SIEMENS

Room Automation Stations

DXR2 Balancing Procedure (based on device discovery)

A6V10665943
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Restricted

Building Technologies

Table of Contents

DXR2 Balancing Procedure

This document describes the balancing procedure for DXR2 automation stations based on device discovery.

Notes
This procedure assumes air balancing. Water balancing is similar but uses different parameters.

This procedure assumes the **discovered automation stations** workflow. Once connected to the network, the tool "discovers" the automation stations.

If you are provided a work package from the technician (a project data file), balancing can occur based on pre-engineered automation stations. In this case, discovery is not required but you still need to do **Step 2 Setting Up Connection**.

Before You Begin

Prerequisites:

- ABT Site installed
- All needed mechanical documentation (plans and specifications) are available

⚠ CAUTION

Be aware of the following
- Technician must provide User name (typically **Balancer**)
- Technician must provide Password
- Technician provides necessary connection cable(s)

Caution: Duct area is calculated by the application. If the duct area is entered manually but the proper procedure is not followed, the system overwrites the value without informing the user. See substep 5.7 under section **Step 5 Command Parameters and Balance Individual Automation Stations**.

Step 1 Preparing A Project

1.1 Open **ABT Site**.

1.2 Click **Settings**(1) to configure the tool settings. Review all items.

a. User interface:

- Tool language - The language setting. A restart is required for changes to take effect.
- Application engineering - The language setting for project data, typically same as Tool language. A restart is required for changes to take effect.
- Tool operation - Notebook or Tablet.
- (*Optional*) Show workflow help on startup - When checked as per default setting, the user Help files display automatically when ABT Site opens.

b. Search paths:

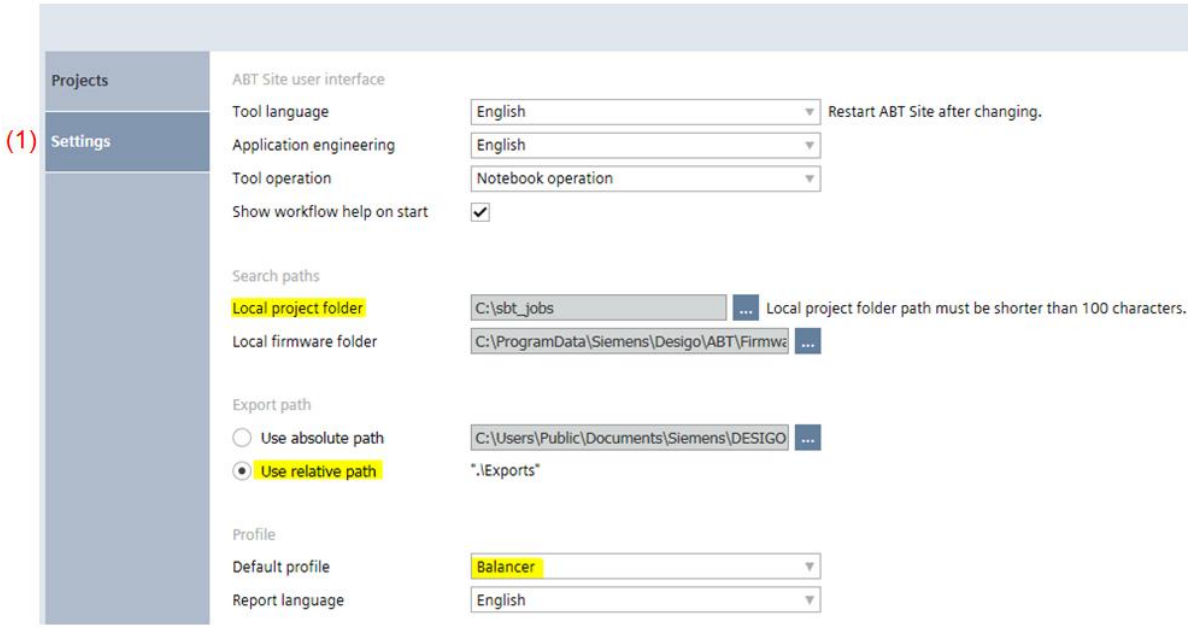
- Local project folder - Path where projects are saved, e.g., C:\sbt_jobs\
- Local firmware folder (Leave at default)

c. Export path:

- Absolute path (this selection is typically not recommended)
- Relative path (recommended) - Files are saved to the Export folder of the working project. In the example above this would be C:\sbt_jobs\Exports

d. Profile:

- Default profile - Select **Balancer**
- Report language - The language setting for generated reports.



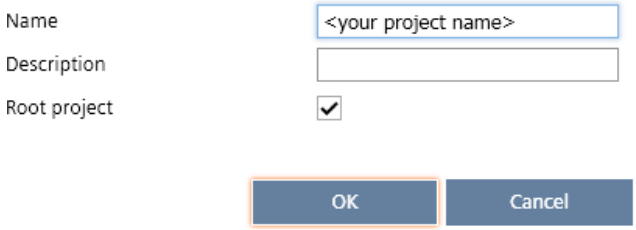
1.3 Open **ABT Site**.

a. Click **Projects**

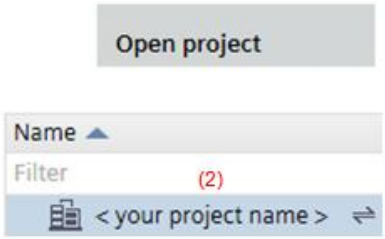
b. (*Optional*) Click **Add folder** - provide a name and click **OK**.

c. Click **Add project** - provide a name.

d. Check the **Root** project check box and click **OK**. (Root project places data / files in the jobs folder.)



e. Select your project (2) and then click **Open project**.



Step 2 Setting Up Connection

When the project opens, the screen displays the following tabs:

- Room unit connection(3)
- USB(4)
- Ethernet(5)

2.1 Click the tab for how you will physically connect (typically **Room unit connection**).

2.2 If you have not done so already, make the physical connection with a provided cable.

2.3 Enter User name and Password

a. User name - provided by the technician (typically **Balancer**)

b. Password - provided by the technician

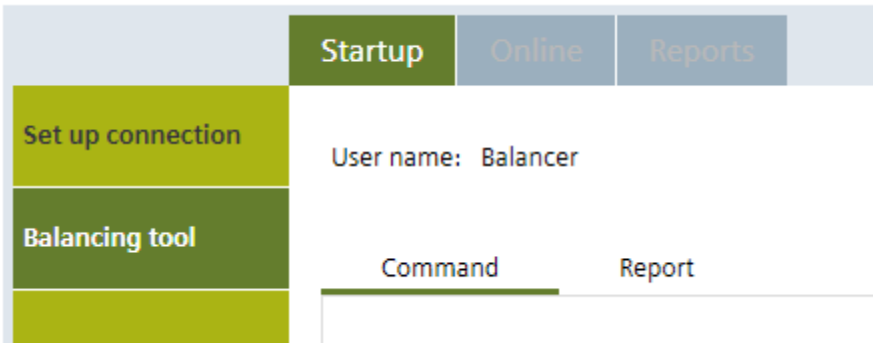
2.4 For room unit connections click **Connect** top right corner of screen.
(Once connected a message appears bottom left of screen indicating connection.)
Proceed to next section, **Step 3 Discovering Automation Stations**.

The steps below are not standard balancer procedure steps and should rarely be used. They are provided as a convenience, just in case.

- (USB or Ethernet connection) Under **Target selection** select the Device type that you want to work with. (This may or may not be the device you are physically connected to.)
  - IP device (for discovering DXR2.E type automation stations)
  - MS/TP device (for discovering DXR2.M type automation stations)
- Network interface: Select the PC network card from the dropdown.
- IP address: Select the network card IP address from the dropdown. This is only needed if more than one IP address is setup for the selected network card.
- UDP port number configured for the network: typically BAC0.
- Click Connect.

Step 3 Discovering Automation Stations

3.1 Click **Balancing tool**



3.2 Click the **Discovered automation stations** tab

For room unit connections, the local automation station (the one you are physically connected to) will appear in the Discovered automation stations list.

3.3 To extend the discovery for other automation stations click **Discover**... , then **All** from the dropdown, and then click **OK**.

Note
For MS/TP devices connected through the room unit, discovery is limited to the local network to which the device is connected.

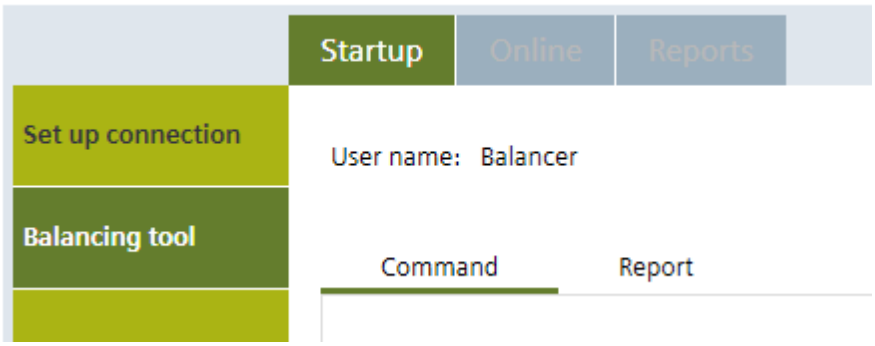
3.4 At this point you have several options available. You can:

- Command parameters on several automation stations (Step 4)
- Command parameters and balance individual automation stations (Step 5)
- Upload report data and create reports (Steps 7 and 8)

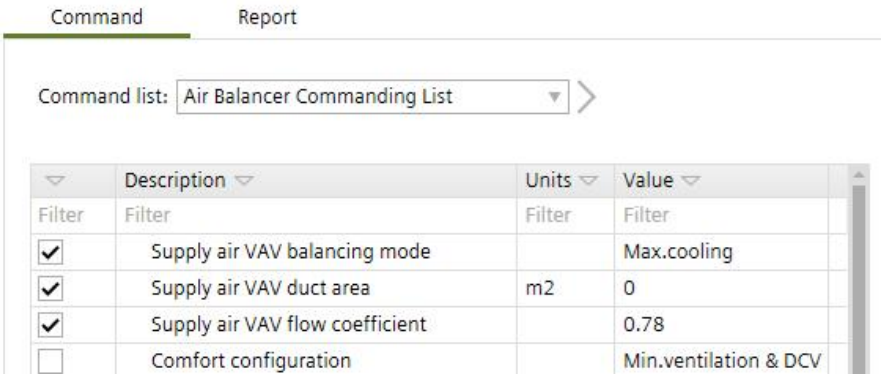
Step 4 Global Commanding

Note
The purpose of global commanding is to setup the automation stations for balancing. After balancing is complete the commands must be released. Releasing commands is covered in **Step 6 Release Existing Commands**.

4.1 Click the **Command** tab



4.2 Select **Air Balancer Commanding List** from the Command list dropdown and tick the checkboxes next to parameters to be previewed and eventually commanded. Example:



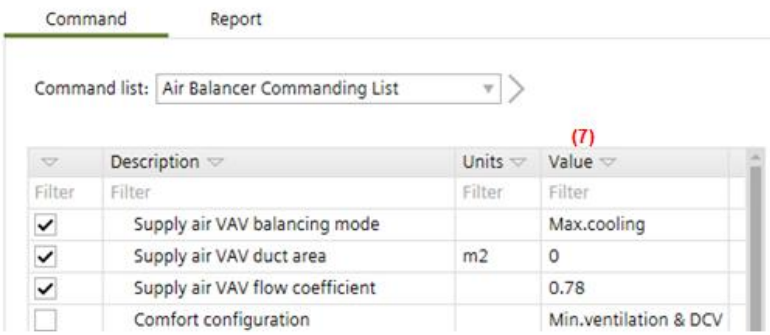
4.3 Click the **Discovered automation stations** tab.

4.4 Select the automation station(s) to be commanded.

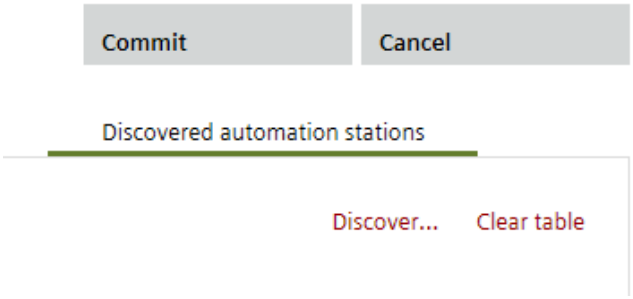
4.5 Click **Preview**. (Columns can be re-ordered to customize the display. Click a column header and drag it to the desired location.)
The selected parameter displays below the selected automation station(s) in the Discovered automation stations list.

4.6 View the current values of the previewed parameters.

4.7 Determine if additional commanding is needed. Enter or select values to be commanded in the value field[7] for each parameter.



4.8 Click **Commit** to issue the command or **Cancel** to clear the preview.



Step 5 Command Parameters and Balance Individual Automation Stations

Notes

- Each job will specify what the balancer is responsible to verify. This procedure only covers setting of the flow coefficient and verifying flows.
- Clicking on a parameter with a right facing arrow will open a nested webpage for that parameter:

  ★ Favorite commissioning ▶

- Use the breadcrumbs located across the top of the page to navigate back in the order webpages were opened.
- Use the up/down arrows (▲ , ▼) at the bottom of the screen to scroll. Click OK after selecting a setting or entering a value.

5.1 Select an automation station from the **Discovered automation stations** tab

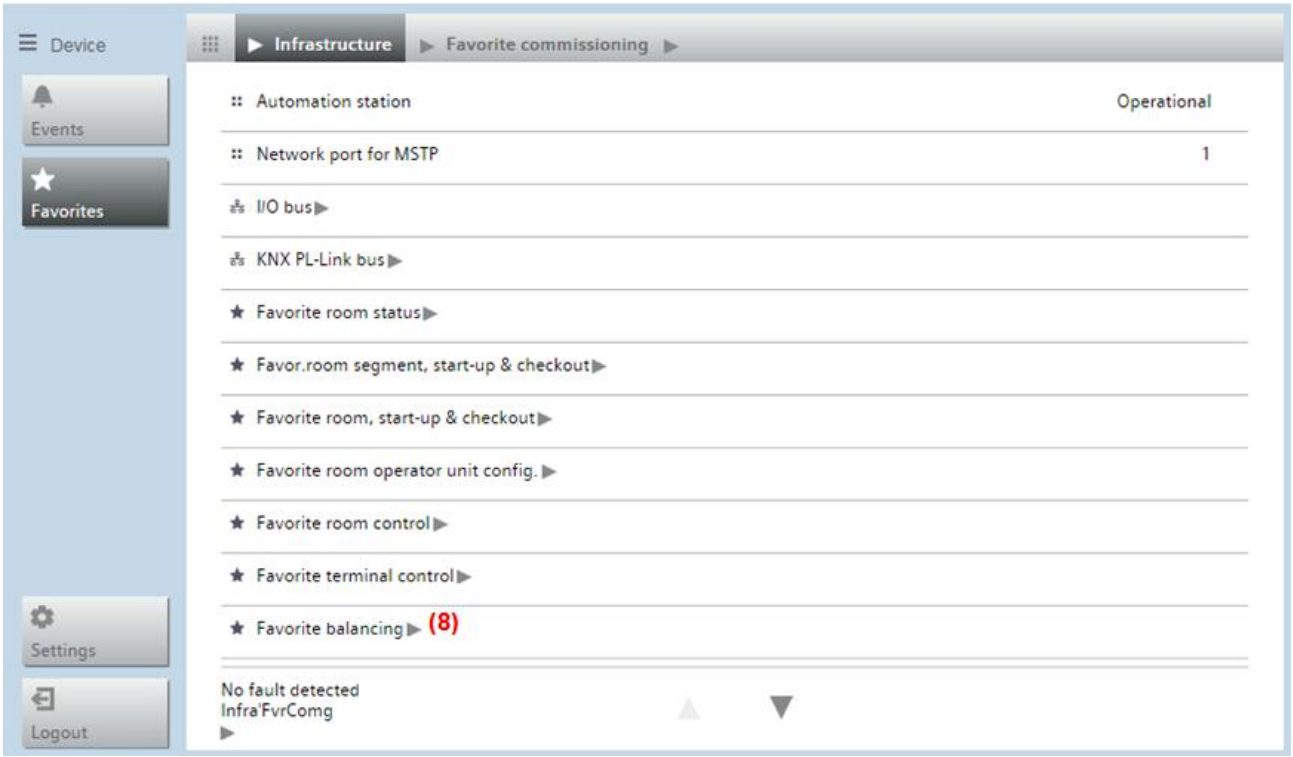
5.2 Click **Go online**

a. This will open the webpage (defined by the serial number and device name) located under the Online component.

5.3 A login will be required only if the room unit connection was used. To login, enter the User name and Password provided by the technician, then click **Login**.

5.4 Click **Favorite commissioning**.

5.5 Scroll down and click **Favorite balancing**.(8)



5.6 (*Optional*) Verify/set supply air VAV airflow setpoints

a. Supply air VAV max.air vol.flow f.cool.

b. Supply air VAV min.air vol.flow f.cool.

c. Supply air VAV max.air vol.flow f.heat.

d. Supply air VAV min.air vol.flow f.heat.

e. Supply air VAV max.air vol.flow f.vent.

f. Supply air VAV min.air vol.flow f.vent.

5.7 Verify/set duct area

a. Scroll down to **Supply air VAV duct shape**. Set Supply air VAV duct shape by selecting from the following options and set the related parameters:

i. Round (Set **Supply air VAV dimension A**)

ii. Oval (Set **Supply air VAV dimension A** and **Supply air VAV dimension B**)

iii. Rectangular (Set **Supply air VAV dimension A** and **Supply air VAV dimension B**)

iv. Direct entry (Set **Supply air VAV duct area**)
Note: When setting a value less than 1, enter a leading zero and decimal (like 0.566)

⚠ CAUTION

CAUTION:
Duct area is calculated by the application. To manually enter a different value, you must first set the duct shape object (**Supply air VAV duct shape**) to **Direct entry** and then manually enter the desired duct area value in the duct area object (**Supply air VAV duct area**).

If the user manually enters a duct area value without first setting **Supply air VAV duct shape** to **Direct entry**, the value will be accepted by the application but immediately overwritten by the system without informing the user!

5.8 Balancing procedure:

a. Set **Supply air VAV balancing mode**. Select from the following options

i. MxCool - Maximum Cooling

ii. MxHeat - Maximum Heating

iii. MxVent - Maximum Vent

iv. MnCool - Minimum Cooling

v. MnHeat - Minimum Heating

vi. MnVent - Minimum Vent

vii. Manual - (Set **Supply air VAV smoke ctrl.air flow setp.** to the desired airflow setpoint)

b. Set **Supply air VAV balancing command** to **Balancing**. The airflow setpoint is set to the appropriate value based on the **Supply air VAV balancing mode**, the **Supply air VAV balancing state** is set to **Balancing** and the control program will be overridden for balancing operation.

c. Allow time to let airflows stabilize. The automation station will modulate dampers to achieve the defined airflow setpoint.

d. Measure airflow externally with a capture hood or other device.

e. Set **Supply air VAV air volume flow at hood** with the value determined from the previous step. The control program will calculate and update **Supply air VAV calc. flow coefficient**.

f. Set **Supply air VAV balancing command** to **Calibrate**. The value of **Supply air VAV calc. flow coefficient** will be set to **Supply air VAV flow coefficient**, and all recorded parameters will be updated.
(*Optional*): To view **Supply air VAV calc. flow coefficient**, you must first navigate to **Favorite recorded balancing values** then scroll to the end.

g. (*Optional*) - Repeat parts **d** through **f** if the calculated airflow does not meet the specified accuracy.

h. (*Optional*) - Set **Supply air VAV balancing mode** to a different mode and repeat parts **b** through **g** if required to confirm accuracy at a different airflow setpoint.

i. Set **Supply air VAV balancing command** to **Balanced**. The **Supply air VAV balancing state** is set to **Balanced** and the control program will return to normal operation.

5.9 (*Optional*) Close current webpage. Click the Close icon (next to the webpage listed under the **Online** component).

5.10 Repeat items **5.1** through **5.9** for all other automation stations.

Step 6 Release Existing Commands

6.1 All remaining commands will display below the automation stations in the grid editor of the Discovered automations stations tab.

6.2 Select the automation stations and/or individual parameters.

6.3 Click **Release**

6.4 Now repeat steps 4, 5, and 6 until all equipment is balanced.

Step 7 Uploading Report Data

7.1 Click the **Report** tab.

7.2 Select the appropriate list from the Report list dropdown based on the parameters to be reported. The table will display a list of parameters to be uploaded. This table is read only.

7.3 Click the **Discovered automation stations** tab.

7.4 Select the automation station(s) to upload report data.

7.5 Click **Upload report data**. A report data file will be created for each selected automation station.

The status of the upload for each automation station is displayed in the Log and Job viewer.

Step 8 Creating Reports

Note
Because report data was uploaded and stored in the project, report creation does not require an online connection. Therefore reports can be created at any time.

8.1 Open the project and click **Balancing tool**.

8.2 Click **Create uploaded data reports**.

8.3 Select the **Air Balancer Report List** from the **Select report** dropdown.

8.4 Select the automation station(s) from the table and click **OK**.
The Reports engine will launch, displaying the formatted report with the uploaded data values for the selected automation stations.

8.5 The report engine offers several features:

a. **Print** - This will print the report as displayed.

i. Click the Print icon to launch standard print dialog.

b. **Export** - This will export the data allowing it to be manipulated and added with other data so that reports can be created as needed.

i. Click **Export report** to launch the windows file save dialog.

ii. Specify a location and file name to save the report data.

iii. Specify the desired file format type.

iv. Click **Save**.

8.6 To close individual reports, click **Reports** then click the next the report name.

8.7 If you are finished with reports, close ABT Site.

a. Click **Projects** (upper left corner of the tool). This closes the current project session.

b. Click the **x** in the upper right corner of the application to close ABT Site.

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