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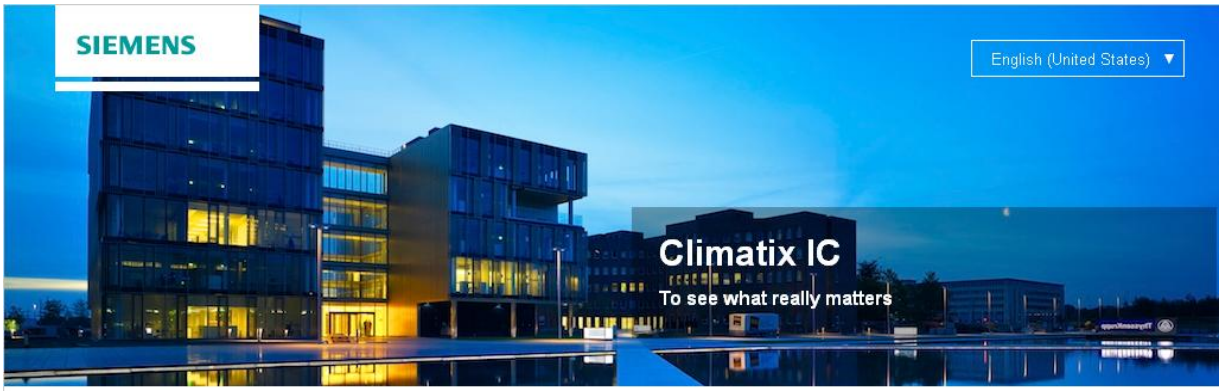

CLIMATIX™

CLIMATIX IC20

User manual

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1.1 Referenced documentation

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1.2 Before you start

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1.3 Target readers

Target readers are HVAC OEM manufacturers; both administrators (application engineers) and operators (service).

1.4 Glossary

Climatix IC Remote Servicing	Climatix IC is a cloud based service application to remotely maintain and efficiently operate Climatix equipped HVAC units.
Tenant	Tenant is equal to company.
Tenant Administrator	Tenant administrator is managing sites and users within his tenant.
User	No administrative role, only site roles with privileges.
(User) credentials	Registered (user) role in Climatix IC.
Site	Equal to controller.

2 Climatix IC Remote Servicing

HVAC units equipped with Siemens Climatix controllers can connect to the Climatix remote servicing platform, Climatix IC20.
It supports your service organization in reducing maintenance costs by providing all the information remotely, anywhere, at any time.

2.1 Key benefits

The Climatix IC Web application provides remote access and control of onsite devices and systems 24/7 from anywhere in the world. A site owner or manager can examine current conditions, view historical trends, and edit schedules and settings, affecting onsite equipment.
Access to real time energy consumption or HVAC process data helps customers quickly identify consumption outliers that may represent early warning signs of HVAC mechanical issues (preventive maintenance).
Climatix remote view Web is designed for ease of use at all user levels thanks to the intuitive user interface.

2.1.1 Remote maintenance – at any time from any location

HVAC systems often operate a considerable distance from OEM production centers resulting in high service costs and travel expenses which should be avoided as much as possible, especially during warranty periods.
Climatix IC Remote Servicing facilitates diagnostics, optimized settings or system upgrades from any location – with no need for a service engineer on site. Even if it does prove necessary to visit the plant, however, the available data enables service engineers to work efficiently.

2.1.2 Connection – straightforward and effective

Today, most Climatix controllers are equipped with a built-in IP interface. The plant connects automatically to the Climatix IC via this interface.
Remote Servicing System – no special programming or settings required.

2.1.3 Web-based – always up to date

Climatix IC operates with standard web browsers and is suited for use with all types of web-compatible devices. The service engineer logs in to Climatix IC (www.climatixic.com) via a laptop or tablet, allowing him to access the plant directly. There is no need to use special cables or to install extra software.

2.2 Key functions

Climatix IC is a cloud based service application to remotely maintain, efficiently operate your Climatix equipped HVAC unit. Climatix IC

- Collects alarms and routes them to the responsible service organization.
- Enables future upgrades to your installed base with application enhancement, firmware improvements, or language sets at scheduled times.
- Transfers all relevant process data from connected units to enhance the efficiency of the HVAC plant.
- Application can be used by any PC, tablet or small devices with no software installation required.

3 System requirements Climatix IC20

Climatix controllers are basically preconfigured to connect automatically to Climatix IC, whenever connected to the Internet. The Climatix controller must be prepared with valid Climatix IC watch pages (cloud service layer), which is created with SCOPE tool (VVS10). Advanced functions like application shut down can be realized in SAPRO application tool.

3.1 Climatix controller BSP

- POL63x: 10.30 or higher
- POL68x: 10.26 or higher

3.2 Controller loaded with SAPRO application

Climatix controllers must be loaded with a valid SAPRO application.
The BSP LED has to be green.

3.3 Climatix SCOPE tool

- Climatix Scope tool for preparing controller mapping: VVS 10.30 or higher

3.4 Internet access

High speed internet access using the following port setting: Port 80 open.

3.5 Portal login

The user needs to log in at: www.climatixic.com
The tenant administrator provides the user with user credentials.

3.6 Web browser

Climatix IC requests a state of the art web browser to support HTML 5 functionality. Siemens uses Mozilla Firefox for its regression testing; IE 10 or other modern web browser can also be used.

4 Climatix IC watch pages

Climatix controllers with application include a lot of different values, dates and information. Climatix controllers must be prepared with data mapping, or watch pages, in order to provide the required set points, present values, or other data.

Application engineers use the SCOPE tool to create the desired watch pages and download the generated (OBJcomp.UCF) file to the Climatix controller.

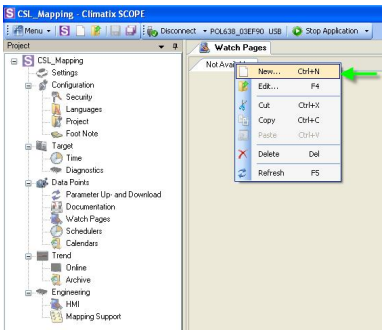
As soon as the Climatix controller is connected to Climatix IC, the controller provides the defined information, including the watch pages.
The section below describe how to do this.

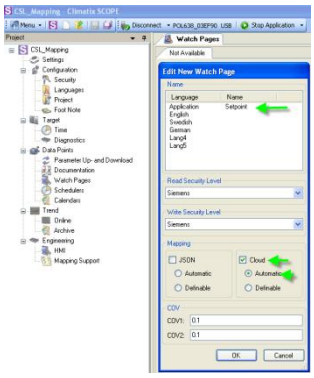
4.1 Create watch pages

Open SCOPE tool and start to create the desired watch pages (see picture below).

Example

One watch page for different set points:





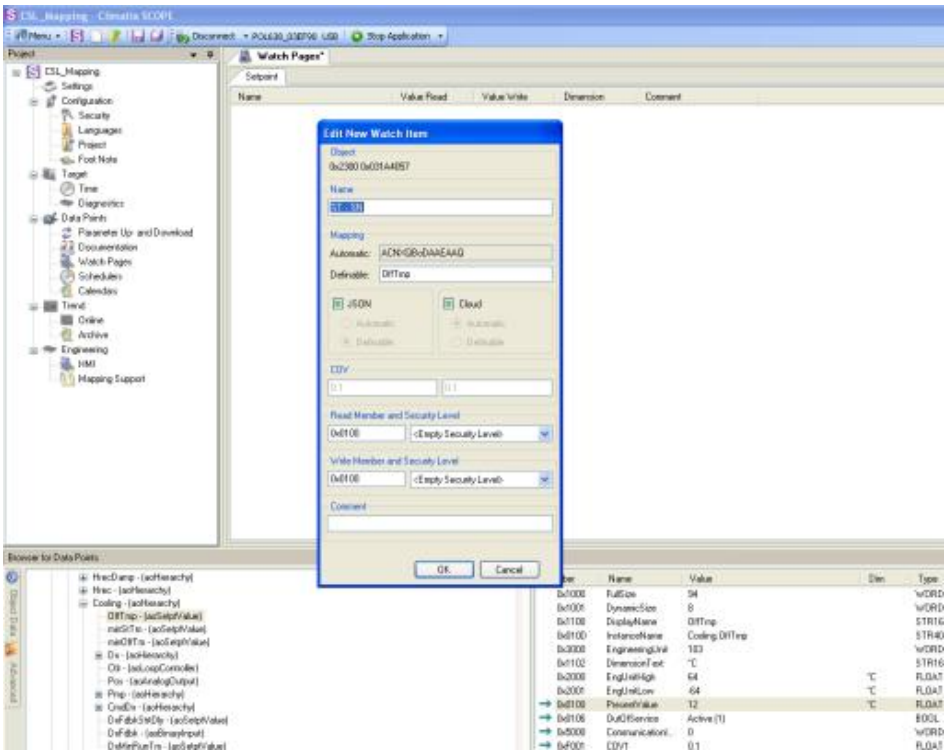
1. Enter the name (f.e. Setpoint) of the watch page under "Name".
2. Select the desired security level of the connected client.
   In other words, the cloud application requires certain access rights.
3. Under Mapping, you can decide to make the watch page available for Cloud and/or for JSON (JSON is mainly used for smart phone apps).
4. You can select whether to generate the names automatically or define your own.

Tip

We recommend automatic for CSL mapping.

4.2 Add values to watch pages

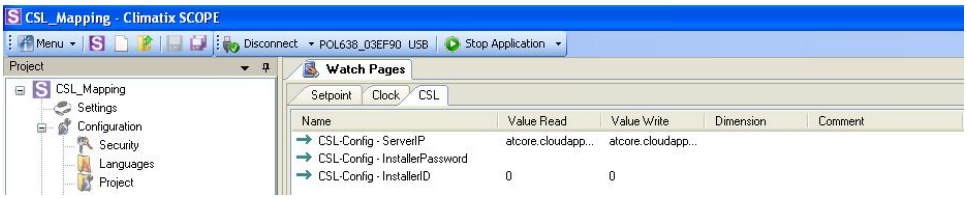
Select the desired data points from the tree view and drag-and-drop them to the desired watch page. Some access settings can also be entered here. Finally, you can also indicate if this data point is visible for Cloud and/or JSON (same as the entire watch page).



The settings are inherited from the watch page settings if neither JSON or Cloud is selected.

You can continue to add additional watch pages and additional data points to finalize your cloud interface. Press "OK".

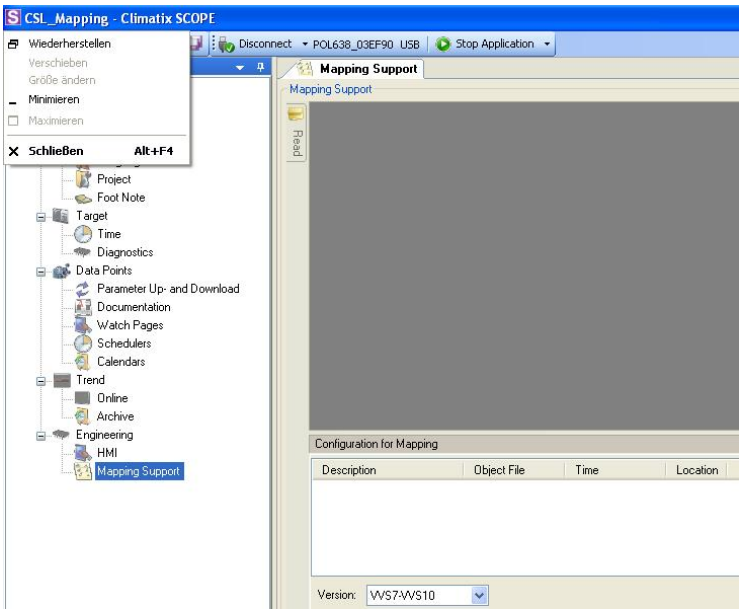
See example below:



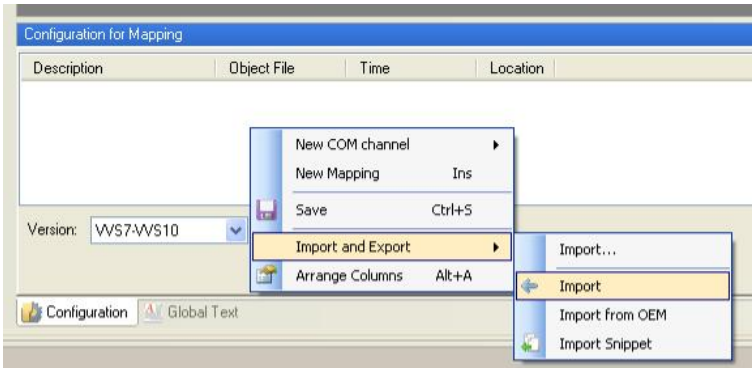
4.3 Generate cloud mapping

The next step is to generate the final mapping files (OBHcom.UCF), that must be downloaded to the controller.

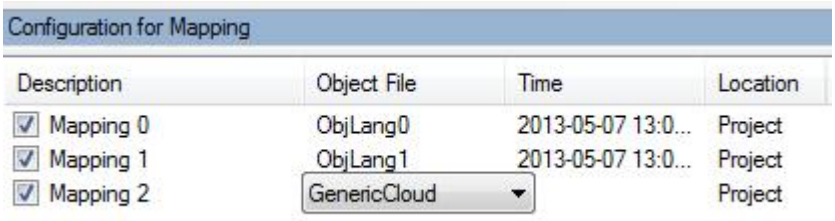
1. Select "Mapping Support" in the SCOPE tool tree.



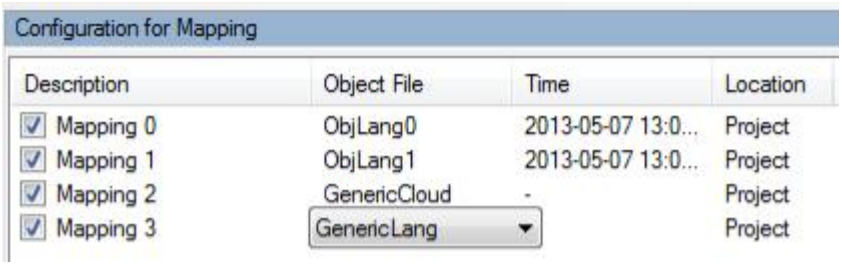
2. Left-click in the description area and select "Import and Export > Import" to import available mappings to "GenericCloud".



3. Select "GenericCloud" mapping.

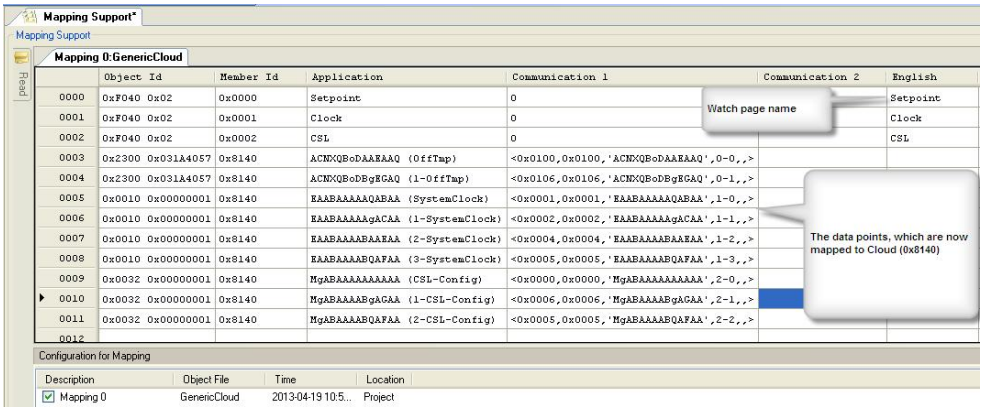


4. Select "GenericLang" support.



5. The next step is to import the available global language data base and include it in the cloud mapping. Import the available "GenericLang" file.

6. Click the mapping file to see the mappings for the watch pages and associated data points.

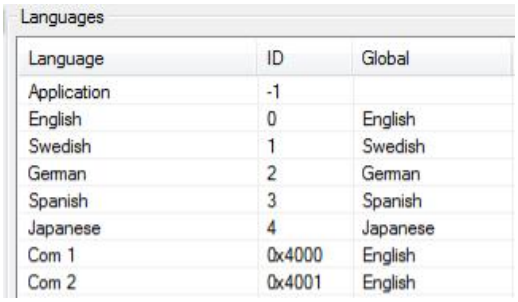


7. By saving, the SCOPE tool generates the final OBJ.UCF file in the background.

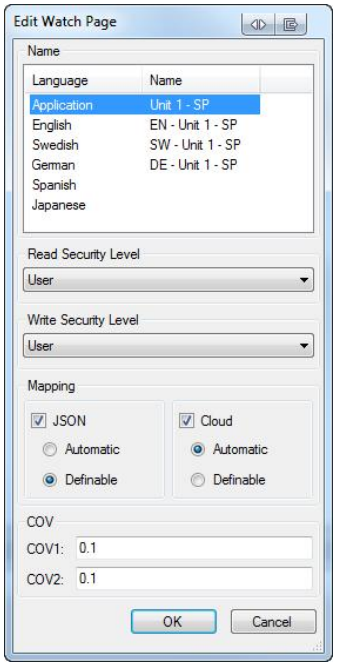
4.4 Watch page translations

Process as following to translate names of watch pages.

1. First, define the languages in SCOPE tool.



2. You can now translate watch pages.

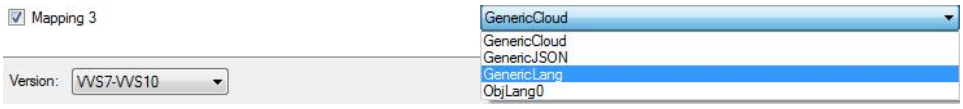


Tip

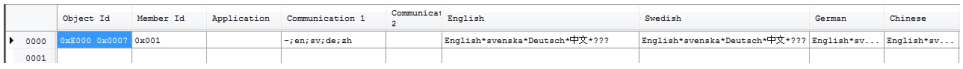
Refer to the SCOPE tool online help for more details.

3. The objects and members on the watch pages are now normally translated.
4. Create a new mapping file (save) and translate each object and member.
5. Import the "GenericCloud" and the "GenericLang" in menu "Configuration for Mapping" to generate the mapping file.

GenericLang example

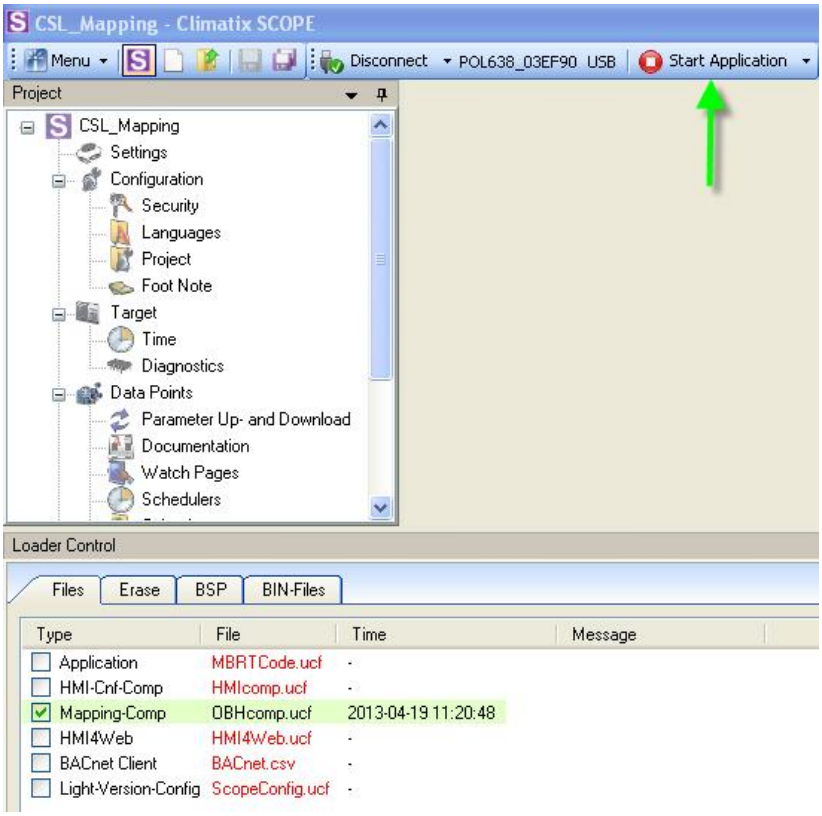


Mapping File



4.5 Download of CSL mapping

The final step is to download the generated mapping file to your target controller.



After "Start Application", the controller is now prepared to connect to the cloud and provide the data as per the defined cloud interface, as soon as it connects to Climatix IC.

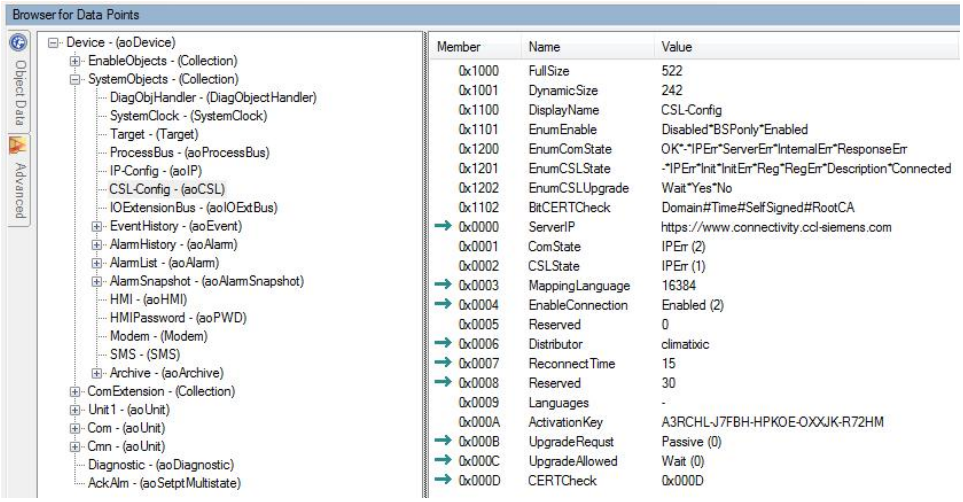
5 Preparations in SAPRO tool

All VVS10 (see system requirements) controllers can connect to Climatix IC20 as long as the controller receives a distribution key and is connected and enabled.

or professional use, we recommend preparing the SAPRO application as described in the sections below to fully benefit from all Climatix IC including remote upgrade or shut down functionality.
The section below describes available functionality under the new CSL-object.

5.1 Cloud service layer Object: CSL-Config Object

A new system object is available under the SCOPE tree. We strongly recommend preparing your SAPRO application accordingly.



5.1.1 0x0000 ServerIP

This is a fixed reference address, where controllers are connected.

Imported Note

Do not change!

5.1.2 0x0001 ComState and 0x0002 CLSState

Reports the actual connectivity status of the controller (read value only) to see if the controller is connected or not.

5.1.3 0x0003 MappingLanguage

Definition of the mapping column used (default COM1).

5.1.4 0x0004 EnableConnection

After downloading VVS10 BSP, the member is set to "Disabled" and must be enabled to connect to Climatix IC.

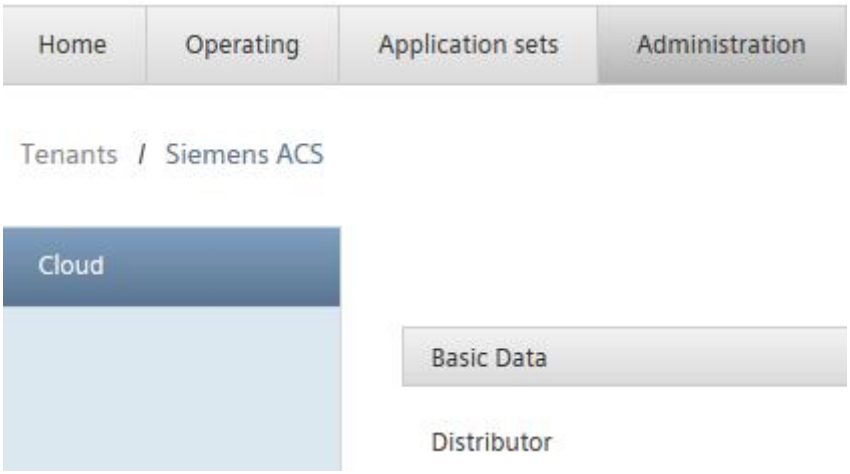
Member value	*Explanation*
Enabled	The controller connects, as soon as internet is available and sends its data (according watch page mapping) to Climatix IC
Disabled	No connection request to Climatix IC
BSPonly	Only the system objects are reported to the cloud. Upgrades are possible

5.1.5 0x0006 Distributor

Climatix controllers connect to Climatix IC (cloud system) and ask for distributer key. The distribution key is the information, to which tenant (customer) the controller has to connect.

Where to find distributor key

The distributer key is available for tenant administrators in menu "Administration > Tenants > [OEM name]"



You must have tenant administrator rights however. Copy and paste it to the CSL object, member 0x0006 (via SCOPE or preprogrammed in SAPRO application).

5.1.6 Application shut down request

Two members are available for synchronization to prevent a situation where the application has no control over the upgrade process. The members become active after the files are successfully downloaded to the site. As a result, preparations can be made from the cloud and then upgrade locally without cloud support.

0x000B UpgradeRequest

This member is set from the cloud if an upgrade is pending from Climatix IC. The application can start a shutdown with this member prior to upgrading, or deny the upgrade, for example, to allow only local upgrades. This member is not persistent and we recommend resetting it to "False" after handling the request to be able to detect any new request.

0x000C UpgradeAllowed

This member is monitored from Climatix IC (as long as defined under application shutdown timeout), to detect if an upgrade is allowed.

Member value	*Explanation*
Wait (0)	This setting is the default after every reset. Climatix IC waits for the application shutdown timeout before performing or terminating the upgrade
Yes (1)	Climatix IC can start an upgrade
No (2)	Climatix IC terminates the upgrade request

5.2 Other recommendations

We recommend making the following objects/members available on HMI to prepare Climatix controllers and application in a professional manner.

5.2.1 aoTarget Member 0x0005: Serial number

The serial number of Climatix controllers is the key identification in the Climatix IC data base and we recommend making this information available in the HMI.

This allows the local operator to provide the serial number within one or two clicks if the Climatix IC operator needs to identify a controller.

5.2.2 aoCSL Member 0x000A: Activation key

The activation key must be reentered when replacing Climatix IC in the event of an unexpected replacement. We also recommend you make this value available to service engineers in the field.
See section "Replacing of sites".

6 Controller IP settings

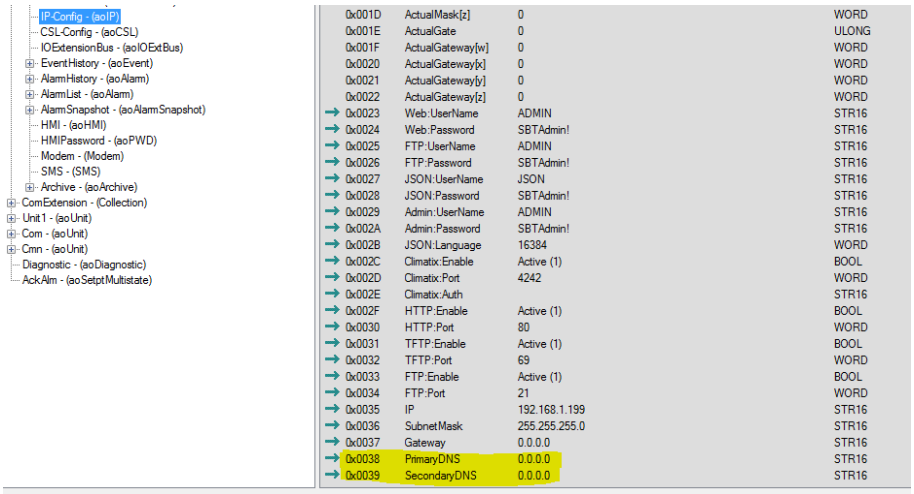
Different IT infrastructures and variations exist in the field when connecting the Climatix controller via internet to Climatix IC. Climatix controllers do not require a fixed IP address and users do not even deal with IP addresses. And yet certain settings may be requested or require verification for proper Internet connectivity (depending on the local infrastructure).

6.1 DHCP active

No further settings required when the IP setting is set to DHCP active.
This is also the most common (and recommended) configuration.

6.2 Fixed IP

Certain installations request fixed IP numbers. A DNS server address needs to be entered in this case.



6.3 Proxy server environment

Climatix controllers do **not** support proxy server environment, primarily due to the complexity of set up and a lack of authority by the IT department.

Separate Internet connectivity (3G/4G modem) may be required to access this type of unit.

6.4 Troubleshooting

Even all settings might have been correct entered, due to complexity and habit of switches, routers or DNS servers, the below hints will help to establish the connectivity:

Setting	*Member*	*Cause/Activity*
IP Settings (aoIP)	0x0003 Link detected (no)	Ethernet cable not plugged in
	0x0035 IP Address	Must be from the local network
	0x0038, 0x0039 DNS	At least 0x0036 must have a valid DNS server address (e.g. 8.8.8.8)
	0x0036 Subnet Mask	Must match the network configuration
	0x0037 Gateway	Must contain a router IP address
Cloud settings (aoCSL)	0x0000	Server IP must be correct (https://www.connectivity.ccl-siemens.com)
	0x0004	Check if connection is enabled (1 or 2)
	0x0006	The distributor must contain the value from the Tenant

Topic	Activity
IP connectivity	Connect PC to the same network as the Climatix controller. Check out the general Internet access (port 80 open).
	Compare the PC settings with controller's
Others	Connect SCOPE tool to Climatix controller and read out its diagnostic file to check, if there is something stated (missing CSL mapping, link detected)

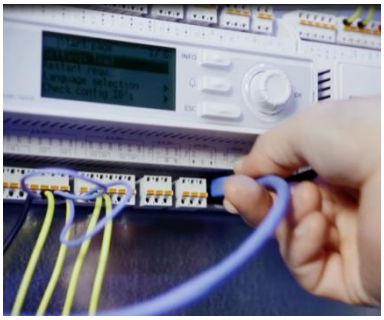
7 Site activation

The controller (site) can be connected to Internet Climatix IC (using the inbuilt IP port) and activated as soon a Climatix controller is prepared and preloaded with a valid CSL mapping file.

The chapter below describes and illustrates the workflow and provides tips on additional required settings

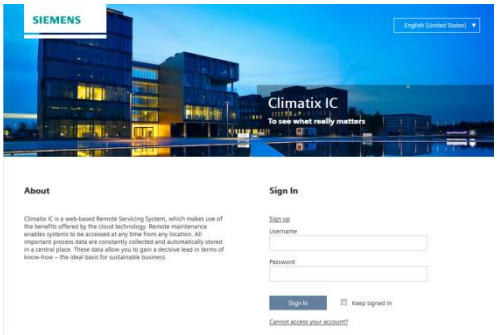
7.1 Connect ethernet cable

Plug in the ethernet cable to the Climatix controller IP port (T-IP) , as pictured below.



7.2 Climatix IC login

The user opens the web browser and enters the following URL: www.climatixic.com to activate the new Climatix controller.



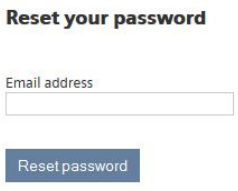
The user is requested to enter his username and password.

Note

The "Sign up" function is not enabled for Climatix controllers.

7.2.1 Reset password

A reset password function is available in the event of a lost or forgotten password. The user enters his or her email address to receive a temporary password (which must then be changed).

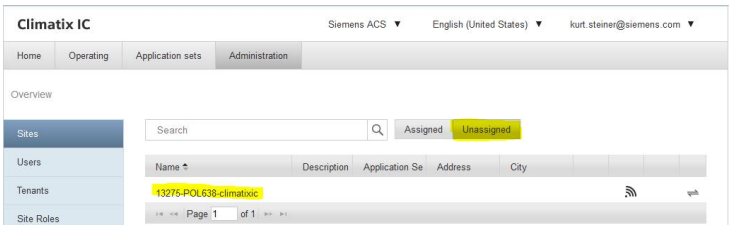


7.3 Unassigned sites

A site (controller) connected to Climatix IC, delivers the data, but it is not visible until the site has been assigned (activated).

The sites are listed with the following syntax:

Serial number-product type-tenant name

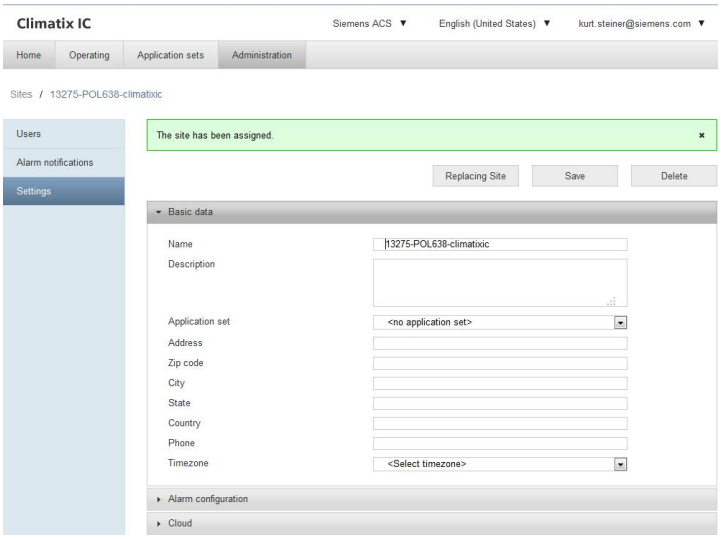


Only tenant administrators are allowed to activate new sites.

7.4 Assign a site

Click the right side icon ⇌ to assign the site to a specific owner. The following dialog box opens.

We strongly recommend filling out the fields with suitable information to build a high-quality database from the start.



7.4.1 Basic data

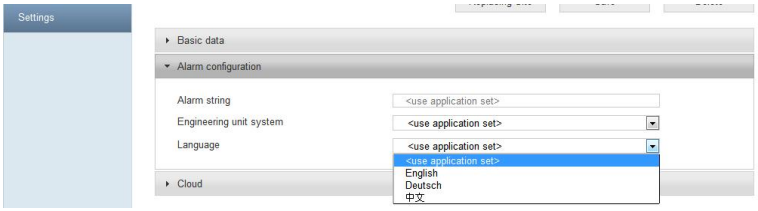
In order to identify controllers easily, fill in the following information fields:

- Site name replaces the generic generated name
- Application set for upgrade and access level definition
- Site related properties (e.g. address, time zone)

7.4.2 Alarm configuration

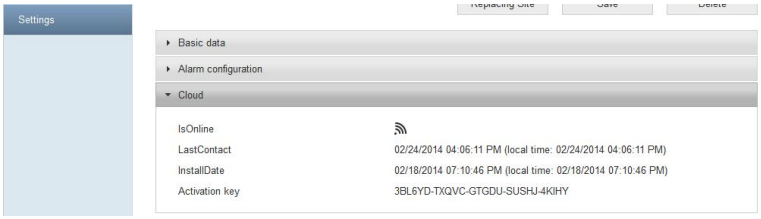
Each site can have an individual alarm configuration:

- The general alarm Configuration for the site
- Site will retrieve the settings after every reconnect



7.4.3 Cloud

- Informational parameter about first activation date, activation key and online status



8 Climatix IC operating

The following is a short manual on operating the Climatix IC cloud application. It focuses on core functionality, since Climatix IC operation is intuitive; additional information is provided as needed.

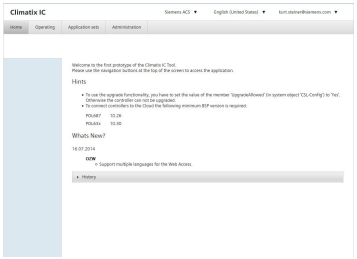
8.1 Preconditions

- Tenant administrator credentials are necessary
- Climatix controller is cloud prepared and connected to internet

8.2 Climatix IC login

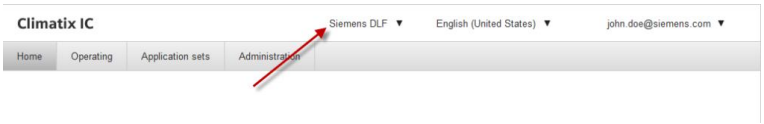
Open an internet explorer and enter www.climatixic.com.

Climatix IC provides the latest news on Climatix IC (versions, function, enhancements) after successfully logging in.



8.2.1 Tenant selection

The user can select available tenants for operation.



8.2.2 Language selection

The user can select the desired language setting which is linked to unit of measure (metric/imperial).

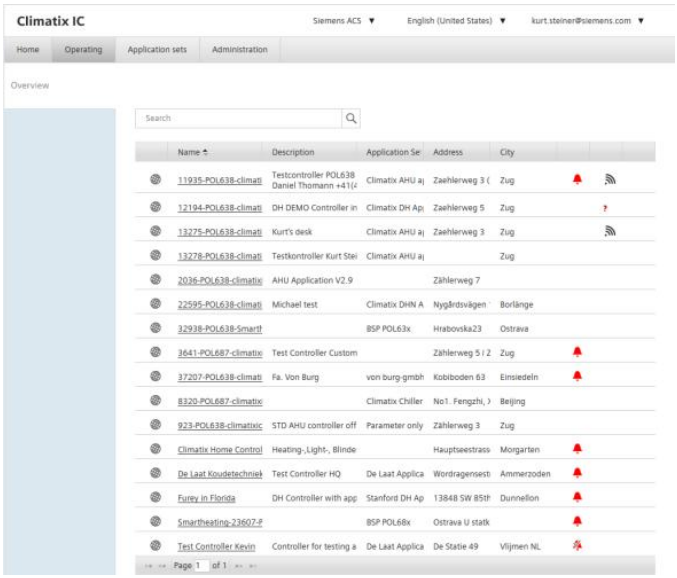
8.2.3 Account details

User details (name, address, telephone number) can be edited as needed.

8.3 Operating

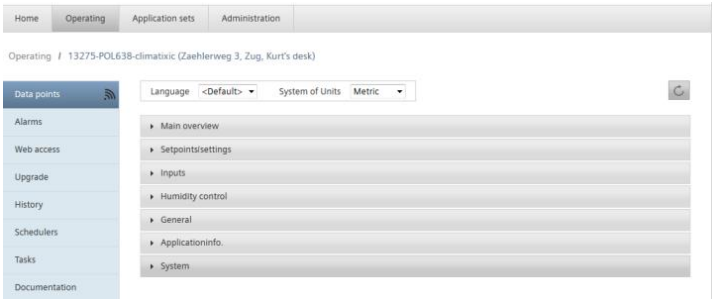
8.3.1 Site overview

By selecting "Operating", the user accesses available sites.
Each site is identified by name, description, linked application set, address, alarm and online status.



8.3.2 Data points

To access data points, click one of the available sites.
The user can view all data points (linked to watch pages) available on a site and can read and write to them as per user credentials.



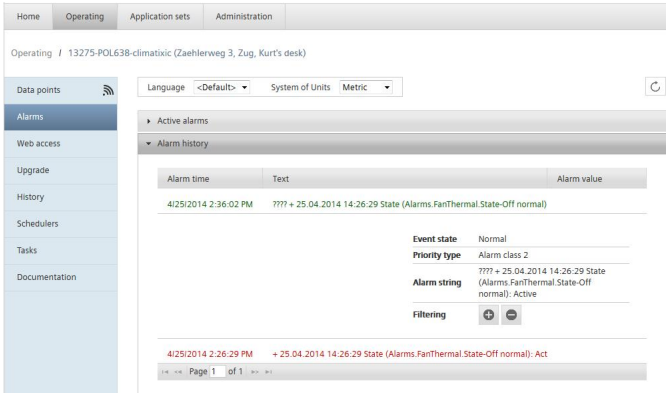
Data point history trend

Click the trend icon to open get the historical data trend viewer. You can analyze the trend curve for a data point.

It is also possible to export the trend data to local PC as ".csv" format.

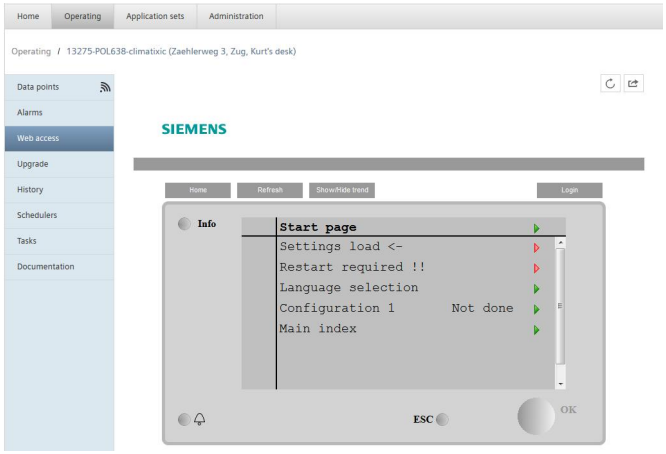
8.3.3 Alarms

Each site reports its alarms to the active alarm page or history alarm page.



8.3.4 Web access?

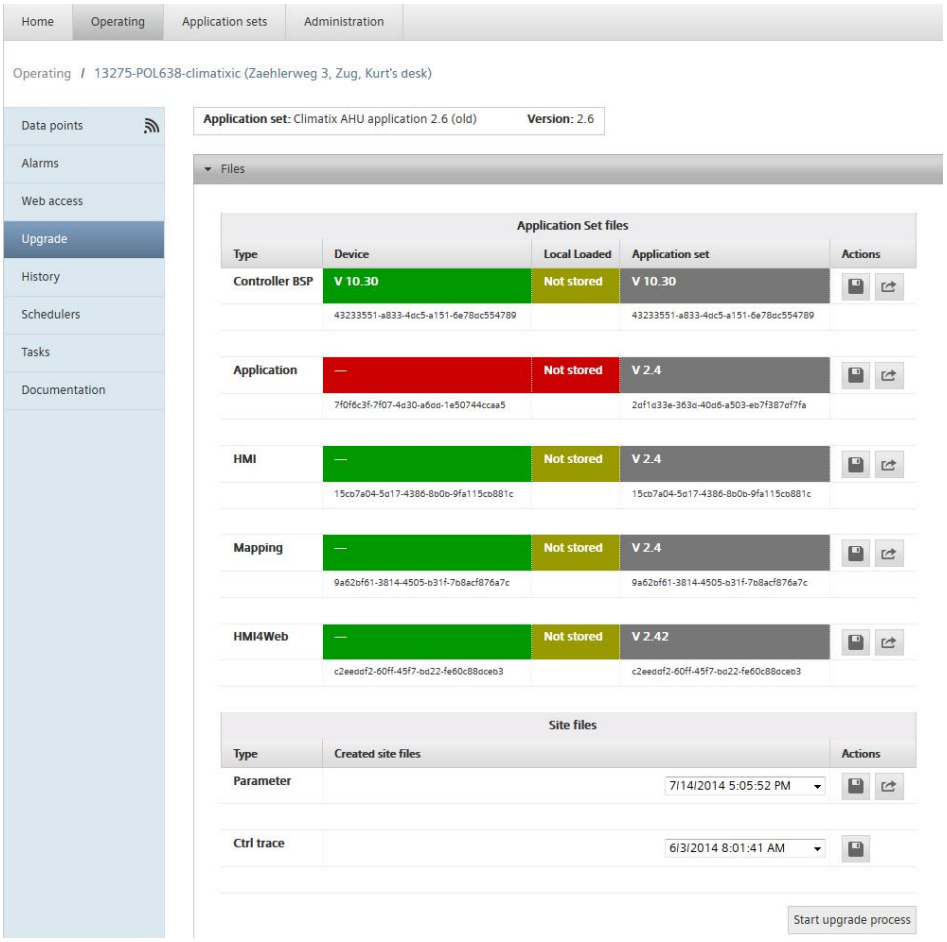
Users can also see the local web server of the controller, for example HMI@web, which is basically a full emulation of the local (physical) user interface (HMI). The remote operator has the menus as the local user and can provide navigation help.



8.3.5 Site Upgrade

The user can remotely upgrade a complete Climatix system (controller , connected COM modules and POL98 /96 ECV2 moduls). This includs backup parameters (commissioning data), upgrade firmware and applications and finally restoring original parameters.

Upgrade displays the actual situation on the controller (left side) versus the assigned application set (to the right).

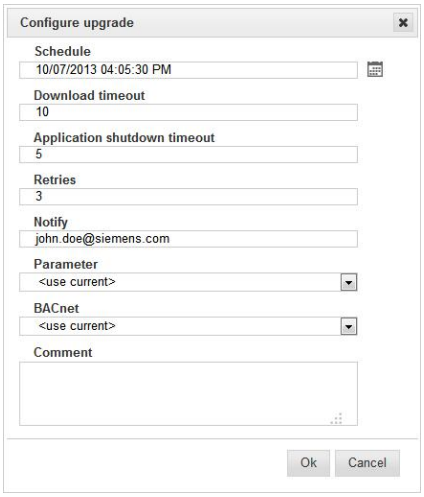


Tips and explanations

- To upgrade connected COM moduls or ECV2 modules, the controller needs to have a SD card, because of the firmware size.
- All status information is retrieved from the UCF files
- The status overview contains:
  - Current version operating on the device (left side)
  - Locally loaded files on the controller (SDCard or RAM)
  - Files from the application set (right side)
- Color key:
  - Green: file loaded in controller is equal to application set
  - Red: file loaded in controller is not equal with application set
  - Olive green: file stored in controller is equal to application set but is not loaded.
  - Grey: not available
- Site files are site related parameter back ups or controller traces.
  The files can be ...
  - locally downloaded to the PC ( )
  - sent to the controller ( )

Automatic upgrade

You can set the upgrade to automatic remote if requested and set the properties below:



The parameters are:

Parameter	*Description*
Schedule	Data and time at the site for the upgrade.
Download timeout	Timeout for downloading files to the site [minutes]
Application shutdown timeout	Timeout for the site shutdown [minutes]
Retries	The number of upgrade retries verifying the versions of each site's BSPs
Notify	Address of email after upgrade
Parameter	Parameter applied for this upgrade
BACnet	BACnet file used for the upgrade
Comment	Comment on this upgrade (listed in the task list)

Upgrade progress

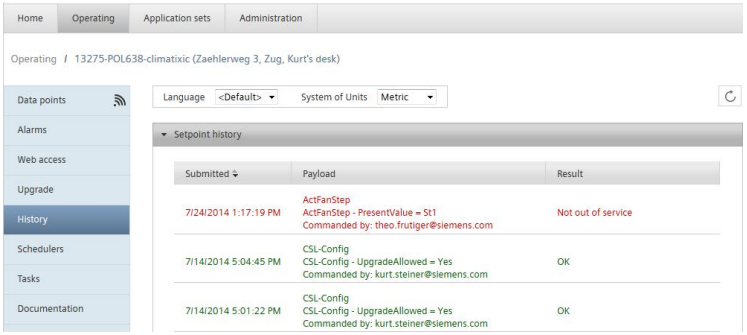
The internal workflow of the upgrade process by Climatix IC:

Step	*Command*	*Description*
1	File downloads	If needed all necessary downloads are commanded.
2	Query site upgrade	Generates an update request to the site. The application must be shut down during a defined time. (Member 0x000C UpgradeAllowed = TRUE) The configuration of "Application shutdown timeout" is changeable for each upgrade.
3	Upload parameters	Parameters are saved in the cloud for restore after site upgrade
4	Upload BACnet file	The BACnet file is saved in the cloud for restore after site upgrade. "Upload failed:1" is shown if BACnet is not used.
5	Application stop	Application is stopped.
6	Upgrade site	The site is upgraded using the downloaded files.
7	Controller reset	The controller restarts automatically after upgrade.
8	Application start	Application starts.
9	Parameter file restore	The parameters are restored for ENBL Objects.
10	Controller reset	The controller restarts automatically after upgrade.
11	Parameter file restore	The parameters are restored.

The site is updated after these 12 steps and an email is sent to the user with the results of the upgrade. The workflow can be tracked under the History menu.

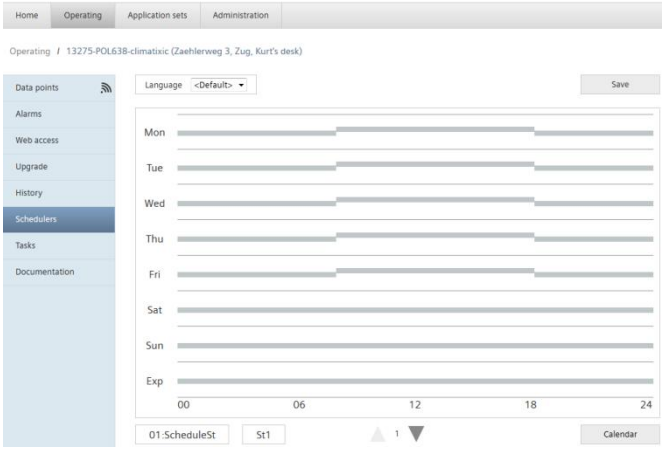
8.3.6 History

The user sees who changed a set point remotely (set points) and when, but also historical system changes, such as updates, parameter restore are logged and available in a site logbook.



8.3.7 Scheduler

The user can remotely edit available schedulers or calendars.

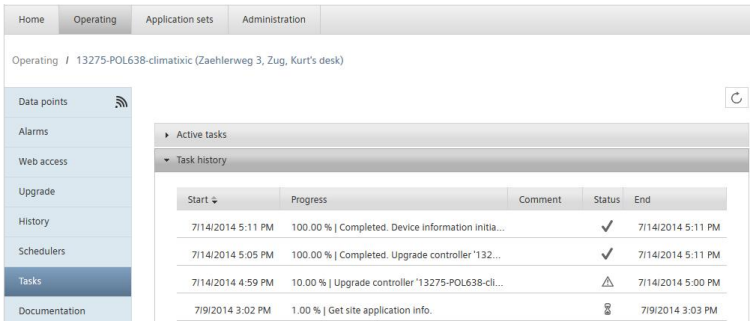


The user selects the desired day and adjusts the time scheduler accordingly.

8.3.8 Task

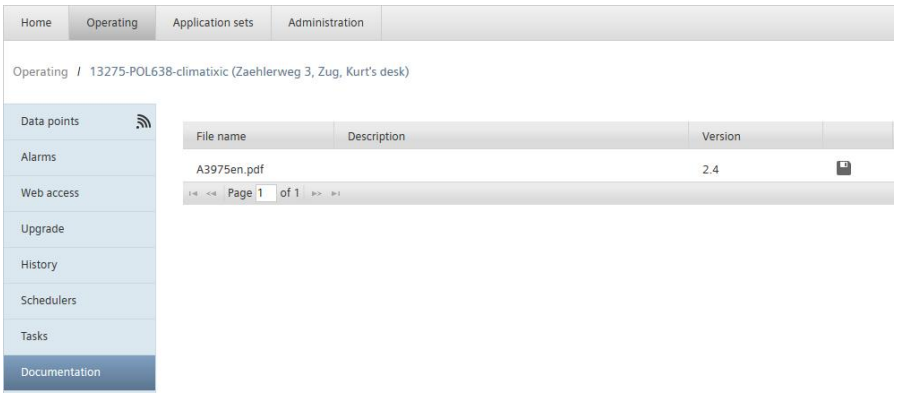
Tasks are displayed here, for example, an upgrade scheduled for a site, so the user has an overview of upcoming remote actions.

The user can also view historical tasks and whether tasks were completed.



8.3.9 Documentation

Certain documents, pictures, or other files can be uploaded for each application; they can be viewed by the user and downloaded as needed.



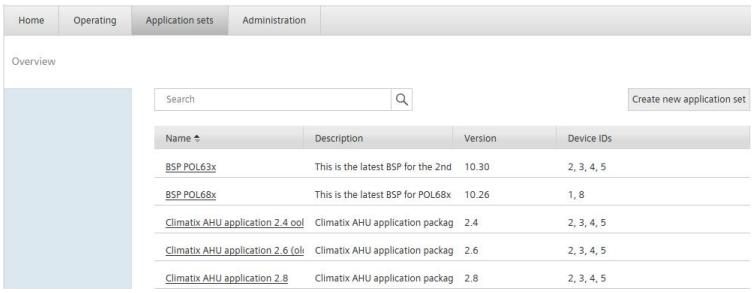
8.4 Application set

The menu "Application set" provides all the functions an OEM application engineer needs to set up complete Climatix software packages, including firmware, Sapro application, COM mappings and HMI files.

The site administrator can select the right application set without specific knowledge of Climatix.

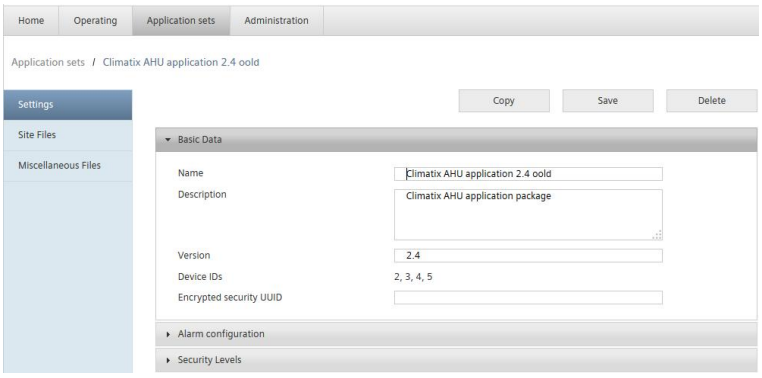
8.4.1 Overview

The user can view available application sets within its tenant.



8.4.2 Settings

The dialog box below opens when creating a new set or editing an existing set.



Device ID

Each Climatix controller type has an unique "Device ID", which must be entered in a new application set to define, for which controller the application set is valid.

Note

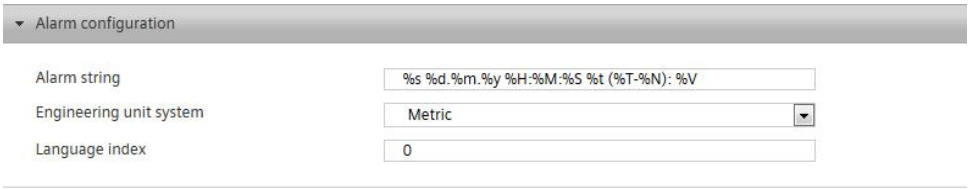
Currently, controllers POL687.xx and POL638/STD support with Climatix IC.

Controller

DeviceID	ASN	Description
1	POL687.xx/MCQ	POL687 controller OEM customer McQuay
2	POL635/STD	POL63x controller with LON/HMI/I
3	POL636/STD	POL63x controller with LON
4	POL638/STD	POL63x controller with IP
8	POL687.xx/STD	POL687 standard controller

Alarm configuration

A specific alarm can be defined in advance for each application set.
The alarm tokens are described in the Climatix online help; default settings can be used.

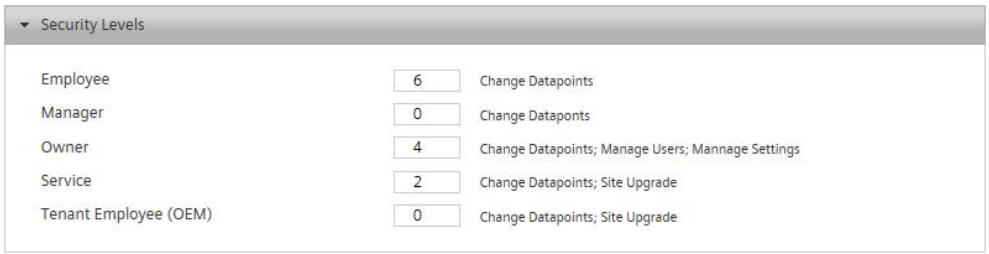


Security levels

User roles must be defined to set the “Security Levels” (administration site roles).
The roles are the same as in the SCOPE tool.

Setting example

- Normal user 6
- OEM 0
- Owner 4
- Service 2

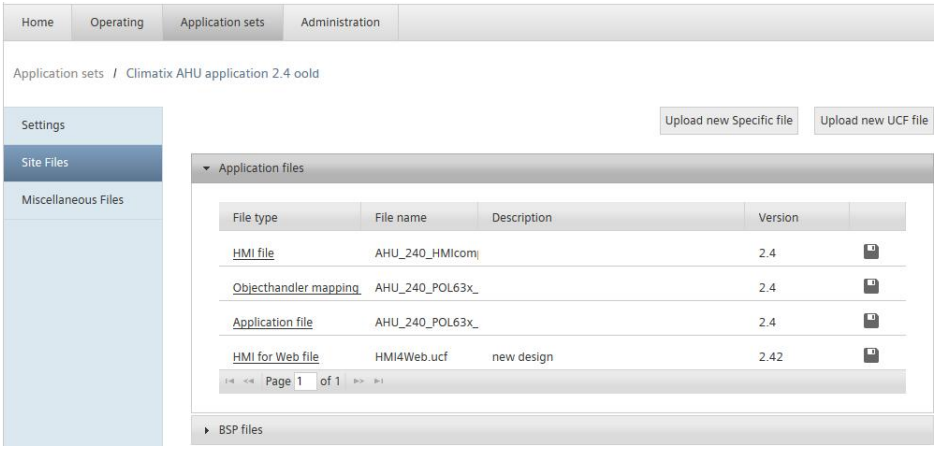


8.4.3 Site files

For each application set, certain files can be uploaded.

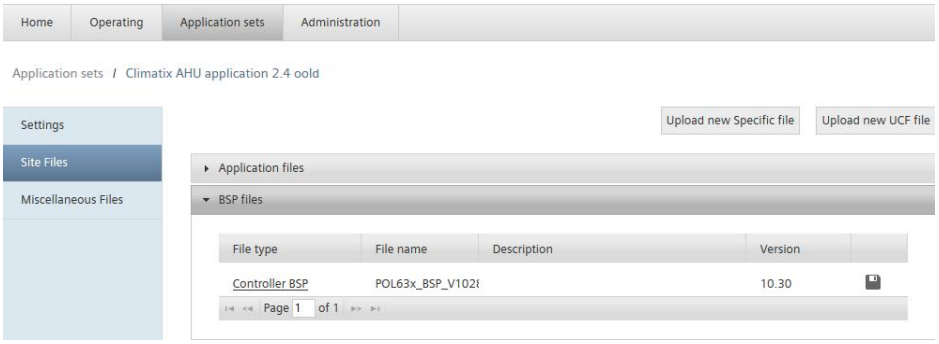
Application files

The user can upload the valid application files, such as 'SAPRO application' and its engineering files for HMI and communication mappings.



BSP files

The user can upload the released firmware (BSP) of the controller for this application set. The file can also be downloaded again by selecting the disc icon for a local copy.



8.4.4 Miscellaneous files

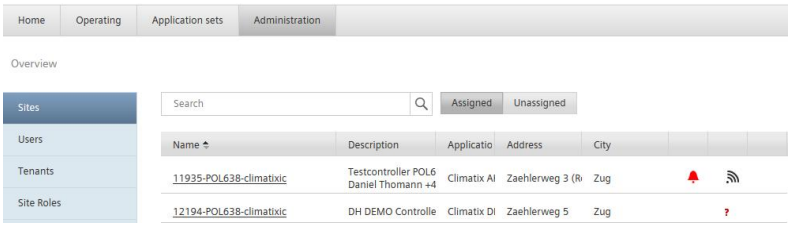
The user can upload application documents, diagrams, or useful files relating to this application set. The documents are available via the Documentation menu.

8.5 Administration

The menu "Administration" provides functions to manage sites, users, tenants and site roles. The menus are available according to user credentials and role.

8.5.1 Overview

The user can manage a site, users, tenant information, and site roles.



8.5.2 Sites

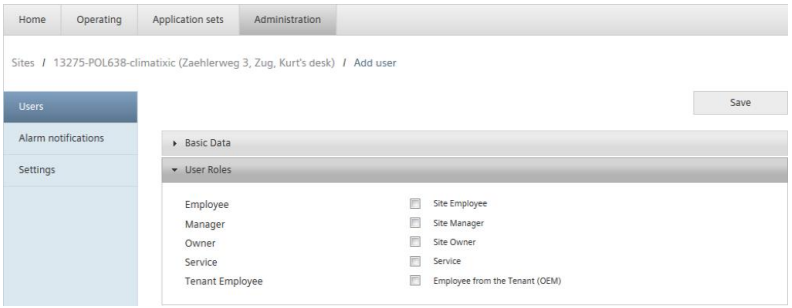
Users

The administrator can add dedicated site users to this site. The created users are notified via email.

Add User

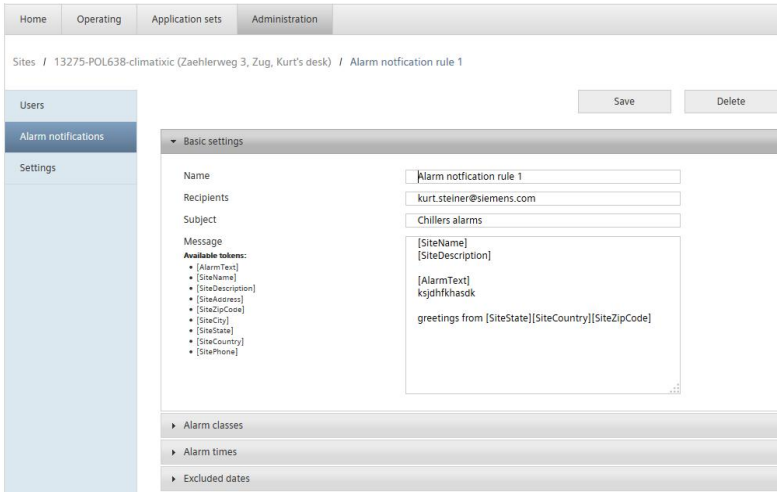
A new site user can be created and linked with a site role.

Site roles and privileges are defined by tenant administrator in menu "Administration > Site roles".



Alarm notifications

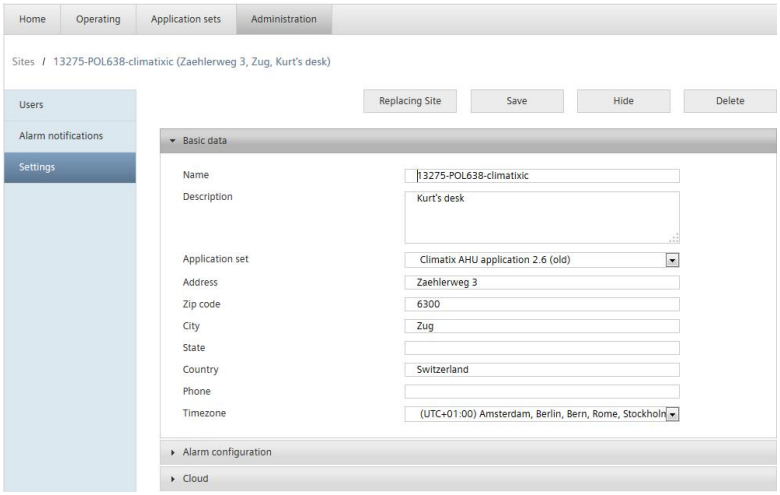
The administration can set up an alarm notification per site, how to notify a service organization in the event of an alarm. Click to message tokens to provide context to the email and define simple rules (holidays).



Settings

Under Settings, you can view and enter various information, such as information used for the application set of this site or replacing the controller, see Section Replacing site.

Settings are the site information entered by the user during initial activation.



8.5.3 Deletion of sites

Site deactivation simply sets the site to unassigned; it can no longer be accessed by the user interface and only the tenant admin can reactivate the site. The site does continue to supply data to the cloud so that historical data is retained and the data is available to the user again when reactivated.

The site now appears under unassigned sites.

8.5.4 Replacing of sites

The following workflow describes how to replace a defective controller.

Note

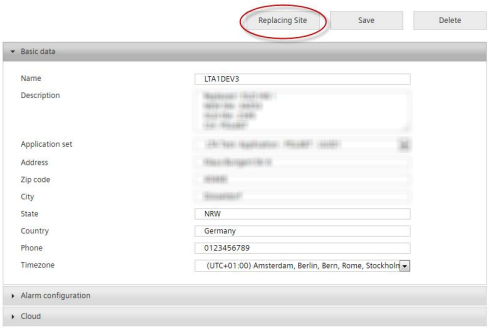
Historical data is still available and appears that the site was only offline for a certain time.

Local on site

1. Prepare the new controller as you would a new site (distributor required and connection enabled)
2. Connect the controller to the internet
3. Note the activation key and forward it to the site administrator

Climatix IC

4. Select the defective site in Climatix IC
5. Start "Replacing Site"



6. Enter the activation key, reported from the site, and select "Replace".

The controller is replaced after confirming.

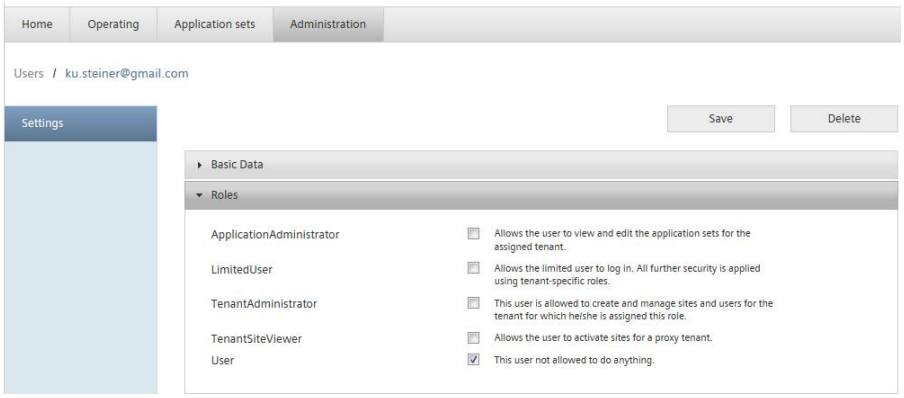
7. The next step is to restore the last parameters from Climatix IC:
   The new controller operates as the previous one.

8.5.5 Users

Here the tenant administrator creates new users and assigns them a dedicated global role.
There are 2 basic role types:

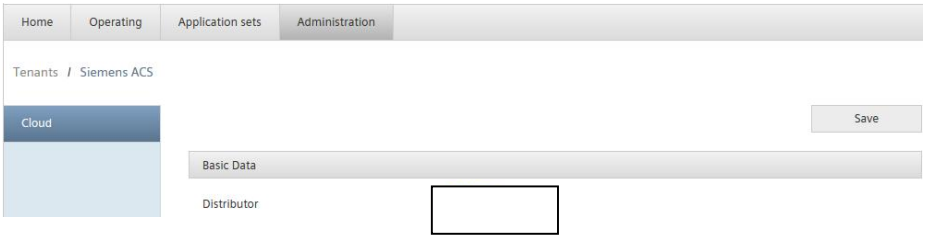
- Administrator
- User

Users are typical users operating a site, but with no administration rights.



8.5.6 Tenants

Under "Administration > Tenants > [your tenant]" the distributor key is available.
The key is necessary to enter into Climatix controller to get the controller activated.

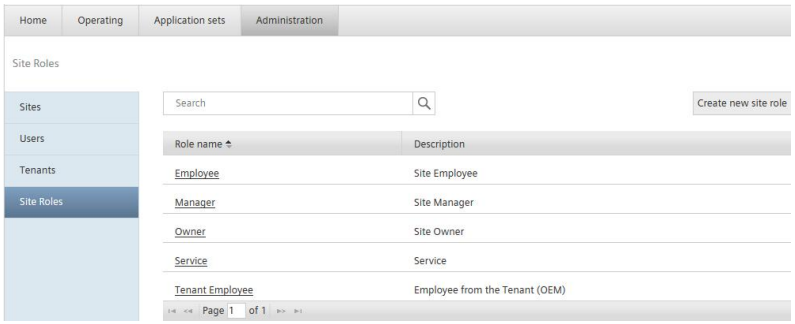


8.5.7 Site roles

The tenant administrator can define site roles as per the tenant's service organization and responsibilities.

The role consists of application privileges and access levels for a related application set.

- Access data points (can access data points at his security level)
- Site upgrade (can upgrade a site)
- Manage site users (can add users to a site)
- Manage site settings (can change site settings, e.g. address)



Creating new site roles

Tenant admin can create a new site role as needed.
Enter the name for the new role and provide a clear description.

Privileges must be set for each role.

Examples for site roles

OEM has the privileges:

- Change data points
- Site upgrade
- Manage users (site)
- Manage settings (site)

Service has the privileges:

- Change data points
- Site upgrade

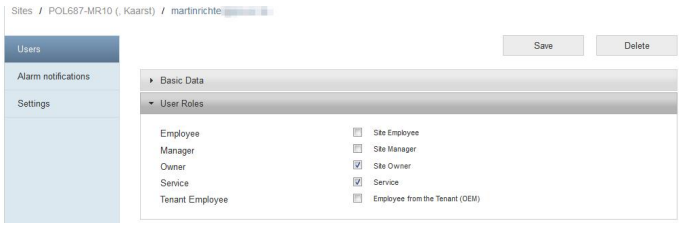
After clicking "Save", the new role is available for this tenant and site users can get linked to this role.

8.5.8 Access levels

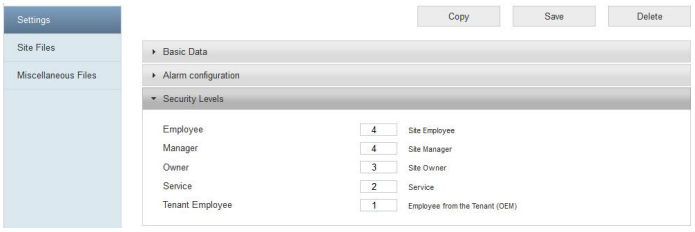
The access level for a site is retrieved from the user site role and the assigned application set for this site (highest access rights used).

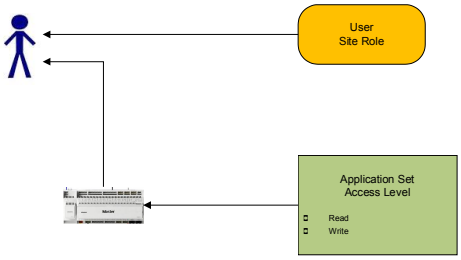
Example

User roles



Application set security levels





- The user in the example is Site owner (Level = 3) and Service (Level = 2)
- In the application set "Service" is defined as security level 2
- Result: the site access level of the example user is 2

Tip

Refer to the SAPRO and SCOPE tool online helps for more details.

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