



Equipped with Relion® technology

eVD4 RBX615 Connectivity Package User Manual



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ABB S.p.A.
Power Products Division
Unità Operativa Sace-MV
Via Friuli, 4
I-24044 Dalmine
Telephone: +39 035 6952 111
Facsimile: +39 035 6952 874
sacetms.tipm@it.abb.com
<http://www.abb.com>

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Conformity

The IED is designed in accordance with the international standards of the IEC 60255 series, EMC Directive 2004/108/EC and MV circuit breaker standard IEC 62271-100.

Safety information



Dangerous voltages can occur on the connectors, even though the auxiliary voltage has been disconnected.



Non-observance can result in death, personal injury or substantial property damage.



Only a competent electrician is allowed to carry out the electrical installation.



National and local electrical safety regulations must always be followed.



The frames of the IED and of the HMI have to be carefully earthed.



When the plug-in unit has been detached from the docking unit, do not touch the inside of the DU. The IED DU internals may contain high voltage potential and touching these may cause personal injury.



The IED contains components which are sensitive to electrostatic discharge. Unnecessary touching of electronic components must therefore be avoided.



Whenever changes are made in the IED, measures should be taken to avoid inadvertent tripping.

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Section 1 Introduction

1.1 This manual

The user manual contains instructions on how to install and use the Connectivity Package for RBX615. The manual provides instructions on how to create and manage a PCM600 project and insert IEDs to the project structure.

1.2 Intended audience

This manual addresses users, configuration engineers and installation and commissioning personnel, who use technical data during engineering, installation and commissioning, and in normal service.

1.3 Product documentation

1.3.1 Product documentation set

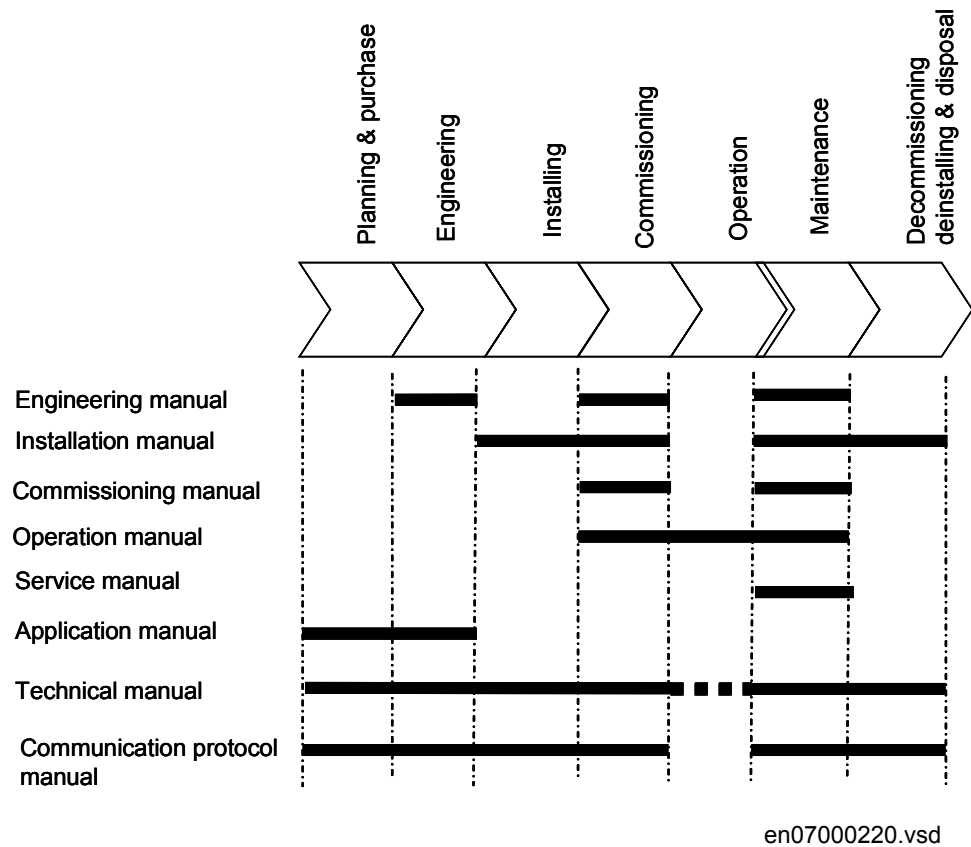


Figure 1: The intended use of manuals in different lifecycles

The engineering manual contains instructions on how to engineer the IEDs using the different tools in PCM600. The manual provides instructions on how to set up a PCM600 project and insert IEDs to the project structure. The manual also recommends a sequence for engineering of protection and control functions, LHMI functions as well as communication engineering for IEC 61850 and other supported protocols.

The installation manual contains instructions on how to install the IED. The manual provides procedures for mechanical and electrical installation. The chapters are organized in chronological order in which the IED should be installed.

The commissioning manual contains instructions on how to commission the IED. The manual can also be used by system engineers and maintenance personnel for assistance during the testing phase. The manual provides procedures for checking of external circuitry and energizing the IED, parameter setting and configuration as

well as verifying settings by secondary injection. The manual describes the process of testing an IED in a substation which is not in service. The chapters are organized in chronological order in which the IED should be commissioned.

The operation manual contains instructions on how to operate the IED once it has been commissioned. The manual provides instructions for monitoring, controlling and setting the IED. The manual also describes how to identify disturbances and how to view calculated and measured power grid data to determine the cause of a fault.

The service manual contains instructions on how to service and maintain the IED. The manual also provides procedures for de-energizing, de-commissioning and disposal of the IED.

The application manual contains application descriptions and setting guidelines sorted per function. The manual can be used to find out when and for what purpose a typical protection function can be used. The manual can also be used when calculating settings.

The technical manual contains application and functionality descriptions and lists function blocks, logic diagrams, input and output signals, setting parameters and technical data sorted per function. The manual can be used as a technical reference during the engineering phase, installation and commissioning phase, and during normal service.

The communication protocol manual describes a communication protocol supported by the IED. The manual concentrates on vendor-specific implementations.

The point list manual describes the outlook and properties of the data points specific to the IED. The manual should be used in conjunction with the corresponding communication protocol manual.



Some of the manuals are not available yet.

1.3.2

Document revision history

Document revision/date	Product series version	History
A/2010-12-22	1.0	First release



Download the latest documents from the ABB web site <http://www.abb.com/mediumvoltage>.

1.3.3 Related documentation

Product series- and product-specific manuals can be downloaded from the ABB web site <http://www.abb.com/mediumvoltage>.

1.4 Symbols and conventions

1.4.1 Safety indication symbols



The caution icon indicates important information or warning related to the concept discussed in the text. It might indicate the presence of a hazard which could result in corruption of software or damage to equipment or property.



The information icon alerts the reader of important facts and conditions.






The tip icon indicates advice on, for example, how to design your project or how to use a certain function.

Although warning hazards are related to personal injury, it is necessary to understand that under certain operational conditions, operation of damaged equipment may result in degraded process performance leading to personal injury or death. Therefore, comply fully with all warning and caution notices.

1.4.2 Manual conventions

Conventions used in IED manuals. A particular convention may not be used in this manual.

- Abbreviations and acronyms in this manual are spelled out in the glossary. The glossary also contains definitions of important terms.
- Push button navigation in the LHMI menu structure is presented by using the push button icons, for example:
To navigate between the options, use  and .
- HMI menu paths are presented in bold, for example:
Select **Main menu/Settings**.
- LHMI messages are shown in Courier font, for example:
To save the changes in non-volatile memory, select `Yes` and press .
- Parameter names are shown in italics, for example:
The function can be enabled and disabled with the *Operation* setting.
- Parameter values are indicated with quotation marks, for example:

- The corresponding parameter values are "On" and "Off".
IED input/output messages and monitored data names are shown in Courier font, for example:
When the function starts, the `START` output is set to `TRUE`.

Section 2 Product overview

2.1 Product features

Connectivity Package is a plug-in of PCM600 that allows this software to be used with the RBX615 product.

- Composition code selection page in Configuration Wizard
- Adding of IED language
- User-defined name editor
- Composition selection
- Composition data
- Writing of the font file to the IED
- Validation of the configuration
- Synchronization
- Media selection

2.2 Requirements

2.2.1 Hardware requirements

- Pentium III, 800 MHz
- 128 MB of RAM
- 40 MB of available disk space

2.2.2 Software requirements

- Operating system: Microsoft Windows 98/2000/XP
- PCM600 Version 2.3 Production Build
- Microsoft .NET Framework 2.0

Section 3 Installation

3.1 Prerequisites

Certain software must be installed before installing eCB Connectivity Package.

- .NET Framework 2.0
- PCM600 Version 2.3 Production Build

3.2 Removing the old connectivity package

The old connectivity packages of eCB must be removed before installing the latest version, because the product code has changed for the new release.

1. On the **Start** menu, point to **Settings** and select **Control Panel**.
2. Start **Add or Remove Programs** and select ABB IED Connectivity Packages for eCB.
3. Click **Remove** to remove RBX615 Connectivity Package.



Figure 2: Connectivity Package in Add or Remove Program

A dialog box appears for confirmation.

4. Click **Yes** to confirm the removing.

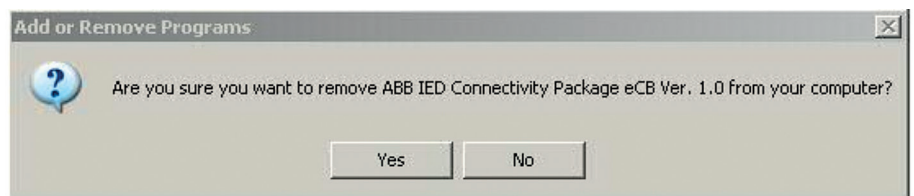


Figure 3: Confirmation dialog for the removing

3.3 Installing Connectivity Package

1. Start eCBConnPack.msi included in the eVD4 - RBX615 Connectivity Package installation package.
The eVD4 - RBX615 Connectivity Package installation wizard opens.

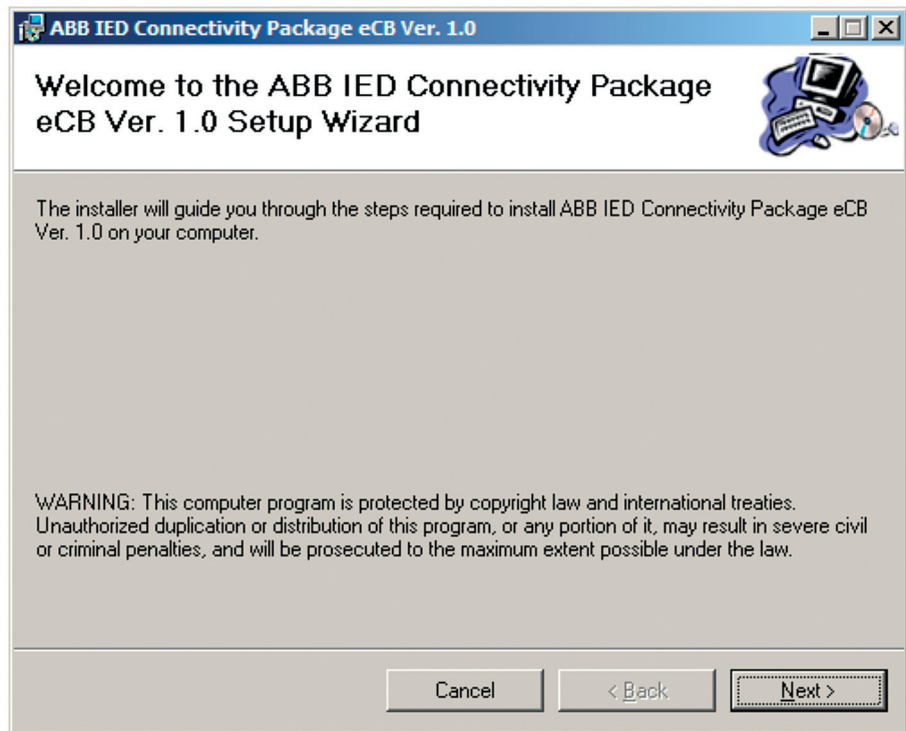


Figure 4: Setup Wizard welcome page

The installation can be cancelled on any page of the installation wizard.

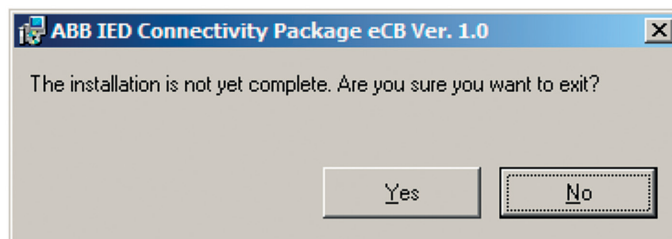


Figure 5: Exit confirmation dialog

- Click **Cancel** to stop and exit the installation. The wizard prompts for confirmation.
 - Click **No** to cancel the exiting and continue with the installation, or click **Yes** to exit the installation process.
2. Click **Next** to go to the installation folder selection page.

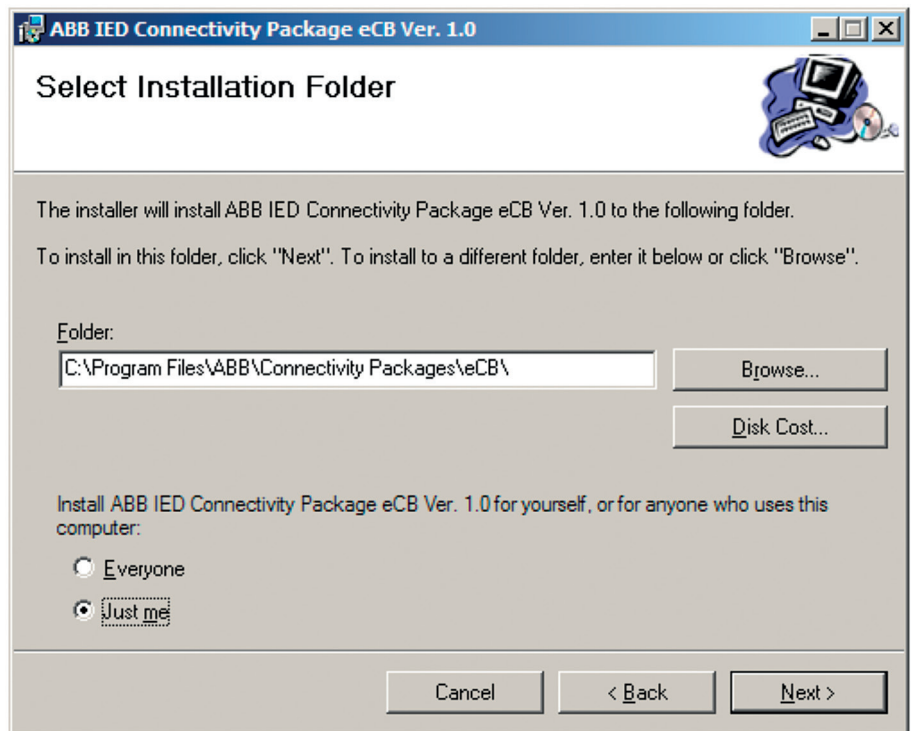


Figure 6: Folder selection page

3. Select the target folder for the eVD4 - RBX615 Connectivity Package application.
 - Click **Browse** to browse for the folder.
 - Type the folder name in the **Folder** text box.
4. Click **Next** to continue.

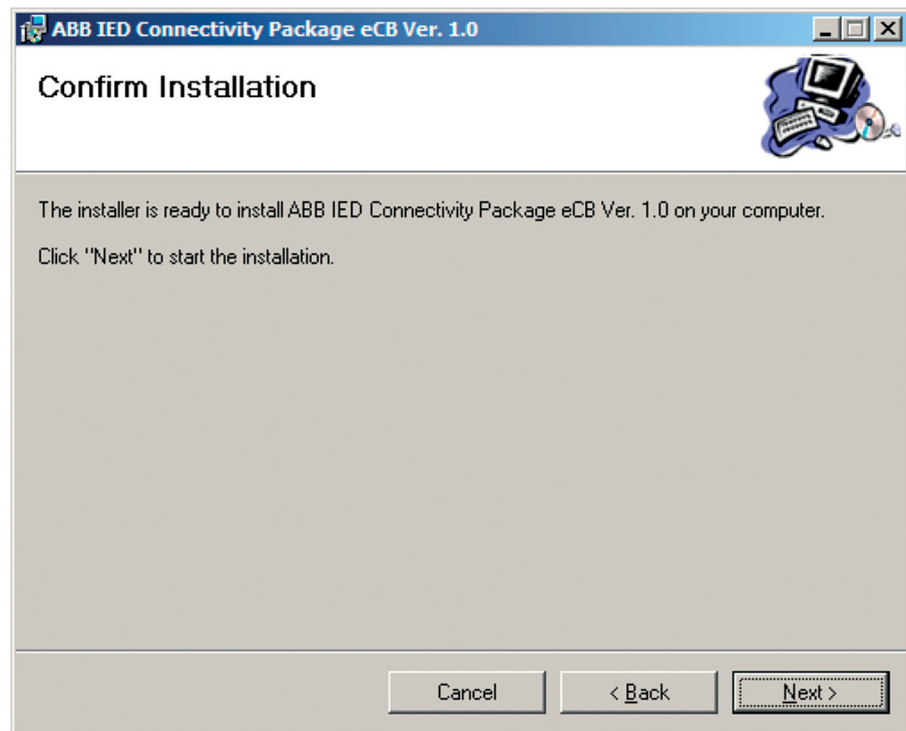


Figure 7: Installation confirmation page

5. Click **Next** to start the installation process.

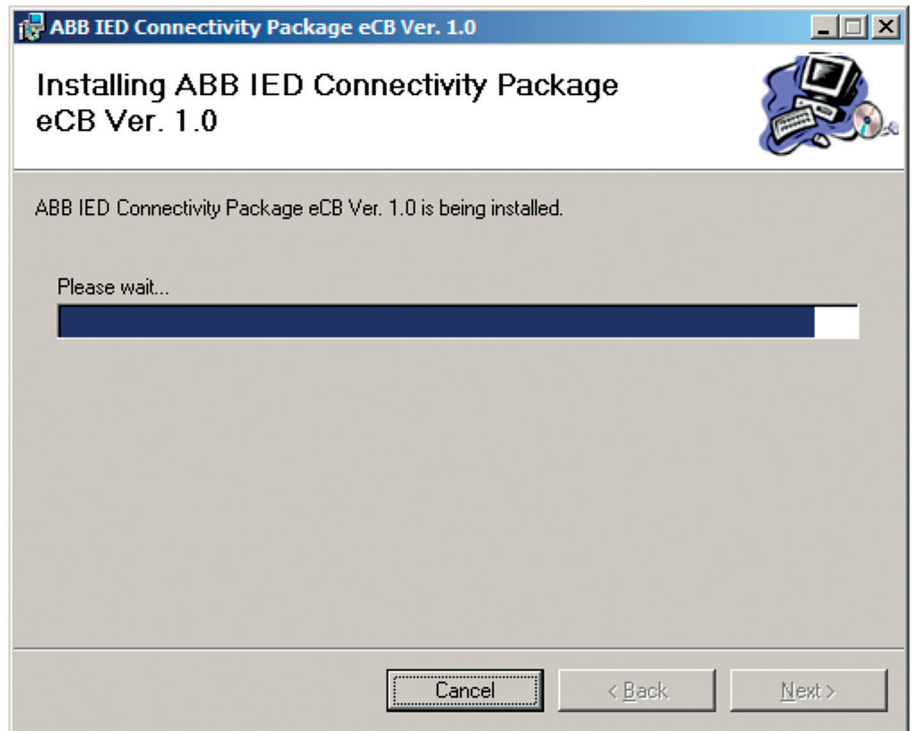


Figure 8: Installation progress page

When the installation is finished, the **Installation Complete** page is shown.

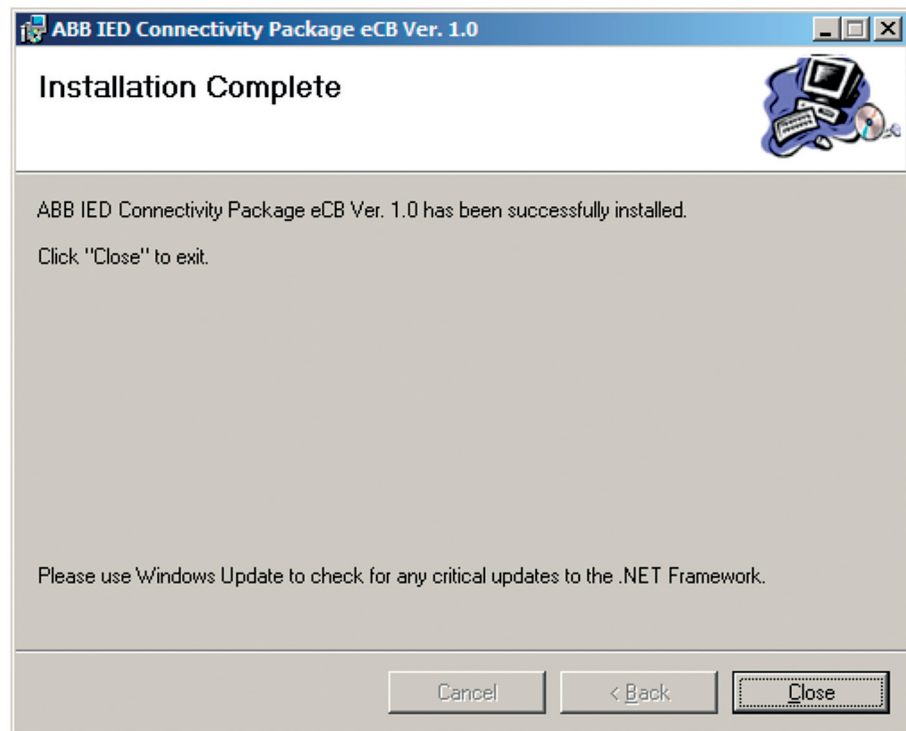


Figure 9: Installation Complete page

6. Click **Close** to exit the installer.

3.4

Removing the connectivity package

1. Remove eVD4 - RBX615 Connectivity Package the same way as any standard Windows application.
2. On the **Start** menu, point to **Settings** and select **Control Panel**.
3. Start **Add or Remove Programs** and select ABB IED Connectivity Package eCB Version 1.0.

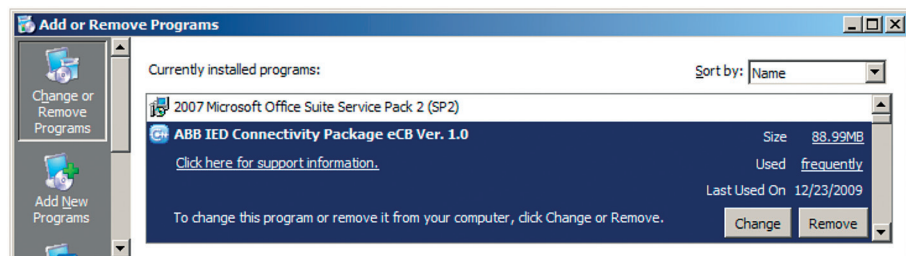


Figure 10: eVD4 - RBX615 Connectivity Package in Add or Remove Program

4. Click **Remove** to remove eVD4 - RBX615 Connectivity Package.

- A dialog box appears to prompt for confirmation.
- Click **Yes** to confirm the removal.

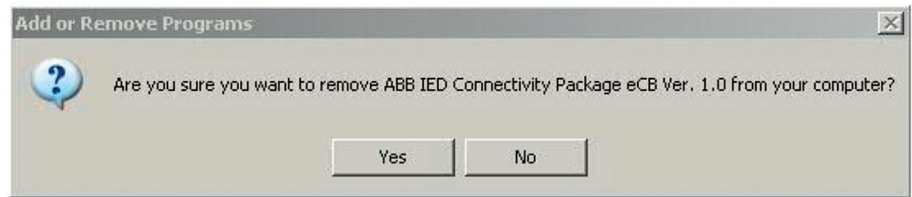


Figure 11: Confirmation dialog for removing

A dialog box appears to show the progress of the removing. All installed files and folders are removed from the installation folder of eVD4 - RBX615 Connectivity Package.

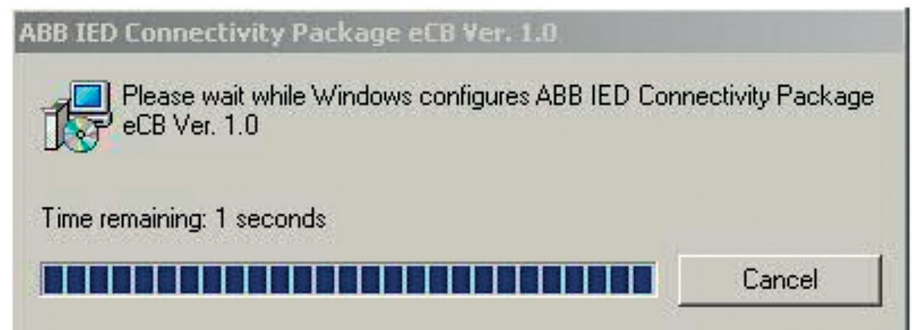


Figure 12: Progress dialog for removing

3.5 Enabling eVD4 - RBX615 Connectivity Package to work with PCM600

- Double-click the desktop icon to start Connectivity Package Manager.



Figure 13: Connectivity Package Manager icon

2. On the **View menu**, click **Expand All**.
3. Expand ABB IED Connectivity Package eCB Ver. 1.0 under PCM600 2.2.

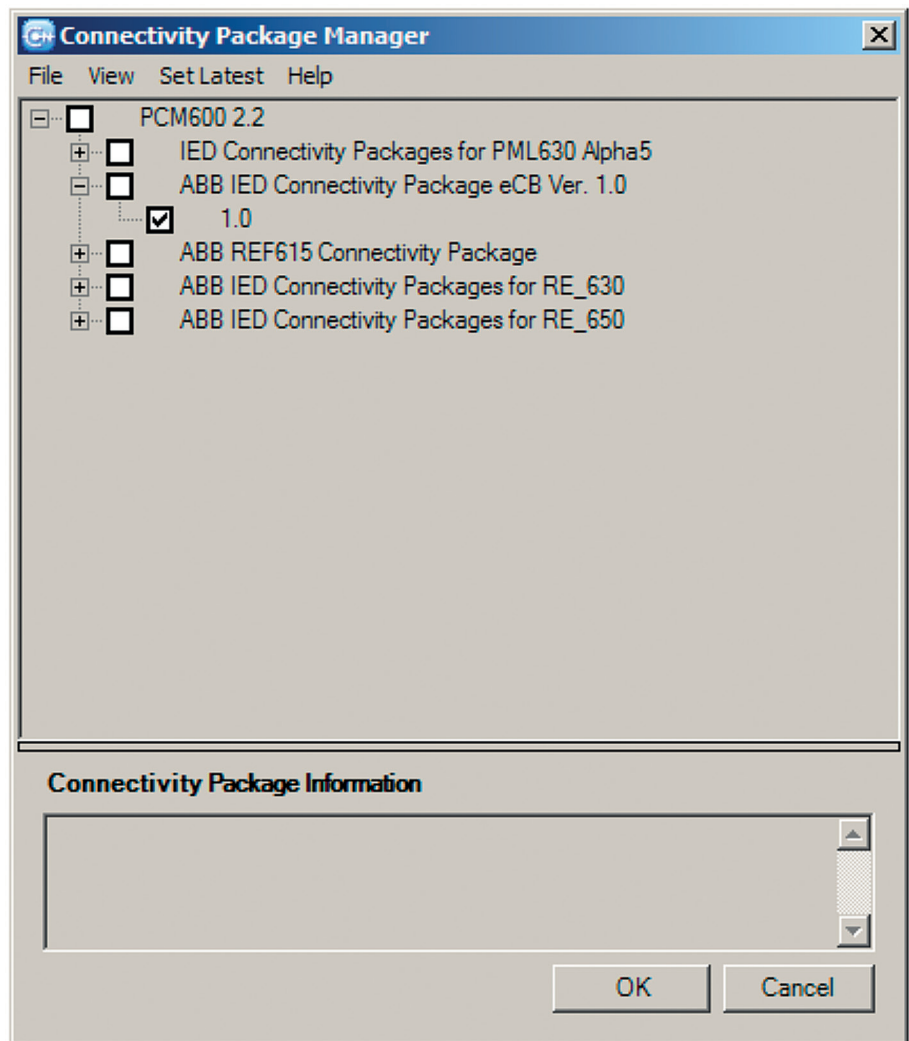


Figure 14: Connectivity Package Manager with eVD4 - RBX615 Connectivity Package

4. Select the 1.0 check box under Connectivity Manager with eVD4 - RBX615 Connectivity Package.

Section 4 eVD4 - RBX615 Connectivity Package applications

4.1 eVD4 - RBX615 object type creation

After the installation of eVD4 - RBX615 Connectivity Package, the eVD4 - RBX615 object type must be created in PCM600.

4.1.1 Configuring eVD4 - RBX615 Connectivity Package in Connectivity Package Manager

eVD4 - RBX615 Connectivity Package needs to be configured to make it work with the eVD4 - RBX615 object type in PCM600.

1. Close PCM600 if it is open.
2. Start Connectivity Package Manager.
 - Double-click the desktop icon.



Figure 15: Connectivity Package Manager icon

- Click **Start** and point to **Programs**. Point to **ABB**, point to **Connectivity Package Manager** and click **Connectivity Package Manager**.

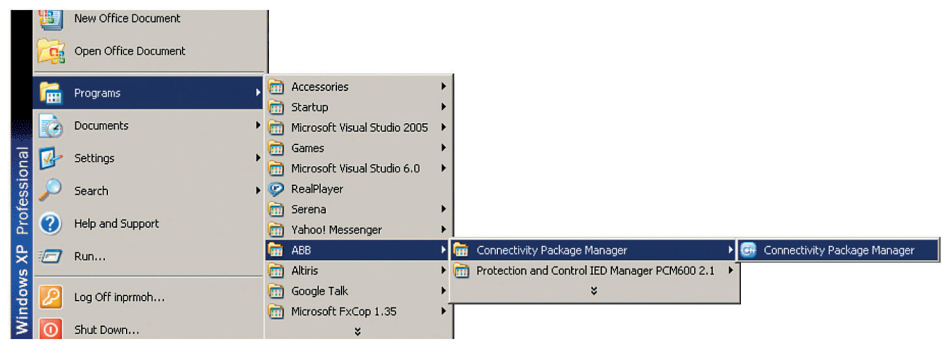


Figure 16: Connectivity Package Manager on the **Start** menu

Connectivity Package Manager opens.

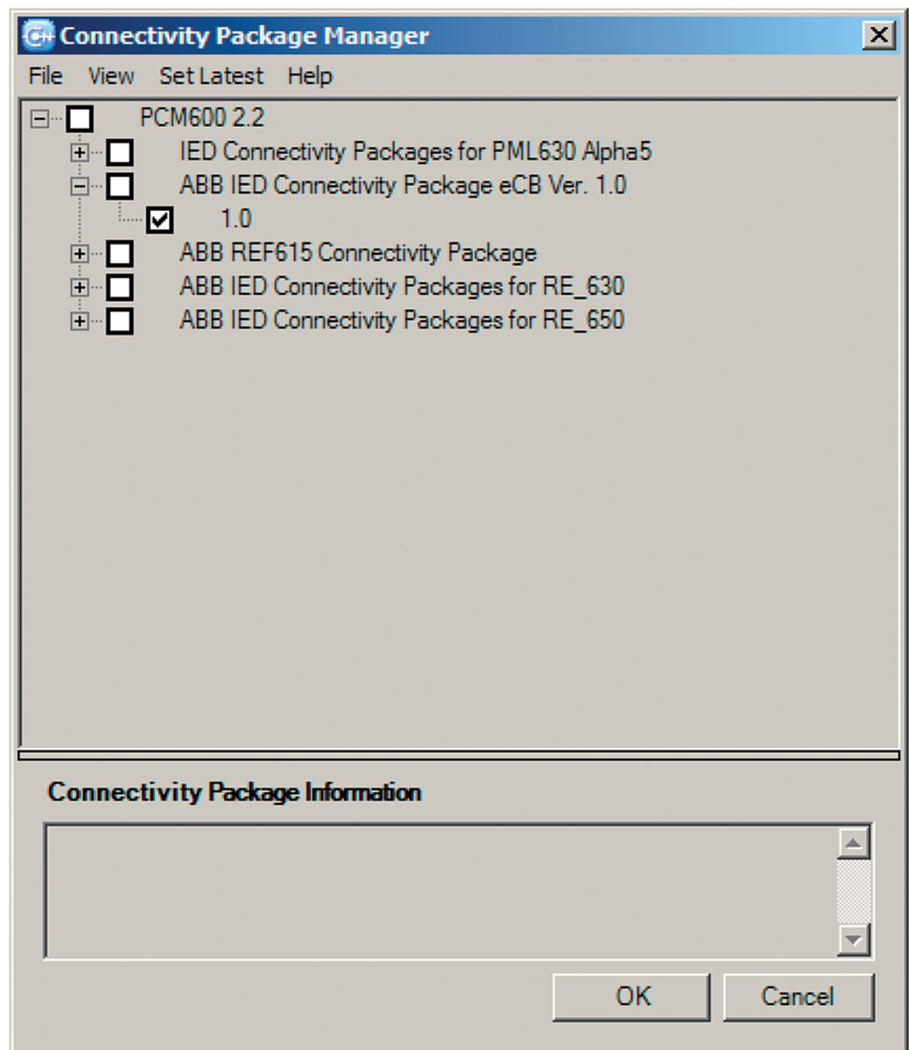


Figure 17: eVD4 - RBX615 in Connectivity Package Manager

3. Expand the **ABB IED Connectivity Package eCB Ver. 1.0** node.
4. Select the **1.0** check box to enable eVD4 - RBX615 Connectivity Package in PCM600.
For the eVD4 - RBX615 object type to appear in PCM600, this check box has to be selected.
5. Close Connectivity Package Manager by clicking **Close** on the **File** menu.

4.2 Managing projects in PCM600

A new or existing project can be used to create the eVD4 - RBX615 object type in PCM600.

1. Start PCM600.

- Double-click the desktop icon.



Figure 18: PCM600 desktop icon

- Click **Start** and point to **Programs**. Point to **ABB**, point to **Protection and Control IED Manager PCM600** and click **PCM**.

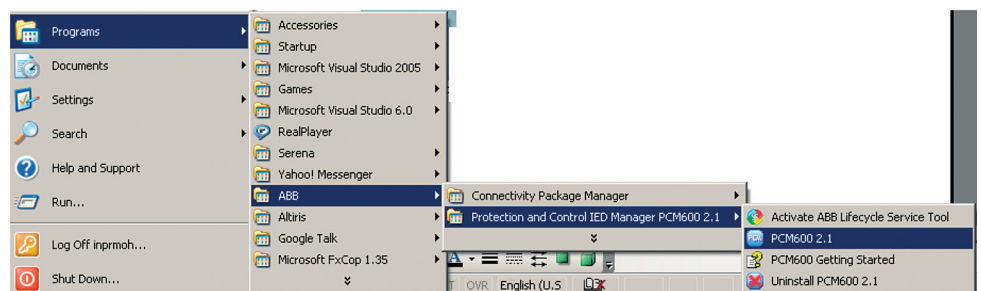


Figure 19: PCM600 on the Start menu

The PCM600 window opens. If PCM600 has an open project, the tree structure of that project is shown. Otherwise the window is empty.

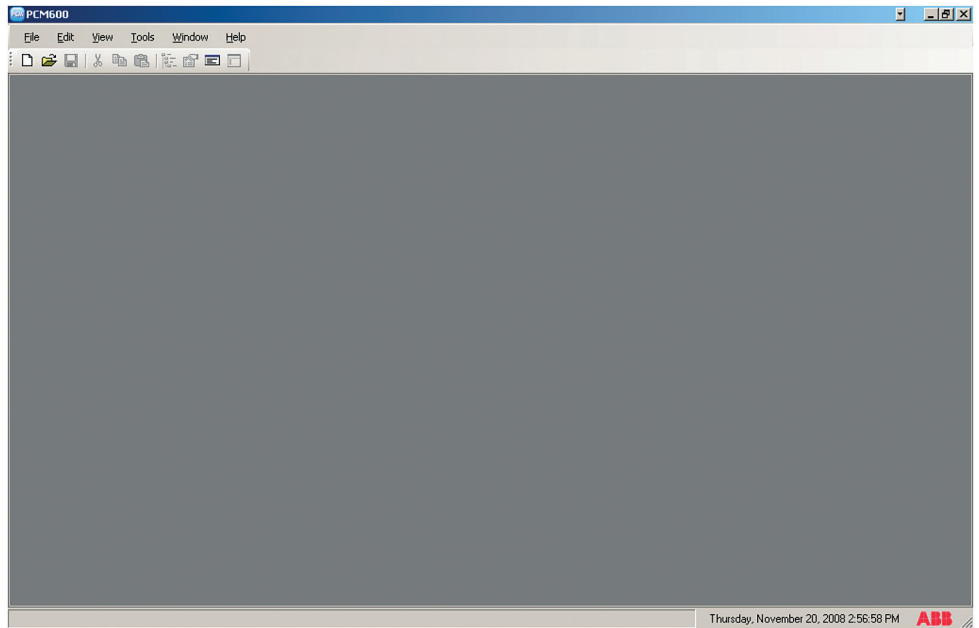


Figure 20: PCM600 without an open project

2. Click **Open/Manage Project** on the **File** menu to create a new or manage an existing project.

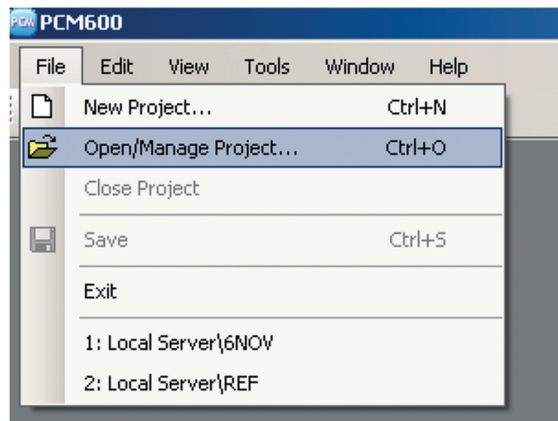


Figure 21: Open/Manage Project on the menu

The **Open/Manage Project** dialog box opens. It is used for creating, deleting, importing, exporting and opening projects.

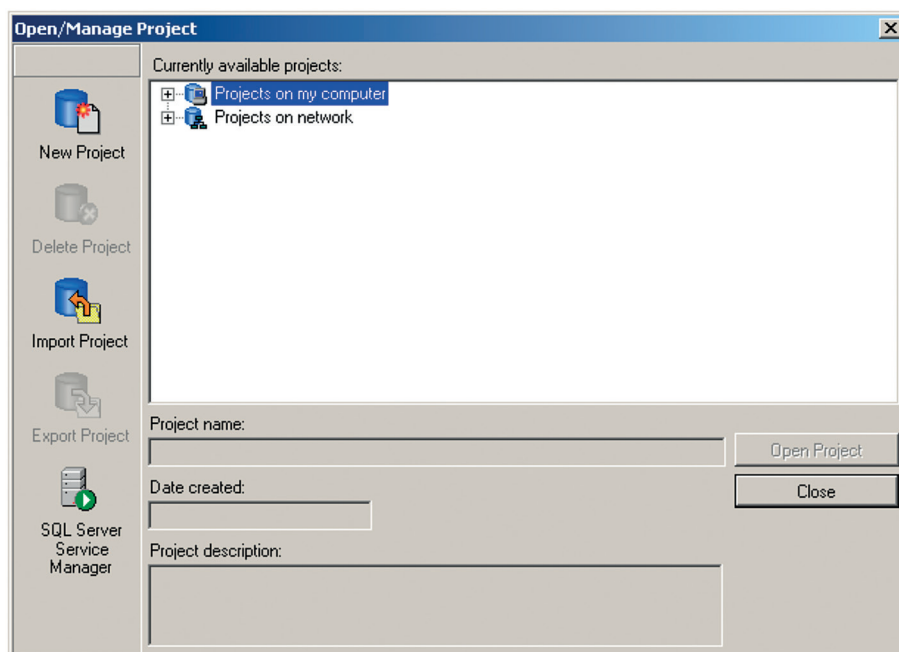


Figure 22: Open/Manage Project dialog box

4.2.1 Creating new projects

1. Click **New Project** in the **Open/Manage Project** dialog box.
2. Type the project name and the description of the project in the **Create New Project** dialog box.

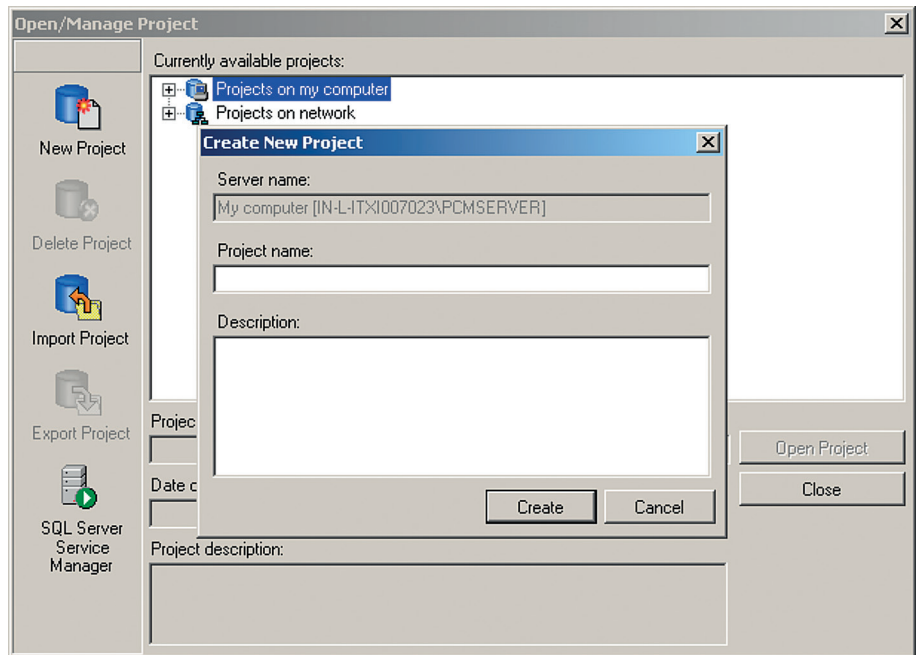


Figure 23: Create New Project dialog box

3. Click **Create**.

The created project shows in the "Projects on my computer" tree structure.

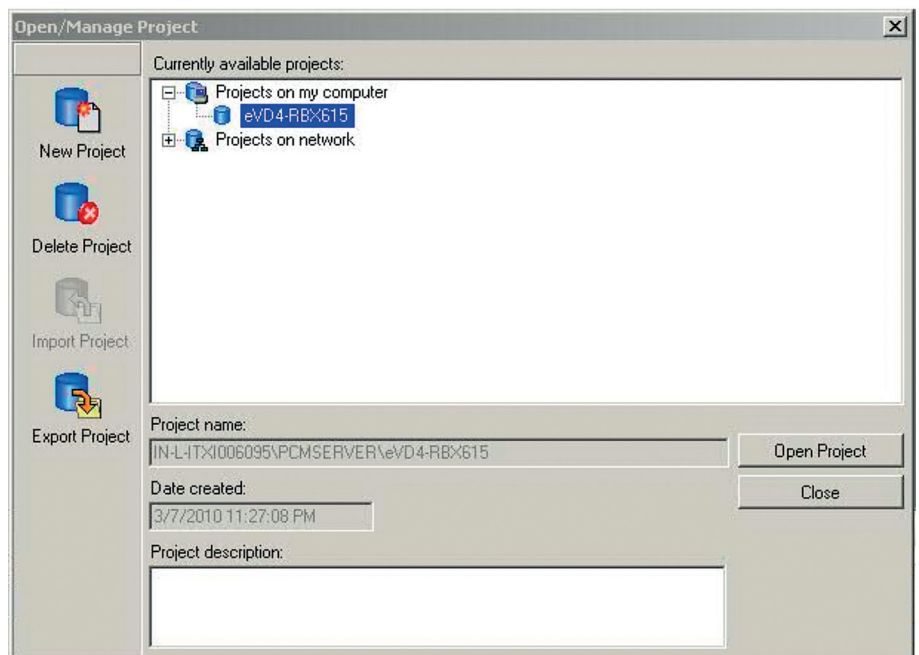


Figure 24: Open/Manage Project dialog box with the created project

4.2.2 Opening existing projects

Existing projects are opened from the **Open/Manage Project** dialog box.

- Select the project and click **Open project**.
PCM600 opens the tree structure of the project. The tree structure is empty for new projects.

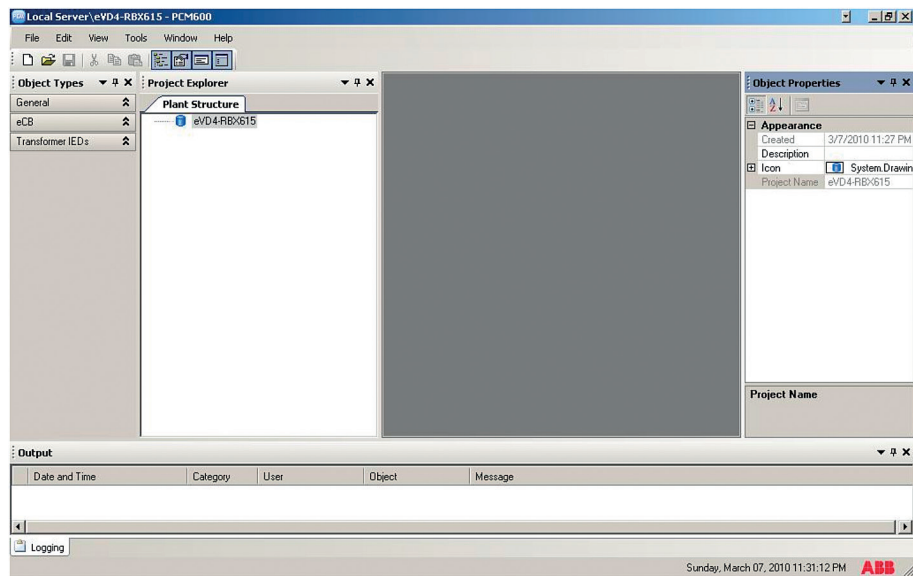


Figure 25: Tree structure of a project

4.2.3 Creating eVD4 - RBX615 object in PCM600

The eVD4 - RBX615 object type can be created in PCM600 for a project that has the subnode structure **Substation/Voltage Level/Bay**.

1. Right-click the **Bay** node in the tree structure.
2. Point to **New**, point to **eCB** and select **eVD4 - RBX615** to create the object type.

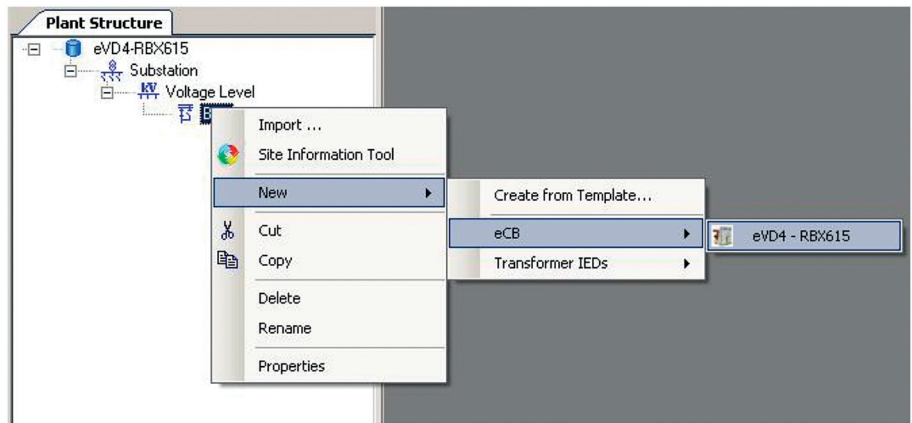


Figure 26: eVD4 - RBX615 on the shortcut menu

The eVD4 - RBX615 object type is created under the **Bay** node.

3. Click the eVD4 - RBX615 object.
Configuration wizard opens.



Figure 27: Configuration mode selection page

4. Select the **Offline configuration** check box and click **Next**.



Figure 28: Communication protocol selection page

5. In the **IED protocol** list, use the default selection **IEC 61850** and click **Next**.



The screenshot shows a Windows-style dialog box titled "eVD4 - RBX615 - IEC61850 communication protocol". The main heading is "eVD4 - RBX615 Configuration Wizard" with the subtitle "IEC 61850 communication protocol". There is a small icon of a power transformer on the right. The "PCM600 communication" section contains a "Port:" label next to a dropdown menu showing "Rear port", and an "IP address:" label next to a text box containing "192.168.2.10". At the bottom, there are three buttons: "Cancel", "< Back", and "Next >".

Figure 29: IEC 61850 communication protocol page

6. Select the communication port from the drop-down list.
 - If connected to the rear port, click **Rear port** in the **Port** list, type the IP address in the **IP address** text box and click **Next**.
 - If connected to the front port, click **Front port** in the **Port** list and click **Next**.



Figure 30: Version Selection Page

7. Select **1.0** in the **Select The IED Version** drop-down combo box and click **Next**.

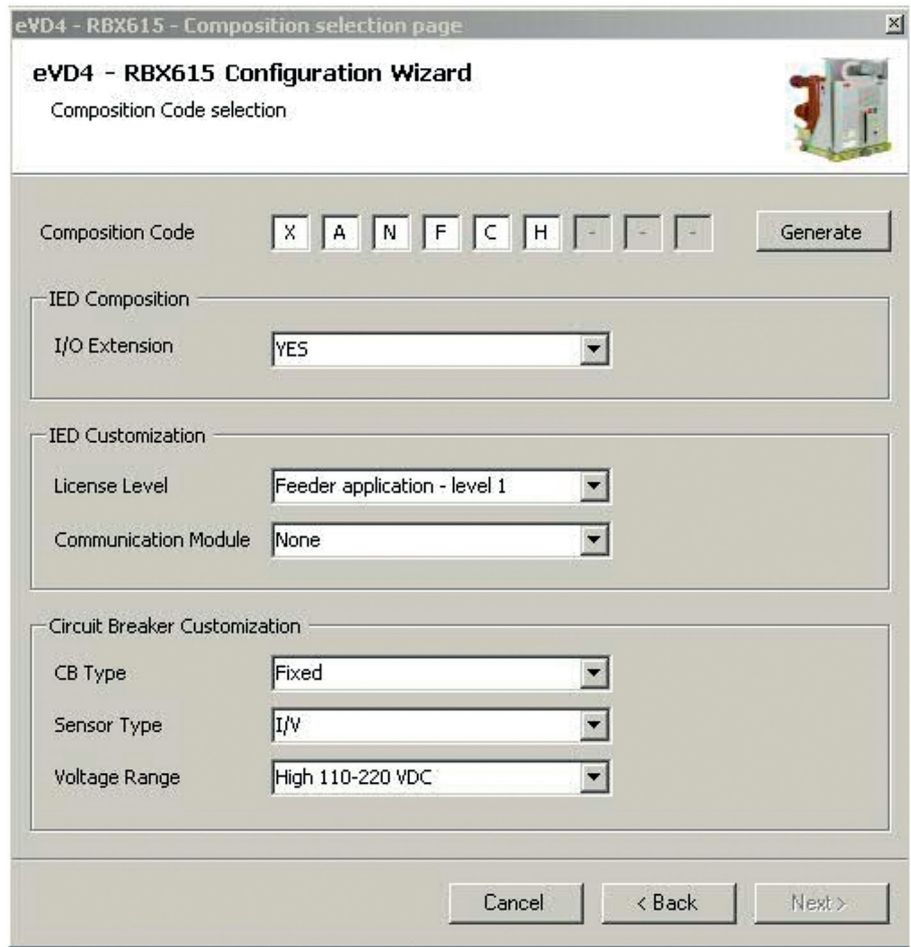


Figure 31: Composition Code selection page with the Generate button available

8. Select the composition code and click **Generate**.
The type information for the tools in PCM600 is generated, and a progress bar for this is shown.

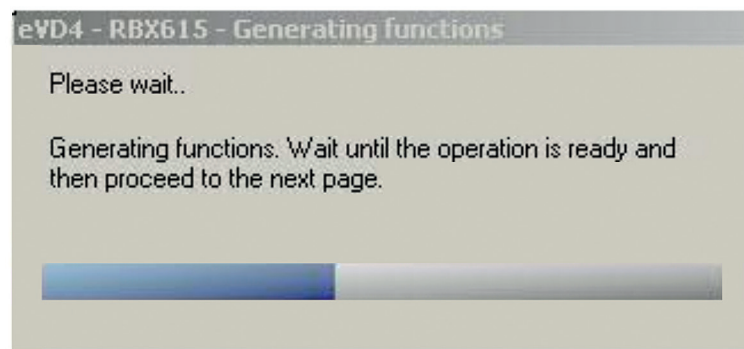


Figure 32: Progress bar for function generation

9. Click **Close** when the generation is done.

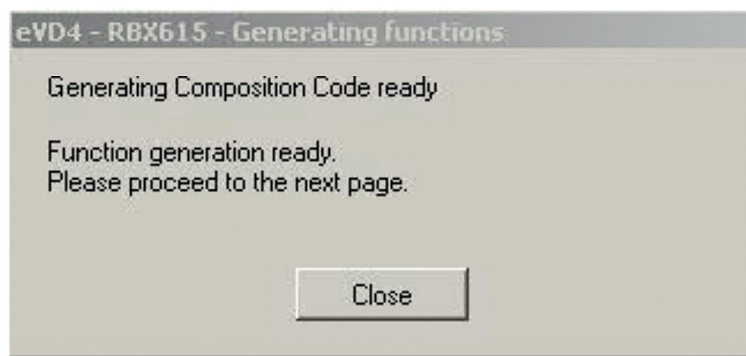


Figure 33: Function generation complete

10. Click **Finish** to complete the object type creation.

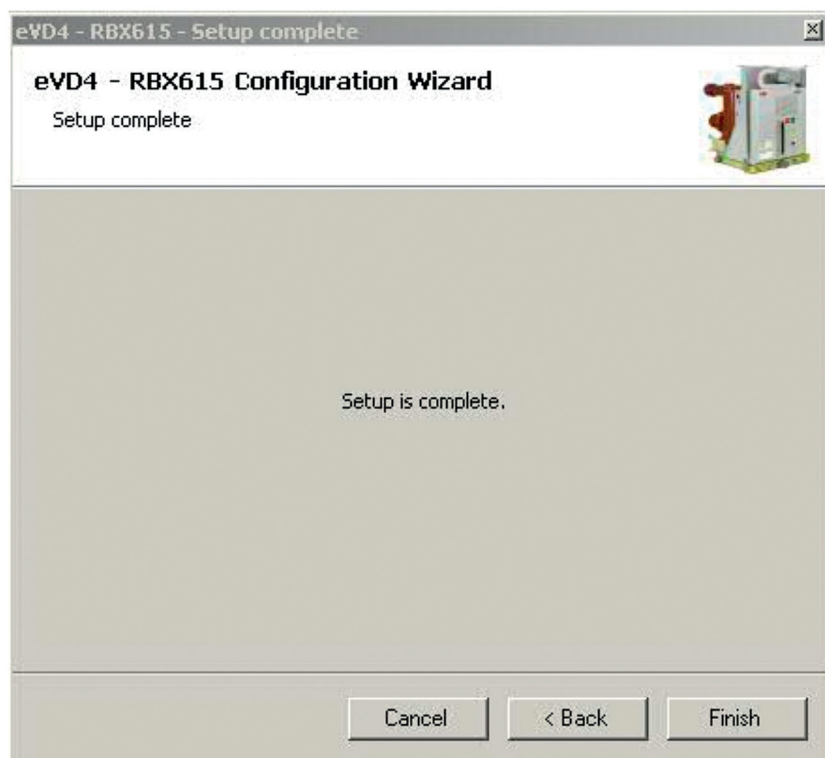


Figure 34: Setup complete page

4.3 Selecting the IED language

eVD4 - RBX615 supports local languages via the IED language selection. Two languages are supported at a time, with English always being one of them.

1. Right-click the eVD4 - RBX615 node, point to **RBX615 Utilities** and select **Add IED Language**.

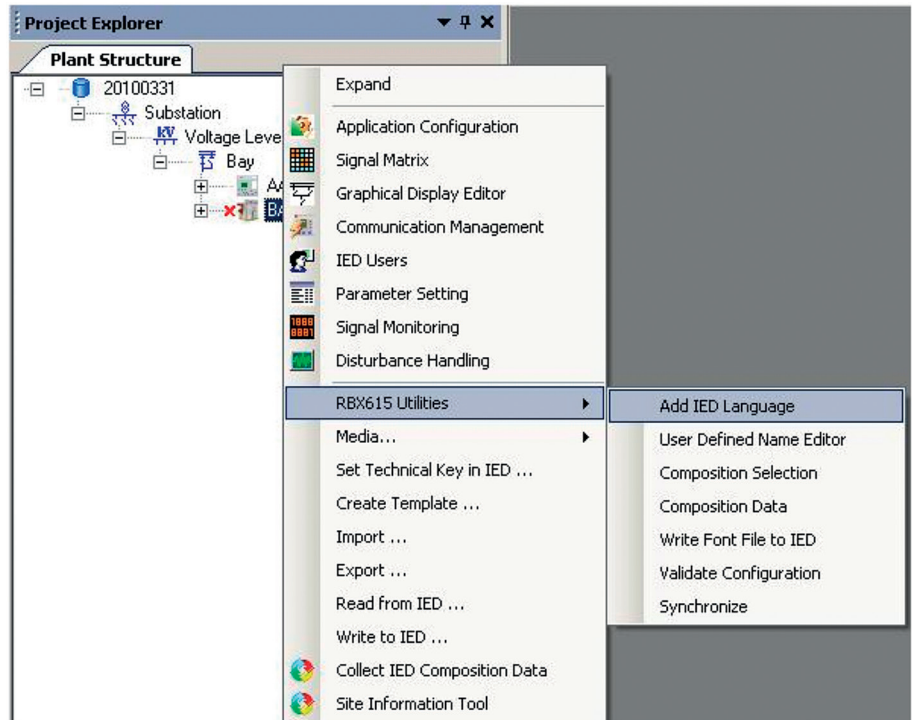


Figure 35: Add IED Language

The **Add IED Language** dialog box appears. Drop-down list boxes for selecting the two languages are shown, with US English set as default under **Language 1**.

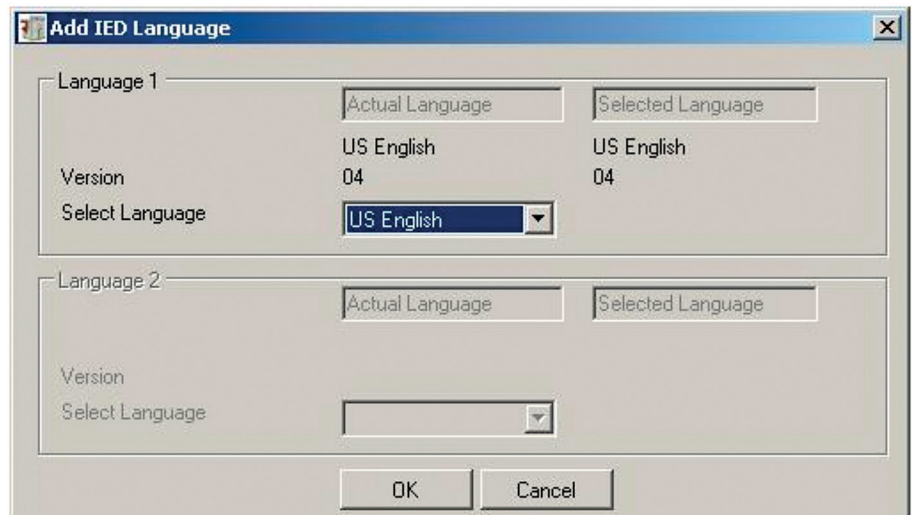


Figure 36: Add IED Language dialog box

If any other language is selected under **Language 1**, the language under **Language 2** is automatically set as US English.

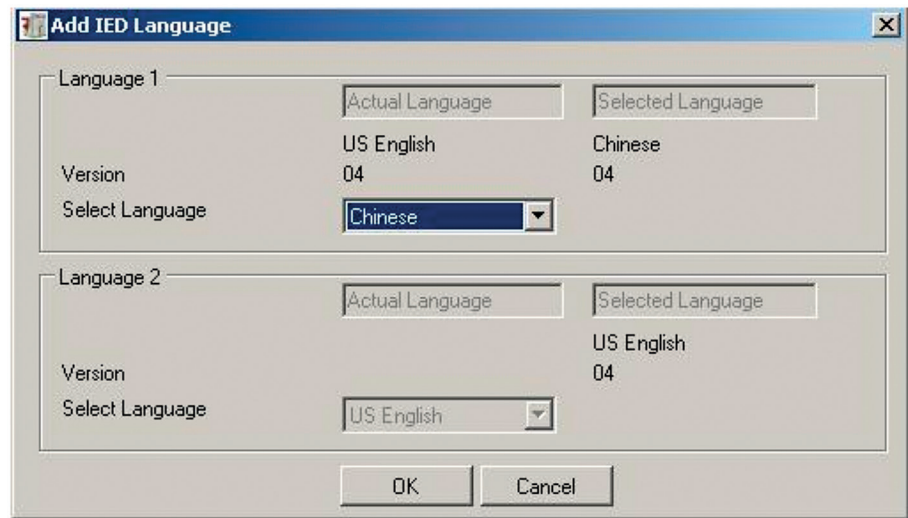


Figure 37: Add IED Language dialog box with Language 1 changed

2. Close the dialog box.
 - Click **OK** to save the changes and close the dialog box.
 - Click **Cancel** to close the dialog box without saving.

4.4 Editing user-defined names

The editor provided in the eVD4 - RBX615 Connectivity Package allows editing the names of the languages.

1. Right-click the eVD4 - RBX615 node under the **Bay** node, point to **RBX615 utilities** and select **User Defined Name Editor**.

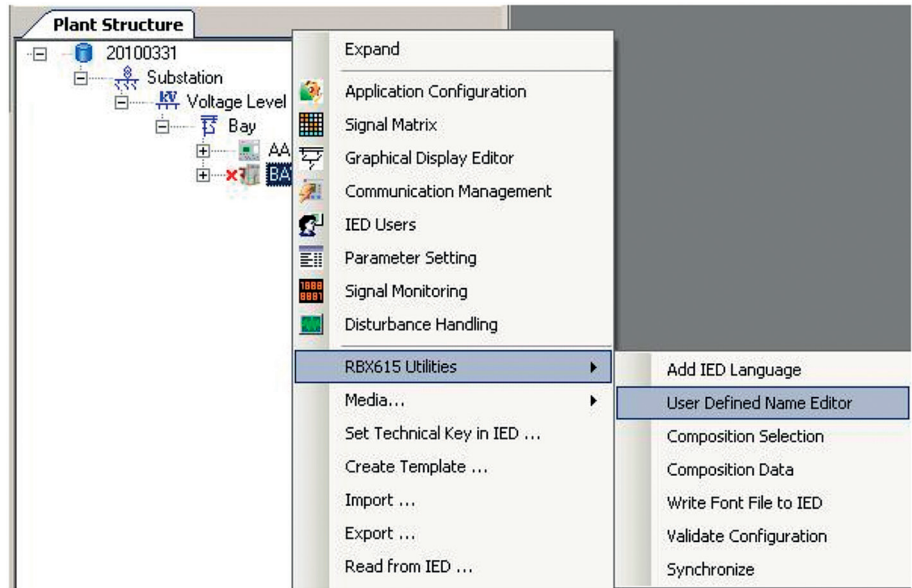


Figure 38: User Defined Name Editor

The **User Defined Name Editor** dialog box opens with the **Language 1** column included as a default. If no user-definable strings have been added in the configuration, such as function blocks in Application Configuration or symbols in Graphical Display Editor, the **User Defined Name Editor** dialog box displays empty rows.

The editor for user-defined names displays the strings in the **Language 1** column. The **Owner** column displays the tool and the component to which the name belongs. The **Reference** column displays where the component is in the tool. The **Language** column displays the current user-defined name for the component.

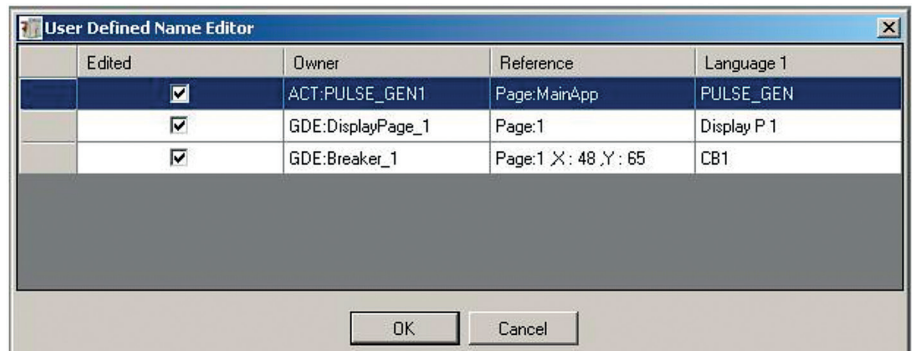


Figure 39: User Defined Name Editor dialog box

2. Double-click a row to change its name. **User Defined Name Input Dialog** appears with an option to edit the string.

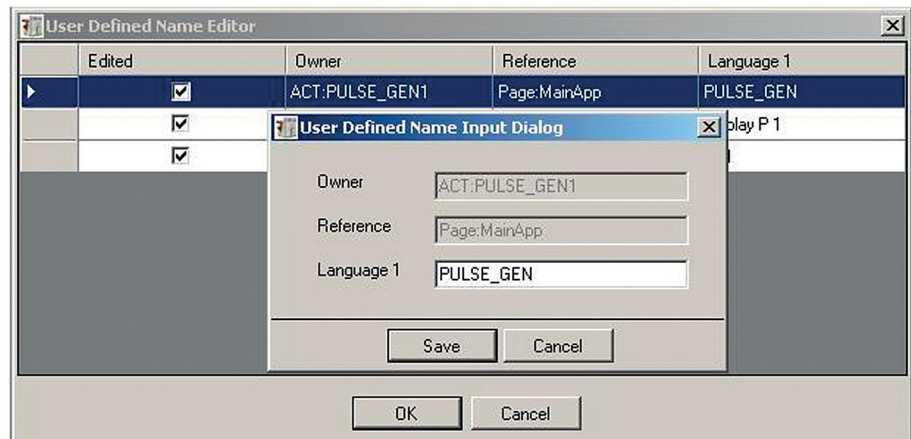


Figure 40: User Defined Name Input Dialog

3. Close the dialog.
 - Click **Save** to save the changes and close the dialog.
 - Click **Cancel** to close the dialog without saving the changes.

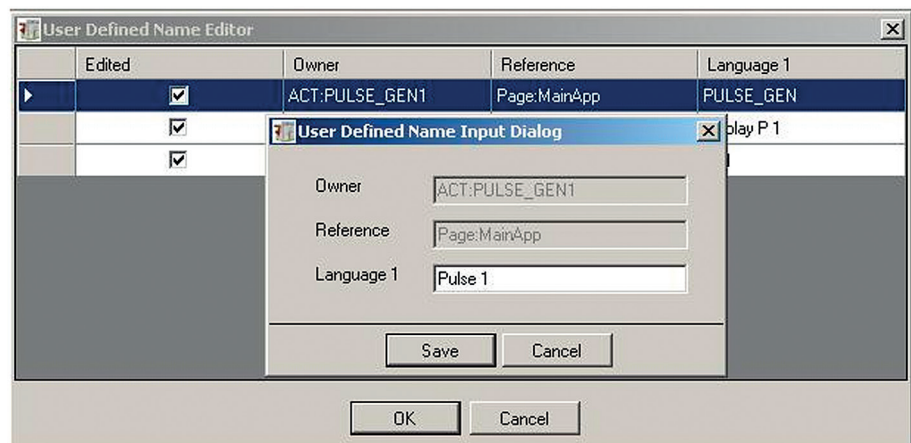


Figure 41: Editing strings in the dialog

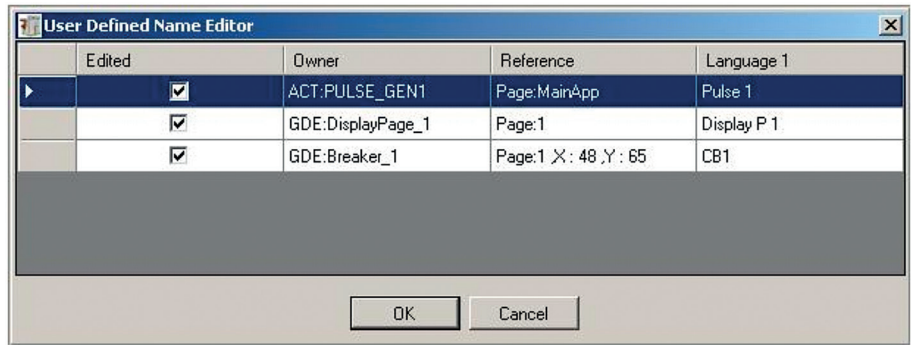


Figure 42: Updated string in the User Defined Name Editor

4. Close the **User Defined Name Editor** dialog box.
 - Click **OK** to save the changes and close the dialog box.
 - Click **Cancel** to close the dialog box without saving the changes.

If two languages have been selected in the **Add IED Languages** dialog box, another column, **Language 2**, is displayed.

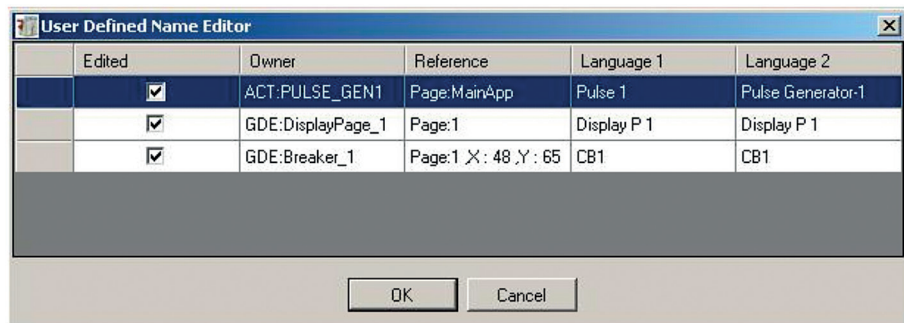


Figure 43: User Defined Name Editor with Language 2

In the **User Defined Name Input Dialog** box, **Language 1** and **Language 2** strings can be edited.

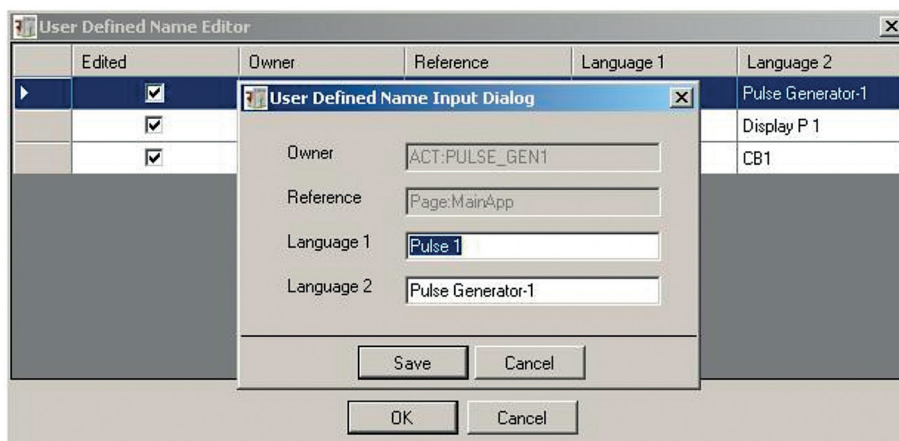


Figure 44: User Defined Name Input Dialog with two languages

4.5 Selecting the media

eVD4 - RBX615 Connectivity Package supports reading and writing the configuration made for the IED to hard disk. When this is done in the local mode, the configuration can be written to or read from the hard disk via Common Read/Write.

1. Right-click the eVD4 - RBX615 object under the **Bay** node, point to **Media** and select **Local Folder** to select the local mode.

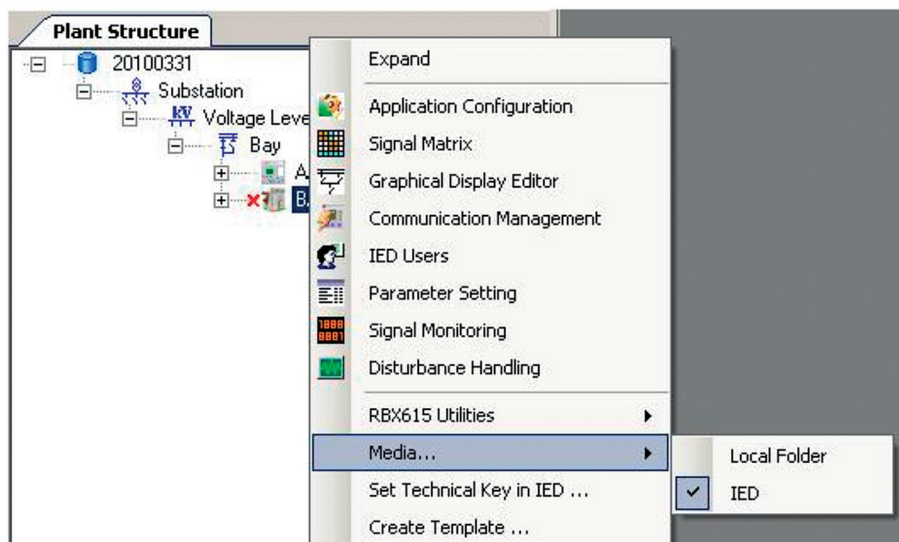


Figure 45: Default media selection

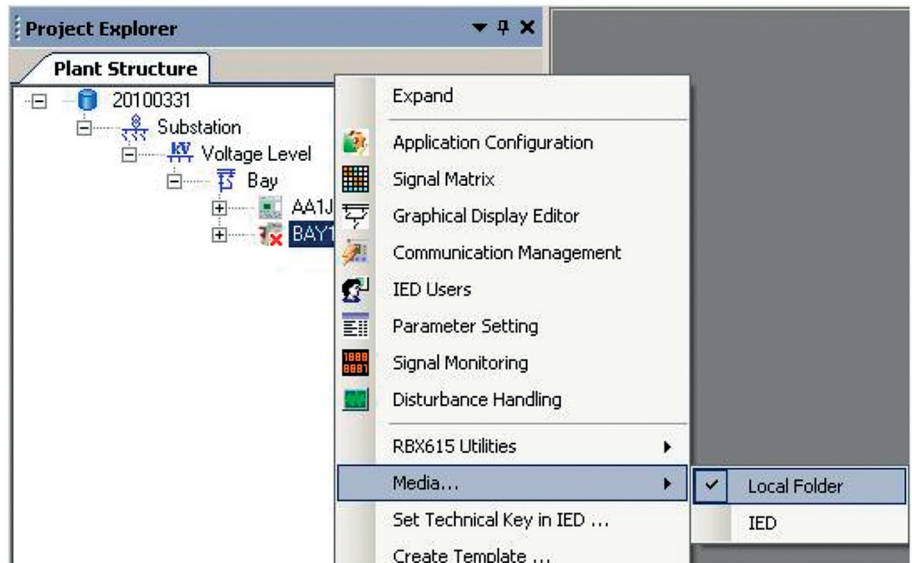


Figure 46: Selecting Local Folder

2. Right-click the eVD4 - RBX615 object under the **Bay** node and select **Write to IED** to write the configuration to the hard disk.

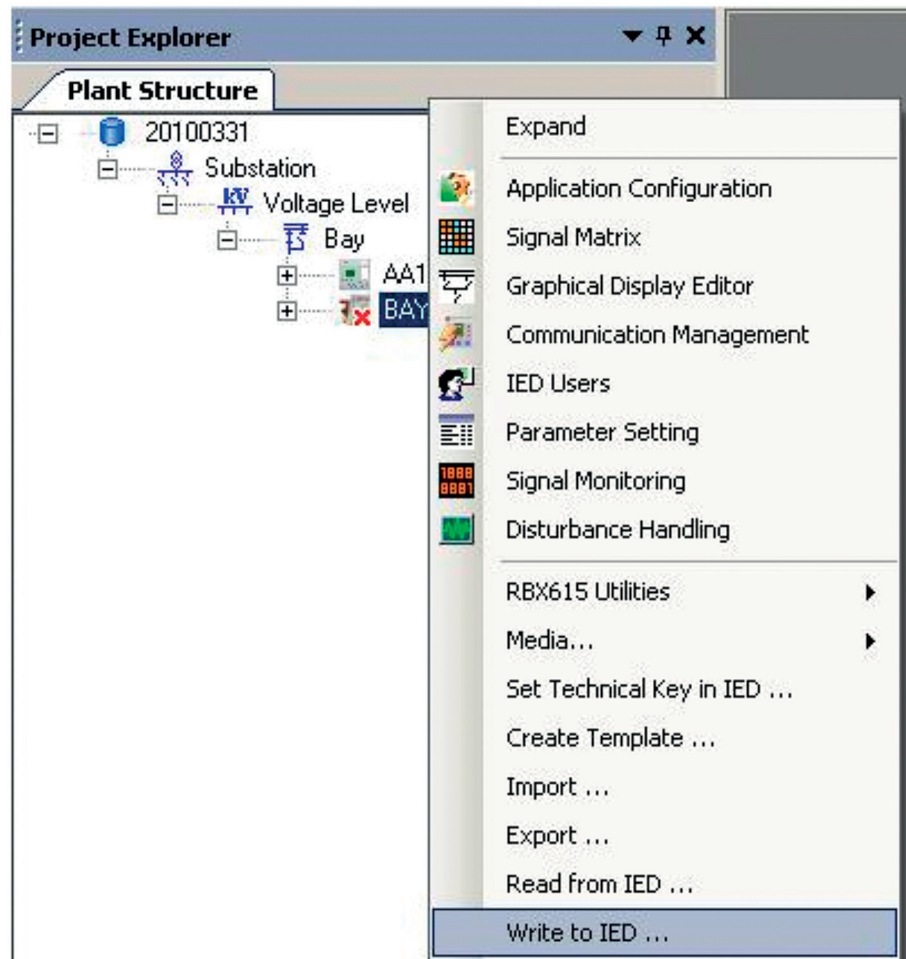


Figure 47: Write to IED

The writing starts, and the progress is displayed below the toolbar on the top of the window.

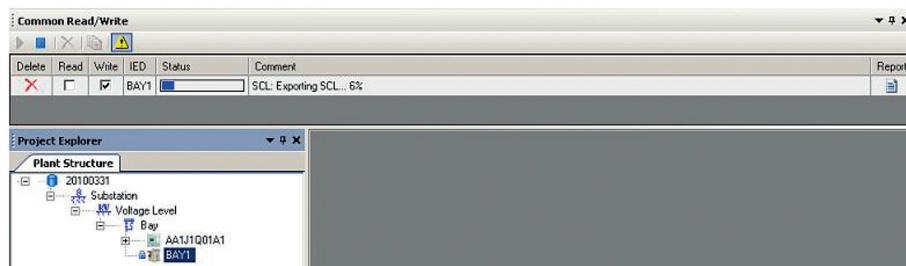


Figure 48: Writing progress

The **Save As** dialog box appears.

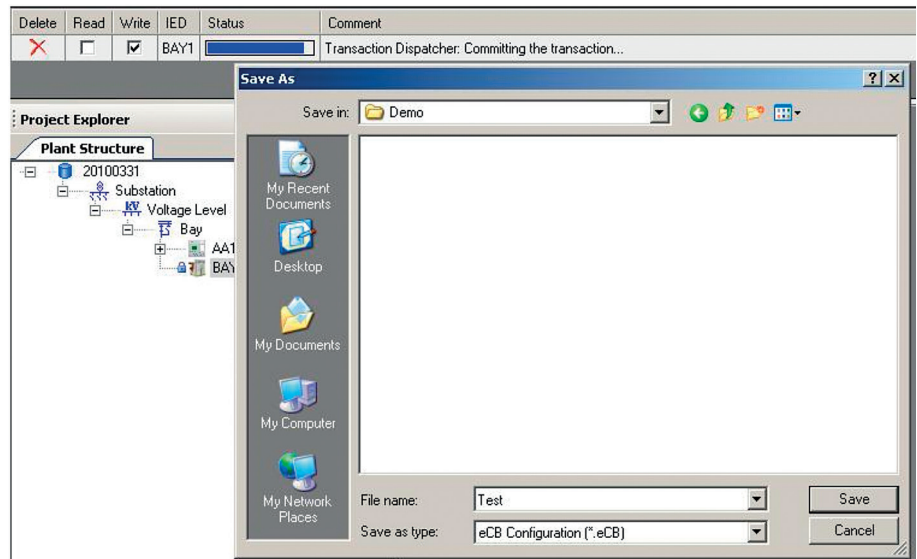


Figure 49: The Save As dialog box for saving the configuration to local disk

3. Save the configuration.
 - Select the location from the **Save in** drop-down list and click **Save**.
 - Click **Cancel** to cancel the operation without saving.

The file archive is saved to the selected location.

4. Right-click the eVD4 - RBX615 object under the **Bay** node and select **Read from IED** when the media is set to **Local**.

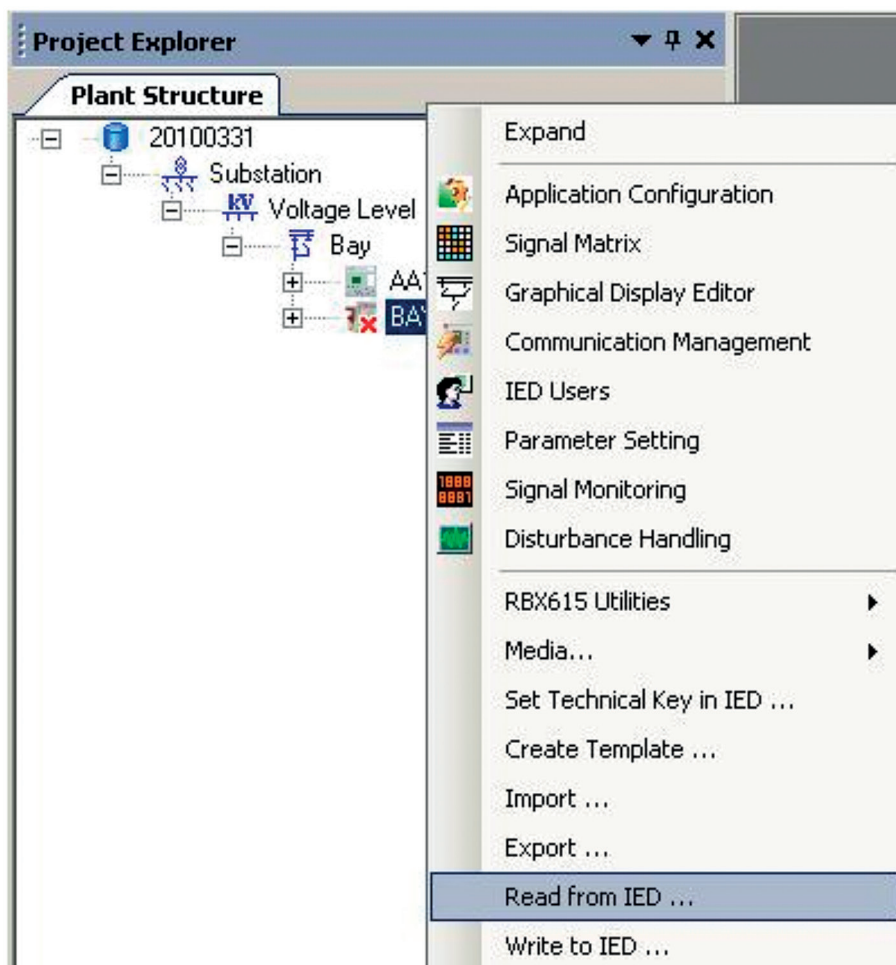


Figure 50: Read from IED

The **O**pen dialog box appears.

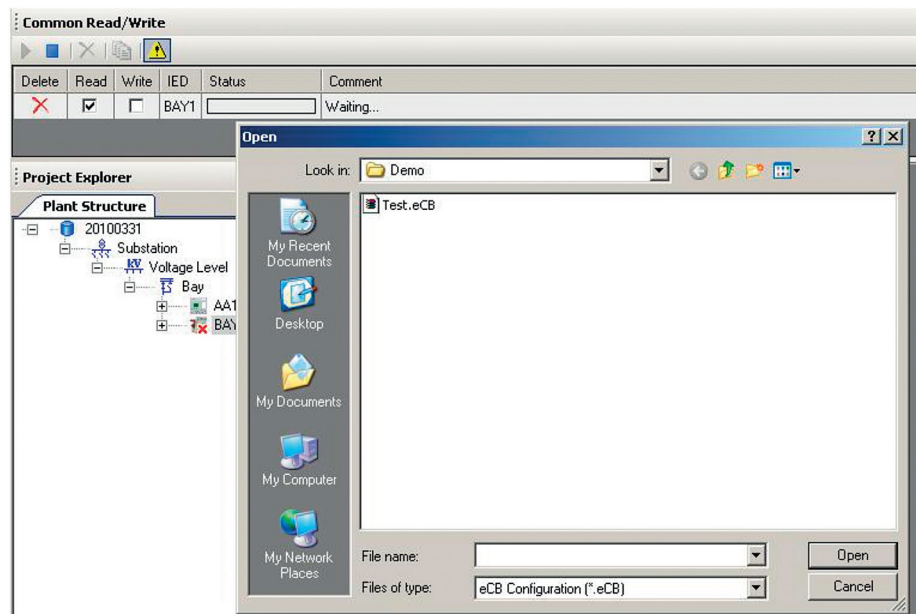


Figure 51: Opening a locally stored configuration

5. Select the file containing the configuration information and click **Open**. The configuration is read from the file, and the progress is displayed below the toolbar on the top of the window.

4.6 Validating configurations

eVD4 - RBX615 Connectivity Package provides a capability to check the configuration made in Application Configuration, Signal Matrix or Parameter Setting. Different checks can be done based on the selected composition code.

- Mandatory functions' installation
 - Mandatory connections' presence in the configuration
 - Mandatory function blocks associated with a function block presence
 - Tree structure synchronization with the function blocks in Application Configuration
 - Parameter range-related validation
1. Right-click the eVD4 - RBX615 object under the **Bay** node and select **Validate Configuration**.

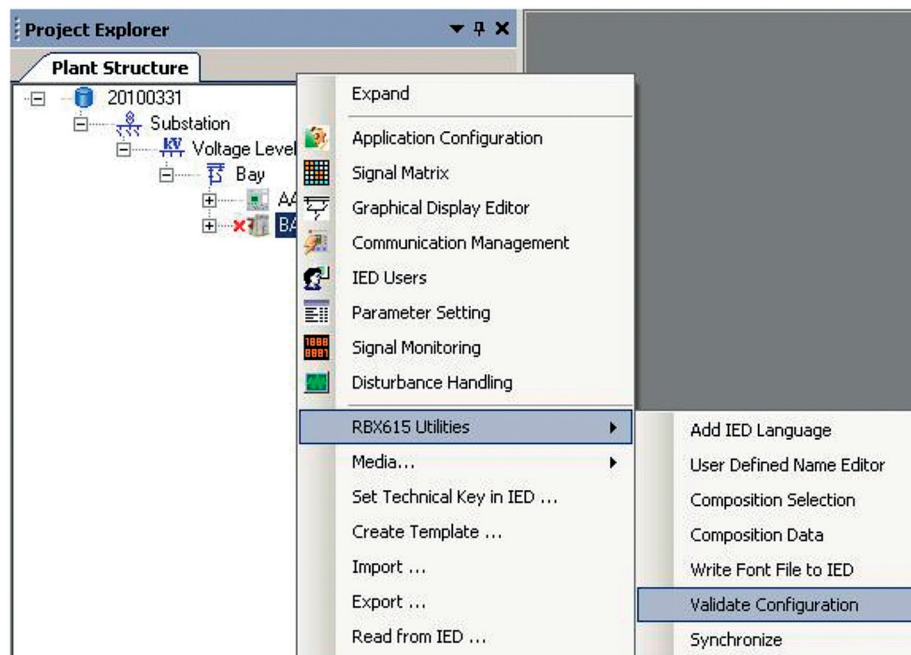


Figure 52: Validate Configuration

If the configuration is valid, the **Configuration Check Passed** notification is displayed under **Output**.

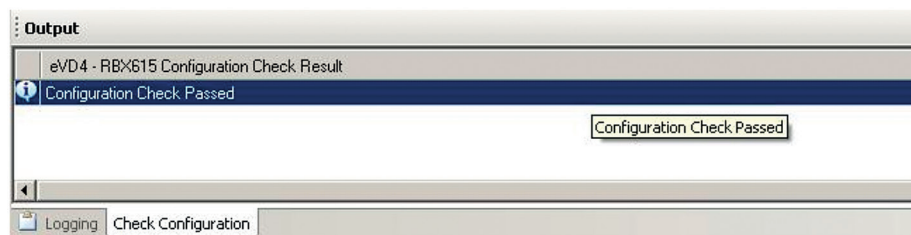


Figure 53: Notification for valid configuration

If the configuration is invalid, the reason for this is displayed under **Output**.

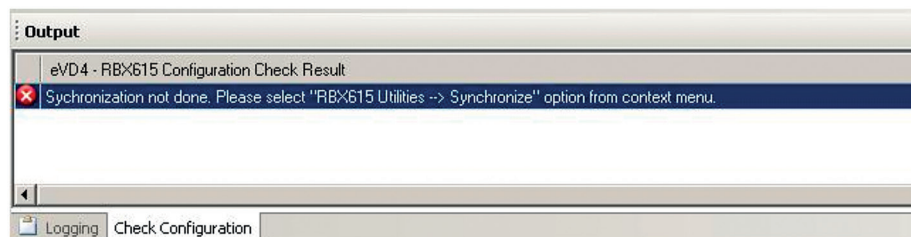


Figure 54: Notification for invalid configuration

The same validation is performed when the **Write to IED** operation is performed.

4.7 Updating the plant structure

With eVD4 - RBX615 ConnPack, the tree structure can be updated based on the configuration made in Application Configuration. The function adds or removes objects in the tree structure based on whether the function is in Application Configuration or not.

- Right-click the eVD4 - RBX615 object under the **Bay** node, point to **RBX615 Utilities** and select **Update plant structure**.

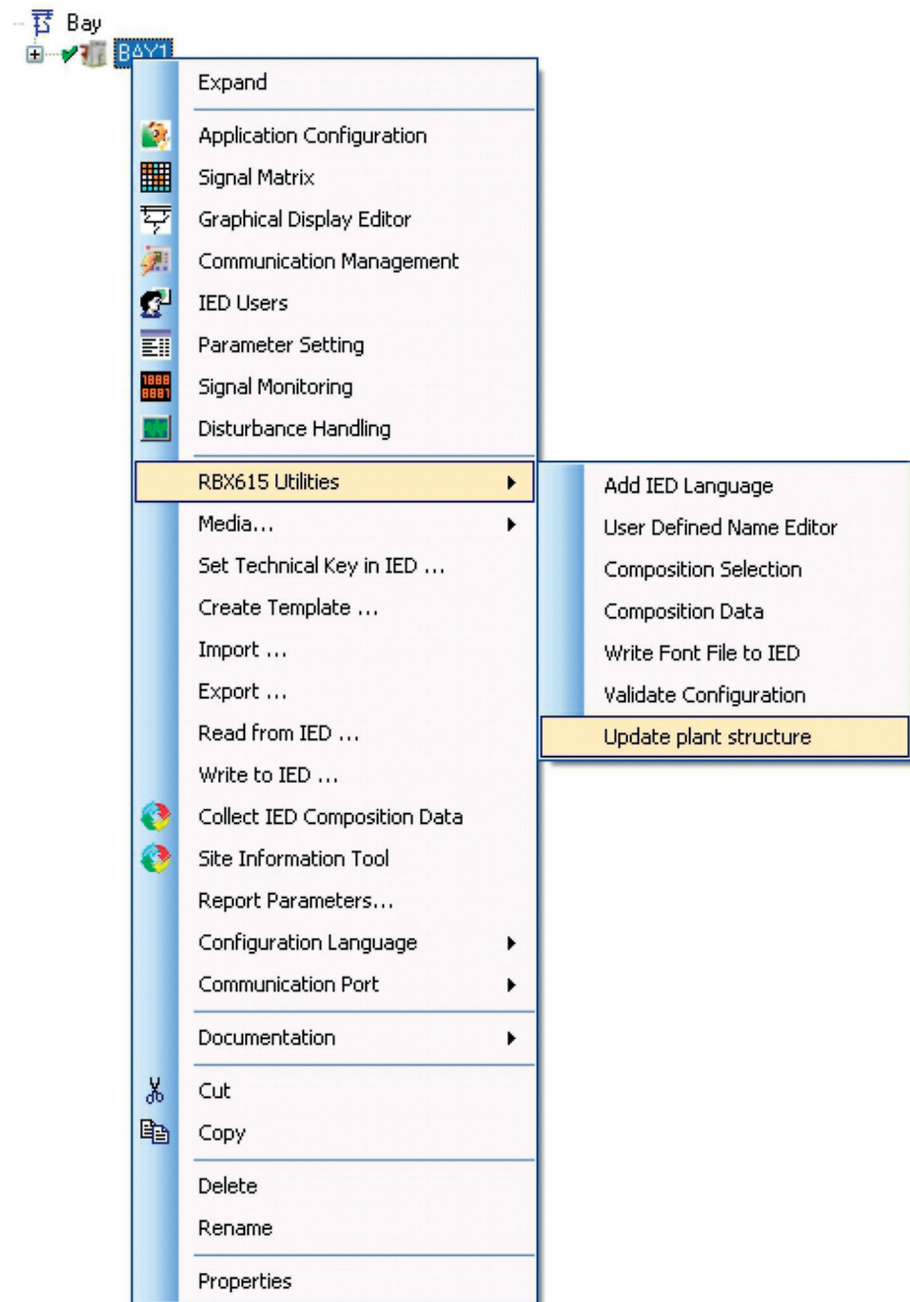


Figure 55: Update plant structure

The tree structure is updated based on the configuration of the selected object in Application Configuration. A dialog box appears to show the status of the operation.



Figure 56: Update plant structure successful

4.8 Managing composition data

The information about the current version can be retrieved and changed for all the IED components. This information, that is, the composition data, is in a file downloaded from or uploaded to the IED by eVD4 - RBX615.

1. Right-click the eVD4 - RBX615 object under the **Bay** node, point to **RBX615 Utilities** and select **Composition Data**.

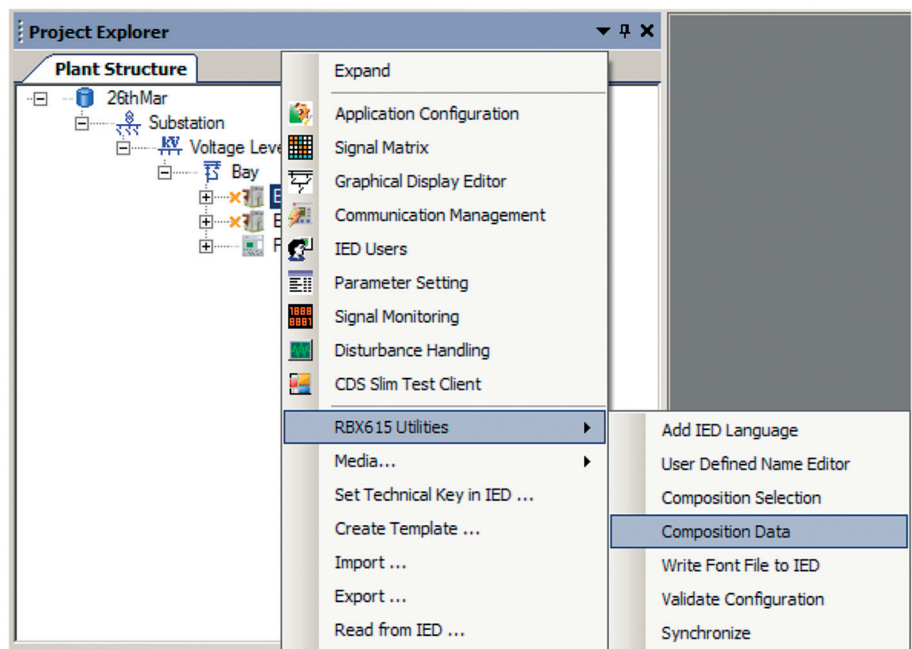


Figure 57: Composition Data

The **Composition Data** dialog box appears. The dialog is empty as no data is loaded. Also **Export to Local Disk** and **Write to IED** are unavailable.

2. Click **Import from Local Disk**.
The **Open** dialog box appears.

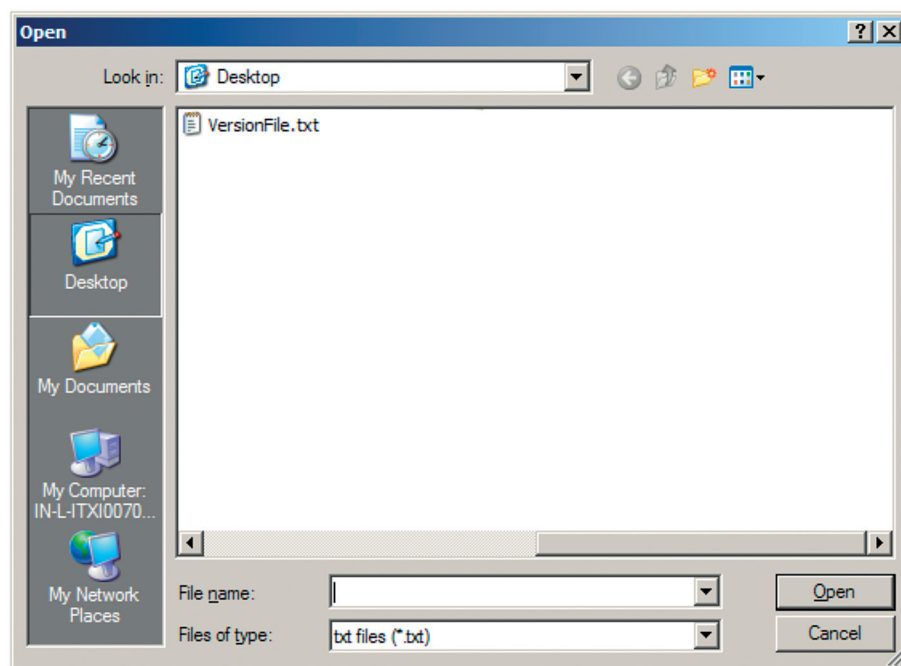


Figure 58: Opening a locally saved version file

3. Select VersionFile.txt and click **Open**.
Data from the file is loaded and displayed as a tree structure in the grid view.
The subnodes can be expanded and collapsed.

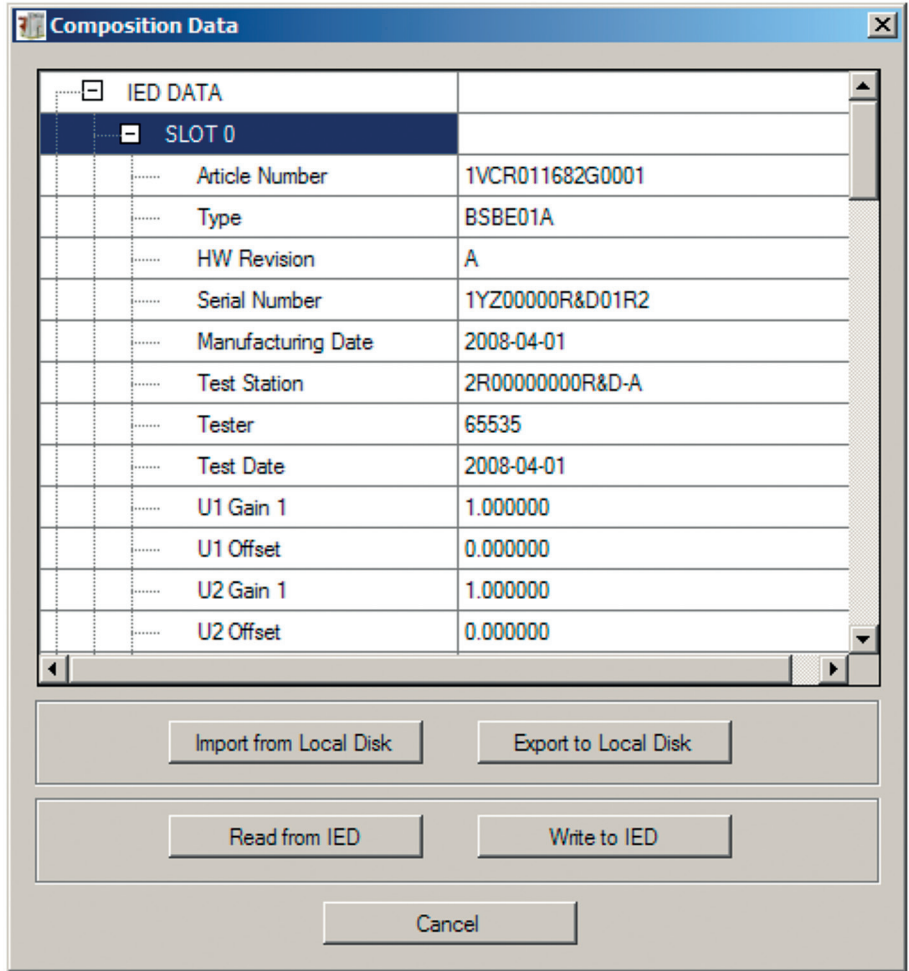


Figure 59: Data from VersionFile.txt

- 4. **Export to Local Disk** and **Write to IED** become available. Click **Write to IED**. A dialog box appears to prompt for a confirmation for writing VersionFile.txt to the IED.

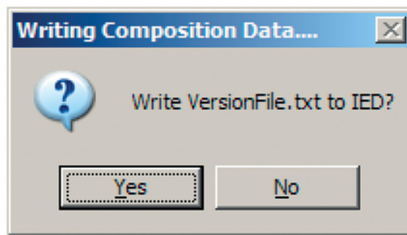


Figure 60: Confirmation dialog box for writing

- 5. Click **Yes** to write the data to the IED. A progress bar appears.

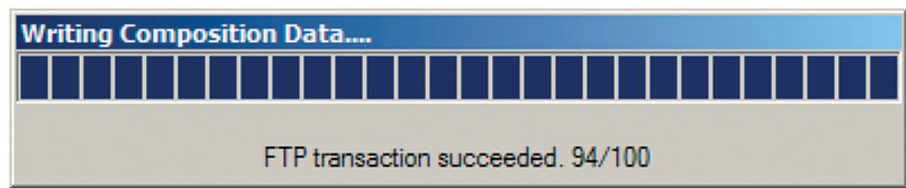


Figure 61: Progress of the writing operation

When the operation is completed, a dialog box appears to notify the status of the writing operation.

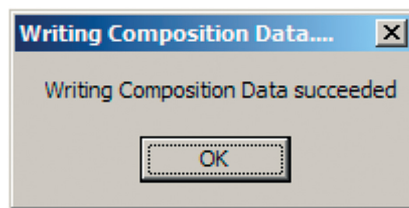


Figure 62: Writing composition data successful

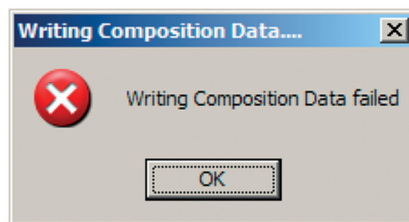


Figure 63: Writing composition data failed

6. Click **Read from IED** to read the composition data from the IED. A dialog box appears to prompt for a confirmation for reading VersionFile.txt from the IED.

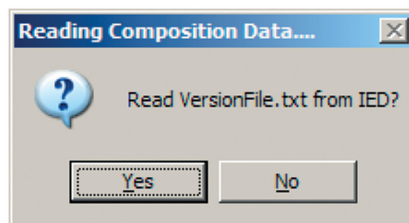


Figure 64: Confirmation dialog box for reading

7. Click **Yes** to read the composition data from the IED. A progress bar appears.

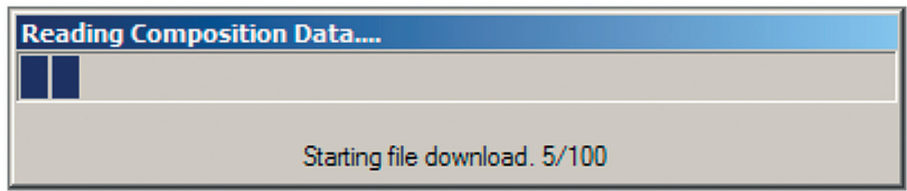


Figure 65: Progress of the reading operation

Once the reading is completed successfully, the data appears in the dialog box.

8. Click **Export to Local Disk** to save the file to the local disk. The **Save As** dialog box appears.

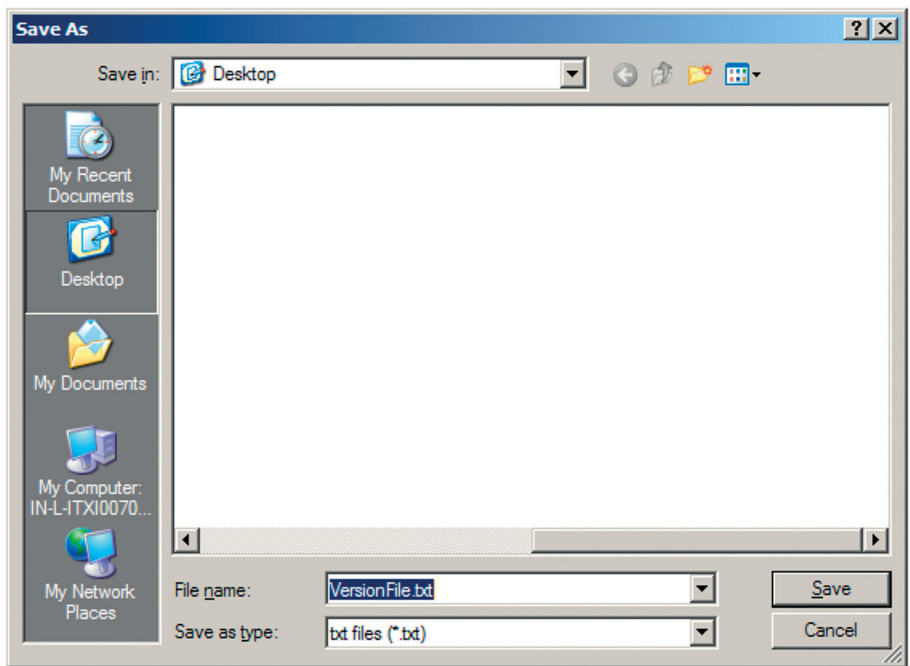


Figure 66: Saving the version file locally

9. Click **Save**. The file is saved locally, and a dialog box appears to notify about the status of the saving.

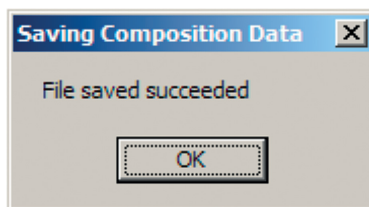


Figure 67: Saving file successful

10. Click **Cancel** to close the **Composition Data** dialog box.

4.9 Selecting the composition

eVD4 - RBX615 allows modifying the composition settings and consequently the code.

1. Right-click the eVD4 - RBX615 object under the **Bay** node, point to **RBX615 Utilities** and select **Composition Selection**.

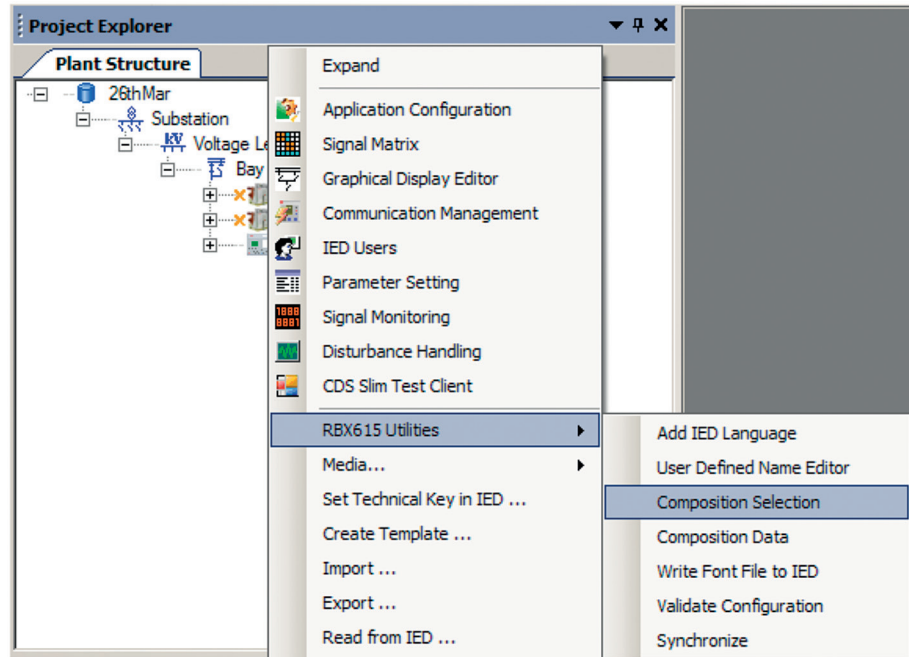


Figure 68: Composition Selection

A dialog box appears to prompt for taking a backup of the current IED.

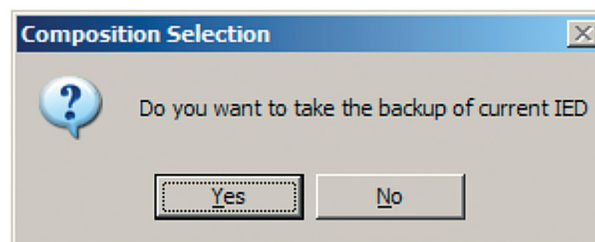


Figure 69: Confirmation dialog for taking a backup

2. Click **Yes**.
The dialog box for saving appears.

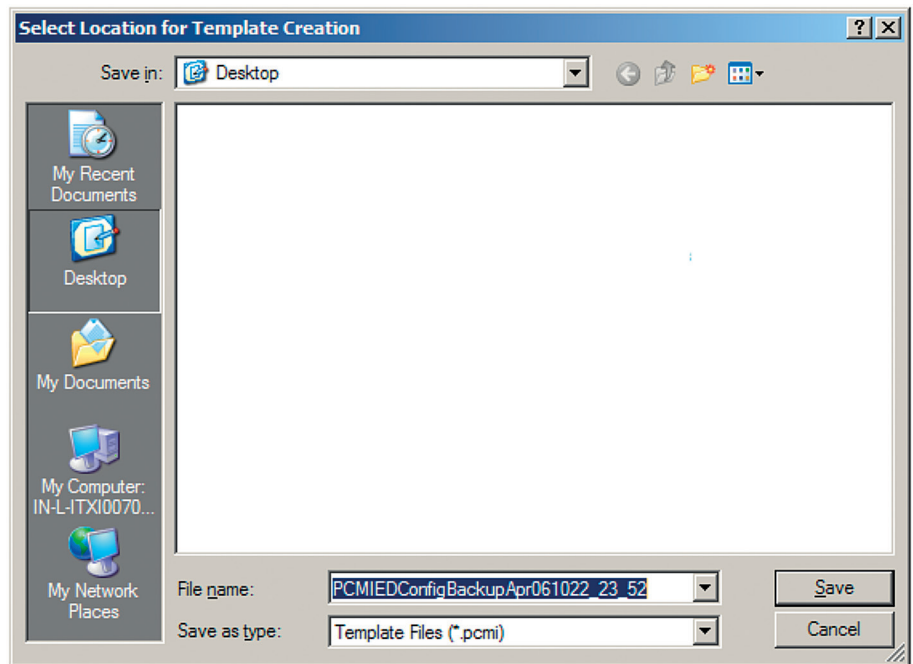


Figure 70: Saving the IED backup as a PCMI file

3. Click **Save** to save the PCMI file locally.
The **Composition Selection Page** dialog box for different composition code options appears.

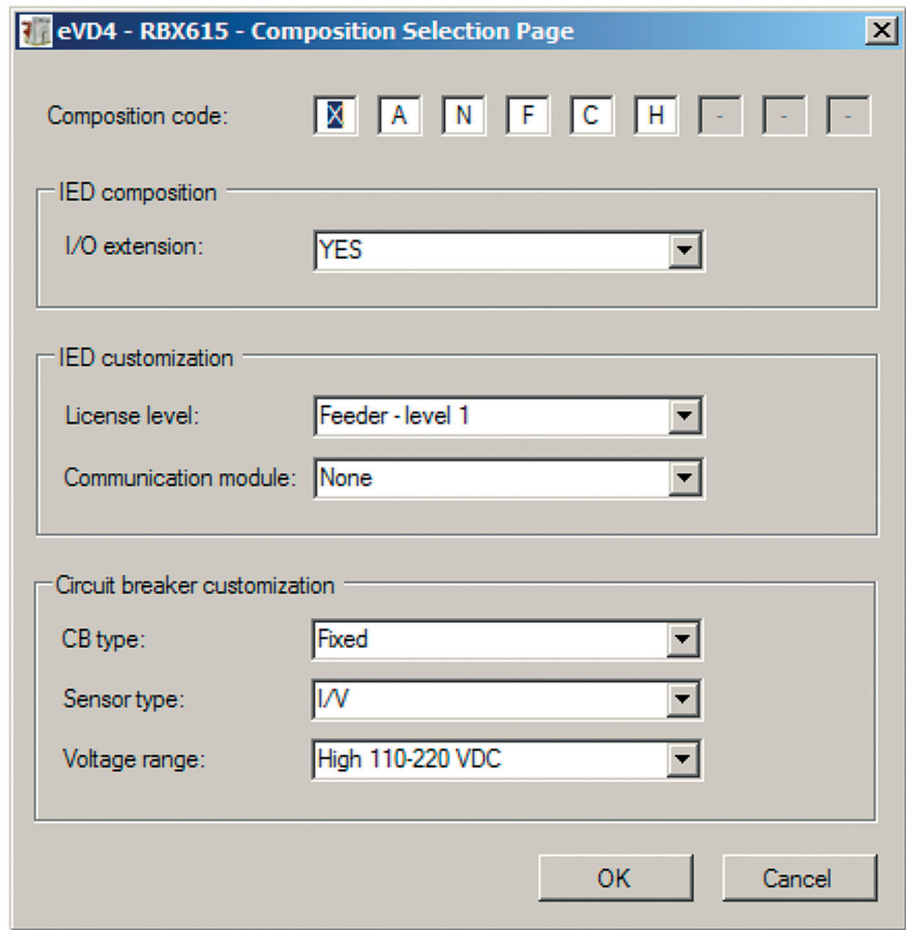


Figure 71: Composition Selection Page

4. Select the appropriate options and click **OK** to reload the functions. Once the functions are reloaded, a dialog box appears to give the actual status of the operation.

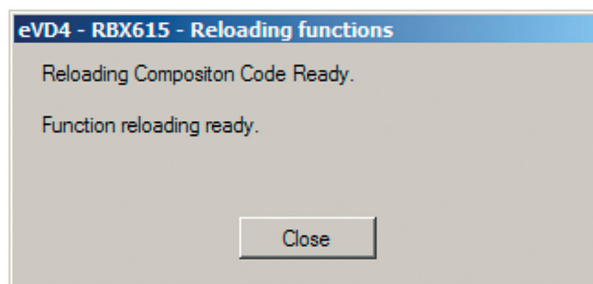


Figure 72: Function reloading successful

5. Click **Close** to close the dialog box. If there are no functions initialized in Application Configuration that are unavailable for a new composition code, a dialog box appears, stating that there has been no impact on the existing configuration.

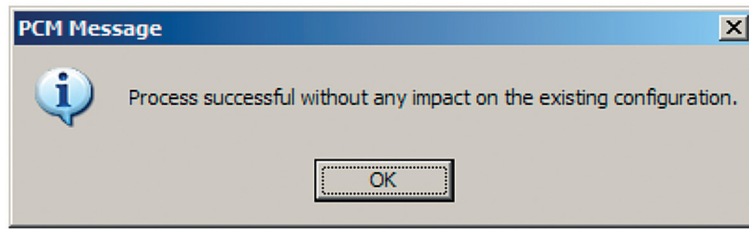


Figure 73: No impact on the existing configuration

If there are functions initialized in Application Configuration that are unavailable for a new composition code, the **License change Details** dialog box appears, showing the list of such functions.

6. Click **Show Migration Report** to view the **Licensing change Report** dialog box.

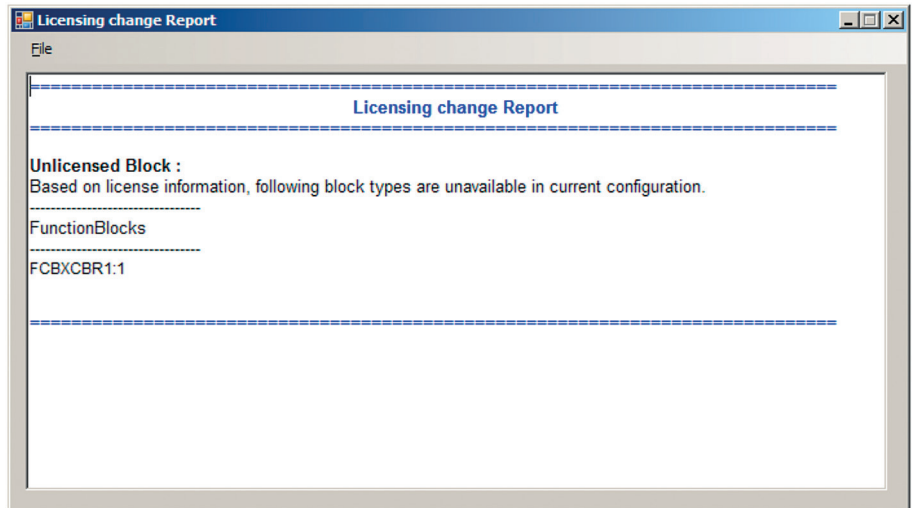


Figure 74: Licensing change report

7. Close the change report dialog box.
8. Click **OK** in the **License change Details** dialog box. Application Control appears, and the identified function block is displayed in blue.

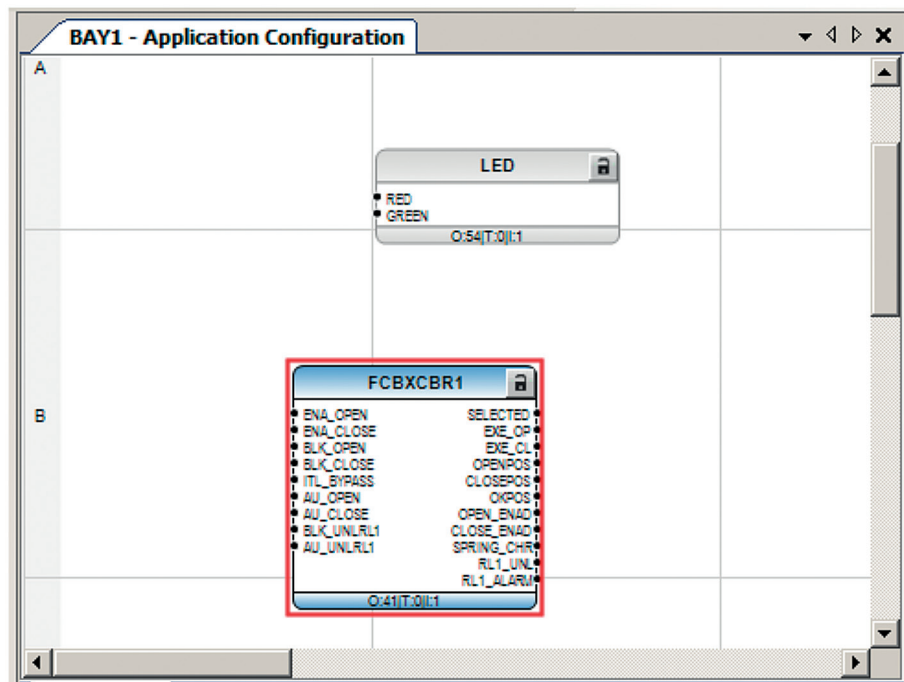


Figure 75: Function block unavailable for a new composition code

9. Save and close Application Configuration.

4.10

Writing font files to the IED

eVD4 - RBX615 Connectivity Package supports the writing of font files to the IED.

1. Right-click the eVD4 - RBX615 object under the **Bay** node, point to **RBX615 Utilities** and select **Write Font File to IED**.

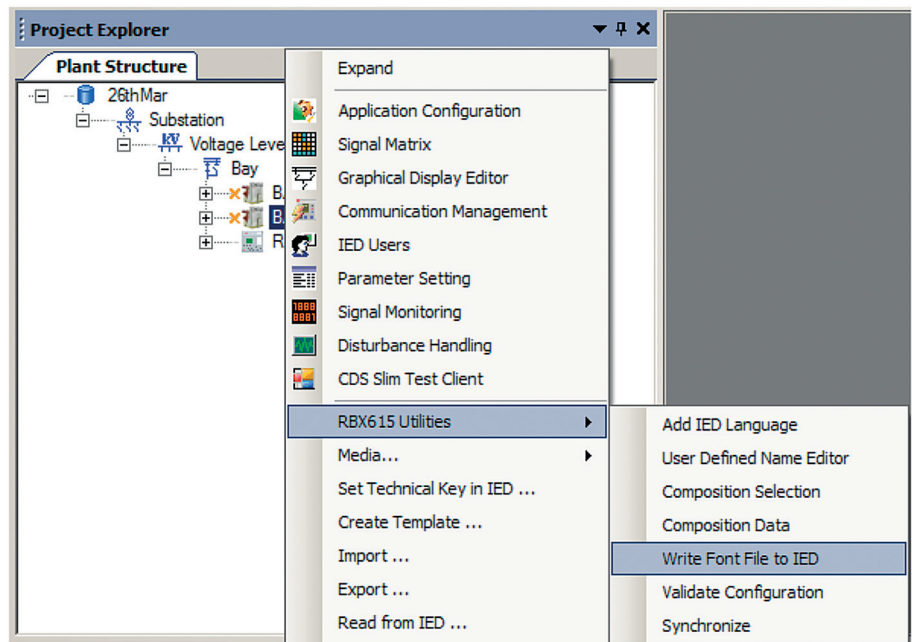


Figure 76: Write Font File to IED

The **Open** dialog box appears.

2. Select the file and click **Open** to start the writing operation.

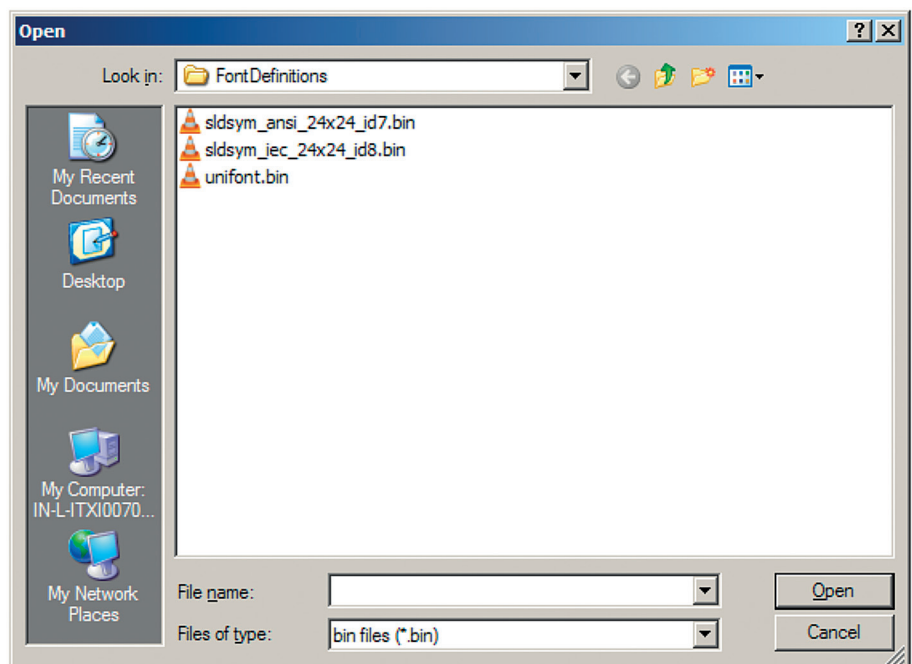


Figure 77: Open a locally saved font file

The progress bar of the operation is displayed in the appearing dialog box.

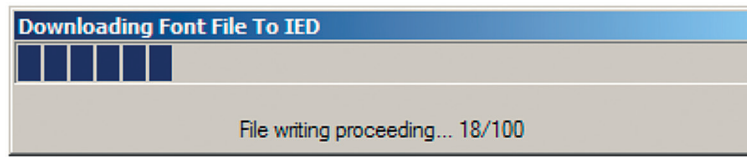


Figure 78: Progress of the font file download

When the writing is finished, a dialog box appears to show the status.

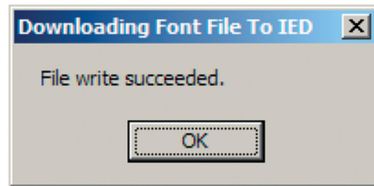


Figure 79: Font file download operation successful

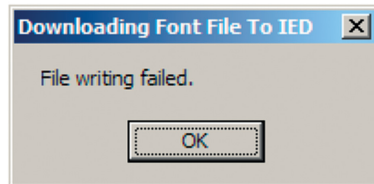


Figure 80: Font file download operation failed

Section 5 Glossary

ACT	Application Configuration tool in PCM600; Trip status
ConnPack	Connectivity Package
CRW	Configuration read/write
DU	Docking unit
eCB	Electronic circuit breaker
GDE	Graphical Display Editor in PCM600
HMI	Human-machine interface
IEC 61850	International standard for substation communication and modeling
IED	Intelligent electronic device
IP	Internet protocol
LHMI	Local human-machine interface
MB	Megabyte
PCM600	Protection and Control IED Manager
PCMI	PCM IED
PST	Parameter Setting tool in PCM600
RAM	Random access memory
SMT	Signal Matrix tool in PCM600

Contact us

ABB S.p.A.

Power Products Division

Unità Operativa Sace-MV

Via Friuli, 4

I-24044 Dalmine, Italy

Phone +39 035 6952 111

Fax +39 035 6952 874

E-Mail sacetms.tipm@it.abb.com

www.abb.com

ABB Oy

Distribution Automation

P.O. Box 699

FI-65101 VAASA, Finland

Phone +358 10 22 11

Fax +358 10 22 41094

www.abb.com/substationautomation