware when GPRS is active).
Base version	The version of pre installed ABB application code.
Specific version	The version of the ABB application code loaded for a specific RobotWare release. This should match the detected RobotWare version (see below).
RobotWare version	Detected RobotWare version.
Wan connection	<b>Service Box (3G):</b> PPP IP address used for connection. <b>Network Service Box:</b> WAN and VPN IP address used for connection.
Mobile operator	<b>Service Box (3G):</b> The current mobile GPRS operator used (name and international code number) <b>Network Service Box:</b> Not Available (N/A)
Signal strength	<b>Service Box (3G):</b> The current modem signal strength. Maximum signal strength is 32. The signal strength should be at least 16, otherwise the connection may not be possible or intermittent or with reduced bandwidth. <b>Network Service Box:</b> Not Available (N/A)

*Continues on next page*

## 6 Troubleshooting

### 6.1 Troubleshooting with the Connected Services Kit installation *Continued*

Caption	Description
Modem status code	<b>Service Box (3G):</b> The status code should be 1 or 5 to have a successful connection established. <b>Possible values:</b> <ul style="list-style-type: none"><li>• 1: Home network</li><li>• 2: Searching registration</li><li>• 3: Registration denied</li><li>• 4: unknown registration</li><li>• 5: Roaming</li><li>• 100: Not applicable</li><li>• 101: Registration in progress</li><li>• other: error connection</li></ul> <b>Network Service Box:</b> Modem Disabled
Modem error code	<b>Service Box (3G):</b> The modem error state. <ul style="list-style-type: none"><li>• 0 means no error</li><li>• other: modem error</li></ul> <b>Network Service Box:</b> Not Available (N/A)
Modem band	<b>Service Box (3G)</b> <ul style="list-style-type: none"><li>• 0: Auto Detection</li><li>• other: contact ABB</li></ul> <b>Network Service Box:</b> Not Available (N/A)
Detected operator	<b>Service Box (3G):</b> List of available mobile operators (international code number). <b>Network Service Box:</b> Not Available (N/A)
Port connected	List of connected ports. <ul style="list-style-type: none"><li>• 0 means connection of the switch to the service box (should always be on)</li><li>• 1 means live ethernet connection with LAN1</li><li>• 2 means live ethernet connection with LAN2</li><li>• 3 means live ethernet connection with LAN3</li><li>• 4 means live ethernet connection with WAN4</li></ul>
Sim code	<b>Service Box (3G):</b> Type of SIM code. <ul style="list-style-type: none"><li>• 234: TMobile Sim</li><li>• 272: O2 Sim</li><li>• other: other sim</li></ul> <b>Network Service Box:</b> Not Available (N/A)

#### Signal

Verify that both GSM and 3G communication are possible.

To improve signal quality, the following options are available via PoL:

Part no.	Description	Note
3HAC028460-001	Omni-directional antenna (ADA-0059)	This antenna is larger than the standard Controller top mounted antenna and has a mounting bracket. The antenna has a better reception and can be wall mounted at any convenient indoor upright position
3HAC028462-001	Cable extension (10 m)	In case the GPRS reception with the standard antenna is insufficient. Available are 10 meter extension cables for antennas mounted at larger distance from the Controller. A maximum of two extension cables are recommended (a total length of 20 meters)

*Continues on next page*

## 6 Troubleshooting

### 6.1 Troubleshooting with the Connected Services Kit installation

*Continued*

Part no.	Description	Note
3HAC028463-001	SMA-Adapter	Conductor joint



#### WARNING

The antennas and the cables shall not be mounted outdoors. The antenna solution does not have any surge protection (for example, lightning strikes). Outdoors mounting may damage the Service Box and the Robot Controller.

#### Most common problems

Verify the following:

- the minimum bending radius of the antenna cable is fulfilled.
- there is no damage to the cables.
- the User Authentication System has Default User enabled and has read/write access to the Controller disks.

## 6.2 Service Box log information

### 6.2.1 Connection setup

#### Physical Connection - Preliminary settings

This section provides basics on connection setup for taking the logs for a Network Box. Connect a PC (IP address 192.168.125.84) to the LAN Service port (IP address 192.168.125.83) of the Service Box (LAN1, LAN2 or LAN3).



#### Note

If the Box is set up as a Gateway and the Box LAN IP address is changed, then the IP address should be defined accordingly.

If the Box LAN IP address is forgotten, either a full reset is needed to recover the box to default configuration or the IP address can be displayed with a tool named eBuddy. It is available here (<https://ewon.biz/support/product/download-zone/all-software>).



#### Note

Ensure that the Box IP address is not duplicated in other equipment connected to the Box, otherwise you will not be able to connect.

If User LED is blinking red continuously, this could be due to IP addresses conflicts.

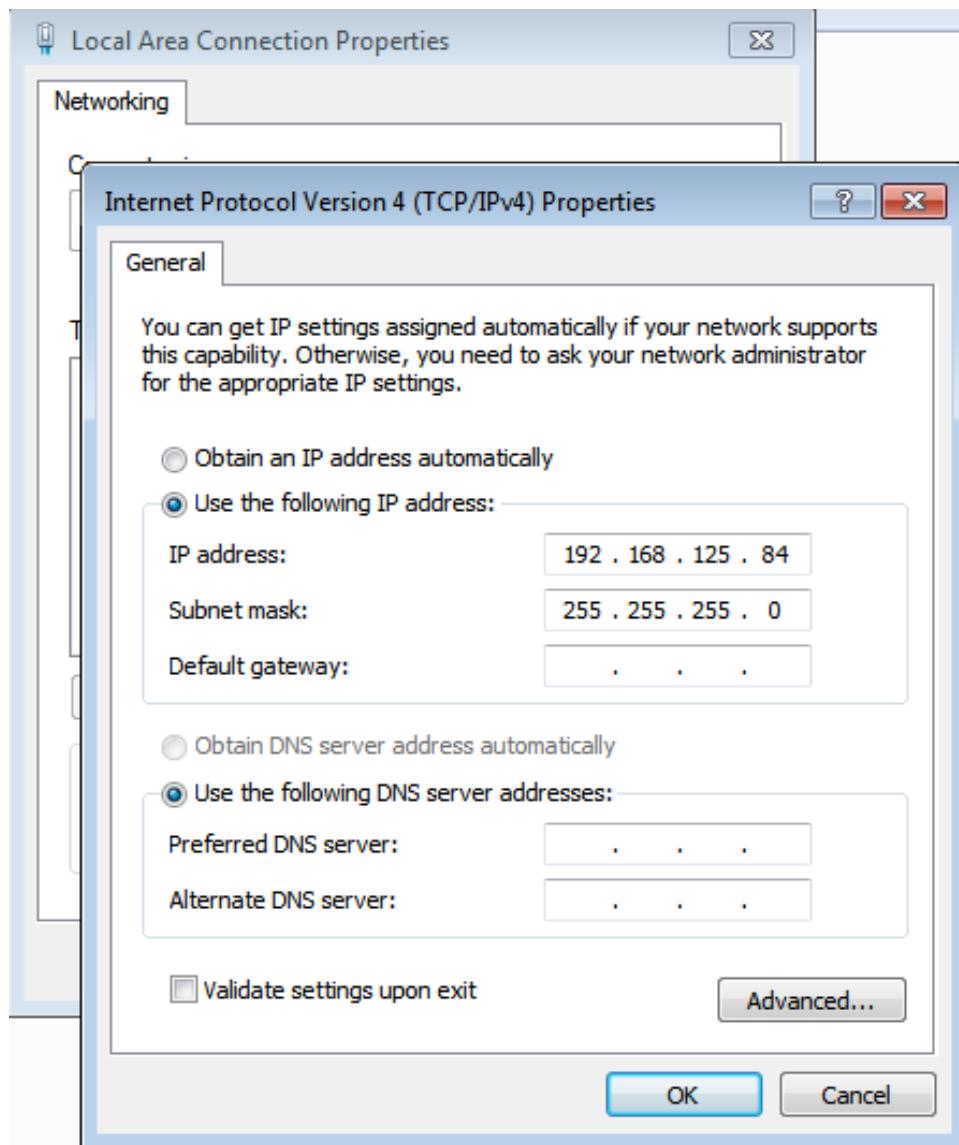
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## 6 Troubleshooting

### 6.2.1 Connection setup

*Continued*

The TCP/IP settings should be same as shown below.



xx1300002176

- 1 Open Internet Explorer.
- 2 Click Tools, Internet Options.
- 3 Navigate to Connections tab and click LAN settings.

*Continues on next page*

- 4 Clear **Automatically detect settings** and **Use automatic configuration scripts** settings.



#### Setting of Proxy server

- Clear the Proxy server options and disable the settings.
- Select both the Proxy server options.
  - 1 Click Advanced.

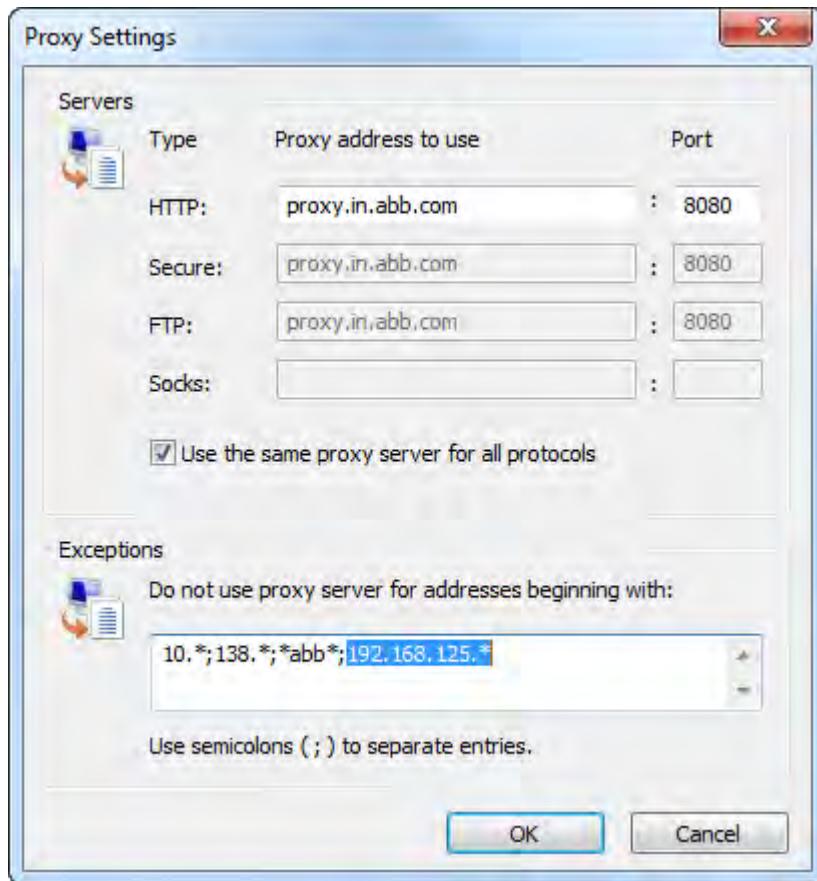
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## 6 Troubleshooting

### 6.2.1 Connection setup

*Continued*

- 2 Add the IP address 192.168.125.\* in the **Exceptions** field.



xx1300002202



#### Note

An alternate way to configure the computer correctly is to leave the connection defined as DHCP and plug the computer to the external service port if the service box is connected to the external service port and also to the service port on the computer unit. In this case, the service port will give an IP address to the computer, that is, 192.168.125.xxx and should work to dialogue with the service box on 192.168.125.83.

For IRC5 systems, DHCP configuration works automatically, however, for S4Cplus systems it must be activated manually.

### Connecting to the Service Box

- 1 Open Internet Explorer.
- 2 Browse the Service Box with IP address <http://192.168.125.83>.

*Continues on next page*

A window opens to login to connect with Service Box.



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- 3 Use the below mentioned credentials to login.

**User name:** guest

**Password:** guest

- 4 If the Connected Services version is greater than or equal to 0200



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#### Note

To verify the firmware version, click on the top left logo on the screen.

The **Revision Number** is the last four digits of the Firmware version (**Version Codename** field).

## 6 Troubleshooting

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### 6.2.2 Support by Service Box

#### 6.2.2 Support by Service Box

##### Retrieving System Information

- Click the logo on top left corner of the screen.

eWON Information	
Identification	ABB RSC
Additional Info	IRC5
IP Address	192.168.125.83
Version Codename	11.2s0r40200
Revision Number	11.2
Serial Number	1617-0008-23

System Info	
IO Revision	01
Modem type	No modem (0)
Free Config Mem.	521305
Free Prog. Mem.	505792

en1600001525

- Send the system information to the support.

##### Retrieving Support Information

- 1 Click Support Information.
- 2 Wait until information are displayed.

*Continues on next page*

## 6 Troubleshooting

### 6.2.2 Support by Service Box

*Continued*

## **Retrieving Status Information**

- 1 Click Diagnostic.
  - 2 Select Status tab.
  - 3 Click Status under System Info.
  - 4 Take a screenshot of the page and send the same to support.

## **Retrieving Memory Information**

- 1 Click Diagnostic.
  - 2 Select Status tab.
  - 3 Click Memory under System Info.
  - 4 Take a screenshot of the page and send the same to support.

## **How to save the logs in PC**

- 1 Select **Support Files** tab.
  - 2 Select the file you wish to download.
  - 3 Right click the file and select **Save target as....**
  - 4 Save the file to any desired location of your choice.

*Continues on next page*

## 6 Troubleshooting

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### 6.2.2 Support by Service Box

*Continued*



#### Note

It is recommended to download **AllLogs.txt** which is an aggregate of all the other files listed on the screen.

If **AllLogs.txt** fails to download, then all the other files needs to be downloaded individually.

## 6.3 Reset the Service Box

### Overview

This section describes the procedure to reset the Service Box.

In some cases it is needed to fully reset the Service box on request by ABB Support. This reset will completely wipe out all configuration and history and reformat the service box in the default setup. The box will be restored in factory mode (Retrofit + Remote access + ABB SIMs (or WiFi) and LAN IP address 192.168.125.83) and needs to be reconfigured if default setup is not used.



#### WARNING

The reset procedure should not be interrupted until finished or the box firmware may be destroyed and the box has to be sent back to ABB.

### Prerequisite

As preparation, identify the reset hole under the antenna connector and prepare a pin. You can verify the reset button through the LED BI1 by pressing briefly the reset button with the pin.

### Reset procedure

The following procedure provides information about the reset of Service Box.

	Action	Note
1	Power OFF the box.	
2	Press the reset button with a pin.	
3	Keep reset pressed and power on the box. Keep reset pressed.	
4	After 5 seconds (from Power ON) the user led will be red. keep reset pressed.	
5	After 25 seconds (from Power ON) the User LED will be off. Keep reset pressed.	
6	After 30 seconds (from Power ON) the User LED will blink red. Release the reset button.	
7	The reset process will start and the box will reboot a few times in default values.	
8	Wait until the User LED is green again to do required reconfiguration	

### Ports used

The service box port uses the following ports and provides the following services:

Port	Description
Port 21/TCP	Used for ABB Firmware installation (not used in production)
Port 80/TCP	Used for Status and Configuration with a local web client.
Port 81/TCP	Used as an alternative port for Status and Configuration.

*Continues on next page*

## 6 Troubleshooting

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### 6.3 Reset the Service Box

*Continued*

Port	Description
Port 1426/TCP	Used for providing information to Robot controller.
Port 161/UDP	Used by SNMP (Not used in production)
Port 1507/UDP	Used by external tool to change the IP Address.

Following are the remote ports used:

Port	Description
Port 443/TCP	Used for TLS secure connection
Port 1194/UDP	Used for alternative secure connection when available Wireless
Port 80/TCP	Used to send information or receive commands
Port 21/TCP	Used for ABB Firmware installation (not used in production)

# 7 Remote Access

## 7.1 Introduction

---

### Overview

Remote Access is an extension of ABB Connected Services architecture that allows remote access to robots and connected equipments.

Once a customer grants Remote Access permission, after ensuring all the hardware and software related security criteria are met, ABB service personal can access and supervise robots and the connected equipments remotely. This is achieved by enabling a secure tunnel which provides secure access from a remote PC to the Service Box and the equipments connected to the Service Box ethernet LAN switch. This solution is provided by using a third party tool Talk2M by eWON (the Service Box manufacturer).

The principles of CSA (Connected Services or Access) is to provide Remote Access capabilities, based on and using eWON tools and solution, on existing Service Boxes.

Due to security and legal agreement reasons, the boxes are either in Connected Services mode or in Remote Access mode. The switch between these two modes are done by the customer. By default, the Service Boxes are in Connected Services mode. The Remote Access Mode is activated when all the required conditions are fulfilled. When all the conditions are filled , then the Box switches off the Connected Services mode and stops the connection to the ABB Network. The Service box then connects to Talk2M server in Remote Access mode under customer account. The customer then sends Access information to a remote person which creates a direct connection to the equipments connected on the LAN port of the box under customer supervision and responsibility. The Remote Technician uses a tool from eWON named eCatcher under customer supervision.

## 7 Remote Access

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### 7.2 Security

#### 7.2 Security

##### Introduction

The Remote Access mode is under the responsibility of the customer. The customer enables or disables it and supervises the Connected Services actions. When the Service Box is in the Remote Access mode, it is no longer connected to the ABB server and not under ABB responsibility. The customer should supervise continuously the Remote Access actions and ensure the security of the operator before allowing any remote connection.

##### Security conditions for Remote Access activation

Due to security reasons the Remote Access mode is active only if all the following conditions are fulfilled:

- The customer has signed an agreement with local ABB enabling the Remote Access option on its Connected Services Agreement and has validated the attached legal agreement.
- The Service Box is capable of Remote Access.
- The customer has authorized Remote Access for a specific Service Box through the MyRobot interface. This is valid for a limited time defined by the customer (< 24 hours).
- The customer has enabled Remote Access in the configuration of the Service Box.
- The customer has configured or provided an Internet access for the Service Box to create the secure channel for Remote Access (Direct Internet or external 3G/4G connection, Wi-Fi or customer sim).
- The customer has created a Talk2M account and configured the Service Box to connect to Talk2M using this account during Remote Access.
- The customer has enabled the physical digital input (Remote Access mode) in the Service Box.

If all these conditions are not fulfilled then the Service Box cannot switch to the Remote Access mode.



##### WARNING

When the Remote Access mode is activated and if it is not supervised by ABB then the customer must switch back to the Connected Services mode manually by disabling the Remote Access digital input or wait until the time limit is expired (not recommended).

## 7.3 Initial configuration

### Prerequisites

You need to have a Service Agreement with the Remote Access option. Then you can authorize Remote Access through MyRobot and get information about the state. If the service box is connected in 3G, then the ABB SIM cannot be used and must be replaced by a Customer public SIM. For more information on setting-up a 3G service box, see [Set up 3G Service Box for Connected Services on page 63](#)

### Creating service agreement

The Local Business Unit (LBU) of ABB creates a service agreement with the Remote Access option enabled. The Administrator for Remote Access will have the rights to authorize Remote Access.

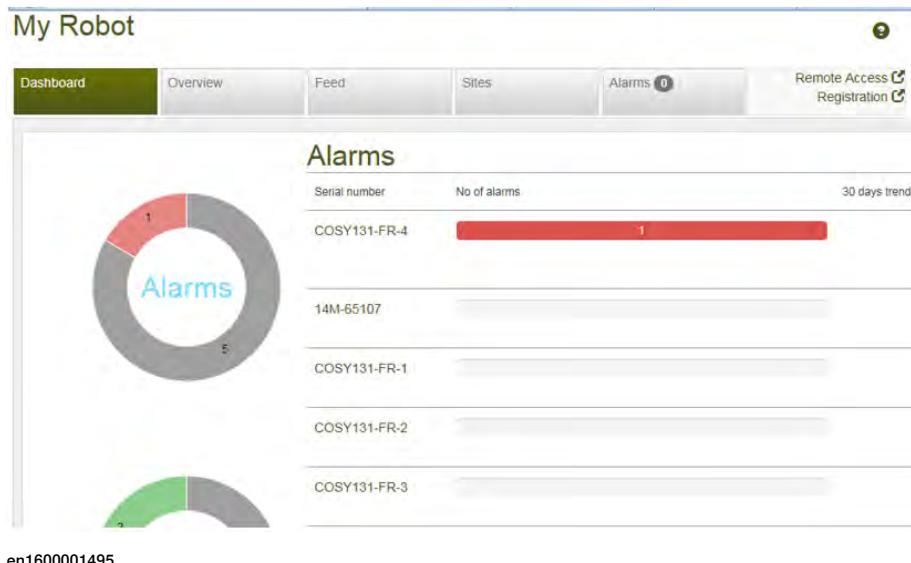
For more details about creating a service agreement, see [Creating service agreement with Remote Access on page 133](#).

### Remote Access authorization

#### Authorizing Remote Access

You can authorize remote access from the MyRobot page and set the duration of authorization.

- 1 Click Remote Access from the MyRobot page.



*Continues on next page*

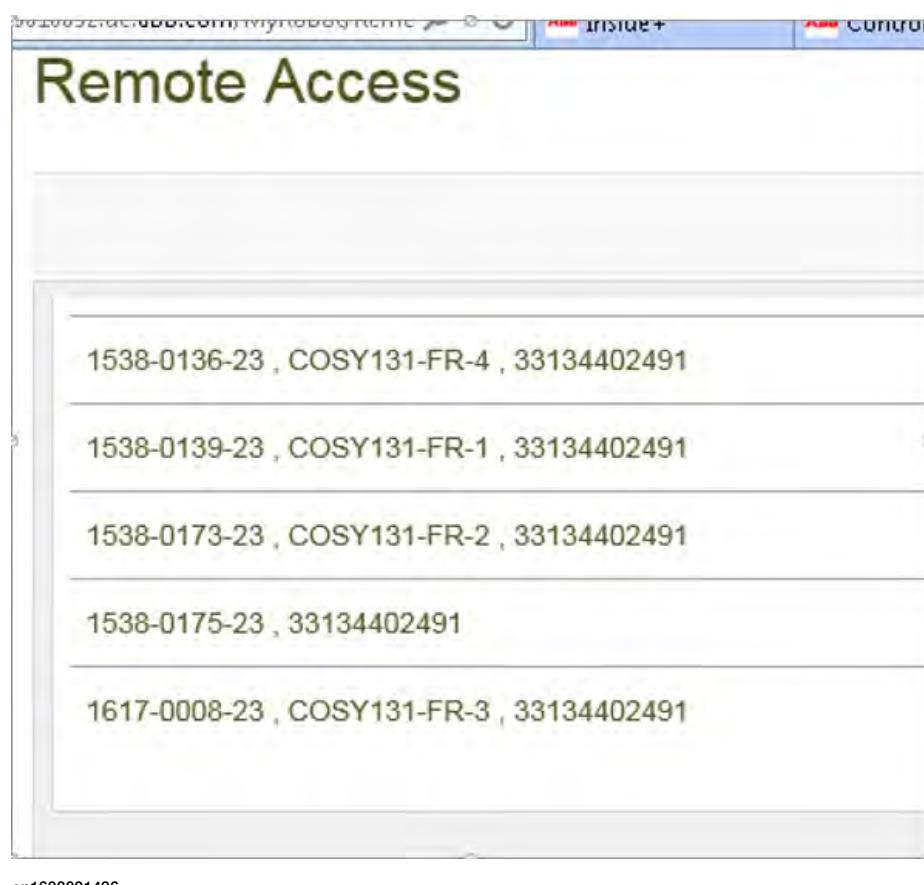
## **7 Remote Access**

---

### **7.3 Initial configuration**

*Continued*

- 2 Click on the box which needs to be used for Remote Access and connected to the Controller.



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*Continues on next page*

- 3 The Activation page is displayed. Provide the account and credentials details if the Service box has been set up with Remote Configuration or review them if the credentials configuration was done in the Service Box.

#### Remote Access 1617-0008-23

• Download the Remote Access solution from [www.talk2m.com](http://www.talk2m.com). Configure the service box and enable it.

• Turn the service box I/O Key to the on position. The on position is indicated by the LED labeled KEY showing a steady green light. Please observe that after the key has been turned the service box restarts and it may take up to five minutes before it is ready for a Remote Access session.



The service box I/O Key is in the off position.

⚠ Make sure that the following service box configuration parameters are correct before giving authorization.

Talk2M account	<input type="text"/>
Talk2M user	<input type="text"/>
Talk2M password	<input type="text"/>
Talk2M box	<input type="text"/>

Authorize remote access for  (1-24) hours

en1600001497

- 4 Type the duration of the Remote Access in the text box.



#### Note

Type an integer between 1 and 24.

- 5 Click Authorize.

The ABB REMOTE ACCESS SUPPORT TERMS page is displayed.

- 6 Read the terms and conditions and click the I AGREE button.

The Remote Access is authorized and a confirmation page is displayed.

#### Remote Access 1617-0008-23

• Download the Remote Access solution from [www.talk2m.com](http://www.talk2m.com). Configure the service box and enable it.

• Turn the service box I/O Key to the on position. The on position is indicated by the LED labeled KEY showing a steady green light. Please observe that after the key has been turned the service box restarts and it may take up to five minutes before it is ready for a Remote Access session.



The service box I/O Key is in the off position.

Remote access authorization will end at Sep 29 2016 4:57 PM (in an hour) [Unauthorize](#)

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*Continues on next page*

## 7 Remote Access

### 7.3 Initial configuration

*Continued*

#### Remote Access status information on RS portal

The status of Remote Access is available on the Service Box page and in MyRobot.

The following information is available on the Service Box page.

Remote Access	
Session	9/29/2016 4:03:21 PM +05:30
Service Box I/O Key	■
Service Box Configuration	■
Account	ABBRSA_TEST
User	AdminTEST
Service Box Name	1617-0008-23
Authorization	■ 9/29/2016 5:07:32 PM +05:30

en1600001499

	Description
Session	Indicates whether a Remote Access session is active.
Service Box I/O Key	Indicates whether the activation I/O signal has been set in the service box. For example, by turning the physical key to the ON position.
Service Box Configuration	Indicates whether the Remote Access has been configured and enabled in the service box.
Account	Displays the currently configured account in the service box.
User	Displays the user name.
Service Box Name	Displays the service box name.
Authorization	Indicates whether the Remote Access has been authorized by the customer.

#### Remote Access log information

The service box sends a communication when the mode switches between Connected Services and Remote Access.

The logs are generated as:

- event 174900 - Connected Services established.
- event 174901 - Remote Access established.
- event 174902 - Remote Access key has been turned on for a long duration.
- event 174903 - Remote Access has been Authorized
- event 174904 - Remote Access key is ON.
- event 174905 - Remote Access key is OFF.
- event 174907 - Invalid User/ Login in Remote Access.

Add the events in the Alarm settings for email or sms notifications.

*Continues on next page*

#### Event 174900

Event Log						
Drag a column header and drop it here to group by that column						
Controller Time	Sequence Number	Severity	Domain	Code	Title	
11/4/2014 3:36:29 PM			RemoteService	174900	Remote Service mode established	
174900 - Remote Service mode established Reason: The service box 0821-0002-56 is now in Remote Service mode.						

xx1400002778

#### Event 174901

Event Log						
Drag a column header and drop it here to group by that column						
Controller Time	Sequence Number	Severity	Domain	Code	Title	
11/4/2014 3:50:16 PM			RemoteService	174901	Remote Access mode established	
174901 - Remote Access mode established Reason: The service box 0821-0002-56 is now in Remote Access mode under the name RSA-BOX-0821-0002-56. The connection was setup by the user adminRSA on the account ABBRSA. The remaining time is 25:08:46. Consequences: The robot controller and other connected equipment may be remotely controlled for the specified duration. Actions: Customer supervision required.						

xx1400002779

#### Event 174902

Event Log						
Drag a column header and drop it here to group by that column						
Controller Time	Sequence Number	Severity	Domain	Code	Title	
11/3/2014 8:37:50 AM			RemoteService	174902	The Remote Access key has been turned on for a duration of...	
174902 - The Remote Access key has been turned on for a duration of 0:09:00:01. Reason: The Remote Access key on the service box has been turned on for a long time. For security reasons the customer should keep it turned off when it is not used to allow Remote Access.						

xx1400002780

#### Event 174903

Event Log						
Drag a column header and drop it here to group by that column						
Controller Time	Sequence Number	Severity	Domain	Code	Title	
12/3/2014 4:29:39 AM			RemoteService	174903	Remote Access has been authorized	
174903 - Remote Access has been authorized Reason: Remote Access has been authorized for a duration of 0:03:01:23. The key must be in the on position for Remote Access to be active.						

xx1400002802

#### Event 174904

Controller Time	Sequence Number	Severity	Domain	Title	Code
9/29/2016 10:33:23 AM			RemoteService	Remote Access key...	174904
174904 - Remote Access key turned on Reason: The Remote Access key on the service box is in the on position.					

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*Continues on next page*

## 7 Remote Access

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### 7.3 Initial configuration

*Continued*

#### Event 174905

Controller Time	Sequence Number	Severity	Domain	Title	Code
9/29/2016 10:45:44 AM			RemoteService	Remote Access key...	174905
174905 - Remote Access key turned off Reason: The Remote Access key on the service box is in the off position.					

en1600001501

#### Event 174907

Controller Time	Sequence Number	Severity	Domain	Code	Title
10/25/2016 10:34:01 AM			RemoteService	174907	Invalid Remote Access credentials
174907 - Invalid Remote Access credentials Reason: The supplied credentials were not valid for login: account ABBRSA_TEST, user AdminTEST, password a..b, box KhalidBox). Consequences: A Remote Access session could not be established. Actions: Verify that the credentials were correctly entered in the service box or in MyRobot.					

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#### Limitations

The remote access is not possible if it is required to discover the IP address through a broadcast to the remote device. In such a scenario, the local IP address of the remote device should be entered manually in the tool which needs to be connected to the remote device. For example, to connect a Robot Controller to the remote device for the first time you need to set the IP address of the service port (192.168.125.1) in RobotStudio. See RobotStudio View [on page 129](#)

## 7.4 Customer site configuration

### Introduction

The following actions are needed on the customer site:

- Install a Service Box with Internet connectivity. For more details, see [\*Installing a Service Box with Internet connectivity on page 116.\*](#)
- Connect the equipments for Remote Access and implement the security. For more details, see [\*Initial installation for security on page 117.\*](#)
- Create a Talk2M account. For more details, see [\*Creating the Talk2M account on page 135.\*](#)
- Configure the Service Box. For more details, see [\*Configuring the Service Box on page 120.\*](#)

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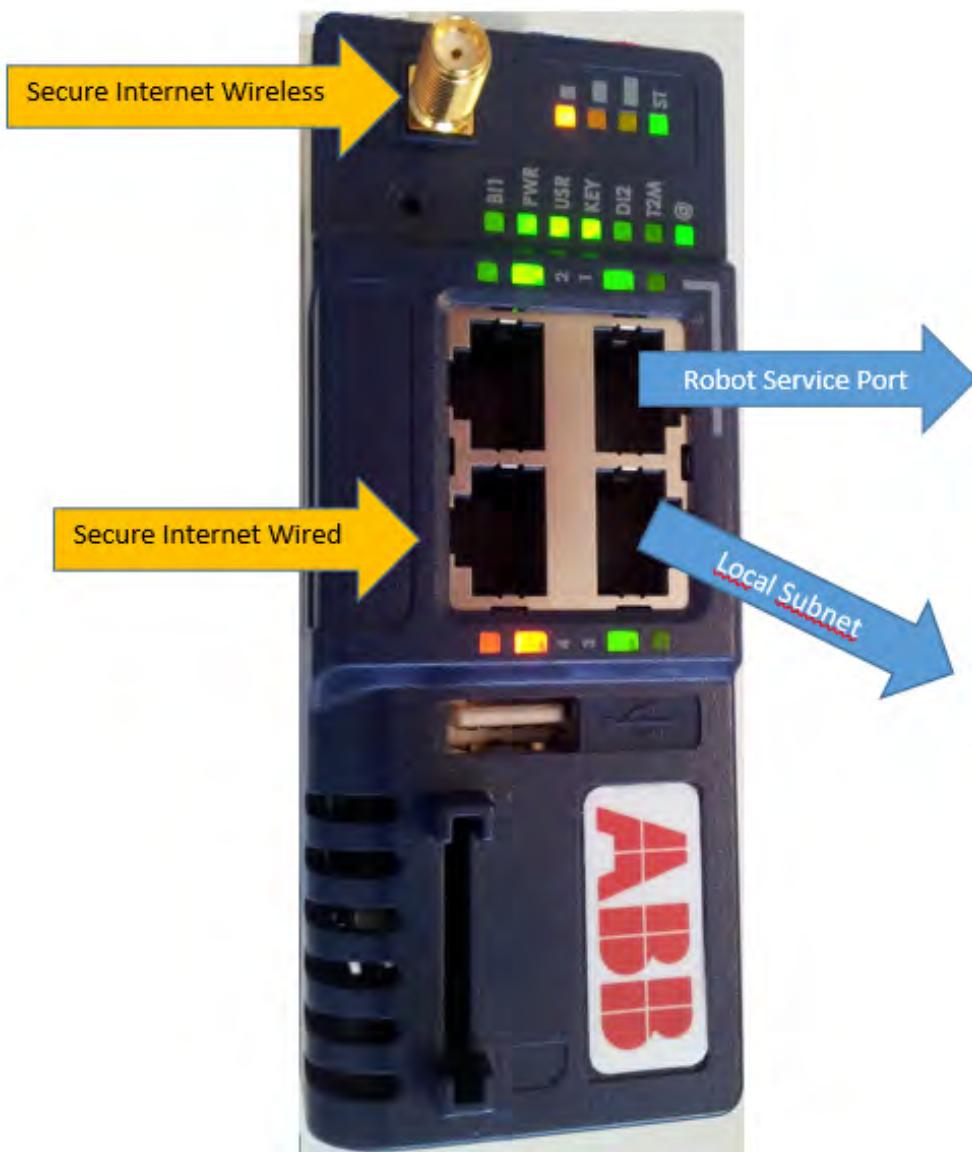
## 7 Remote Access

### 7.4 Customer site configuration

*Continued*

#### Installing a Service Box with Internet connectivity

The Service Box is installed as a connected services box, connected to the Internet on its WAN port (4) and connected to the local equipments including the robot on its LAN Ports (1 to 3) on the local subnet.



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For more details about installing a ABB Connected Services Box in the Robot Controller, see [Installation of Service Box in Robot Controllers on page 21](#).

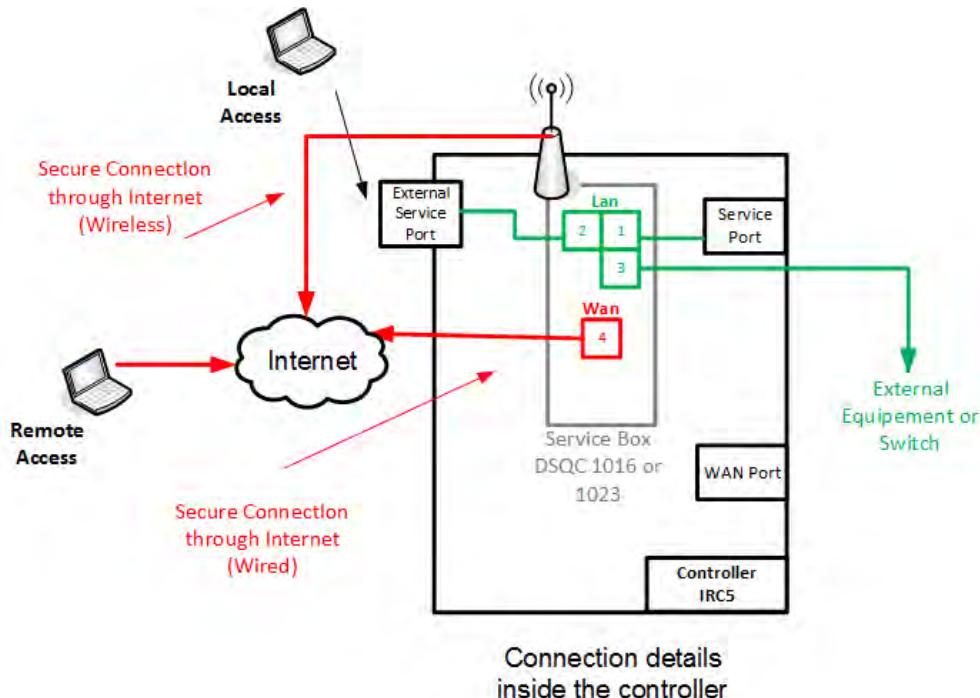
The Service Box is connected and configured for a connection through Internet. The connection can be done on fixed Internet or on an external 3G/4G/WiFi router or WiFi or 3G with customer SIMs. For more details, see [Internet Connectivity on page 83](#).

The equipments for Remote Access should be connected to the LAN Port local subnet. The robot is connected through its service port. The local subnet on the LAN port is 192.168.125.0/24. The external equipments should be in this IP range.

*Continues on next page*

The following IP addresses are reserved:

- 192.168.125.83 (Service Box)
- 192.168.125.1 (Controller Service Port)



en1600001560



#### Note

If the Service Box is configured as Gateway, then LAN Setup can be changed to match the connection to multiple controller, devices or PLC for Remote Access.



#### WARNING

If the Service port is a DHCP server, it is recommended to connect the equipments with a predefined static IP. For example, an integrated PLC equipments can be connected with 192.168.125.200 IP predefined on LAN3.

### Initial installation for security

#### Securing the local authorization of Remote Access



#### Note

Due to security reasons the Remote Access mode is enabled only if the digital input of the Service Box is switched ON. An option is provided in a kit to connect a key, or this can be done on site to connect to an external switch key.

*Continues on next page*

## 7 Remote Access

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### 7.4 Customer site configuration

*Continued*

You can hard secure the local authorization of Remote Access by wiring a digital input and output connected to the service box with the following options:

- One input for authorization:
  - ON: Indicates that the Remote Access is authorized locally.
  - OFF: Indicates that the Remote Access is not authorized locally.
- One output for status:
  - OFF: Indicates that the Service Box is starting or rebooting.
  - ON light is stable: Service Box is on Connected Services mode.
  - ON/OFF blinking: Service Box is in Remote Access mode (blinking ON or OFF every second).

The DI/DO information are visible on the led in front of the Service Box and is named T2M for DO and KEY for DI.



en1600001502

*Continues on next page*

## Connecting service box input/output

The digital input and output are connected on the I/O connector of the Service Box. Following are the details of the I/O connector (mating female connector, manufacturer: Sauro, Part Number: CTF050VT).



PIN	ICON	ID	Description
1	O-	DO_COM	Output signal (0V ground) connected to the emitter of the MOSFET transistor
2	O	DO	Output signal connected to the drain of the MOSFET transistor
3	O+	DO_VDC	Common of the external predrive power supply (between +12 et +24 VDC)
4	i-	DI_COM	Ground of the input (isolated)
5	i1	DI1	Input signal 1
6	i2	DI2	Input signal 2
7	+	Power in VDD +	between +12 et +24 VDC
8	-	Power in GND -	0V
9		Functional Earth	

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Continues on next page

## 7 Remote Access

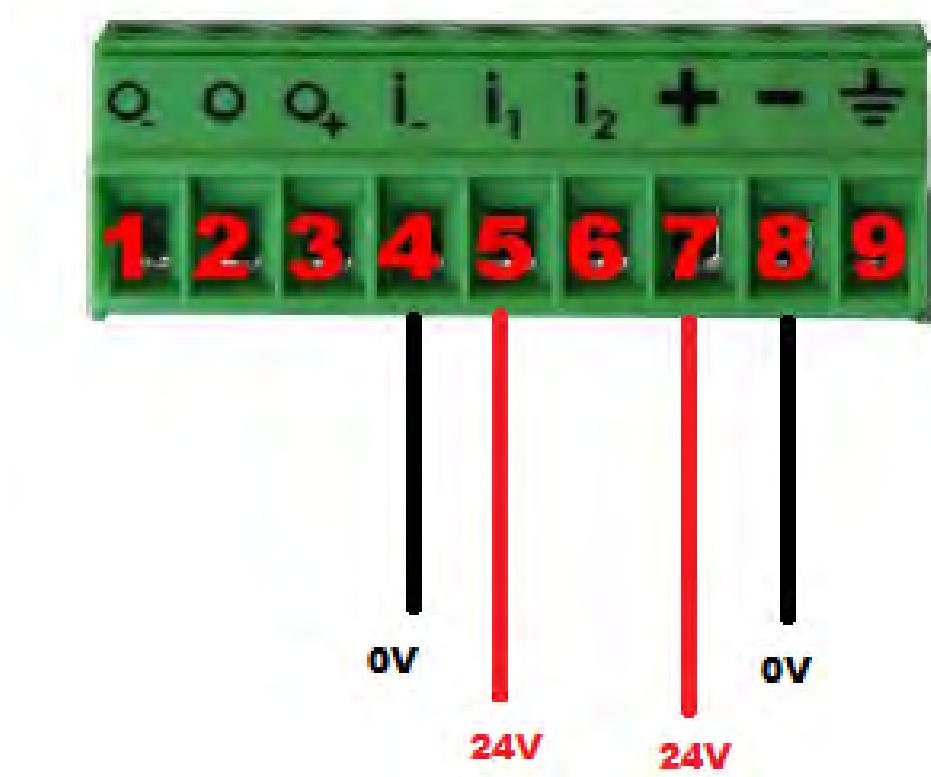
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### 7.4 Customer site configuration

*Continued*

#### Testing the connection

For testing the connection, a quick connection can be made by using 0/24 V to power the box to enable the digital input. The digital input can then be switched ON/OFF by plugging or unplugging the I/O connector on the box.



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#### Creating the Talk2M account

The Service Box connects for Remote Access using a Talk2M account. You need to create a Talk2M administrator account and register the information in the service box. For more details, see [Creating the Talk2M account on page 135](#).

---

#### Configuring the Service Box

##### Introduction

The Remote Access features should be enabled in the Service Box and the Service Box should be configured to manage Remote Access.

##### Verifying the remote access capabilities

The Remote Access option should be enabled in the firmware of the service box. For this:

- The Service Box type should include the Remote Access feature enabled. To verify this, connect to the Service Box in Config mode, click **User Setup**,

---

*Continues on next page*

and verify in features that **Enable Remote Access through the Service Box** is selected.

Features		<input checked="" type="checkbox"/> Modify Features
<input checked="" type="checkbox"/>	Enable Remote Access through the Service Box (Factory:Enabled)	Remote Access to the equipments attached to the LAN Port of the Service Box will be possible. Disabling it will forbid and block the Remote Access features.
<input checked="" type="checkbox"/>	Enable Remote Configuration from Server (Factory:Enabled)	The configuration of some parameters could be done remotely by the ABB Server. Disabling it will not allow configuration through MyRobot for some parameters (only local configuration will be possible).
<input type="checkbox"/>	Enable Embedded Connected Services Gateway (Factory:Disabled)	The Service Box will act as Gateway to Internet for the Robot Controller(s) equipped with Embedded Connected Services. Disabling it will activate the local Service Data gathering directly by the Service Box (only possible on Service Port).

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**Note**

If the Service Box do not have the Remote Access option, contact ABB Support through Robdesk.

For Controller with RobotWare >= 5.12, it is possible to verify the availability of the Remote Access option through FlexPendant or RobotStudio on the Service Box page on System Information.

<input checked="" type="checkbox"/> Controller properties	- Serial number: 1617-0008-23:5MUhrPCmXc4Z
<input checked="" type="checkbox"/> System properties	- Date/Time: 16-09-29 10:54:43
<input checked="" type="checkbox"/> Hardware devices	- Firmware version: 11.2s0r302P6 TELIT HE910-D
<input checked="" type="checkbox"/> Controller	- Base version: 0200/0006 ROSARlrcs
<input checked="" type="checkbox"/> Mechanical units	- Specific version: 0116/ROBOTWARE_6.04.0000+/5354
<input checked="" type="checkbox"/> Connected Services	- RobotWare version: RobotWare_6.04.0111
<input checked="" type="checkbox"/> Service box	- Wan connection: WAN:172.16.16.66 VPN:0.0.0.0 Remote Access KEYOK
<input checked="" type="checkbox"/> Software resources	- Mobile operator: N/A - Signal strength: N/A - Modem status code: Modem Disabled - Modem error code: N/A - Modem band: N/A - Detected operator: N/A - Port connected: X00, X10, X11, X13 - Sim code: N/A

en1600001504

**Enable Remote Access**

To enable the Remote Access option in Service Box:

- 1 Connect to the Service Box in Config mode.
- 2 Click **User Setup**.
- 3 Select **Modify Features**.

*Continues on next page*

## 7 Remote Access

### 7.4 Customer site configuration

*Continued*

- 4 In the **Features** section, select the **Enable Remote Access through the Service Box (Factory:Enabled)** check box.

Features	<input checked="" type="checkbox"/> Modify Features
<input checked="" type="checkbox"/> Enable Remote Access through the Service Box (Factory:Enabled)	Remote Access to the equipments attached to the LAN Port of the Service Box will be possible. Disabling it will forbid and block the Remote Access features.
<input checked="" type="checkbox"/> Enable Remote Configuration from Server (Factory:Enabled)	The configuration of some parameters could be done remotely by the ABB Server. Disabling it will not configure through MyRobot for some parameters (only local configuration will be possible).
<input type="checkbox"/> Enable Embedded Connected Services Gateway (Factory:Disabled)	The Service Box will act as Gateway to Internet for the Robot Controller(s) equipped with Embedded Connected Services. Disabling it will activate the local Service Data gathering directly by the Service Box (only possible on Service Port).

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#### Configure Remote Access connection parameters

The Remote Access connection parameters of Talk2M should be configured in the service box.

To configure the Remote Access connection parameters of Talk2M from the Service Box:

- 1 Connect to the service box in Config mode.
- 2 Click **Local Setup**. The **Local Setup** window is displayed.

The screenshot shows the 'Local Setup' window with the 'User Setup' tab selected. Under 'Box LAN IP Setup', the 'IP Type' is set to 'Static LAN IP'. The 'IP address' is '192.168.125.83' and the 'Subnet mask' is '255.255.255.0'. Under 'Remote Access Setup', the 'Remote Access Account' is 'ABBRSATEST', 'Remote Access User Name' is 'AdminTEST', 'Remote Access Password' is masked, and 'Remote Access Box Name' is '1617-0008-23'. At the bottom is a 'Change Configuration' button.

en1600001503

- 3 Type the Talk2M account credentials in the fields in the **Remote Access Setup** section.
- 4 In the **Remote Access Box Name** field, type the name of the box which is visible for the remote access connection. Any name can be chosen which must be unique for a customer. For example, RSA-BOX-0821-0002-56.
- 5 Click the **Change Configuration** button.

The service box reboots and the changes are saved.



#### Note

If Remote Config is enabled in the User Setup, it will be possible to define the Remote Access Setup remotely from MyRobot. In this case, the Remote Access fields will be read only on the Service Box.

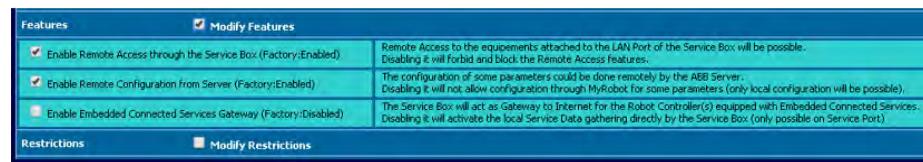
To configure the Remote Access connection parameters of Talk2M from MyRobot:

- 1 Connect to the Service Box in Config mode.
- 2 Click **User Setup**.

*Continues on next page*

## 3 Select Modify Features.

- 4 In the **Features** section, select the **Enable Remote Configuration from Server (Factory:Enabled)** check box.



en1600001506

- 5 Save the changes and the box will restart.

- 6 Open MyRobot and click Remote Access link. Remote Access enabled boxes window is displayed.
- 7 Click Remote Access Enabled service box link. Remote Access authorization page is displayed.

## Remote Access 1617-0008-23

• Download the Remote Access solution from [www.talk2m.com](http://www.talk2m.com). Configure the service box and enable it.  
 • Turn the service box I/O Key to the on position. The on position is indicated by the LED labeled KEY showing a steady green light. Please observe that after the key has been turned the service box restarts and it may take up to five minutes before it is ready for a Remote Access session.

The service box I/O Key is in the off position.

⚠ Make sure that the following service box configuration parameters are correct before giving authorization:

Talk2M account	<input type="text"/>
Talk2M user	<input type="text"/>
Talk2M password	<input type="text"/>
Talk2M box	<input type="text"/>

Authorize remote access for  hours

en1600001507

- 8 Enter the Talk2M account, user name, and password details for providing authorization.  
 Enter the time in hours for the period of authorization required.
- 9 Click **Authorize** button.

## 7 Remote Access

---

### 7.5 Preparation for Remote Access

#### Introduction

Before providing Remote Access to external users, you must verify that the connection works with the new Talk2M account. You can verify the Remote Access using eCatcher and ensure that the box is registered.

#### Testing the Remote Access connectivity

You can verify whether the Remote Access is functioning by connecting remotely using its admin account. For this you need to:

- Configure the conditions on the server
- Configure the Site (For more details, see [Customer site configuration on page 115](#).

To enable Remote Access:

- 1 Enable the authorization on MyRobot and define a time limit (maximum 24 hours).
- 2 Turn ON the Remote Access key.

If all the conditions are set correctly the Service Box reboots from Connected Services to Remote Access. The user LED goes off for a while and blinks while the box switches to Remote Access. To indicate that the box is in the Remote Access mode the user LED stays green, the modem LED is green when connected, and the T2M (DO LED) blinks every second.

---

#### Remote Access connectivity information

##### Introduction

It is possible to see the status of connectivity through FlexPendant or through the status page of the Service Box. Additional information about connectivity is available in the Service Box Wan Setup and WAN Info page for the config user. For more details, see [Network Service Box connectivity on page 75](#).

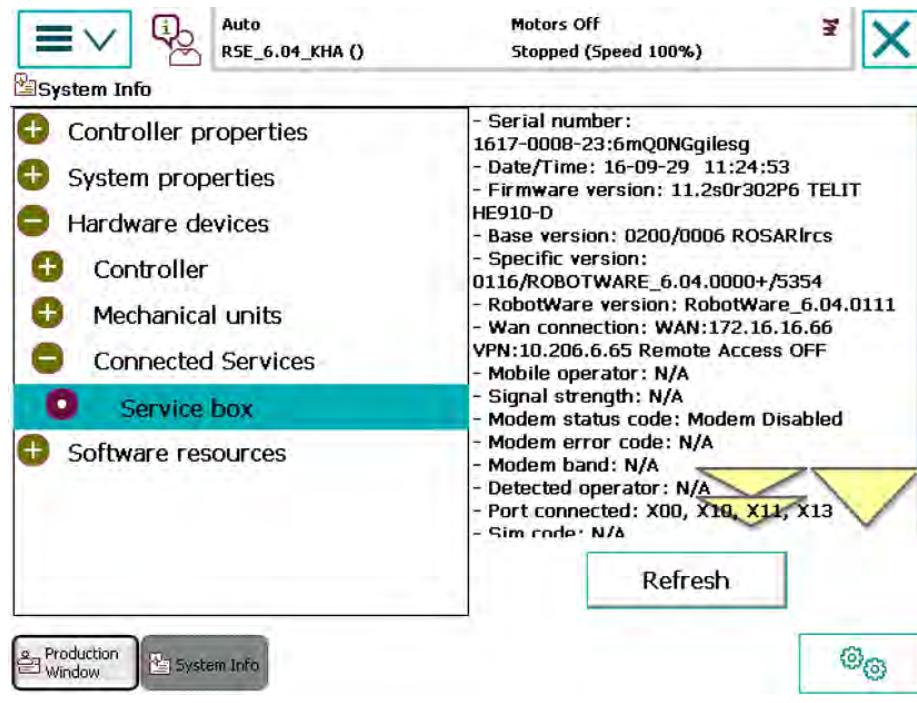
##### Remote access information - FlexPendant

To verify if the Remote Access is enabled and active on the FlexPendant:

- 1 Tap System Info > Service box.

*Continues on next page*

The Service Box system information is displayed.



- The **WAN:IP** field indicates that an IP is defined on the Service BOX WAN port.
- The **VPN:IP** field indicates that a VPN IP is defined on the Service BOX Secure Talk2M channel. If the secure connection was not successful additional information about the error is also displayed.
- The text **Remote Access** indicates that the customer has enabled Remote Access in the Service Box. Following are the states of the Remote Access:
  - ON: Authorized by server and key and the connection is active.
  - SRVOK: Authorized by the server.
  - KEYOK: Authorized by server and key.
  - OFF: Not authorized by server.

*Continues on next page*

## 7 Remote Access

### 7.5 Preparation for Remote Access

*Continued*

#### Remote access information - Support page

**ABB**

	Home	Diagnostic	Configuration Menu >>
	Support Information	Support Files	Log off

```
Gtk>head></head></body>
Date: Thu Oct 13 12:16:19 UTC 2016, Serial ID: 1617-0008-23:RciNY5D7N1N1J, OS: 11.0, Boot: 2.0.3, Firmware: 11.2s0r40200, Java Version: 1.4, <br>
Box Type: RO/RO/BT/MIFwRO/CUR=R0] [BPAV=SAIRlrcs/FRC=SAIRlrcs/[CUR=SAIRlrcs] D0:1 Di:1 <br>
Security: Local ABB Account:ON Remote ABB Account:ON Controller Communication:ON Server Communication:ON <br>
Features Configured: Remote Service:ON Remote Access:ON Internet Gateway:OFF LAN Configuration:OFF Remote Configuration:ON <br>
Service Agreement: Remote Service:ON Remote Access:ON Internet Gateway:OFF <br>
Functions Running: Remote Service:Stopped Remote Access:Running Internet Gateway:Blocked <br>
DSQC#=DSQCl016, Part#SM: AC613D_01/1617-0008-23, LAN:00:03:27:43:3c:8c, WAN:00:03:27:03:3c:8c, Modem:3G-HSPA+, Ext Part#SN: 3G G3M/0-0000-0000-19 <br>
Base Version: 0200/0000, Specific Version: 0116/ROBOTWARE_6.04.0000/5429, Robotware Version: RobotWare_6.04.0111, OEM=ABB Robotics:0200 <br>
Time since last start: 67 seconds, Time since last boot: 90 seconds <br>
Box Memory (Alloc/Total): 3993600/60355264 bytes, Box Space (Free/Alloc): 238560/3755040 bytes, Java Memory (Free/Total): 3421376/4194304 bytes <br>
User Disk Info (Used/Free): 1728000/18008932 bytes <br>
Modem Firmware:[20000000] MFR: 0x1000 MODEL: H910-0 Version: 12.0.0.026 , Forced/Expected/1/134 <br>
Modem Detected: Internal MULTIBAND GSM (134), Info: Telit:H910-0:12.00.026 <br>
Modem Init Status:0, Detection Err: 0, Dialout Counter: 0, Init Step: 0/7/027 Modem initialization completed <br>
Modem ID: 3S1579057349043, Wireless Mode (Command/Info): 0/0-WCDMA preferred then GSM/WCDMA preferred then GSM, Status: OK <br>
Sim Connect:1/Customer Public Sim, Type: 0***** Customer Sim, APN (Forced) Info: 0/airtelgrts.com/*...*/..., PIN: ./.../ <br>
Sim Info (IMSI/ICCID/Cell/LAC): 404450910326412/89914509009103264126/27889203/25083 <br>
GSM Band (Command/Info): 0-Native/0-Native, GSM Signal/Bars: 28/6, GSM Status: 1 - Home network (0->) <br>
GSM Operator connected: Name: , ID (Command/Info): 40445/0, Status: ?, PPP IP: 0.0.0.0 <br>
GSM Operator available: 0 operators <br>
PPP Connection duration (Connected/Disconnected): 0/1 minutes, PPP Data (In/Out): 223242/231550 bytes <br>
PPP Last Connection Time (Connected/Disconnected): 0/0.0 minutes <br>
PPP Connection Number (Connected/Disconnected): 1 <br>
Connection: Modem ANI: 0.0.0.0, Modem IP: 192.168.125.83, DNS (Pri/Sec): 0.0.0.0/0.0.0.0 <br>
WAN IP/Dur: 0.0.0.0, SimICMstatus: NOK, VPN IP/Dur: 0.0.0.0/0, SubVNstatus: NOK METVN IP: 0.0.0.0 <br>
T2M StatusCode:0, Status: ABB VPN Not RUN (NO WAN), HTTPS Mode: Enabled <br>
ABB Auth Server IP: as.pro.talk2m.com, VPN Address defined 1:Automatic, VPN SrvAddr1:2=: <br>
VPN Authentication Op=-1:Finished Test Result=0 <br>
ErrorRpt:
WarningRpt:
InfoRpt:
InfoSummary: DurationSec=0 ProxyAuthType=0 ExtInfo1=0 NbSubTest=0 <br>
Last Connect:> Last Disconnect:Thu Oct 13 12:15:17 UTC 2016 #Connect=0 #Disconnect=1 <br>
Switch Status:27, Port connected:0134=>Internal,Lan1,Lan2,Wan, Port disconnected:2=>Lan3, LANWAN:8 (LAN/WAN):123/4 <br>
Config Eth0: Static IP: 192.168.125.83, Mask: 255.255.255.0 <br>
Config IP: 192.168.125.83, SubnetMask: 255.255.255.0, Gateway: 10.140.60.1 <br>
Config Proxy Node: 0/No Proxy, Name: :80, User: /, Password: :80 <br>
Box IP (IPMr/Gw/OK): 192.168.125.83/255.255.255.0/0.0.0.0/False Predefined, Robot IP:192.168.125.1 Predefined <br>
Robot Ethernet Connection State:0, Last Time (Connected/Disconnected): 50? seconds ago <br>
Net Route: R10.0.0.0/0.0.0.0/0.0.0.0/0.0.0.0, R210.0.0.0/0.0.0.0/0.0.0.0/0.0.0/0 <br>
VPN Filter:ON F1:255.255.255.255/255.255.255/0.0.0/0.65535, F2:0.0.0.0/0.0.0.0/0.0.0/0.0.0/0 <br>
ABB Server IP: m2u2.talk2m.com, HTTP(S)/To/Rq/NC/BC/NA/?/: 0/0/0/0/0/0/0 <br>
Remote Access is [Enabled] and [Active] Authorization Server:ON Authorization Key:ON RemainingTime: 0.00:02:30 <br>
Remote Access Configuration: Account:ABBRSA_TEST User:AdminTEST Password:... BoxName:1617-0008-23 <br>
NAT Type:NAT ON LAN, VPN Redirect:ON <br>
Bootstrap State: 900 - WAIT_NETWORK_READY <br>
Bootstrap History: [S=0-UNDEFNOMN,T=0][S=100-START_INIT,T=2][S=120-BASIC_INIT,T=2][S=123-UNDEFINED,T=3][S=125-IOPORT_INIT,T=3][S=110-REMOTE_ACCESS_INIT,T=3]
```

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On the support page of the service box (guest user) you can see:

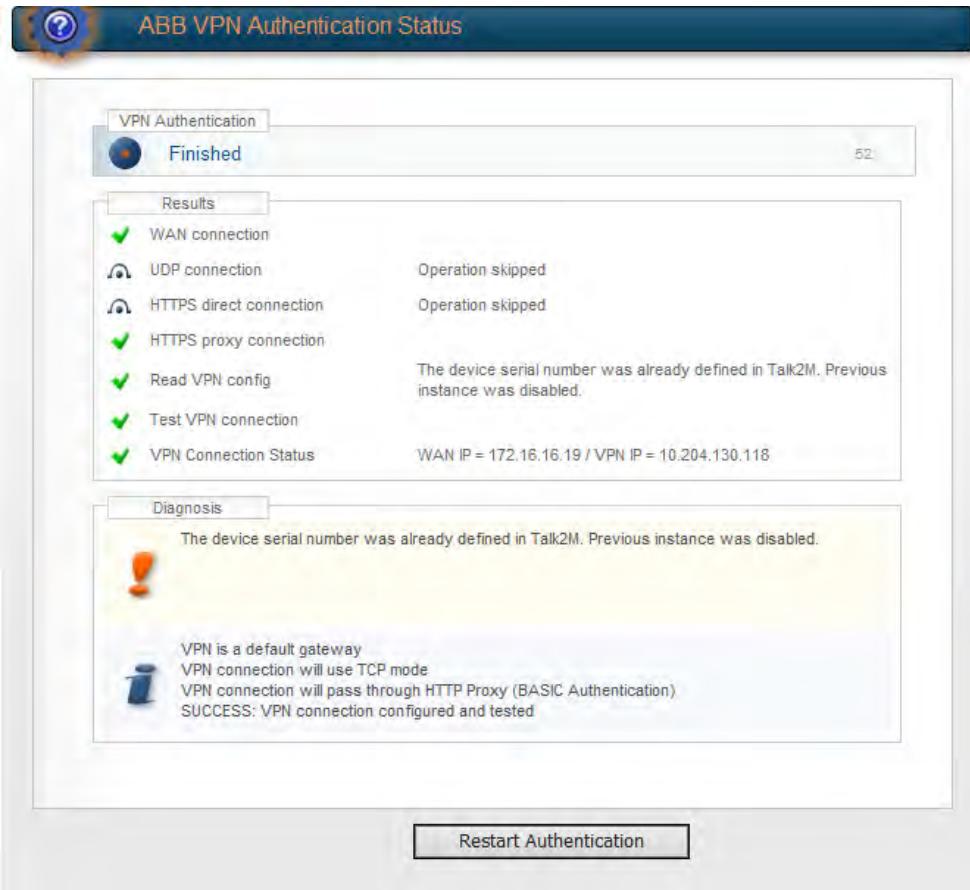
- The Box Type (A denotes Remote Access) and firmware version.
- Connectivity information.
- Remote Access status.

For more details, contact ABB.

*Continues on next page*

#### Remote access information - VPN info page

On the VPN Info Page of the Service Box (config user) you can see the following connection information



The screenshot shows the 'ABB VPN Authentication Status' page. At the top, it says 'VPN Authentication' and 'Finished'. Below this, under 'Results', there is a list of items with status indicators:

Item	Status
WAN connection	✓ Operation skipped
UDP connection	✗ Operation skipped
HTTPS direct connection	✗ Operation skipped
HTTPS proxy connection	✗ Operation skipped
Read VPN config	✗ The device serial number was already defined in Talk2M. Previous instance was disabled.
Test VPN connection	✗
VPN Connection Status	✓ WAN IP = 172.16.16.19 / VPN IP = 10.204.130.118

Under 'Diagnosis', it says 'The device serial number was already defined in Talk2M. Previous instance was disabled.' with an exclamation mark icon. It also lists some notes:

- VPN is a default gateway
- VPN connection will use TCP mode
- VPN connection will pass through HTTP Proxy (BASIC Authentication)
- SUCCESS: VPN connection configured and tested

At the bottom right is a 'Restart Authentication' button.

xx1400002654

#### Connection on eCatcher

##### Introduction

With eCatcher you can:

- verify whether the box has been registered for Remote Access and is connected.
- create a Remote Access connection.
- limit the devices that can be reached during connection.

##### Verifying the Service Box registration information

If the Service Box has been successfully connected to Remote Access it is registered in the customer account in eCatcher.

To verify the Service box registration information:

- 1 Log as admin in eCatcher.
- 2 Click eWONs

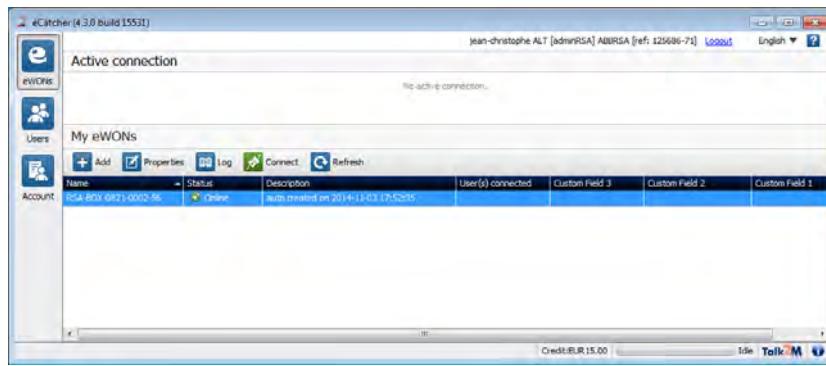
*Continues on next page*

## 7 Remote Access

### 7.5 Preparation for Remote Access

Continued

The eWONs page is displayed with the information about My eWONs.



xx1400002655

#### 3 View and verify the Service box registration information.

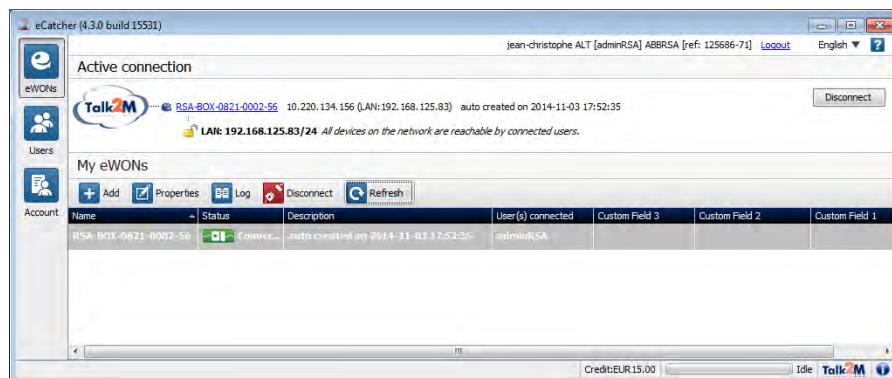
The Service Box is registered under the name defined in the Service Box. The status is Online if there is connectivity between the Service Box and the Talk2M Server and Offline if there is no connectivity.

#### Creating a remote connection with eCatcher

To create a remote connection between the Service Box PC connected to the Internet and the equipments:

- 1 Select a Service Box.
- 2 Click the Connect button.

The connection is established and it is possible to access the local equipments through their IPs on the range 10.206.125.\*.



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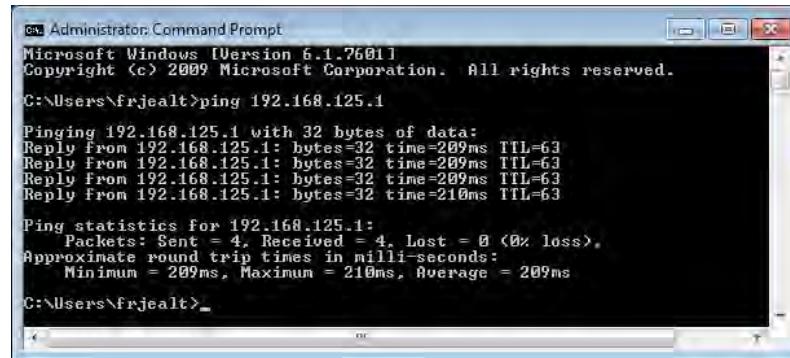
#### Connecting to remote equipments

When a connection is active, all the equipments after the Box on its LAN Switch are available if they have an IP in the range of 192.168.125.\*. It is possible to limit the reachable equipments. For more details, see documentation of eCatcher.

#### Connecting to Robot

For example, robot on its Service Port (192.168.125.1) is available:

Continues on next page

**Ping robot**


```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

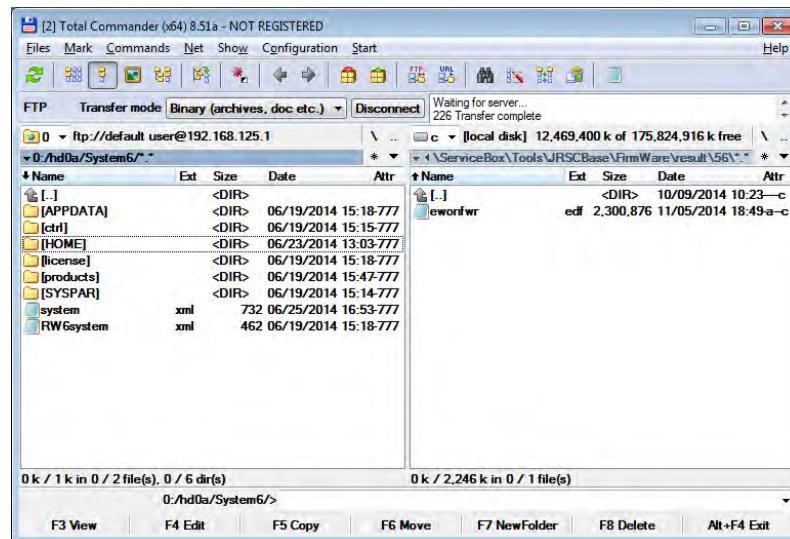
C:\Users\frjealt>ping 192.168.125.1

Pinging 192.168.125.1 with 32 bytes of data:
Reply from 192.168.125.1: bytes=32 time=209ms TTL=63
Reply from 192.168.125.1: bytes=32 time=209ms TTL=63
Reply from 192.168.125.1: bytes=32 time=209ms TTL=63
Reply from 192.168.125.1: bytes=32 time=210ms TTL=63

Ping statistics for 192.168.125.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 209ms, Maximum = 210ms, Average = 209ms

C:\Users\frjealt>
```

xx1400002657

**FTP robot**

xx1400002658

**RobotStudio View**

If RobotStudio cannot automatically discover the Controller, then add the IP address (192.168.125.1) when adding a Controller. It is then possible to perform actions which are done usually locally (FTP, FlexPendant, Events, and so on) but slowly depending on the band width.

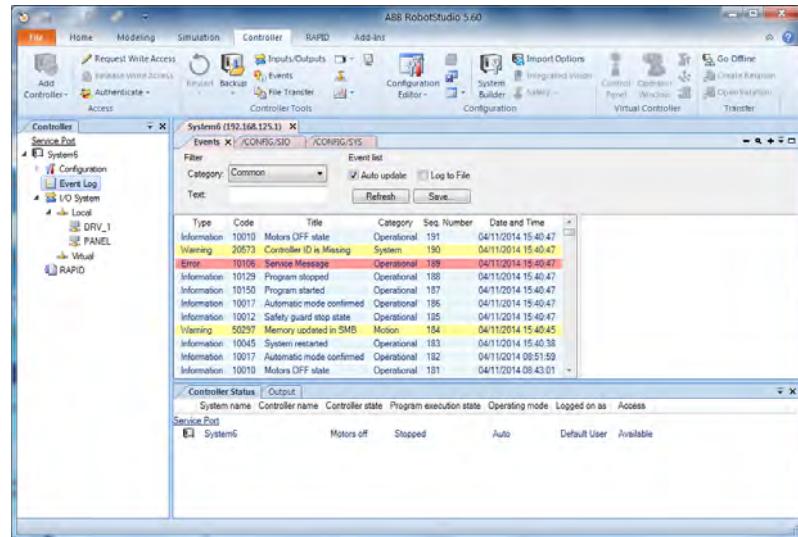
*Continues on next page*

## 7 Remote Access

### 7.5 Preparation for Remote Access

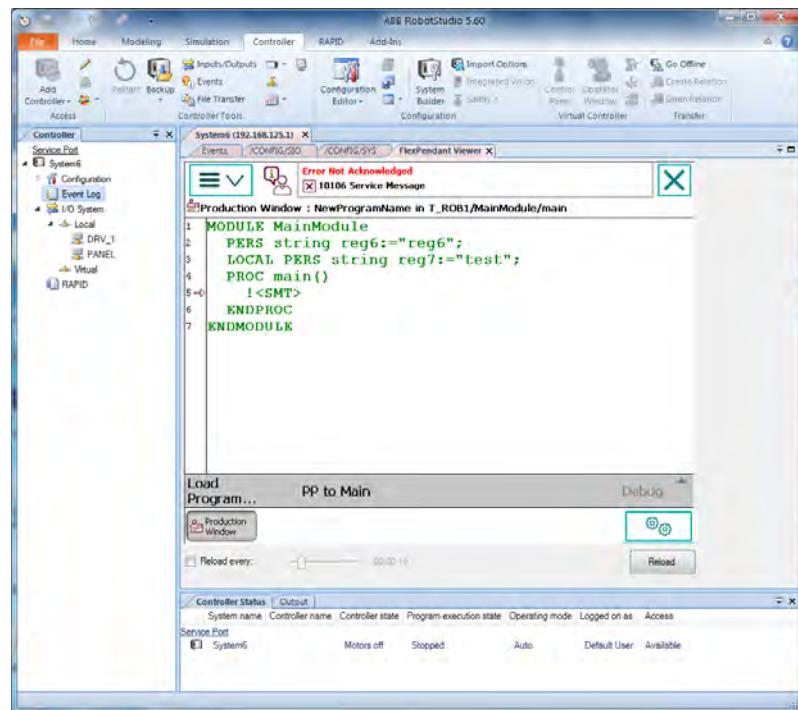
*Continued*

#### Event Logs



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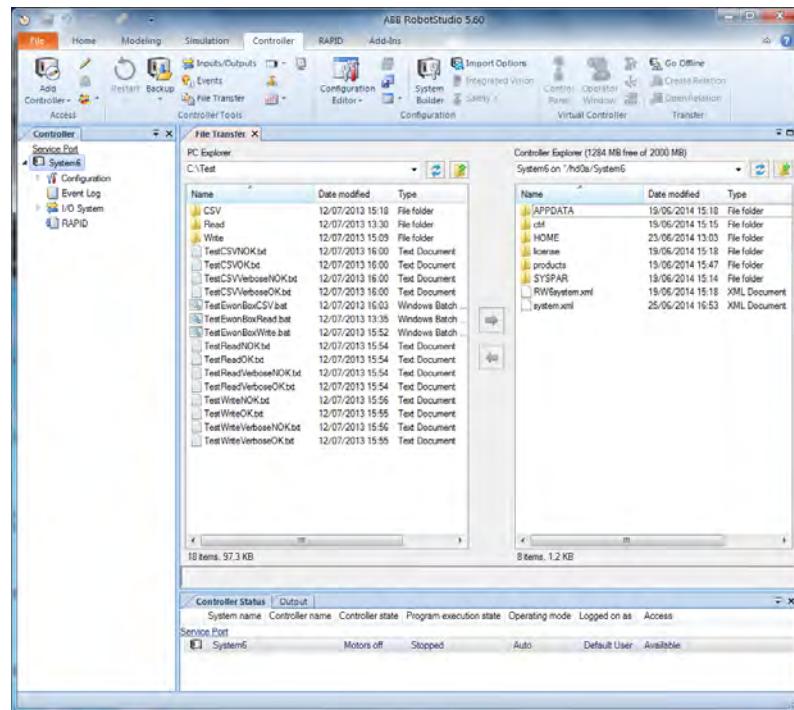
#### FlexPendant view



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*Continues on next page*

## FTP view



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## Connecting to other equipments

Any ethernet based equipment which have been configured with an IP 192.168.125.\* and physically connected to the LAN switch of the Service Box (directly or through additional switch or router) can be accessed remotely. This could be the Vision system, IPS board, PLC, welding system, PCs, or even the serial equipments if there is an ethernet to serial converter added.

The connection is made with the tools available for the local equipments given by the equipment provider (either direct HTTP or devpt tools). For example, ABB with AC 500 using Codesys or FTP/HTTP.

## Controlling the access to the equipments using eCatcher

By default all the devices in the range 192.168.125.\* can be remotely accessed. It is possible to limit the access to the devices by an Administrator using eCatcher. For more details, see [Controlling the access to the equipments using eCatcher on page 137](#).

## 7 Remote Access

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### 7.6 Remote Access on production

#### 7.6 Remote Access on production

##### Introduction

To allow Remote Access for someone, first create a user. Use eCatcher to create a Remote Access User.



##### Note

The Remote Access User can be created in advance but due to security reasons it is better to create a Remote Access User only when it is required.

When a Remote Access User is created, the credentials (username/password/Talk2M Account) and the box name need to be given securely to the Remote Tech. The Remote Tech uses these credentials for Remote Access. You need to activate the Remote Access by authorization through MyRobot and by enabling the Security Remote Access Input through a key.

##### Creating a Remote Access user

You can create a Remote Access user which can be used only for a remote access session. For more details, see [Creating a Remote Access user on page 140](#).

##### Activating Remote Access

Once a Remote Access User is created you need to activate this new user by:

- authorizing the Remote Access through MyRobot.
- authorizing the Remote Access locally by enabling the digital input usually through a physical key switch.

##### Remote connection by remote technician

The remote technician after receiving the credentials and information for Remote Access connection runs eCatcher on a remote PC and performs the Remote access connection to access the local equipments. For more details see, [Creating a remote session by remote technician on page 142](#).

##### Stopping the Remote Access session

When the Service Box is in the Remote Access mode it is not connected and managed by ABB. To stop the Remote Access mode, the Remote Access digital input should be set to OFF. The Service Box returns to Connected Services mode. Due to security reasons the user account should be removed and the authorization should be disabled in MyRobot, if the time limit is not already expired.

## 7.7 Additional configuration procedures

### Creating service agreement with Remote Access

The Local Business Unit (LBU) of ABB creates a service agreement with the Remote Access option enabled. Then the Administrator for Remote Access will have the rights to authorize Remote Access. This is done in the Customer Contacts of the Service Agreement.

To create a service agreement:

- 1 Click Products > Agreements > Create agreement.
- 2 Click Service Agreement link under Type of agreement page.

This screenshot shows the 'Service agreement' type selected in the 'Type of agreement' dropdown. The left sidebar lists various agreement types like 'Create agreement', 'Drafts', and 'Active agreements'. The main panel displays a brief description of the selected service agreement type.

- 3 Select Agreement type and enter the customer details, then click Continue.

This screenshot shows the 'Basic data' section of the service agreement creation form. It includes fields for 'Agreement type\*', 'Customer', 'Valid from', 'Valid to', 'Contract reference number', and 'Internal contract number'. There are also sections for 'Agreement Terms & Conditions' and 'Internal comment'.

en1600001511

*Continues on next page*

## 7 Remote Access

### 7.7 Additional configuration procedures

*Continued*

- 4 Make changes in available options. Click Save.



#### Note

The Remote Access option is selected based on the Agreement type.

- 5 Click Save. The Agreement details summary page is displayed.
- 6 Click the Customer Contacts tab. The customer contact page is displayed.

The screenshot shows the 'Agreements Home' interface. On the left is a sidebar with links like 'Create agreement', 'Drafts', 'Active agreements', 'Overview', 'Edit', 'Add products', 'Add ABB contacts', 'Add customer contacts', and 'Delete'. The main area is titled '1.20Release / dcZ'. At the top, there's a note: 'To be able to activate the agreement you need to add information to following tabs: Documents, Product, Contacts, Customer contacts'. Below this is a navigation bar with tabs: Overview, Documents (0), Products (0), ABB Contacts (0), Customer Contacts (0), and Log. The 'Customer Contacts (0)' tab is highlighted. A sub-section titled 'Customer contacts' shows a table with columns: Name, Email, Cellphone, Primary contact, Remote Access, and Test Notification. There are no entries in the table. The URL en1600001512 is visible at the bottom.

- 7 Click + icon. The Add customer contact to the Agreement page is displayed.

The screenshot shows the 'Service agreement - 1.20Release / dcZ' page. It has a heading 'Add customer contact to the agreement' with a sub-instruction: 'Search for customer contact in search fields below. Type in name, email or company. If not found, Click here to add customer contact.' Below this is a section titled '1. Customer Contact' with a search input field containing 'Customer contacts:'. At the bottom are 'Submit' and 'Done' buttons. The URL en1600001513 is visible at the bottom.

- 8 Type the customer contact information.
- Select the customer from the list. Click Submit. Click Done.
- Select the Remote Access check box to enable a customer as remote access contact who has the rights to authorize remote access through MyRobot.
- The ABB Remote Access Activation Terms window is displayed.
- Read and click Accept.

*Continues on next page*

#### 11 A summary of customer contacts with remote access rights is displayed.

The screenshot shows the 'Agreements Home' section of the MyRobot interface. On the left, there's a sidebar with options like 'Create agreement', 'Drafts', 'Active agreements', and 'Customer contacts'. The main area is titled 'Remote Service FR Labs / 33134402491' and shows a table for 'Customer contacts'. The table has columns for Name, Email, Cellphone, Primary contact, Remote Access, and Test Notification. One row is visible: 'ALT, Jean-Christophe' with email 'axthorweb@hotmail.com', cellphone '+33679766342', checked boxes for Primary contact and Remote Access, and buttons for Email, SMS, and Delete.

When the Remote Access is enabled in the service agreement, the Remote Access information and the Authorization are visible and available in MyRobot for the customer contact who has the Remote Access rights. The internal RS Portal also has the Remote Access information about the Service Box page.

#### Creating the Talk2M account

The Service Box connects for Remote Access using a Talk2M account. You need to create a Talk2M administrator account and register the information in the service box.

There are two types of Talk2M accounts :

- Free account: For normal troubleshooting operations with a data limit of 1GB per month.
- Pro account: For more active and demanding operations.

The Talk2M account is not managed by ABB and customer should take the responsibility of managing it. For more information about Talk2M, see [www.talk2m.com](http://www.talk2m.com)

The Talk2M account is created using the eCatcher tool which can be downloaded from [www.talk2m.com](http://www.talk2m.com).

Use the following procedure to create a Talk2M account:

- 1 Go to [www.talk2m.com](http://www.talk2m.com), download the eCatcher application, and install it.

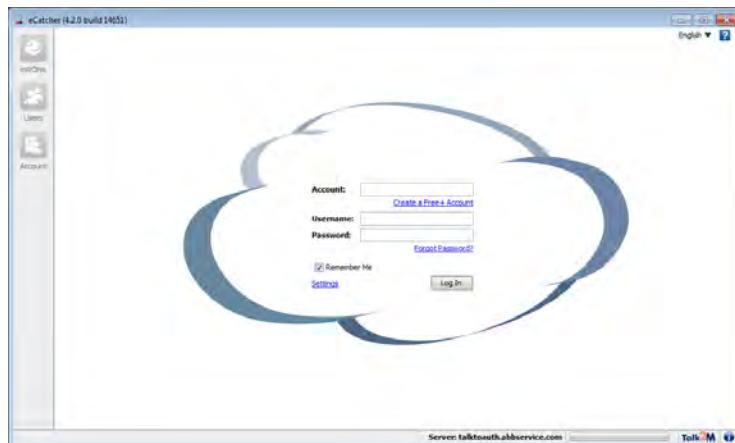
*Continues on next page*

## 7 Remote Access

### 7.7 Additional configuration procedures

*Continued*

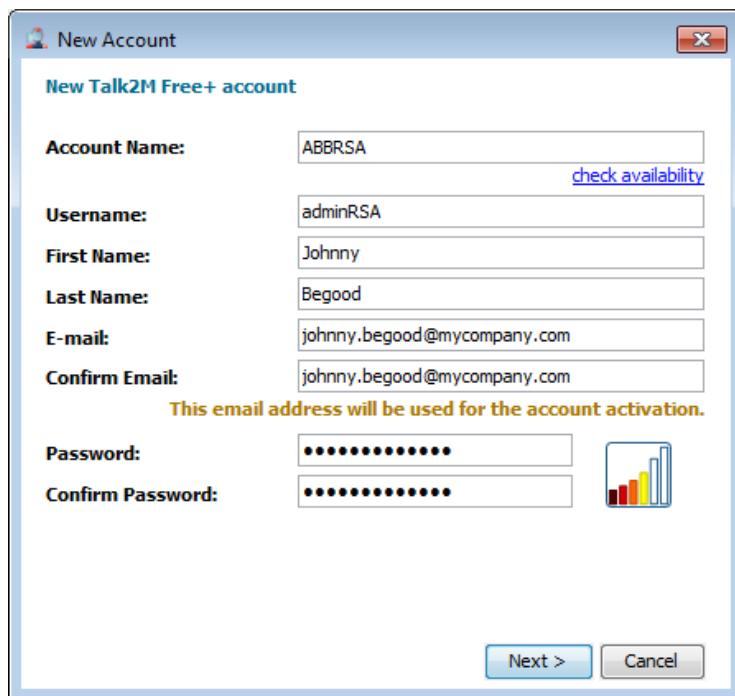
#### 2 Launch the eCatcher application.



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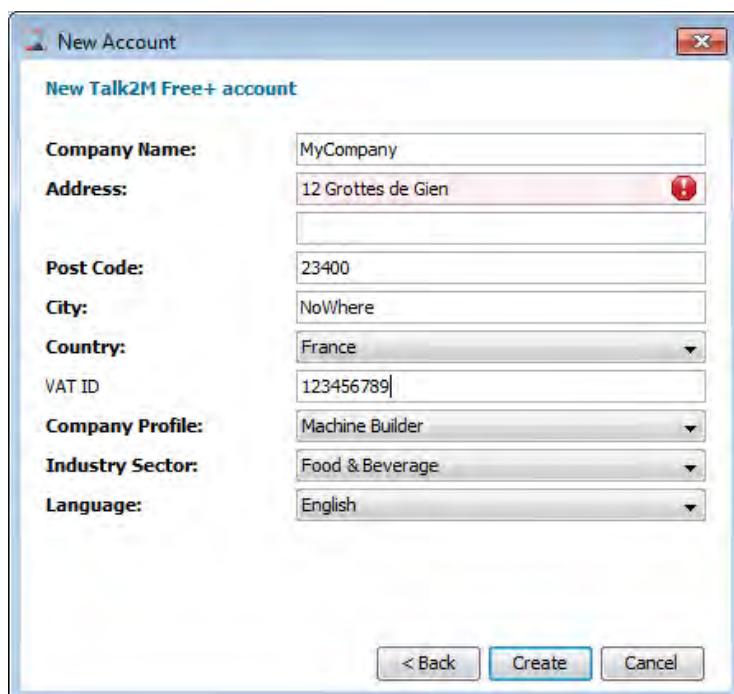
#### 3 Click Create a Free+ Account.

The New Account window is displayed.



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*Continues on next page*



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- 4 Follow the instructions and create a Talk2M Free+ account. Activate the new account through email.



#### Note

If there is a connection problem, verify the Internet connectivity settings. The default connection is auto detect, but changes might be required. The access to Internet outbound on port 443 (HTTPS) or 1194 (UDP) are required. There is no need to open firewall for inbound access.

- 5 Verify that you can login with the new administrator account.

Once you create an administrator account you have the following admin account credentials:

- The account name (for example, ABBRSA).
- The admin user name (for example, adminRSA).
- The password (for example, 645h749h@f).

---

#### Controlling the access to the equipments using eCatcher

By default all the devices in the range 192.168.125.\* can be remotely accessed. It is possible to limit the access to the devices by an Administrator using eCatcher.

Use the following procedure to limit the access to the local equipments remotely using eCatcher:

- 1 Select a box and click Properties.

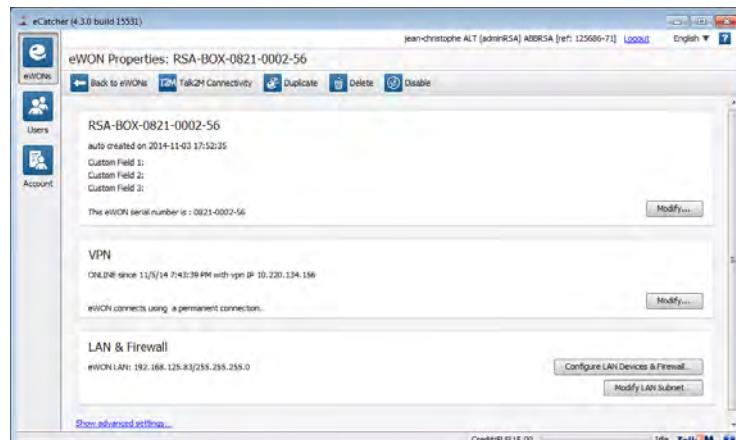
*Continues on next page*

## 7 Remote Access

### 7.7 Additional configuration procedures

*Continued*

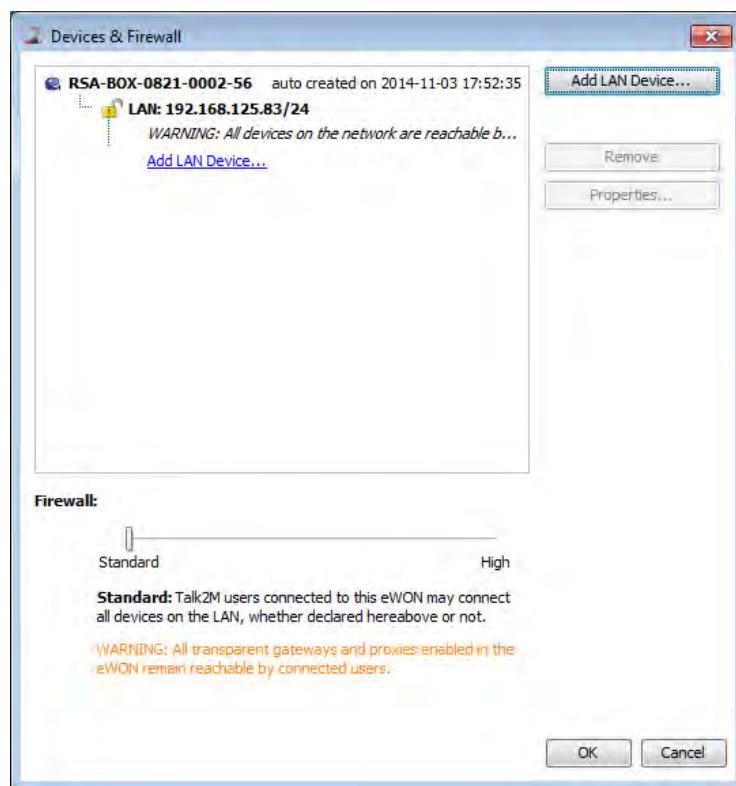
The properties window is displayed.



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#### 2 Click Configure LAN Devices & Firewall.

The Devices & Firewall window is displayed.



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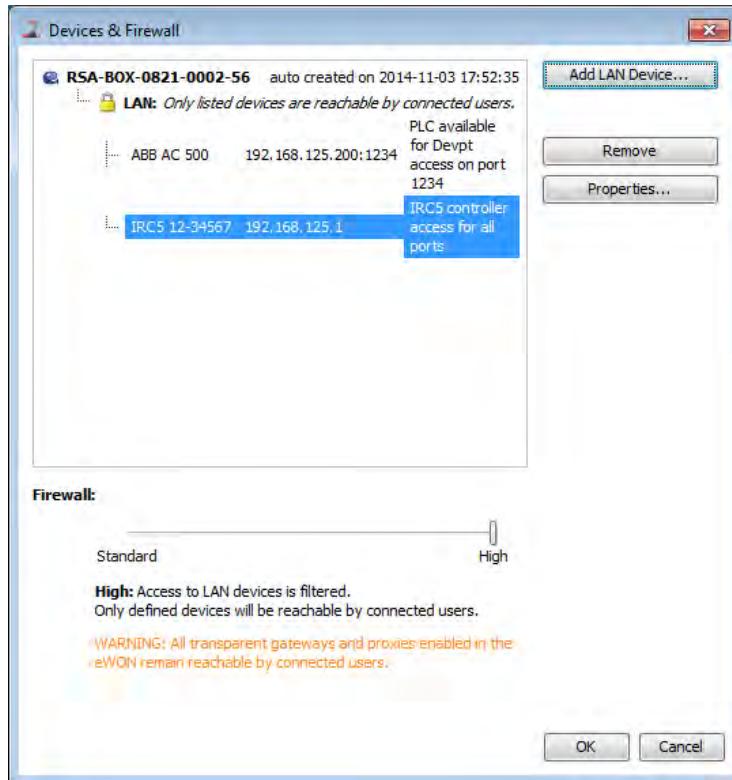
By default the firewall is open to access all the subnet (here, 192.168.125.\*).

It is possible to create LAN Devices for the following two reasons:

- Have a better view of which devices are available when the Remote Technician wants to connect to it.
- Authorize access only to the defined devices.

*Continues on next page*

**3 Click Add LAN Device.**



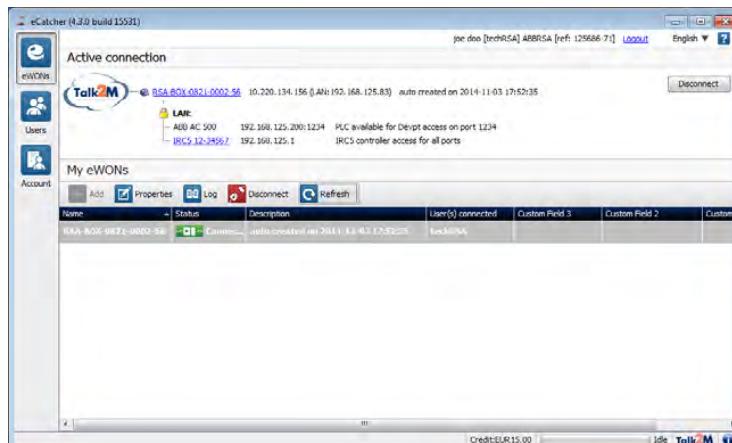
xx1400002665

In this sample we have defined the following two remote equipments:

- IRC5 Controller (Service port 192.168.125.1) available for access on all ports.
- AC 500 PLC accessible for Devpt on port 1234.

When we create LAN Devices, the firewall switches to high level and automatically block all the accesses except the one defined (here IRC5 and PLC) and on the defined ports.

**4 Click OK.**



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*Continues on next page*

## 7 Remote Access

### 7.7 Additional configuration procedures

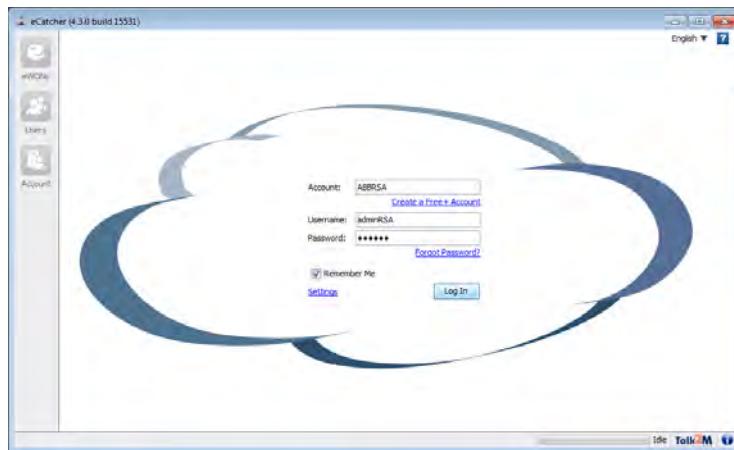
*Continued*

When a remote connection is set, only the predefined devices are accessible.

#### Creating a Remote Access user

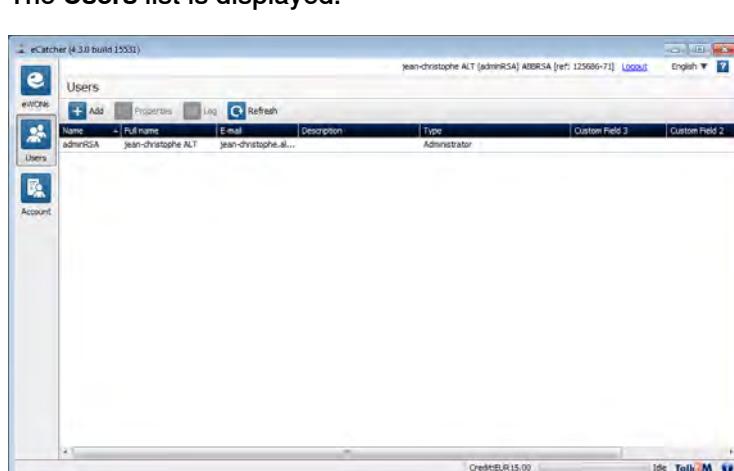
You can create a Remote Access user that can be used only for a Remote Access session.

- 1 Log in to eCatcher using admin credentials.



- 2 Click Users.

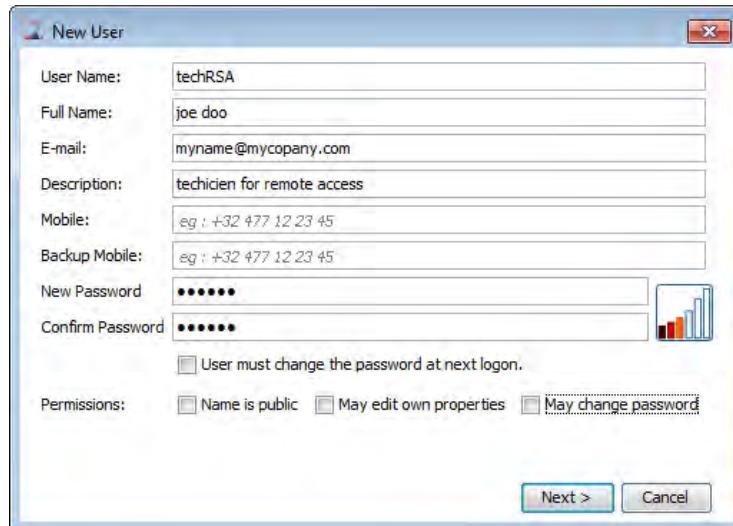
The Users list is displayed.



- 3 Click Add.

*Continues on next page*

The New User window is displayed.



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- 4 Type the credential information in various fields.
- 5 Click **Next**, skip the **Custom fields** page, and click **Next** again.



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- 6 Select the type of user. Select **User** since you are creating a normal remote access user.
- 7 Click **Create**.

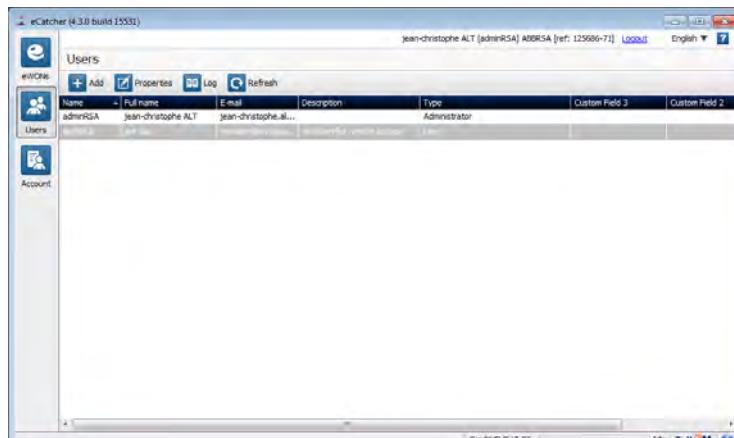
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## 7 Remote Access

### 7.7 Additional configuration procedures

*Continued*

The user is created and added to the Users list.



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Once a Remote Access user is created, send the following credentials of the new user is available to the remote technician.

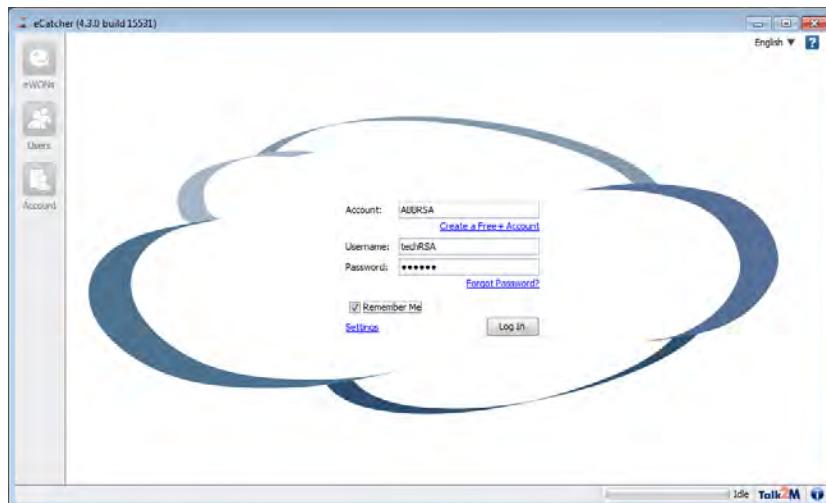
- The account (for example, ABBRSA).
- The username (for example, techRSA).
- The password (for example, 645h749h@f).
- The box name to connect to (for example, RSA-BOX-0821-0002-56).

The remote technician can use these credentials for Remote Access.

#### Creating a remote session by remote technician

The remote technician after receiving the credentials and information for Remote Access connection runs eCatcher on a remote PC and performs the Remote access connection to access the local equipments.

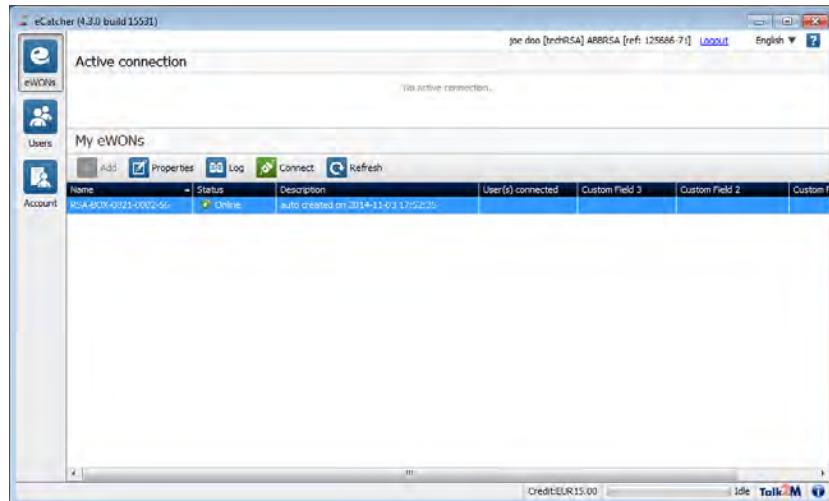
- 1 Go to [www.talk2m.com](http://www.talk2m.com), download the eCatcher application, and install it.
- 2 Launch the eCatcher application and login with the Remote Access User credentials.



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*Continues on next page*

The eWONs page is displayed.



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#### 3 Select a Service Box and click Connect.

The connection is established and the remote technician can see the details of accessible local equipments.



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#### 4 The Remote Technician performs the troubleshooting action.

#### 5 Once the troubleshooting is done click Disconnect and logout.

Turn off the Remote Access key to stop the session which makes the box offline and stops the connection.

## 7 Remote Access

### 7.8 Key switch kit installation

### 7.8 Key switch kit installation

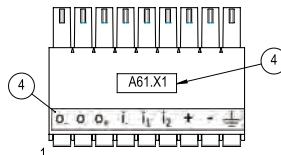
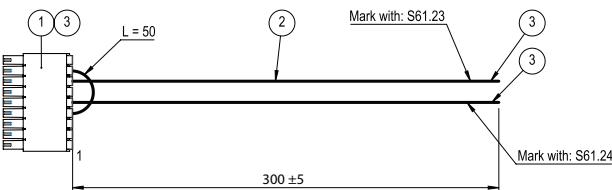
#### Introduction

There is a key switch kit which could be installed close to the Connected Services box to enable or disable Remote Access locally. The kit is designed for installation in the IRC5 cabinet but could be adapted manually to other cabinets depending on the location of the box with different wire length. For more details, see [Connecting service box input/output on page 119](#).

It is possible to order the key switch kit through BOL (Business On Line) under the reference 3HAC060851-001.

#### Connector description

Connection table								
Connection point A				Connection point B				
Item des.	Term.	Type	Ref.	Item des.	Term.	Type	Ref.	Rem.
A61.X1	5	3	i1	S61.24	Free end	3		24V
A61.X1	7	3	+	S61.23	Free end	3		24V
A61.X1	4	3	i-	A61.X1	8	3	-	0V

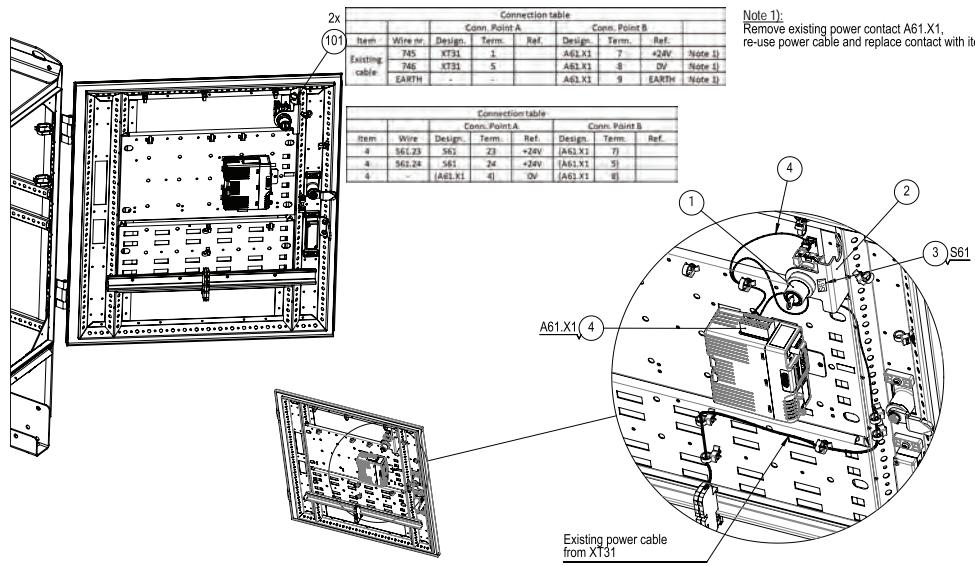


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The connector A61.X1 is replacing the existing power connector plugged in the service box. The existing power cables need to be transferred from the existing plug and wired to the connector A61.X1 on terminal 8 for GND (or 0V), terminal 7 for +24 V, and terminal 9 for Earth connection.

Continues on next page

#### Implementation in the door



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View 3 and view 10 (door implementation). View B (wiring).

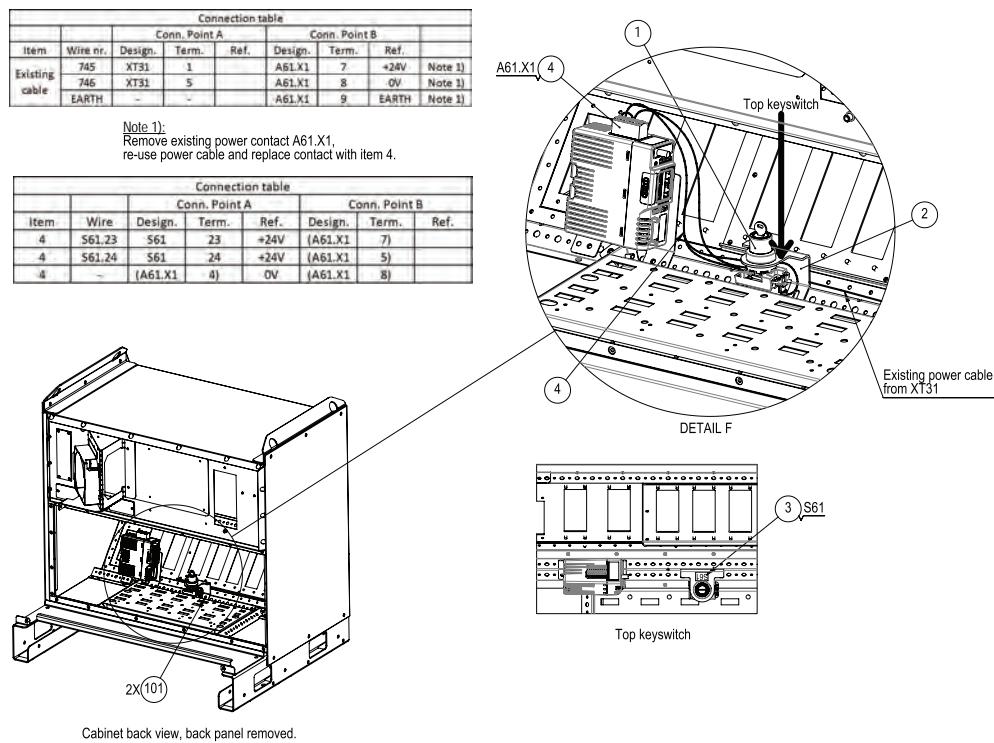
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## 7 Remote Access

### 7.8 Key switch kit installation

*Continued*

#### Implementation at the bottom of the cabinet



en1600001702

View 1 and view 25 (cabinet implementation). View F (wiring).

# 8 Service Box used as Gateway

## 8.1 Overview

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### General

This section describes how the Service Box is used as a Gateway. In Gateway mode, the Service Box act as an ABB managed Internet Gateway (WiFi , Wired, or 3G). In WiFi or Wired mode, the customer must provide internet access to this Service Box. If the box is connected in 3G then a local data SIM is required, it is not possible to access internet with ABB SIMs.

The Service Box as Gateway can also be used as Remote Access on the equipment connected on the LAN of this Service Box. The Gateway boxes need to be defined in a Service Agreement to be visible on the Connected Service Portal, in MyRobot, and to be active as gateway to Internet.

The main purpose of the Service Box as Gateway is to be used in combination with controllers equipped with embedded Connected Services, to provide central internet connection and Remote Access. But this box could also be used as a Gateway to Network Service boxes to concentrate the connection to internet.

---

### Prerequisites

You need to have a Service Agreement with the service box attached and defined as a Gateway. If the service box is connected in 3G, then the ABB sim cannot be used and must be replaced by a Customer public sim. For more information on setting-up a 3G service box, see [Set up 3G Service Box for Connected Services on page 63](#)

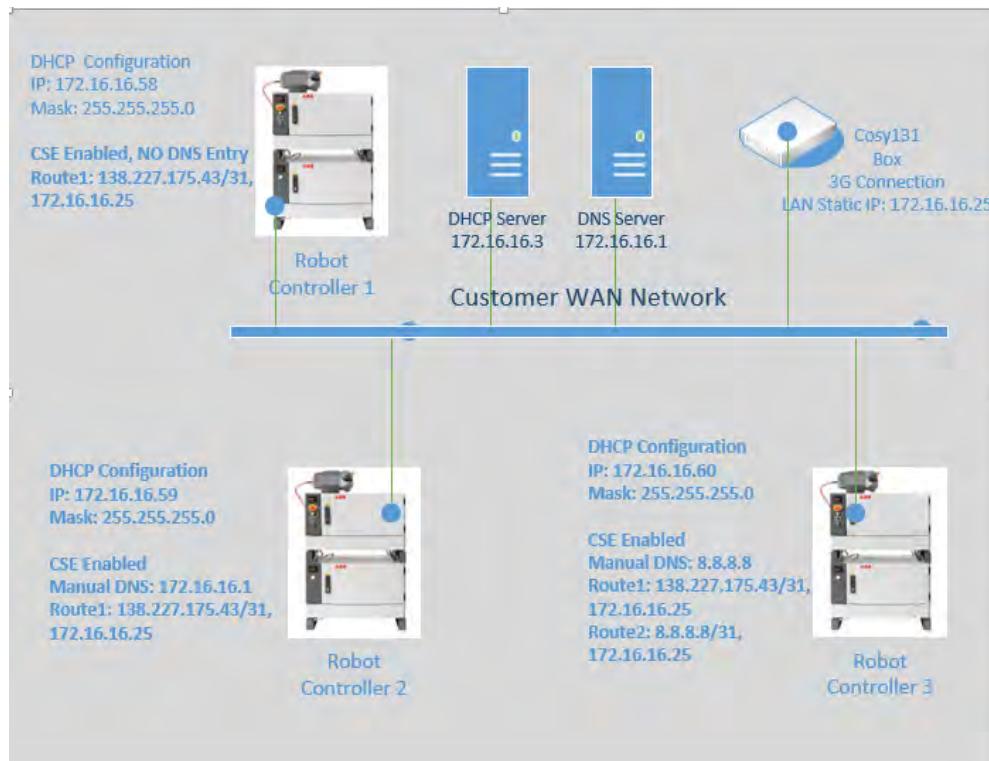
## 8 Service Box used as Gateway

### 8.2 Topology

#### 8.2 Topology

##### Topology with Embedded Connected Services

The Gateway box used to route all the traffic from Embedded CS to CS Server via Internet. Gateway Box can be used as One-to-one (One Gateway SB connected to single Controller's Service port) and One-to-many (One Gateway SB connected to multiple controller's WAN network). Refer the topology diagram for the One-to-many connection of the Gateway Service Box below.



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##### Topology with Network Service Boxes

The Gateway box could also be used as a concentrator for multiple Network Service boxes internet. In this case, the WAN port of the Network service boxes are connected to one Service Box used as a Gateway instead of a customer Gateway. This shows similar topology that the concentration described in [Concentrating Communication on page 81](#).

## 8.3 Configuring a Service Box as Gateway

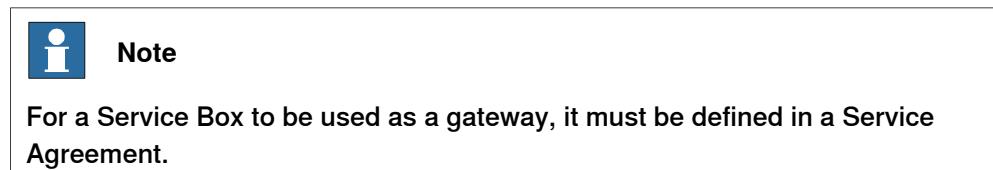
### Overview

This section describes how to create Service Box as Gateway in WebConfig.

The Service Box configured as a Gateway is described in [Service Box configuration on page 57](#). In case the Service Box is used as a Gateway, the IP address of the box can also be changed to match the connection to the Controllers WAN Port, see [Configuring the Local Connectivity configuration on page 61](#).

### Defining a Service Box as Gateway in Service Agreement

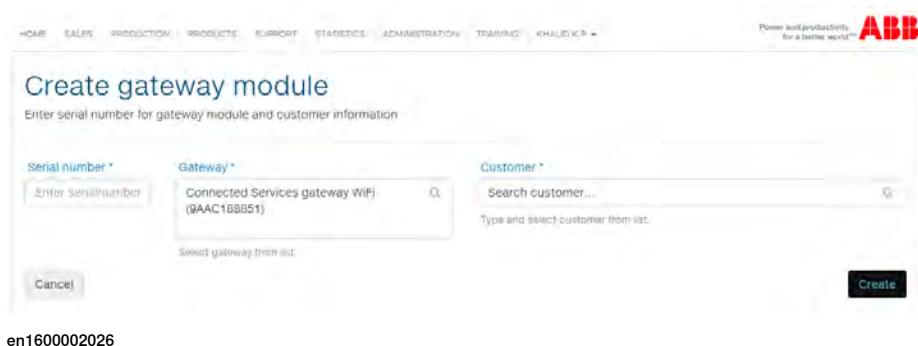
Use this procedure to create Service Box as Gateway in WebConfig.



- 1 Go to Production > Agreements home page > Click Create SB Gateway from the left menu.



- 2 Enter Service box serial number, select the Service Box type and search for the Customer to which the Gateway Service Box is adding and click Create button.



*Continues on next page*

## 8 Service Box used as Gateway

### 8.3 Configuring a Service Box as Gateway

*Continued*

The error message "Connected servicebox exists" appears if the Service Box is already connected.



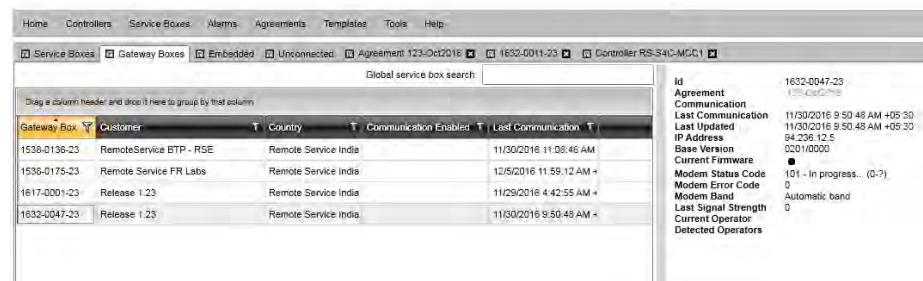
#### Note

Disconnect the Service Box from the controller in the Connected Services portal, when the above message appears.

- 3 Go to the Customer Agreement to which the Gateway SB has been created and added.
- 4 From Agreement, under Products tab click + icon to add new products



- 5 Select the newly added Gateway SB and click Add Products button.
- 6 Wait for some time and login to RS portal.
- 7 Go to Service Boxes page and click Gateway Boxes tab. The newly added gateway box details will be listed here.



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- 8 To create the Service Box as a Gateway Box, you need to enable the Gateway features. To enable this, refer to the section [Configuring the user on page 59](#) and select the **Enable Embedded Connected Services Gateway** check box under **Features**.

*Continues on next page*



#### Note

The Gateway Box can be activated back to operate as a Service Box. Use the following procedure to convert a Gateway Box to a Service Box.

- 1 Disable the **Enable Embedded Connected Services Gateway** check box under **Features**, as described in the section [\*Configuring the user on page 59\*](#).
- 2 Remove the Gateway Box from the Service Agreement.
- 3 Go to the Connected Services portal.
- 4 Connect the Service Box to the controller in the portal.

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