

# SIEMENS



## Compact actuating room automation stations DXR1.. start-up procedures

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## Security best practices



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Network setup must avoid direct connection from Internet to the end device.

- Implement Port security to disallow connection and network participation of unauthorized laptops/devices to a switch.
  - Unauthorized access must be prevented by physical security measures. Thus, access to devices (controllers) must be limited to only those person who require it. Equipment can further be monitored via CCTV.
  - If possible, physically separate control systems from non-control systems. Apply the concept of least-privilege to minimize impact in case of a compromise of user credentials.
  - Ensure that complex and strong passwords are required. Furthermore, ensure that administrator passwords are at least 12 characters and at least 8 for non-administrative users.
  - Ensure that username/password are unique for each site within the country/office.
  - Ensure that users each have their own individual login accounts. User accounts must not be shared.
  - Configure account lockout settings (threshold, observation windows, duration) to protect the system from password guessing or brute force attacks.
  - Make sure accounts are removed within a reasonable amount of time after users leave the site.
  - Make sure firmware is downloaded only from legitimate / known locations.
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## Cyber security disclaimer

Siemens provides a portfolio of products, solutions, systems and services that includes security functions that support the secure operation of plants, systems, machines and networks. In the field of Building Technologies, this includes building automation and control, fire safety, security management as well as physical security systems.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art security concept. Siemens' portfolio only forms one element of such a concept.

You are responsible for preventing unauthorized access to your plants, systems, machines and networks which should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place. Additionally, Siemens' guidance on appropriate security measures should be taken into account. For additional information, please contact your Siemens sales representative or visit <https://www.siemens.com/global/en/home/company/topic-areas/future-of-manufacturing/industrial-security.html>.

Siemens' portfolio undergoes continuous development to make it more secure. Siemens strongly recommends that updates are applied as soon as they are available and that the latest versions are used. Use of versions that are no longer supported, and failure to apply the latest updates may increase your exposure to cyber threats. Siemens strongly recommends to comply with security advisories on the latest security threats, patches and other related measures, published, among others, under <https://www.siemens.com/cert/en/cert-security-advisories.htm>.

# 1 Before you begin

<b>!</b>	<b>NOTICE</b>
	ABT Site V3.3.2 or later must be used to configure Siemens Smart Infrastructure DXR1.. BACnet MS/TP and IP equipment controllers.

## 1.1 User knowledge



ABT Site has two online help systems:

- ABT Site online help
- Application online help

**ABT Site online help** is the "tool" help - how to create projects, load templates etc. To access, click the **Help** button.

**Application online help** describes functions and features of the application types and templates loaded in the ABT Site Library. To access, search **Application selection** in ABT Site online help. This topic has information explaining when and how to access the Application online help.

**Note:** Application online help is available when you have installed ABT Site library.

### Prerequisites

- ABT Site installed.
- Working knowledge of ABT Site features and functionality.
- Users should be trained and familiar with the technical principles and concepts of Designo Room Automation including the room / segment concept.

## 1.2 Design engineer

### Best practice

- Application templates with configuration changes completed by the design engineer prior to handover.
- Parameter default values were entered for each DXR1 automation station to minimize technician online setup time.

## 1.3 ABT Site project data

When following the recommended ABT project workflow for startup, make sure all required ABT Site project data is available including:

- ABT Site project with user name and password (case-sensitive).
- Common project settings including user profiles.
- Engineered DXR1 automation stations.
- Application templates with configuration changes completed by the design engineer prior to handover.
- Checkout reports.

**ABT Site project data**

Project data must be completed using ABT Site.

ABT Site library with standard or custom templates/types must be installed to allow for backup of changes during commissioning following start-up.

## 1.4 Job site

**Prerequisites at the job site**

- Automation stations installed and passed basic sanity test.
- All mechanical documentation (diagrams and specifications) available.

## 1.5 Equipment

Equipment required depends on connection method and automation station type.

Connection method	Automation station (DXR1..)
USB	USB cable (micro USB)
Ethernet IP connection (DXR1.E only)	- LAN cable - If necessary: USB to Ethernet adaptor
Ethernet MS/TP connection (DXR1.M only)	MS/TP port

## 2 Adding a project

- ▷ Make sure that in **ABT Site > Settings > Project and paths**, you have specified a valid local project folder in the **Local project folder**.
- 1. Click **Add project**.
- 2. Enter a **Name**.
- 3. Enter an **Administrator password** and confirm the password.
- 4. (Optional) Enter a **Description**.
- 5. (Optional) Select **Root project** to add a new ABT Site project on the top level even if a lower level folder is selected
- ⇒ A project is added to the project table. The default name is **New project**.

## 3 Project settings

Use **Settings** to define the default settings applicable to the entire project and its objects. Refer to ABT Site online help for detailed information.

Note: If you have not yet set a password for your user, ABT Site opens your project in **Settings > User profiles**. Set the password for your user type and delete the remaining user types.

## 4 Defining a building structure

The building structure organizes individual rooms in a logical manner or by location according to the building project. The building structure is used to create a unique designation of all elements (object names).

The building structure is created using the following structure elements: building and building element.

### 4.1 Adding buildings and building elements

#### Add a building

- ▷ Enter the **Building** page.
- 1. Right-click the work area and select **Add building**, or click **Add building element...** (button on top right corner) > **Add building**.
  - ⇒ A new building is added below.
- 2. Right-click the building, select **Properties**, modify the **Naming** and network ranges (**BACnet ranges**, **MS/TP ranges** and **IP ranges**) as needed.

#### Add a building element

- 1. Right-click a building or building element and select **Add building element**.
- 2. Select the type of building element you want to add.
  - ⇒ A new building element is added below.
- 3. Right-click the building element, select **Properties**, modify the **Naming**, **Description** and network ranges (**BACnet ranges**, **MS/TP ranges** and **IP ranges**) as needed.

### 4.2 Adding devices

You can create multiple devices in the building structure.

- ▷ Enter the **Building** page.
- 1. Select the location in the building structure where new devices have to be created. Click **Add devices**.
- 2. Select the device type and an application template.
- 3. Define properties (names, network addresses).
  - ⇒ The device is added along with a room.



#### **NOTICE**

Avoid setting the IP or MS/TP network number to 3. It is used for the USB network port.

## 4.3 Deleting buildings and building elements

- Right-click the building or building element to be deleted and select **Delete**.
  - ⇒ If the building or building element is empty, the elements are deleted.
  - ⇒ If the building or building element contains automation stations or rooms, a message is displayed. Select either **Delete** or **Remove** in the dialogue, and the automation station is either deleted from the project (Delete) or moved to the Unused devices folder (Remove).

## 4.4 Deleting rooms and devices

### Delete a room

Enter **Show rooms & plants**.

- Right-click a room and select **Delete**.
  - ⇒ The room is moved to the **Unplaced rooms** folder.

### Delete a device

1. Right-click a device and select **Delete**.
  - ⇒ A message is displayed.
2. Select either **Delete** or **Remove**.
  - ⇒ The device is either deleted from the project (Delete) or moved to the **Unplaced devices** folder (Remove).

## 5 Configuring application templates

1. Select **Building > Building structure > Add devices > Add application template**.
2. Click **Import application type**, and select an \*.s1ca file in your computer.
  - ⇒ The selected application type is added to the library.
3. Select an application template from your project or an application type from your library. Click **Add template to project**.
4. The template opens in **Configuration > Application configuration**.

### 5.1 Application configuration

Each configuration section shows a set of configurable features.

- **Configuration sections for on-board I/O's**

Configuration sections like On-board output or On-board input assign an on-board I/O to a feature.

- **Configuration sections for network peripheral devices**

#### DXR1.E10..

The KNX PL-Link device configuration section assigns a networked field device to a feature. The assigned KNX PL-Link devices are listed in the Network peripheral devices table.

#### DXR1.M09.. and DXR1.E09..

You can select the room operator units in **Accessories**.

- **Configuration sections for discipline and coordination functions**

Configuration sections for discipline functions or coordination functions activate the required project functions. You can subsequently configure specific features (application functions).

#### 5.1.1 Select on-board I/Os

1. In **Configuration > Application configuration**, open the template.
2. Select the **On-board output** or **On-board input** configuration section.
3. Select an I/O for each feature.
  - ⇒ The discipline feature is activated automatically (i.e., the Supply air VAV position Y1, Y2; 3-position may activate the HVAC feature Supply air VAV 12, press, duct area, ctr.).
4. Continue until I/O selection is complete.
  - ⇒ On-board I/O's are now selected.

#### 5.1.2 Select KNX PL-Link device

1. Select the **KNX PL-Link device** configuration section.
2. Select the network peripheral device.
  - ⇒ The corresponding discipline feature is activated automatically (i.e. **Room coordination > Room operator unit interface** is activated).
3. Continue until all planned network peripheral devices are assigned.
  - ⇒ The network peripheral devices are now assigned.

### 5.1.3 Configure disciplines and coordination functions

1. Check the activated features against your plans and configure as needed.
2. Select additional features in the corresponding discipline.
3. Continue until all disciplines are configured.
  - ⇒ The features for this template are configured.

#### Note

- Selecting an I/O or network peripheral device automatically activates the corresponding discipline feature.
- Releasing an I/O configuration or network peripheral device may deactivate the corresponding feature configuration.
- Changing a specific feature configuration may change a feature configuration in another tab (as per application type specific rules).
- Changing a feature configuration after setting default values may delete the corresponding parameter setting (Additional parameters).

## 5.2 Default values

The **Default values** table shows parameters with the default values for the application template. The parameters and values can be modified. Furthermore, parameters can be enabled for editing.

#### Note

The **Avail. on AS** column can be filtered by using "T" or "True" to show only the checked rows and F or False to show only the unchecked rows.

## 6 Setting project address

Open **Settings > Address defaults**.

- IP: Define IP naming and address defaults in the network.
- MSTP: Define MS/TP naming and address defaults in the network.
- BACnet: Define BACnet naming.



### ***NOTICE***

Avoid setting the IP or MS/TP network number to 3. It is used for the USB network port.

## 7 Connecting DXR1 to ABT Site

- Go to **Start up > Configure and download**, and click the arrow beside the symbol  (connection settings), and select the corresponding device type and network.
  - USB: select the device type **PTP** for both IP and MS/TP devices.
  - Ethernet: Select the device type: **IP devices** or **MS/TP devices**.
- Click **Connect** and the device is connected successfully to ABT Site.

Note:

- Once you have specified the connection settings, you can click the  button directly.
- Once you have established a connection the button is toggled to .

### Context menu

Right-click the device in a row, the context menu displays.

Command	Description
Restart device	Stops and restarts the device with current settings.
Clear device	Stops and clears the device, and clears the application configuration. <b>Notes:</b> After clearing the devices is finished, the device resets to factory status.
Flash LED	Flashes the LED on the device.
Provide authentication...	Opens the <b>Authentication</b> dialog box. You must enter your <b>User name</b> and <b>Password</b> to login to the device.
Discover all unconfigured devices on network (MS/TP only)	Discovers all unaddressed MS/TP devices on the specified network. A configured device must be selected so that the discover unaddressed operation can be issued to other devices on the network. All found devices will be listed in the discovered devices table. <b>Notes:</b> 1. This command applies <b>only</b> to DXR2.M (when working with DXR1.M) 2. This command takes several minutes to complete and causes the network to become unresponsive while polling.
Perform auto-addressing (MS/TP only)	Auto addresses all unconfigured MS/TP devices on the specified network, and only sets the network number and MAC address of the devices. A configured device (DXR2.M) must be selected so that the auto-address operation can be issued to other devices on the network. Auto-addressing is for MS/TP devices only. All addressed devices will be listed in the Discovered devices table. <b>Notes:</b> 1. This command applies <b>only</b> to DXR2.M (when working with DXR1.M) 2. This command takes several minutes to complete and causes the network to become unresponsive while polling.
Set Baud rate for all devices on network (MS/TP only)	Resets the baud rate (9600, 19200, 38400, 76800, or 115200) for all devices on the specified network. A configured device must be selected so that the set baud rate operation can be issued to other devices on the network. Initially the devices set the baud rate automatically based on the baud rate of the devices already communicating on the network. <b>Notes:</b> 1. This command applies <b>only</b> to DXR2.M (when working with DXR1.M) 2. This command takes several minutes to complete.

Command	Description
Set Max Master for all devices on network (MS/TP only)	<p>Allows the selected device to set the Max Master Address value to all devices that support this command. A configured device must be selected so that the set Max Master operation can be issued to other devices on the network. The value can be set to a specific value (1 through 127) or to Auto. The latter causes the selected device to poll the network for the highest MAC address and sets all devices to this value.</p> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. This command applies <b>only</b> to DXR2.M (when working with DXR1.M)</li> <li>2. This command takes several minutes to complete.</li> </ol>
Manually configure...	<p>Opens the <b>Manually configure</b> dialog box.</p> <p><b>Note:</b></p> <p>You can also use the keyboard shortcut <b>Ctrl-M</b> to open the dialog box.</p>
Update firmware...	Loads the firmware and applications into the destination device(s).
Upload	Uploads only the runtime instance data bundle for the selected devices.
Backup	Allows you to back up the current device configuration.
Restore...	<p>Opens the <b>Restore device</b> dialog box. Allows you to restore a previous version of the device configuration (stored in DXR1.. devices).</p> <p>You can <b>restore to my backup</b> or <b>restore to precedent role backup</b>.</p> <p><b>Note:</b></p> <p>To restore to precedent role backup, you need to enable n-step configuration by selecting <b>Settings &gt; User profile &gt; Common setting &gt; Enable n-step configuration</b>.</p>

## 8 Downloading device configurations

You can configure and download devices by mapping engineered devices with discovered devices.

**Note:**

When multiple devices are selected for download and/or upload, one or more devices may fail to load due to network conditions, such as excessive network traffic. In these cases, select the devices that failed to load and repeat the download/upload command.

A USB or Ethernet connection is established.

1. Select **Startup > Configure and download**.
2. In the **Discovered devices** tab, click **Discover** and select a **Discovery filter** from the list box.
3. Click **OK**.
  - ⇒ The discovered devices display in the table.
4. Select the engineered device and the discovered device.
5. Click **Assign**.
  - ⇒ Wait for the device to restart.
6. Right click the selected device in the **Engineered devices** window, select **Download application configuration**.
  - ⇒ The application configuration is downloaded and the device is restarted.

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