Honeywell

Experion PKS

Parameter Definition Editor Reference

Release 431

Honeywell

Document	Release	Issue	Date
EPDOC-XX83-en-431A	431	0	February 2015

Disclaimer

Contents

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1 About this guide

This document describes the functional and operational aspects of the Parameter Definition Editor. The document provides information about creating and editing the parameters and Configuration Forms for Fieldbus block types, Custom Data Block types, Custom Algorithm Block types, and Phase Block types.

Revision history

Revision	Date	Description
A	February 2015	Initial release of document

2 Introduction to Parameter Definition Editor

The Parameter Definition Editor (PDE) is a user interface to create and edit the block types using a grid interface that is similar to the Microsoft Excel grid. The PDE grid is configurable and can be customized specific to the block type being edited. The PDE provides user interfaces to edit the parameters attributes, symbol attributes, and form layout. These items are grouped into sections and shown in the PDE as separate grids.

The PDE provides the following functionality:

- Validating data type and range
- Combo boxes to pick enumeration
- Advanced grid to edit the bit string values
- Advanced grid to edit arrayed parameters
- Automatic form layout generation
- Basic business rules to be applied in editing block types
- Manage views

There are cases in which all of the parameter attributes need not be shown in the parameter grid. To switch the parameter attributes on and off in the grid, the PDE provides a Manage View feature. The view is a set of parameter attributes that are selected for showing in the parameter grid. Views can be defined specific to the user or specific to the block type. In the case of views specific to the block type (Custom Algorithm, Custom Data Block), the view information will be carried along with the block type definition. In the case of views specific to the user (Fieldbus block types), the views will be available only to the user who has defined the view and only on the system where the views were created.

The PDE is launched within Control Builder as an MDI child window to edit Foundation Fieldbus (FF) block types and CDB types. The PDE is also launched within the Visual Studio .NET IDE to edit the CAB types. Both Control Builder and Visual Studio .NET will configure the PDE environment based on their requirement of editing block types. For example, the PDE will show the following:

- Standard and Honeywell parameters for FF types
- Fixed, Custom, and Parameter References parameters for CAB types
- Custom parameters for CDB types
- Formula and Report parameters for Phase Block types (PBT)

See the *Custom Algorithm Block User's Guide* for more information on CAB/CDB usage.

3 Reviewing Container Types in PDE

There are three different container types supported by the PDE within Control Builder: They are:

- Foundation Fieldbus (FF)
- Custom Algorithm Block (CAB)
- Custom Data Block (CDB)
- Phase Block Type (PBT)

Related topics

3.1 Fieldbus

The Fieldbus container of the PDE provides options to

•   edit the Standard and Honeywell parameter attributes,

•   define form layout, and

•   list all the Fieldbus Methods that are available in the block type.

See "Reviewing Fieldbus Block Types" for more details.

3.2 Custom Algorithm Block

The Custom Algorithm Block (CAB) container of the PDE provides options to

- edit the Fixed, Value CDPs (Custom Data Parameters), and Parameter References parameter attributes,
- define form layout, and
- define symbol attributes of the CAB block type.

See "Reviewing Custom Algorithm Blocks" for more details.

3.3 Custom Data Block

The Custom Data Block (CDB) container of the PDE provides options to

- create/edit the Value CDPs (Custom Data Parameters) attributes,
- define form layout, and
- define symbol attributes of the block type.

See "Reviewing Custom Data Blocks" for more details.

3.4 Phase Block

The Phase Block container of the PDE provides options to

- create/edit the Formula Parameters attributes, and
- create/edit the Report Parameters attributes.

See "Reviewing Phase Blocks" for more details.

4 Reviewing Fieldbus Block Types

The Fieldbus container of the PDE provides options to

- edit the Standard and Honeywell parameter attributes,
- define Form Layout, and
- list all the Fieldbus Methods that are available in the block type.

When a new block type is edited or created, a new MDI child window containing the PDE user interface is created within Control Builder.

Following are the considerations for reviewing Fieldbus block types:

- The *Parameter* tab of the PDE container is configured to edit only the Standard and Honeywell parameter attributes.
- When a new Fieldbus block type is edited or created, a new MDI child window is created within Control Builder.
- The PDE shows the following tabs to edit the Fieldbus block type definition:
  - *Standard* parameters tab
  - *Honeywell* tab
  - *Form Layout* tab
  - *Methods* tab

Use the following links under "Parameter Definition Editor Basics" to access the PDE general editing functions:

- "Inserting, deleting, or appending rows" on page 70
- "Using copy and paste functions" on page 71
- "Saving block definitions" on page 71
- "Reviewing general block type functions" on page 72

4.1 Standard Parameters tab

For details, see "Accessing the Standard Parameter tab":

4.2 Honeywell tab

For details, see "Accessing the Honeywell tab":

4.3 Parameters tab

For details, use the following links under "Accessing the Parameter tab":

- "About This Document"

4.4 Form Layout tab of Fieldbus Block Types

For details, see "Accessing the Form Layout tab":

- Also see " "Automatic form layout" on page 87" under "Parameter Definition Editor Basics."

4.5 Methods tab

For details, see "Accessing the Methods tab":

5 Reviewing Custom Data Blocks

The Custom Data Block container of the PDE provides options to

- create/edit the Value CDPs (Custom Data Parameters) attributes,
- define form layout, and
- define symbol attributes of the block type.

> **Attention**
> When a new block type is edited and/or created, a new MDI child window containing the PDE user interface is created within Control Builder.

Following are the considerations for reviewing custom data blocks:

- The PDE container is configured to edit only Fixed and Custom parameter attributes.
- The *Value CDPs* tab lets you create/delete/modify custom data parameters.
- The defined custom parameters are assigned a pin value in the *Symbol Attribute* tab.
- The PDE shows the following tabs to edit the CDB block type definition:

    - *Value CDPs* (Custom Data Parameters) tab
    - *Form Layout* tab
    - *Symbol Attribute* tab

Use the following links under "Parameter Definition Editor Basics" to access the PDE general editing functions:

- "Inserting, deleting, or appending rows" on page 70
- "Using copy and paste functions" on page 71
- "Saving block definitions" on page 71
- "Save As block definition" on page 71
- "Reviewing general block type functions" on page 72

5.1 Value CDPs tab

For details, use the following links under "Accessing the Value CDPs tab":

• "Reviewing min/max values of data types" on page 54

• "About This Document"

• "Reviewing and Editing parameter attributes" on page 55

5.2 Form Layout tab of Custom Data Block

For details, see "Accessing the Form Layout tab:"

- Also see " "Automatic form layout" on page 87" under "Parameter Definition Editor Basics."

5.3 Symbol Attribute tab of Custom Data Block

For details, use the following link under "Accessing the Symbol Attribute tab":

- "Configuring Pins" on page 59

6 Reviewing Custom Algorithm Blocks

The CAB container of the PDE provides options to

- edit the Fixed, Value CDPs (Custom Data Parameters), and Parameter References parameter attributes,
- define form layout, and
- define symbol attributes of the CAB block type.

> **Attention**
> The container for CAB is the Visual Studio .NET IDE editing environment. An instance of PDE will be created within the Visual Studio .NET IDE.

Following are the considerations for reviewing Custom Algorithm Blocks:

- CAB uses the Visual Studio .NET Integrated Development Environment (IDE).
- An instance of PDE will be created within the Visual Studio.NET IDE, and the following tabs are available to edit the block type definition:
  - *Fixed* parameters tab
  - *Value CDPs* (Custom Data Parameter) tab
  - *Parameter References* tab
  - *Form Layout* tab
  - *Symbol Attribute* tab
- Only the default values of *fixed* parameters can be edited in the Fixed parameters tab.
- The *Value CDPs* tab and Parameter References tab allows you to create, delete, or modify custom and *parameter reference* parameters.
- User-defined custom parameters can be assigned a pin value in the *Symbol Attribute* tab.
- The parameter will also be shown on the faceplate of the block.

Use the following links under "Parameter Definition Editor Basics" to access the PDE general editing functions:

- "Inserting, deleting, or appending rows" on page 70
- "Using copy and paste functions" on page 71
- "About This Document"
- "Save As block definition" on page 71
- "Reviewing general block type functions" on page 72

6.1 Fixed parameter tab

For details, see "Accessing the Fixed parameter tab":

6.2 Value CDPs tab

For details, use the following links under "Accessing the Value CDPs tab":

- "Reviewing min/max values of data types" on page 54
- "About This Document"
- "Reviewing and Editing parameter attributes" on page 55

6.3 Parameter References tab

For details, use the following links under "Accessing the Parameter References tab":

- "Parameter References tab attributes" on page 62
- "Reviewing attribute default values" on page 63
- "About This Document"

6.4 Form Layout tab

For details, use the following link under "Accessing the Form Layout tab:"

• Also see " "Automatic form layout" on page 87" under "Parameter Definition Editor Basics."

6.5 Symbol Attribute tab

For details, use the following link under "Accessing the Symbol Attribute tab":

- "Configuring Pins" on page 59

7 Reviewing Phase Blocks

The Phase function block is a type block for use only in a Recipe Control Module (RCM).

With R410, the Phase function block can also be used with a Map block, Unit class, and Unit instances. For more information about configuring the Phase blocks, refer to the *Sequential Control User's Guide*.

The Phase function block is used to initiate and monitor execution of the associated Equipment Module (SCM). The Phase function block can also be used to acquire the Equipment Module, such as SCM, for another Phase Block.

The Phase Block container of the PDE provides options to

- edit the Formula Parameter definitions, and
- edit the Report Parameter definitions.

An RCM contains Phases, Steps, Transitions and Synchronized blocks. A phase is based on Phase Block Type created with the PDE.

The input values for the Phase Block type are defined as Formula Parameters. The output values for the Phase Block type are defined as Report Parameters.

The Enabled flag defines if a parameter is used in a phase.

> **Attention**
>
> When a new block type is edited or created, a new MDI child window is created within Control Builder, containing the PDE user interface.

Following are the considerations for Reviewing Phase Blocks:

- Phase Block does not support custom algorithms.

> **Tip**
>
> Optionally, a Phase Block can be connected to an Equipment Module, such as an SCM, where the input values (Formula parameters) are used and output values (Report parameters) are generated.

- An instance of PDE will be created within Control Builder, and the following tabs are available to edit the block type definition:
- *Formula Parameters* tab (see " "Accessing the Formula Parameters tab" on page 64")

> **Attention**
>
> For more information about configuring the formula parameters, refer to the *Batch Implementation Guide*.

- *Report References* tab

Use the following links under "Parameter Definition Editor Basics" to access the PDE general editing functions:

- "Inserting, deleting, or appending rows" on page 70
- "Using copy and paste functions" on page 71
- "About This Document"
- "Save As block definition" on page 71
- "Reviewing general block type functions" on page 72

8 Reviewing Tab Types

With R400, Experion PKS is a registered host with Foundation Fieldbus organization (). This registration process enables the users of Experion to benefit from the additional features that are added as part of the registration.

For more information about additional features, see *Series A Fieldbus Interface Module User's Guide* or *Series C Fieldbus Interface Module User's Guide.*

The following table lists the block types supported by the PDE. Each block type configuration form has multiple tabs to properly configure the block. The tabs associated with each block type are also listed in the table.

Tab Name on PDE	Fieldbus	Wireless	CDB	CAB	Phase Block
Standard	No	Yes	-	-	-
Honeywell	No	Yes	-	-	-
Parameters	Yes	No	No	-	-
Methods	Yes	Yes	-	-	-
Form Layout	Yes	Yes	Yes	Yes	-
Fixed	-		-	Yes	-
Value CDPs	-		Yes	Yes	-
Symbol Attribute	-		Yes	Yes	-
Parameter References	-		-	Yes	-
Formula Parameters	-		-	-	Yes
Report Parameters	-		-	-	Yes
DD View	Yes (Optional)	No	No	No	No

Note: Prior to R400, the tabs associated with the block type was Standard tab and Honeywell tab. However, with R400, all the vendor-specific and standard-specific parameters appear in the Parameters tab. The DD View tab appears only if the DD files contain the latest EDDL constructs.
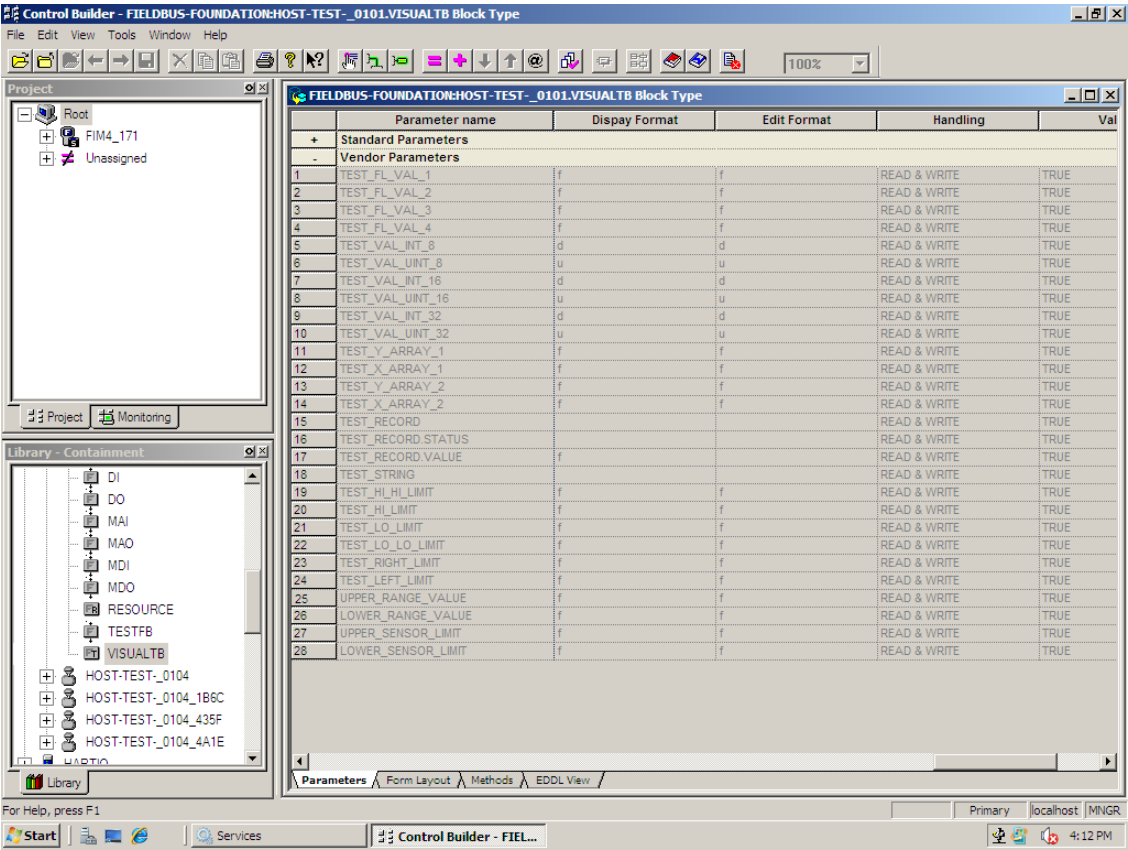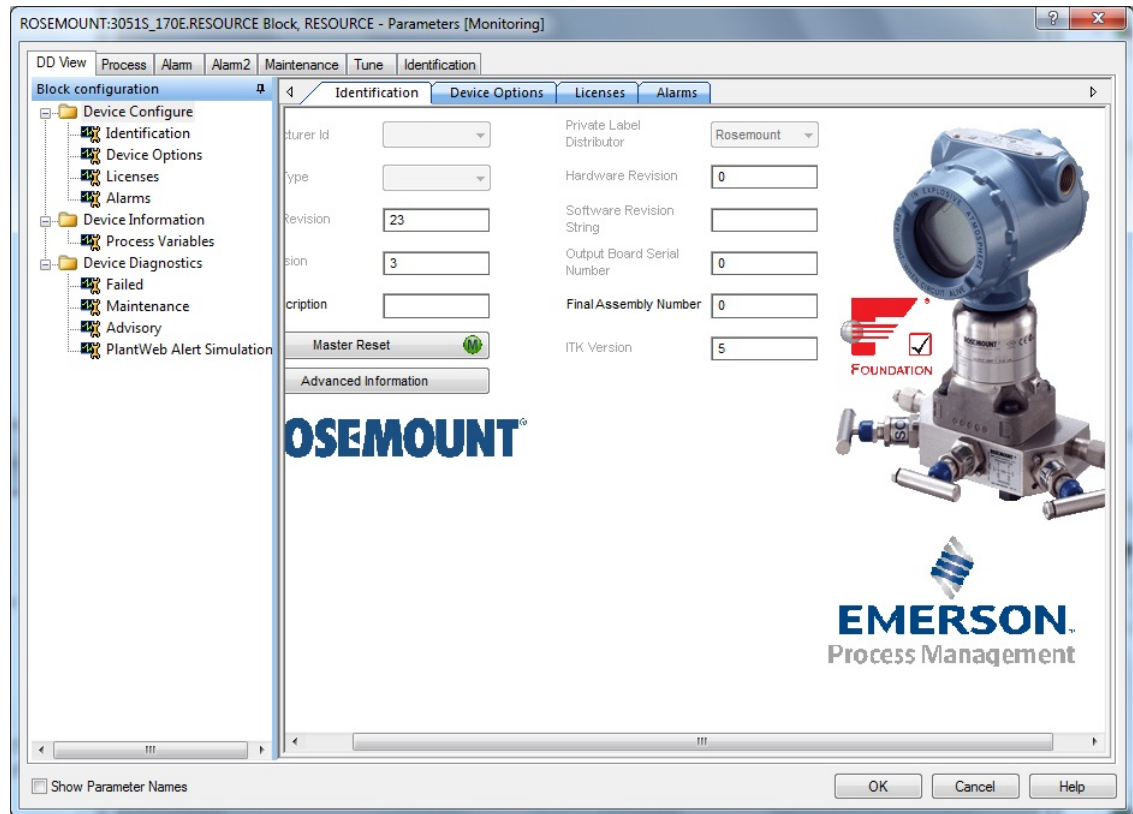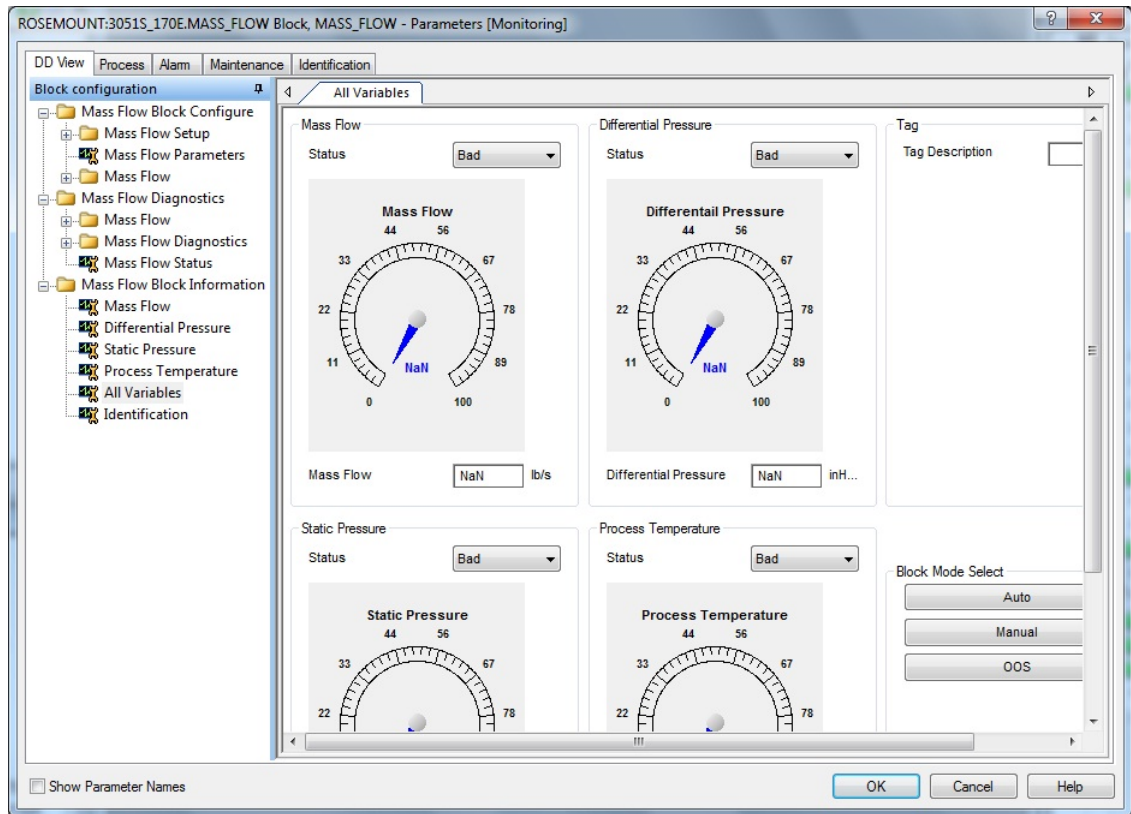
The following table lists the location of information about the different tab types.

For information about the…	Go to…
General editing functions	" "Reviewing general editing functions" on page 70" under "Parameter Definition Editor Basics"
Standard tab	" "Accessing the Standard (parameters) tab" on page 40" under "Reviewing Tab Types"
Honeywell tab	" "Accessing the Honeywell (parameters) tab" on page 42" under "Reviewing Tab Types"
Parameters tab	" "Accessing the Parameters tab" on page 43 tab" under the "Reviewing Tab Types."
DD View tab	" "Accessing the DD View Tab" on page 45 under the Reviewing Tab Types"
Form Layout tab	" "Accessing the Form Layout tab" on page 46" under "Reviewing Tab Types"
Methods tab	" "Accessing the Methods tab" on page 51" under "Reviewing Tab Types"
Value CDPs tab	" "Accessing the Value CDPs tab" on page 53" under "Reviewing Tab Types"
Fixed tab	" "Accessing the Fixed (parameters) tab" on page 52" under "Reviewing Tab Types"
Parameters References tab	" "Accessing the Parameter References tab" on page 62" under "Reviewing Tab Types"
Symbol Attribute tab	" "Accessing the Symbol Attribute tab" on page 57" under "Reviewing Tab Types"

For information about the…	Go to…
Formula Parameters tab	" "Accessing the Formula Parameters tab" on page 64" under "Reviewing Tab Types"
Report Parameters tab	"Accessing the Report Parameters tab" under "Reviewing Tab Types"
For more information about configuring the formula parameters, refer to the Batch Implementation Guide.	

Related topics

"Accessing the Standard (parameters) tab" on page 40
"Accessing the Honeywell (parameters) tab" on page 42
"Accessing the Parameters tab" on page 43
"Accessing the DD View Tab" on page 45
"Accessing the Form Layout tab" on page 46
"Accessing the Methods tab" on page 51
"Accessing the Fixed (parameters) tab" on page 52
"Accessing the Value CDPs tab" on page 53
"Accessing the Symbol Attribute tab" on page 57
"Configuring Pins" on page 59
"Accessing the Parameter References tab" on page 62
"Accessing the Formula Parameters tab" on page 64
"Accessing the Report Parameters tab" on page 66

8.1 Accessing the Standard (parameters) tab

The *Standard* parameters tab is located on the Fieldbus block type.

The *Standard* tab lists all the standard parameters for the selected Fieldbus device block type. The *Standard* tab parameters are listed in a spreadsheet format for editing. See the considerations below for limitations on parameter editing.

Consider the following while accessing the: Standard tab:

- The following parameter attributes are read-only:
  - Parameter Name
  - Parameter Index
  - First Dimension Array Size
  - Data Type
  - Size
- You cannot add a new parameter to or delete an existing parameter from this tab.
- The Minimum value and Minimum value reference parameter attributes are mutually exclusive.
- The Maximum value and Maximum value reference parameter attributes are mutually exclusive.
- The Unit and Unit reference parameter attributes are mutually exclusive.
- You can only edit Minimum and Maximum values and references if their data type is integer or float; otherwise, these attributes will be read-only.
- You can only edit a Default value if it does not have an Access Lock attribute of View Only and a data type of STRUCT.
- The default value is validated for the limits of the minimum and maximum values.
- You cannot edit the permission attribute for members that belong to the STRUCT data type parameters and the MODE parameter.
- You can use the Configure PDE Views function to turn parameter attributes view on or off in the tab.
- The parameter description, parameter helps string and default value attributes are the only case-sensitive attributes.
- Columns can be sorted by double-clicking on the column header. The sorting will toggle between ascending and descending order.
- This tab will not be shown if no standard parameter exists in the block type.

The following table lists the parameter attributes that can be shown on this tab.

Parameter Attribute	Description
Parameter Name	The name of the parameter (read-only).
Parameter Description	The short description of the parameter restricted to 255 characters. This description will be used in the Configure Parameters dialog in Control Builder.
Parameter Index	The index of the parameter (read-only).
First Dimension Array Size	The first dimension of the array, if the parameter is to be arrayed (read-only).
First Dimension Lower bound	The lower bound of the first array dimension (read-only).
Configuration Load	Indicates whether the parameter value is to be loaded or not when the block is loaded to the device.
Access Lock	Defines what kind of users can write to the parameter.
Data Type	The data type of the parameter (read-only).
Default Value	The default value of the parameter.

Parameter Attribute	Description
Minimum Value	The minimum value of the parameter. This attribute is applicable only to the integer and float data types.
Minimum Value Reference	The parameter within the same block type that holds the minimum value for the parameter.
Maximum Value	The maximum value of the parameter. This attribute is applicable only to the integer and float data types.
Maximum Value Reference	The parameter within the same block type that holds the maximum value for the parameter.
Size	The size of the default value of the string data type. This attribute is applicable for the string, STRUCT, and bit string data types (read-only).
Permission	Permission for the Fieldbus parameter.
Unit	The unit for the parameter.
Unit Reference	The parameter within the same block type that holds the value of unit for the parameter.

8.2 Accessing the Honeywell (parameters) tab

The *Honeywell* parameters tab is located on the Fieldbus block type.

The *Honeywell* tab lists all the manufacturer specific parameters for the selected Fieldbus device block type. The functionality of this tab is identical to the *Standard* tab.

The considerations that you should be aware of while editing the *Honeywell* tab are the same as those for the *Standard* tab. Refer "Accessing the Standard (parameters) tab."

The *Honeywell* tab attributes are the same as the *Standard* tab attributes. See "Accessing the Standard (parameters) tab" for a list of the parameter attributes.

8.3 Accessing the Parameters tab

With R400, the *Parameters* tab is a new tab, which is added to view the Fieldbus block type configuration form.

The *Parameters* tab lists all the standard parameters and vendor-specific parameters for the selected Fieldbus device block type. The *parameter* tab parameters are listed in a spreadsheet format for editing.

Following are the considerations for accessing the Parameters tab:

- The following parameter attributes are read-only:
  - Parameter Name
  - Parameter Index
  - First Dimension Array Size
  - Data Type
  - Size
  - Display format
  - Edit format
  - Handling
  - Validity
- You cannot add a new parameter to or delete an existing parameter from this tab.
- The Minimum value and Minimum value reference parameter attributes are mutually exclusive.
- The Maximum value and Maximum value reference parameter attributes are mutually exclusive.
- The Unit and Unit reference parameter attributes are mutually exclusive.
- You can only edit Minimum and Maximum values and references if their data type is integer or float; otherwise, these attributes are read-only.
- You can only edit a default value if it does not have an Access Lock attribute of View Only and a data type of STRUCT.
- The default value is validated for the limits of the minimum and maximum values.
- You cannot edit the permission attribute for members that belong to the STRUCT data type parameters and the MODE parameter.
- You can use the Configure PDE Views function to turn parameter attributes view on or off in the tab.
- The parameter description, parameter helps string and default value attributes are the only case-sensitive attributes.
- Columns can be sorted by double-clicking on the column header. The sorting toggles between ascending and descending order.

With R400, the following changes are made to the Parameters tab in the PDE of the FF blocks.

- The Parameter Name column freezes, which allows you to keep track of the parameters when you scroll to the right.
- Four new columns are added namely Display Format, Edit Format, Handling, and Validity. These columns are read only and the values in these columns can be changed by Conditionals only.
- If a parameter is invalid, the row in the PDE is dimmed and the Validity column is automatically updated as False.
- When the default value of the parameter attribute that has a conditional construct is edited, the affected parameter(s) are also modified.
- An option with '+' and '-' are available which is used to hide or show all the standard and vendor-specific parameters that are available in the Parameters tab.

The following table lists the parameter attributes that can be shown on this tab.

Parameter Attribute	Description
Parameter Name	The name of the parameter (read-only).
Parameter Description	The short description of the parameter restricted to 255 characters. This description is used in the Configure Parameters dialog box in Control Builder.
Parameter Index	The index of the parameter (read-only).
First Dimension Array Size	The first dimension of the array, if the parameter is to be arrayed (read-only).
First Dimension Lower bound	The lower bound of the first array dimension (read-only).
Configuration Load	Indicates whether the parameter value is to be loaded or not when the block is loaded to the device.
Access Lock	Defines what kind of users can write to the parameter.
Data Type	The data type of the parameter (read-only).
Default Value	The default value of the parameter.
Minimum Value	The minimum value of the parameter. This attribute is applicable only to the integer and float data types.
Minimum Value Reference	The parameter within the same block type that holds the minimum value for the parameter.
Maximum Value	The maximum value of the parameter. This attribute is applicable only to the integer and float data types.
Maximum Value Reference	The parameter within the same block type that holds the maximum value for the parameter.
Size	The size of the default value of the string data type. This attribute is applicable for the string, STRUCT, and bit string data types (read-only).
Permission	Permission for the Fieldbus parameter.
Unit	The unit for the parameter.
Unit Reference	The parameter within the same block type that holds the value of unit for the parameter.
Display Format	Indicates the format in which the default value of a parameter appears. The formats that can be specified are integer, float, and double and so on. For example, if the display format for a parameter is specified as 3.2F and the value of the parameter is 4, then this value appears as 4.00 in the Default Value column of the parameter.
Editing Format	Indicates the format in which the parameter default value can be edited. For example, if the editing format of a parameter is specified as 3.3F and the parameter default value is 6, you can change the default value to 6.x or 6.xx or 6.xxx. Note that at any given point of time only one parameter value can be edited.
Handling	Indicates whether the parameter is Read only or Read and Write. If the Parameter is Read only, then the parameter value cannot be edited and the column is dimmed. Note: If this column is blank for any parameter then it is assumed as Read and Write parameter.
Validity	Indicates whether the parameter is valid or not valid. To a block, the validity of the parameter depends on the DD files and conditional evaluation. The information which appears in PDE is greyed out and value of validity in DD view is either true or false. Hence if the parameter is represented as False, the parameter is invalid. Note: If this column is blank for any parameter, then it is assumed as a valid parameter.

8.4 Accessing the DD View Tab

The DD View tab is located on the Fieldbus block type.

From the *DD View* tab, you can preview the defined parameters of the FF block. The preview is available only in the Library View since PDE is invoked from Library View. This view is a read-only view and is available only for the blocks, which support the latest EDDL. You cannot edit the parameter values from the DD View tab.

The parameters, which are unavailable (dimmed) for editing in the Parameters tab, are not visible in the DD View tab. Refer to the following figure for a sample DD View tab.
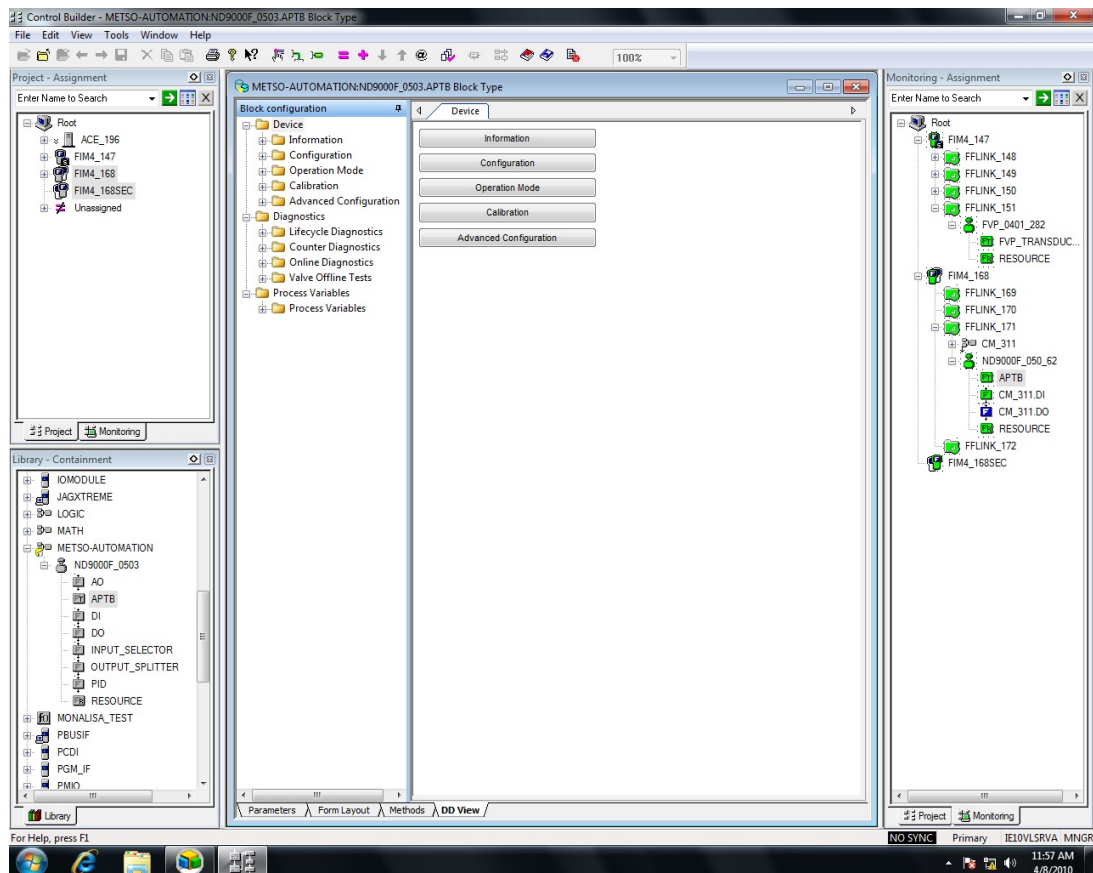
The left pane displays the menu hierarchy and the pane displays the relevant pages and User Interface elements. However, the menu items, page layout, display elements (menu, buttons, group boxes, and so on) vary based on the vendor DD files.

Following are the considerations for accessing DD View Tab:

- The DD files must contain the visualization information namely Menus, Charts, Edit Displays, and so on.
- If the parameters validity is false (is not applicable for FF device blocks) then such :parameters do not appear in the DD view.

Attributes of the DD View tab depend on the DD files based on the presence of Conditionals, and device template that are imported. This view is based on the visualization data present in the DD files.

For more information on DD View tab attributes, refer to the "Accessing the Standard (parameters) tab" on page 40.
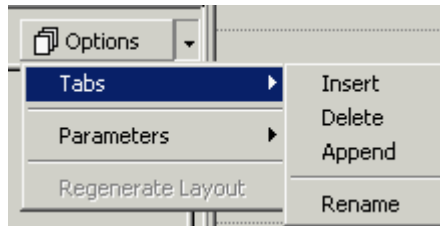
8.5 Accessing the Form Layout tab

The *Form Layout* tab is located on the following block types:

- Fieldbus
- Custom Data Block
- Custom Algorithm Block

The *Form Layout* tab lets you define the layout of the parameters that appear on the Configuration Form for an instance of the associated block in the *Project* tab of Control Builder.

Following are the considerations for accessing the Form Layout tab:

- The initial form layout is defined by the organization of the parameters in the block type residing in the *Library* tab of Control Builder.
- You can insert, delete and rename tabs in the *Form Layout* tab.
- Tabs can be re-arranged using drag and drop.
- You can add and delete parameters from the tabs in the *Form Layout* tab.
- The *Main*, *Alarms*, and *Source* tabs (CAB) and the *Alarm* tab (Fieldbus) are read-only and cannot be edited. This means you cannot rename the tabs nor insert a tab before or in between them.
- You can only use a parameter once across all the tabs defined in the *Form Layout* tab.
- A shaded cell is not available for edit.
- Parameters can be defined under grid using the grid functionality (CAB and CDB).
- A drop-down menu can also be invoked using the right click on the tab. In this case, the selected option will be applied to the tab on which the right click was done.

Consider the following while accessing the Fieldbus form layout:

- Only parameters from the Standard and Honeywell tabs can be added to the Form Layout tab. Custom tabs can also be added to the *Form Layout* tab.
- The MODE AXVALUEONLY parameter group cannot be deleted from the form layout and hence it will be shown in gray background.

Consider the following while accessing the CDB form layout:

- The *Value CDPs* tab on the Form Layout is the tab where all the Custom parameters defined in the *Value CDPs* main tab are shown.
- The order of the parameters in the *Value CDPs* tab on the form layout will be the same order as defined in the *Value CDPs* main tab. This layout is automatically generated when the new CDP is defined or deleted in the *Value CDPs* main tab. This is called "Automatic Form layout generation."
- Any change in the order of the definition of the CDPs in the *Value CDPs* main tab will be reflected in the *Value CDPs* tab on the Form Layout.

Consider the following while accessing the CAB form layout:

- The *Value CDPs* is the tab where all the Custom parameters defined in the *Value CDPs* main tab will be shown.
- The order of the parameters in the *Value CDPs* tab on the form layout will be the same order as defined in the *Value CDPs* main tab. This layout is automatically generated when the new CDP is defined or deleted in the *Value CDPs* main tab. This is called "Automatic Form layout generation."

- Any change in the order of the definition of the CDPs in the *Value CDPs* main tab will be reflected in the *Value CDPs* tab on the Form Layout.

- The *Parameter References* tab is where all the parameter references defined in the *Parameter References* main tab will be shown.

- The order of the parameters in the *Parameter References* tab on the Form Layout will be the same order as defined in the *Parameter References* main tab. This layout is automatically generated when the new parameter reference is defined or deleted in the *Parameter References* main tab. This is called "Automatic Form layout generation."

- Any change in the order of the definition of the Parameter References in the *Parameter References* main tab will be reflected in the *Parameter References* tab on the Form Layout.

- Rows can be inserted using the INS key and can be deleted using the DEL key. Alternatively, a right click menu is also available for inserting and deleting the row.

CAB/CDB blocks: The layout and content of the *Value CDPs* and *Parameter References* tabs can be modified. Custom tabs can also be added with their own content and layout.

In the next figure, custom parameters were added to the *Value CDPs* tab.

> **Attention**
>
> Although these parameters are automatically placed on the *Value CDPs* Form tab (and they could be left on that form), they have all been moved to a custom tab. All of these values will be used later on that custom tab of the Form Layout.
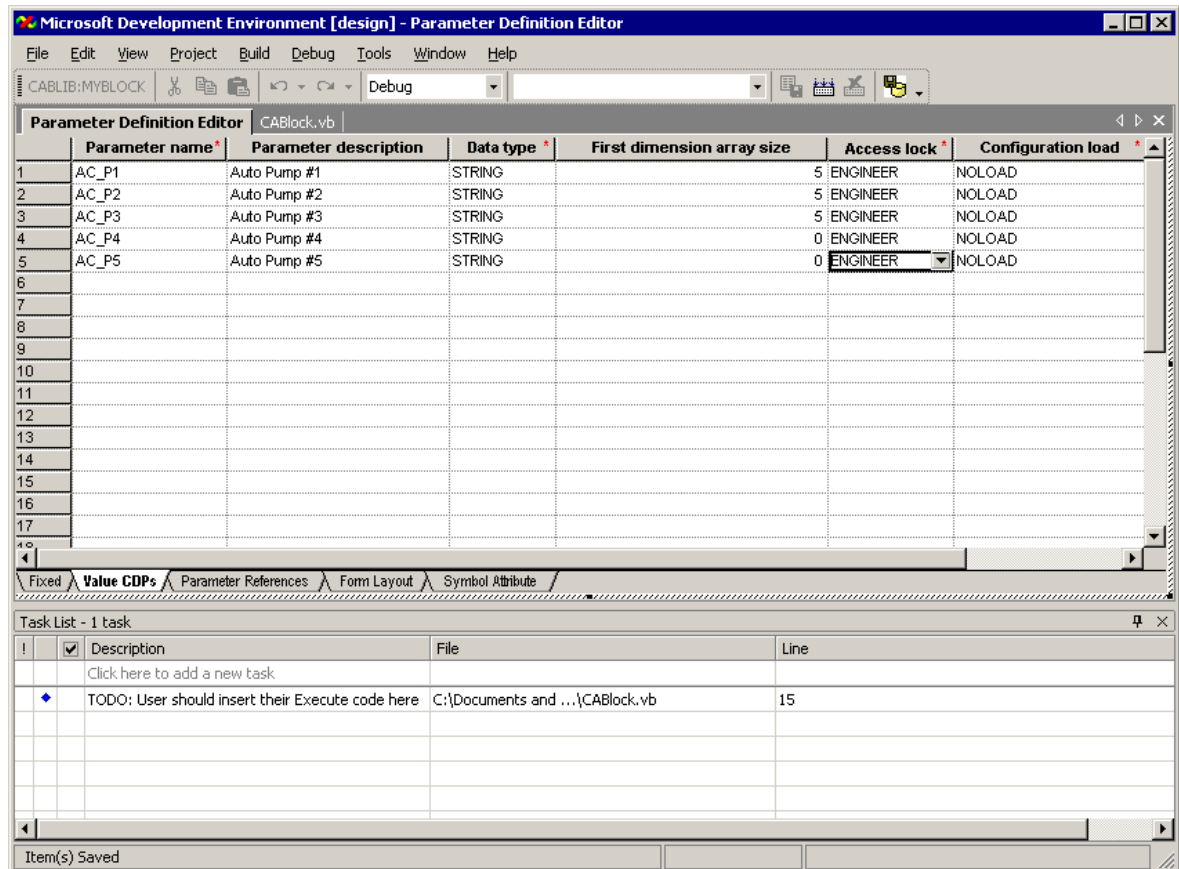

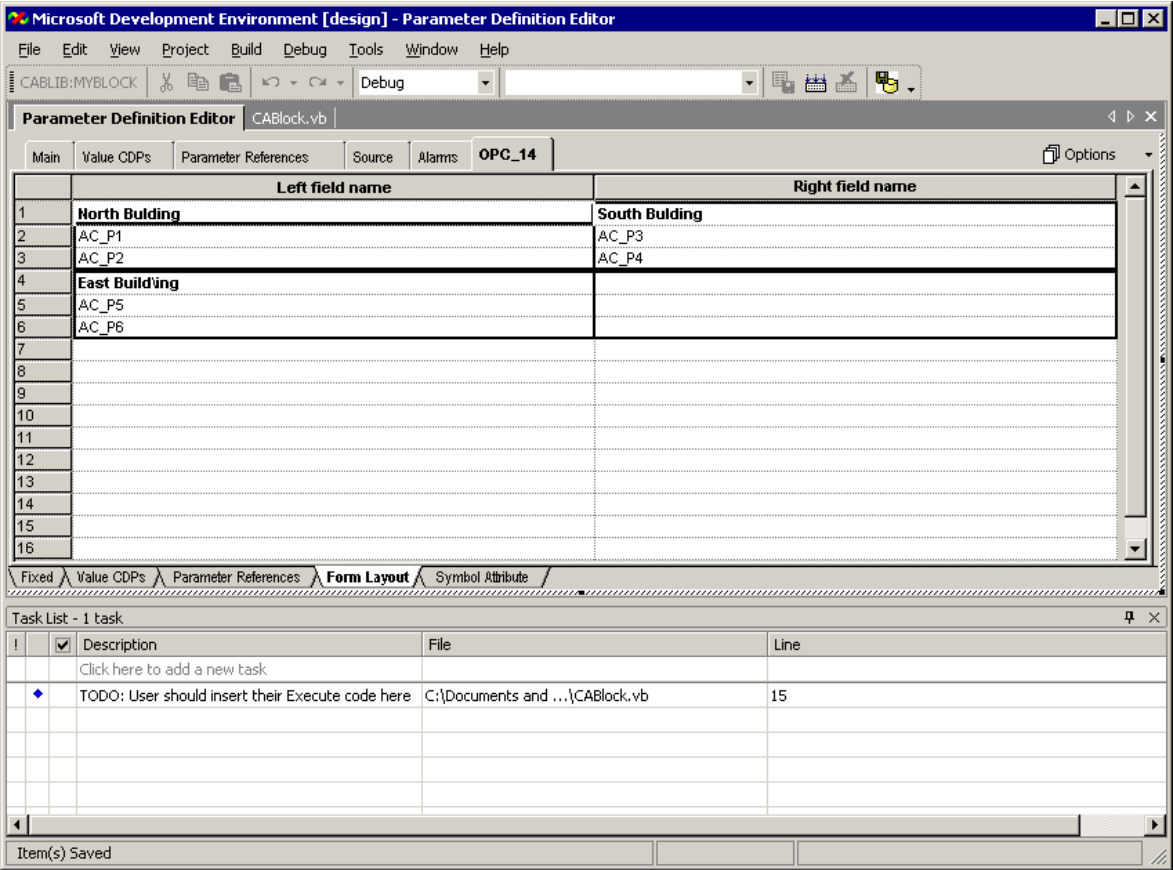**Figure 1: Value CDPs Tab with Custom Parameters Added**

Figure 2: New Tab (OPC_14) Created with Value CDPs Parameters Added

Figure 3: Properties Form showing Custom Tab

Tip

AC_P1, AC_P2, and AC_P3 have been configured as five-position arrays.

The following table lists the parameter attributes that can be shown on this tab.

Layout Attribute	Description
Left field name	Define parameters you want to be included on the left-hand side of the Configuration Form associated with the block in the Project tab of Control Builder.
Right Field name	Define parameters you want to be included on the right-hand side of the Configuration Form associated with the block in the Project tab of Control Builder.

The *Form Layout* tab has several standard second level tabs that can be accessed from the top of the Form Layout. These second level tabs are described in the following table.

Tab Name	Used with Block Type	Purpose
Process	Fieldbus	These are parameters of most interest to the user observing the operation of the block. They include the mode (actual, and target, if different), and may include various setpoint values and statuses, input values and statuses, output values and statuses, readback values and statuses, etc. For control-related blocks, this tab includes back-calculation input and outputs and statuses, feed-forward input and status, tracking inputs and statuses, and remote output inputs and outputs and statuses. Statuses are shown by exception (blank if normal).

Tab Name	Used with Block Type	Purpose
Alarm	Fieldbus	These are FF standard alarm parameters presented in a matrix form. The rows are the applicable alarm conditions. The columns show alarm state, priority, limit, disable, time of last change of state, etc. This tab is read-only.
Alarm2	Fieldbus	This tab presents manufacturer-specific parameters, if any that apply to alarming. The tab will not appear if there are no applicable parameters.
Maintenance	Fieldbus	These are parameters associated with maintenance of the physical device. BLOCK_ERR and XD_ERROR indications as well as bypass, calibration records, and simulation controls appear here.
Ranges	Fieldbus	Range limits and engineering units appear on this tab. Limits, including setpoint limits and output limits appear here.
Tune	Fieldbus	Control, status, input/output options, tuning constants, fault-state and shed options appear on this tab.
Other, Other2	Fieldbus	Miscellaneous and manufacturer-specific parameters that are not otherwise designated to appear on any other tab default to this tab. PDE allows re-assignment of the tab to which manufacturer-specific parameters are assigned. If this tab would have a large number of parameters, additional tabs named OTHER2, OTHER3, etc. are created to limit the amount of scrolling needed. No OTHER tabs appear if there are no applicable parameters.
Main	CAB/CDB	Displays Fixed Definition Parameters that apply for CAB and CDB. This tab is read-only.
Value CDPs	CAB/CDB	This tab contains the Custom Data Parameters defined for CAB and CDB as a default. It can be modified with the PDE Form Layout to include Parameter References or Fixed Definition Parameters that do not appear on the Main tab.
Parameter References	CAB	This tab contains the Parameter References that are defined for CAB as a default. It can be modified with PDE Form Layout to include Parameter References or Fixed Definition Parameters that do not appear on the Main tab.
Source	CAB	Contains the SRCDATA parameter. The SRCDATA parameter allows the user to view the main source file for the selected CAB type. In the case of instances, it allows a user to view the source to see what the CAB program algorithm is without opening the CAB type in Edit or View only mode. In the case of Operators on a station, this gives them access to view the program because they cannot open the CAB type in edit or View only from a Station. This tab is read-only.
Alarms	CAB	This tab allows the engineer to change the severity (from 0 to 15) and priority of each of four CAB alarm types for a CAB instance. The possible priorities are: • NONE • JOURNAL • LOW • HIGH • URGENT An alarm will be triggered (when the priority is LOW, MEDIUM, or HIGH) for parameter reference read errors, parameter reference write errors, CAB termination (caused by block overrun or user abort), and CAB exceptions. A NONE priority will not trigger an alarm and a JOURNAL priority will trigger a journal event. This tab is read-only.

The following are additional functions that can be performed using the *Form Layout* tab. These functions can be found under "Parameter Definition Editor Basics."

- "Reviewing the group box" on page 73
- "Reviewing the grid" on page 78

8.6 Accessing the Methods tab

The *Methods* tab is located on the Fieldbus block type.

From the *Methods* tab, you can view the entire vendor embedded methods associated with the selected Fieldbus device block in a read-only Name and Description format.

Tip
The *Methods* tab will not be shown if the block type does not have any methods.

The following table lists the parameter attributes that can be shown on this tab.

Layout Attribute	Description
Method name	Lists the entire vendor embedded methods for a given device.
Method description	Description of listed method.

8.7 Accessing the Fixed (parameters) tab

The *Fixed* parameters tab is located on the CAB block type.

The *Fixed* tab lists all the fixed parameters of the block type. This tab is used to edit the default value of the parameters. All other parameter attributes are read-only.

Following are the considerations for accessing Fixed tab:

- All the fixed parameters will be shown in this tab.
- Only the default value attribute is editable.
- Editing of default value is based on the data type of the parameter attribute.
- New parameters cannot be added in this tab.
- Existing parameters cannot be deleted from this tab.
- All predefined fixed parameters will start with the characters X_.

> **Attention**
>
> If a new fixed parameter is created, do not start the name of this new parameter with the characters X_. X_ fixed parameters are predefined parameters. This will prevent parameter name duplication of block parameters that have already been predefined by Honeywell.

|	Parameter name	Parameter description	Data type	Default value
1	ACCESSLEVEL	Access Level	ENUM	PROGRAM
2	READERROPT	Read Error Option	ENUM	NOEVENT
3	WRITEERROPT	Write Error Option	ENUM	NOEVENT
4	X_EXECMODE	Execution Mode	ENUM	ATOMIC
5	X_REFMODE	Re-Ref Mode	ENUM	AUTO

Figure 4: Predefined Fixed Parameters

The following table lists the parameter attributes that can be shown on this tab.

Parameter Attribute	Description
Parameter Name	The name of the parameter.
Parameter Description	The short description of the parameter.
Data Type	The data type of the parameter.
Default Value	The default value of the parameter. Only this attribute is editable.

8.8 Accessing the Value CDPs tab

The *Value CDPs* (Custom Data Parameters) tab is located on the CDB and CAB block types.

The *Value CDPs* tab is used to define the custom parameters. New custom parameters can be added and deleted from this tab. Designated parameter attributes can be edited.
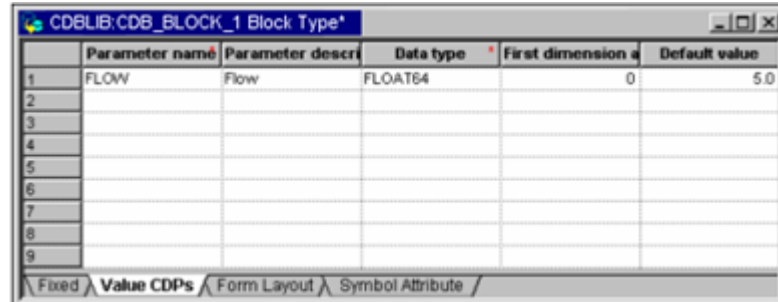
Following are the considerations for accessing the Value CDPs tab:

- All the custom parameters are shown in this tab.
- New parameters can be added.
- Existing parameters can be deleted subject to the rules defined in " "Reviewing and Editing parameter attributes" on page 55" under "Accessing the Value CDPs tab."
- Editing of the default value is based on the data type of the parameters subject to the rules defined in " "Reviewing and Editing parameter attributes" on page 55" under "Accessing the Value CDPs tab."
- Access lock, Configuration load, and Data type can be selected using the combo box.
- Manage View is supported in this tab to switch ON/OFF the parameter attributes that are to be shown in the tab.
- The parameters defined in this tab are used to generate an automatic form layout in the *Value CDPs* tab of the form layout.
- The parameter description, parameter help string, and default value attributes are the only case sensitive attributes.
- Cut/Copy/Paste Parameters feature is available in this tab.

Attention

If a new custom parameter is created, do not start the name of this new parameter with the characters X_. X_ custom parameters are predefined parameters.

The *Value CDPs* tab lists the parameter attributes shown below. Some parameter attributes are exposed by default. The other parameter attributes can be made visible/invisible on the tab using "**Error! Reference source not found.**" under "Reviewing PDE views."

Parameter Attribute	Description	Exposed by Default
Parameter Name	The name of the parameter.	Yes
Parameter Description	The short description of the parameter restricted to 255 characters. This description will be used in the Configure Parameters dialog in CB.	Yes
First Dimension Array Size	The first dimension of the array if the parameter is to be arrayed.	Yes
Second Dimension Array Size	The second dimension of the arrayed parameter.	No
First Dimension Lower bound	The lower bound of the first array dimension.	No
Second Dimension Lower bound	The lower bound of the second array dimension.	No

Parameter Attribute	Description	Exposed by Default
Configuration Load	The attribute indicating whether the parameter value is to be loaded to ACE.	Yes
Access Lock	Attribute describing what kind of users can write to the parameter.	Yes
Data Type	The data type of the parameter.	Yes
Default Value	The default value of the parameter.	Yes
Minimum Value	The minimum value of the parameter. This attribute is applicable only to the integer and float data types	No
Maximum Value	The maximum value of the parameter. This attribute is applicable only to the integer and float data types.	No
Size	The size of the default value of the string data type. This attribute is applicable only to the string data type.	No
Parameter Help String	The long description of the parameter to view the help on the parameter.	No

8.8.1 Reviewing min/max values of data types

The minimum and maximum values of the different data types are listed below.

Data type	Minimum Value	Maximum Value
INT32	-2147483648	2147483647
FLOAT64	2.2250738585072014e-308	1.7976931348623158e+308
STRING	---	255 Characters

8.8.2 Review valid parameter values

The list of valid values for the parameter attribute is listed below.

Parameter Attribute	Valid values
Parameter Name	The first character of the parameter name should be an alpha character. Only "_" character is allowed in the parameter name other than alphanumeric characters. The maximum length of the parameter name is 12 characters. The parameter name will always be converted to upper case letters.
Parameter Description	Any character with maximum length of 255.
First Dimension Array Size	>= 0 and <= 10,000 0 - means parameter is not arrayed Note: The product of the First Dimension and the Second Dimension cannot exceed 10,000. Therefore, if the First Dimension Array Size = 5000, then the maximum value for the Second Dimension Array Size would be 2, that is, (2 X 5000 = 10,000).
Second Dimension Array Size	>= 0 and <= 10,000 0 - means second dimension is not specified The First Dimension Array Size should be specified to enter the second dimension array size. Note: The product of the First Dimension and the Second Dimension cannot exceed 10,000. Therefore, if the First Dimension Array Size = 5000, then the maximum value for the Second Dimension Array Size would be 2, that is, (2 X 5000 = 10,000).

Parameter Attribute	Valid values
First Dimension Lower bound	Positive/Negative INT16 value. First dimension array size should be specified to enter this attribute.
Second Dimension Lower bound	Positive/Negative INT16 value. Second dimension array size should be specified to enter this attribute.
Configuration Load	LOAD - Load the parameter NOLOAD - Do not load the parameter
Access Lock	APPDEVONLY ENGINEER OPERATOR PROGRAM SUPERVISOR
Data Type	BOOLEAN DELTATIME FLOAT64 INT32 STRING TIME TIMEOFDAY
Default Value	Specific to data type attribute
Minimum Value	Specific to data type attribute
Maximum Value	Specific to data type attribute
Size	>= 0
Parameter Help String	No limit

8.8.3 Reviewing and Editing parameter attributes

> **Attention**
> The Default Value attribute cannot be edited if the Configuration Load attribute is "NOLOAD" and the default value will be reset to nothing.

Setting the Access Lock attribute to "ViewOnly" sets the Configuration Load to "NOLOAD." This makes the Default Value attribute read-only. The default value resets to nothing.

The attribute default values of the parameters are listed in the table below.

Parameter Attribute	Attribute Default Value
Configuration load	NO LOAD
First dimension array size	0
Second dimension array size	0
First dimension array lower bound	0
Second dimension array lower bound	0
Default Size for the string data type	32

Changing some of the attributes of a custom parameter will not allow saving the block with the same name if instances of the block with custom parameters exists. Below is the list of such scenarios:

- Changing the Data Type of the custom parameter
- Deleting the custom parameter from the block
- Renaming any custom parameter of the block
- Changing a CDP from a scalar to an array or vice versa

When such scenarios occur, the " "Save As block definition" on page 71" function will be invoked.

The *Value CDPs* tab will not show all the attributes of the parameters. There are some attributes, which are internally managed. When using the "Manage views" feature, the attributes can also be hidden. In such scenarios the need arises to copy the whole parameter definition irrespective of whether attribute is internally managed or hidden through views. The cut/copy/paste parameters features will allow copying the whole parameter definition and pasting the definition as a new parameter. This feature will also work across the PDE, meaning in one instance of the PDE the parameters can be copied and pasted in another instance of the PDE.

If you want to…	Go to…
Copy parameters	" "Copying parameters" on page 86" under "Reviewing general parameter functions"
Paste parameters	" "Pasting parameters" on page 86" under "Reviewing general parameter functions"
Cut parameters	" "Cutting parameters" on page 86" under "Reviewing general parameter functions"

8.9 Accessing the Symbol Attribute tab

The *Symbol Attribute* tab is located on the CDB and CAB block types.

The *Symbol Attribute* tab is used to associate a pin number with the parameter for a block type. The parameter will also be shown on the faceplate of the block. The parameter, which has valid pin exposure permission, can be used to assign the block pin. The individual elements of an arrayed parameter can be used to assign a block pin.

	Parameter name	Input Top pin	Input Left pin	Output Bottom pin	Output Right pin	Config face	Monitor face
1	AC_P1[1]						0
2	CABCOMMAND						1
3							
4							
5							
6							
7							
8							

\ Fixed \ Value CDPs \ Parameter References \ Form Layout \ **Symbol Attribute** /

The *Symbol Attribute* tab lists the following pins for which the parameter is assigned:

- Input Top pin
- Input Left pin
- Output Bottom pin
- Output Right pin
- Config face
- Monitor face

Following are the considerations for accessing the Symbol Attribute tab:

- The parameter to be exposed will be defined in the "Parameter name" column.
- Any parameter that has the pin exposure permission set can be configured on the *Symbol Attribute* tab.
- NOLOAD parameter cannot be configured on Configuration faceplate.
- Parameter name can be picked by clicking on the button provided in the right of the Parameter name cell. This will show the dialog listed under "Accessing the Symbol Attribute tab."
- For arrayed parameters, individual array indices can be used to define the symbol attribute. The arrayed parameter should be defined with the syntax, *<parameter name>[[first dimension index], [second dimension]]*.
- For arrayed parameters, the whole array transfer can be specified on the symbol attribute with the syntax, *<parameter name>[.<space>]*.
- A pin number for a parameter can be assigned by keying in the pin number in the provided pin columns.
- If a pin is to be hidden for parameters, the relevant cell in the grid should be blank.
- The pin values in the column are unique and a positive number starting from zero.
- The top pin and the left pin are mutually exclusive.
- The bottom pin and the right pin are mutually exclusive.
- Copy/Paste of symbol attribute information can be done using the right click menu and accelerator keys CTRL+C and CTRL+V, respectively.
- Columns can be sorted by double-clicking on the column header, toggling between ascending and descending sort order.

> **Attention**
>
> If the Symbol Attribute details are changed in the Library template, the changes are not updated in any of the existing instances where the attributes are referenced. However, if you create a new instance, and include it in a CM, the changes made to the Symbol Attributes are propagated.

The following table lists the parameter attributes that can be shown on this tab.

Parameter Attribute	Description
Parameter Name	The name of the parameter.
Input Top pin	The location to define the top pin for a block.
Input Left pin	The location to define the left pin for a block.
Output Bottom pin	The location to define the bottom pin for a block.
Output Right pin	The location to define the right pin for a block.
Config Face	The location to define the configuration face for a block.
Monitor Face	The location to define the monitor face for a block.

8.10 Configuring Pins

> **Attention**
> You will have to delete and re-add instances in a Control Module if you make changes in the PDE Symbol Attributes tab if any instances exist on the configuration/monitor side.

Configuring a parameter for an input

To configure a parameter for an input, the pin order should be entered in the "Input Top pin" or "Input Left pin" column. The input pins are shown below in Control Builder.

	Parameter name	Input Top pin	Input Left pin
1	CDP1		0

Figure 5: Parameter Configured in PDE as "Input Left pin"

Figure 6: Parameter Configured in Control Builder as "Input Left pin"

	Parameter name	Input Top pin
1	CDP1	0

Figure 7: Parameter Configured in PDE as "Input Top pin"
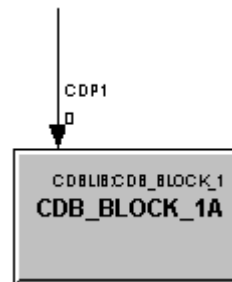
Figure 8: Parameter Configured in Control Builder as "Input Top pin"

8.10.1 Configuring a parameter for an output

To configure the parameter for an output, the pin order should be entered in the "Output Bottom pin" or "Output Right pin" column. The output pins are shown below in Control Builder.

	Parameter name	Input Top pin	Input Left pin	Output Bottom pin	Output Right pin
1	CDP2				0

Figure 9: Parameter Configured in PDE as "Output Right pin"
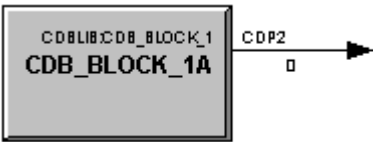
Figure 10: Parameter Configured in Control Builder as "Output Right pin"

	Parameter name	Input Top pin	Input Left pin	Output Bottom pin
1	CDP2			0

Figure 11: Parameter Configured in PDE as "Output Bottom pin"
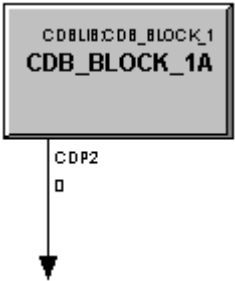

Figure 12: Parameter Configured in Control Builder as "Output Bottom pin"

8.10.2 Configuring a pin on the configuration faceplate

To configure the pin on the configuration faceplate, enter the pin order in the "Config face" column. The parameter value will be shown on the block in configuration side only.

	Parameter name	Input Top pin	Input Left pin	Output Bottom pin	Output Right pin	Config face
1	DESC					0

Figure 13: Parameter Configured in PDE to be shown on "Config face"

Figure 14: Parameter Shown on Faceplate in Control Builder

8.10.3 Configuring a pin on the monitor faceplate

To configure the pin on the monitor faceplate, enter the pin order in the Monitor face column. The parameter value will be shown on the block in monitor side only.

	Parameter name	Input Top pin	Input Left pin	Output Bottom pin	Output Right pin	Config face	Monitor face
1	CDP1						0

Figure 15: Parameter Configured in PDE to be shown on "Monitor face"

8.10.4 Reviewing parameter picker

The Parameter Picker dialog provides an option to search for a parameter to configure the symbol attribute. The dialog lists all the parameters that have valid pin exposure permissions with an edit box for searching the parameter.
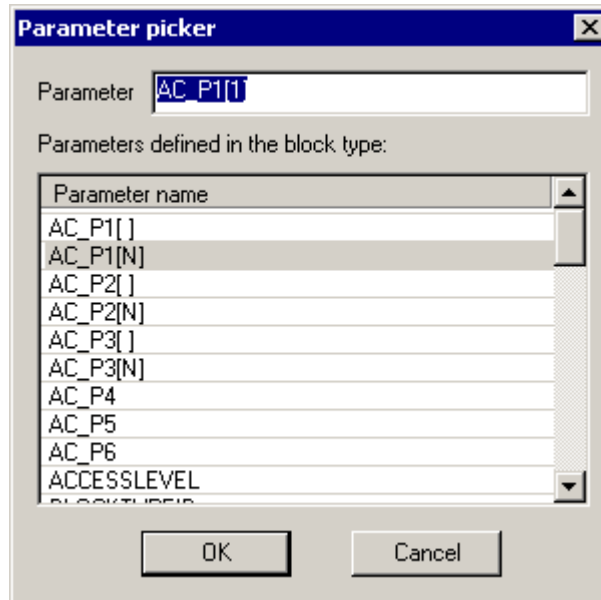

Consider the following while configuring pins:

- The list of parameters defined in the block that has a valid pin exposure permission set will be listed in the parameters list.
- If the parameter is arrayed, then the parameter name will be shown in these formats:
    - *<parameter name>[<space>]* to pin for whole array transfer.
    - *<parameter name>[N]* for a single dimension array where *N* is the dimension of single dimension array to be entered.
    - *<parameter name>[N, M]* for a two-dimensional array, where *N* is the first dimension of array and *M* is the second dimension of array.
- Typing the parameter in the parameter edit box will select the nearest matching parameter in the parameter list
- If an individual array element of a parameter is to be pinned, then the arrayed parameter should be selected and the valid index should be specified in the Parameter Name column of the *Symbol Attribute* tab.
- Parameters can be selected by double clicking on the parameter name. The index must be specified for arrayed parameters.

8.11 Accessing the Parameter References tab

The *Parameter References* tab is located on the CAB block type.

The *Parameter References* allow defining the parameter alias. New parameter references can be added defining the data type and the data flow of the parameter.

- All the Parameter references are shown in the tab.
- New parameters can be added.
- Existing parameters can be deleted.
- The parameters defined in this tab are used to generate an automatic form layout in the *Parameter References* tab of the form layout.
- The parameter description attribute is the only attribute that is case sensitive.
- Cut/Copy/Paste Parameters feature is available in this tab.
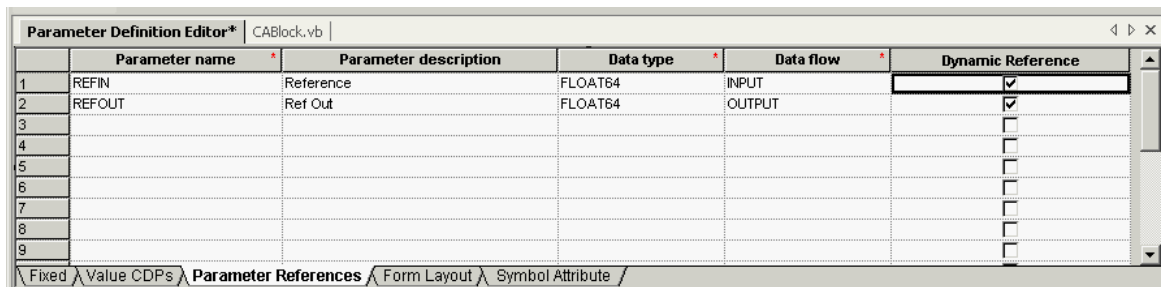
8.11.1 Parameter References tab attributes

The tab will list the parameter attributes as shown below.

Parameter Attribute	Description
Parameter Name	The name of the reference parameter.
Parameter Description	The short description of the parameter attribute is restricted to 255 characters. This description will be used in the Configure Parameters dialog in Control Builder.
Reference data type	The data type of the reference parameter.
Data flow	The attribute specifying the reference is being used for input, output or both.
Dynamic Reference	Configurable for either static referencing, or for Dynamic Referencing.
	Dynamic Referencing allows the user to change the target for the reference "on the fly," even though the instance is loaded and executing.
	For more information on Dynamic Referencing, see the *Custom Algorithm Block and Custom Data Block User's Guide,*Dynamic re-referencing of parameter references of parameter references.

8.11.2 Configuring the Size attribute

With R310, the size attribute is exposed and made configurable for CAB. This attribute only applies if the data type is String. It specifies the maximum number of characters the string may hold. Default value is eight characters. Maximum supported value is 255 characters. Note that sizes greater than eight characters are supported in peer-to-peer data access but impose a higher communications load.

When defining a PRef of type String, you must make a decision as to how large a string value is needed. In many applications, a string size of eight characters or less is sufficient. In other cases a larger string may be needed.

In general, strings should not be declared larger than is needed. In particular, note that peer-to-peer transport of strings depends on buffer allocations that are reserved for as long as the data reference is in use. These allocations are most efficient when the string size is eight characters or less, though larger allocations can also be used.

8.11.3 Reviewing attribute default values

The attribute default values of the parameter attributes for the *Parameter Reference* tab are listed in the table below.

Parameter Attribute	Attribute Default Value
Data Flow	INPUT
Dynamic Reference	Cleared

8.11.4 Reviewing valid parameter values

The lists of valid values for the parameter attributes are listed below.

Parameter Attribute	Valid values
Parameter Name	The first character of the parameter name should be alphabetic. Only "_" character is allowed in the parameter name other than alphanumeric characters. The maximum length for the parameter name is 32 characters. The parameter name will be always converted to upper case letters.
Parameter Description	Any character with maximum length of 255.
Data Type	BOOLEAN DELTATIME FLOAT64 INT32 STRING TIME TIMEOFDAY
Data flow	INPUT - Only reading of Data is allowed OUTPUT - Only writing of data is allowed IN/OUT - Data can be either read or write.
Dynamic Reference	Checked or Cleared

8.12 Accessing the Formula Parameters tab

The *Formula Parameters* tab is located on the Phase Block type.

Consider the following while accessing the Formula Parameter tab:

- The *Formula Parameters* tab contains all the user defined formula parameters for the Phase block.
- All the formula parameters are shown in the tab.
- New parameters can be added.
- Existing parameters can be deleted.

> **Tip**
> If a parameter is deleted, the phase block type cannot be saved. Thus, a new phase block type must be created.

- The parameter description attribute is the only attribute that is case sensitive.
- Cut/Copy/Paste Parameters feature is available in this tab.

> **Tip**
> You can configure up to 250 formula and report parameters in a phase type. These 250 parameters can be all formula parameters or all report parameters, or a mixed number of both (example - 150 formula parameters and 100 report parameters). There is a limitation to the total data size of the entire parameter set. For example, you may only be allowed to configure 62 parameters if the data type is string and the size 255 characters.

8.12.1 Formula Parameters tab attributes

The tab will list the parameter attributes shown below.

Parameter Attribute	Description
Parameter Name	Unique among all parameter names of the phase block. Can be only modified in the PDE.
Parameter description	This text is shown in the phase block form when the parameter values are edited and in the RCM detail displays when the parameter is used for operators. The text can contain localized characters, such as Kanji. Can be only modified in the PDE.
Data type	Choices are: BOOLEAN FLOAT64 INT32 STRING Enumeration Can be only modified in the PDE.
Enumeration Name	Allows to select the enumeration name from the list.
Default value	-
Minimum value	Specifies the Minimum value. Range depends on the selected data type. For floating point numbers, the limit values can be NaN. For integers, the smallest possible number is not available as a limit (it is used as invalid number for integers.) NOTE: The usage of NaN implies that the limit is not used.

Parameter Attribute	Description
Maximum value	Specifies the Maximum value.
	Range depends on the selected data type. For floating point numbers, the limit values can be NaN.
	NOTE: The usage of NaN implies that the limit is not used.
Use value reference	Checked - use the run-time value retrieved from the source defined in the phase block form.
	Unchecked - use the default value or the value edited in phase block form or RCM detail display.
Enabled	Checked - parameter is used in the phase block instance.
	Unchecked - parameter is not used in the phase block instance and not shown in the RCM detail display.
Size	Defines the maximum length of string value.
	Default = 32
Engineering Units	Text defining the engineering units associated with the parameter.
Scalable	Used only for formula parameters.
	Checked - the value is scaled with the ratio between current batch size and the default batch size when the value is downloaded into the target parameter.
	Unchecked - no scaling is done in the value download operation.
Access lock	Used only for formula parameters.
	Based on the AccessLocks enumeration type, values are Program, Engineer, Supervisor, Operator, AppDevOnly.

Attention

For more information about configuring the formula parameters, refer to the *Batch Implementation Guide*.

8.13 Accessing the Report Parameters tab

The *Report Parameters* tab is located on the Phase Block type.

Consider the following while accessing Report Parameters tab:

Report Parameter tab contains all user defined report parameters for the Phase Block.

- All the report parameters are shown in the tab.
- New parameters can be added.
- Existing parameters can be deleted.

> **Tip**
> If a parameter is deleted, the phase block type cannot be saved. Thus, a new phase block type must be created.

- The parameter description attribute is the only attribute that is case sensitive.
- Cut/Copy/Paste Parameters feature is available in this tab.

> **Tip**
> You can configure up to 250 formula and report parameters in a phase type. These 250 parameters can be all formula parameters or all report parameters, or a mixed number of both (example - 150 formula parameters and 100 report parameters). There is a limitation to the total data size of the entire parameter set. For example, you may only be allowed to configure 62 parameters if the data type is string and the size 255 characters.

8.13.1 Report Parameters tab attributes

The tab will list the parameter attributes shown below:

Parameter Attribute	Description
Parameter Name	Unique among all parameter names of the phase block. Can be only modified in the PDE.
Parameter description	This text is shown in the phase block form when the parameter values are edited and in the RCM detail displays when the parameter is used for operators. The text can contain localized characters, such as Kanji. Can be only modified in the PDE.
Data type	Choices are: BOOLEAN FLOAT64 INT32 STRING Enumeration Can be only modified in the PDE.
Enumeration Name	Allows to select the enumeration name from the list.
Default value	-
Minimum value	Specifies the Minimum value. Range depends on the selected data type. For floating point numbers, the limit values can be NaN. For integers, the smallest possible number is not available as a limit (it is used as invalid number for integers.) *Note:* The usage of NaN implies that the limit is not used.

Parameter Attribute	Description
Maximum value	Specifies the Maximum value.
	Range depends on the selected data type. For floating point numbers, the limit values can be NaN.
	Note: The usage of NaN implies that the limit is not used.
Enabled	Checked - parameter is used in the phase block instance.
	Unchecked - parameter is not used in the phase block instance and not shown in the RCM detail display.
Size	Defines the maximum length of string value.
	Default = 32
Engineering Units	Text defining the engineering units associated with the parameter.
Trend	Used only for report parameters.
	Checked - value will be trended.
	Unchecked - value will not be trended.

Attention

For more information about configuring the report parameters, refer to the *Batch Implementation Guide*.

9 Parameter Definition Editor Basics

Following are the basics of Parameter Editor :

Related topics

9.1 Reviewing general editing functions

Consider the following while reviewing general editing functions:

- You are familiar with interacting with Windows programs, such as Microsoft Excel.
- Read-only cells are shaded and are unavailable for editing.
- You must have Engineering access level or higher to make edits.

If You Want To...	Then...
Resize a column	Move cursor over column vertical dividing line so cursor changes shape and click and drag cursor left or right to decrease or increase the column width.
Navigate between cells	You can use many of the keyboard shortcuts that apply for the Microsoft Excel program. For example, press the TAB key to complete a cell entry and select the next cell to the right. Press SHIFT+TAB to complete a cell entry and select the previous cell to the left. Use ARROW keys to move one cell left, right, up, or down. Press HOME key to move to the beginning of the line.
Edit cell contents	You can use many of the keyboard shortcuts that apply for the Microsoft Excel program. For example, press the F2 key to edit the active cell and put the insertion point at the end of the cell. Use BACKSPACE to edit the active cell and then clear it, or delete the preceding character in the active cell as you edit cell contents. Press ESC to cancel a cell entry.
	Contents may be in the form of typical Windows style text box, check box, or combo box.

9.1.1 Inserting, deleting, or appending rows

The following procedure assumes that the PDE has been launched. You can only invoke these functions on tabs that allow edits. The following tabs allow edits.

- *Form Layout* tab
- *Value CDPs* tab
- *Symbol Attribute* tab
- *Parameter References* tab

To insert, delete or append rows

1 Click the tab you want to edit.
   - If you want to delete a row, go to Step 3.
   - If you want to insert a row, go to Step 5.
   - If you want to append a row, go to Step 6.

2 Click in row header to select (highlight) the entire row you want to delete. You can use SHIFT+CLICK or CTRL+CLICK to select multiple rows for deletion.

3 Right-click the selected row(s) and select **Delete** from the shortcut menu or, press the DELETE key. You will be prompted to confirm multiple row deletions.

4 Click anywhere in the row you want to insert a row above and press the INSERT key. Or, right-click anywhere in the row you want to insert a row above and select **Insert** from the shortcut menu. You can use SHIFT+CLICK or CTRL+CLICK to select multiple rows for insertion above the selected rows.

5 To append a row to the end of the list, right-click anywhere in an existing row and select **Append row** from the shortcut menu.

> **Tip**
> Appending can also be accomplished by scrolling via the down arrow at the end of the rows. Rows will be added as you scroll down.

9.1.2 Using copy and paste functions

You can use the typical keyboard shortcuts of CTRL+C and CTRL+V to copy and paste cell data on tabs that permit edits. You can also select these functions through the right-click shortcut menu.

9.1.3 Saving block definitions

The following consideration should be observed when saving block definitions:

- Modifications to the block type definition in PDE enables the **Save** button in the tool bar and the **File** menu.
- To save PDE edits, click **Save** from the **File** menu selections or click the **Save** button in the tool bar if you are saving a Fieldbus or CDB block. If you are saving a CAB block, saves are performed from the **File** menu **Save All** selection of the Visual Studio .NET IDE.

> **Tip**
> Clicking the **Save** button or selecting **File > Save PDE Data** will save the PDE data to a block type definition file. See " "Launching PDE" on page 98" under "Launching and Closing PDE" for more details on saving the PDE data.

You will be prompted to save any unsaved edits upon closing the PDE. See " "Launching PDE" on page 98" under "Launching and Closing PDE."

9.1.4 Save As block definition

The following procedure assumes the PDE has been launched and a parameter is being edited and there is a need to create a new block definition. The following procedure applies to CAB and CDB blocks only.

1 On the **File** menu, click **Save As**.

> **Tip**
> f you are saving a CAB block, saves are performed from the **File** > **Save All** selection of the Visual Studio NET IDE.

2 In the open **Block Type** text box, type the desired name for your new block type that is unique. Press the ENTER key.

Result: The new block name is displayed in the Control Builder library tree, and the current editing session switched to the newly created block definition.

9.2 Reviewing general block type functions
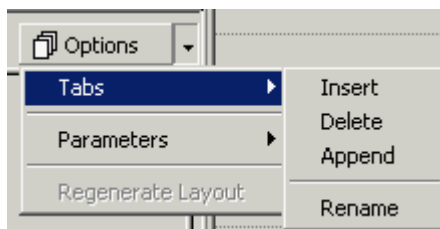
The following procedure assumes that the PDE has been launched. You can only invoke these functions on the Form Layout tab.

Reviewing block type functions:

1 Click the *Form Layout* tab.

2 If you want to insert a tab, go to Step 3.
If you want to delete a tab, go to Step 6.

If you want to rename a tab, go to Step 9.

If you want to append a tab, go to Step 12.

> **Attention**
> Remember that the *Alarm* tab on the Fieldbus block, the *Main* tab on the CDB block type, and the *Main*, *Alarms*, and *Source* tabs on the CAB block, are read-only and you cannot insert a tab before them.

3 Click the tab that you want the new tab inserted before.

4 On the **Options** button, click the arrow and select **Tabs > Insert**. Or, right-click the tab and select **Tabs > Insert**.

5 In **Tab Name** dialog, type the desired name for the new tab in the **Enter new tab name** box. Click the **OK** button.
Result: The new tab is inserted before the selected tab.

6 Click the tab that you want to delete.

7 On the **Options** button, click the arrow and select **Tabs > Delete**. Or, right-click the tab and select **Tabs > Delete**.

8 Click the **Yes** button in the PDE dialog to acknowledge the action and initiate the tab deletion.

9 Click the tab that you want to rename.

10 On the **Options** button, click the arrow and select **Tabs > Rename**. Or, right-click the tab and select **Tabs > Rename**.

11 In the **Group Name** dialog, type the desired new name for the tab in the **Enter new group name** box. Click the **OK** button.
Result: The new name now appears on the tab.

12 On the **Options** button, click the arrow and select **Tabs > Append**. Or, right-click the tab and select **Tab > Append**.

13 Enter the name of the new tab. Click the **OK** button.

9.3 Reviewing the group box

> **Tip**
> You can use the Group function to group similar parameter attributes to show logical parameter relationships on the block configuration form in Control Builder.

Consider the following while reviewing the group box:

- You can place Parameters on the left or right side of the tab. If the parameter is to be placed on the left side of the tab, enter the parameter name in the Left field name column. If it is to be placed on the right side, enter the parameter name in the Right field name column.
- You can group and ungroup selected parameters.
- The right group box is dependent on the definition of the left group box. The right group box cannot exist without a left group box.
- The blank rows in the group do not have any effect on the layout.
- The left group name is mandatory, if any parameters are defined in the left group.
- The right group name is mandatory, if any parameters are defined in the right group.
- You cannot have a parameter in the right group box without having parameters in the left group box.
- The height of the group box depends on the number of parameters in the left group box.
- Rows can be inserted using INS key and can be deleted using DEL key. Alternatively, a right click menu is also available for inserting and deleting the row.
- Parameters can be grouped/ungrouped using the group/ungroup functionality.
- Tabs can be added, deleted, and renamed by using the **Menu** item from the **Options** tool bar.
- Parameters can be used only once across all the tabs defined in the form layout.

9.3.1 Creating the left group box

1 Select the parameters that are to be grouped in the form layout grid. The selected parameters that are to be grouped should be in sequence.
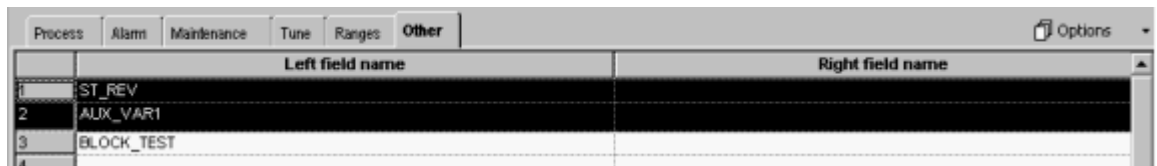
2 From the drop-down **Options** tab, select the **Parameters > Group** menu item. Alternatively, a right-click menu will also provide an option to group parameters under the menu item **Parameters > Group**.
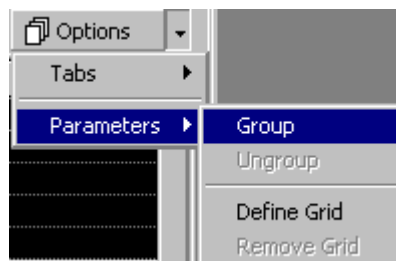
3 Once the menu item is selected, all the selected parameters will be grouped and shown inside a thick black rectangle around the selected parameters.

- The left field name cell in the first row of the group is for entering the name of the left group.

- Parameters can be added within the group box by inserting a new row using INS key and entering the parameter name in the left field name. Alternatively, rows can be added from the right click menu.

- Parameters can be deleted using DEL key by selecting the complete row. Alternatively, rows can be deleted from the right click menu.

The above defined parameter group will be shown as below in the Configure Parameters dialog in Control Builder.

9.3.2 Creating the right group box

Note: The following procedure assumes that the left group box exists.

1   On the Form Layout grid, enter the parameters for the right field name in the right group box. The active area of the form is enclosed in a thick black rectangle.

2   Enter the right group box name at the top of the black rectangle.

9.3.3 Configuration Form with grouped parameters

> **Tip**
> The parameter Auto Pump #1 was created as an arrayed parameter with an index of 5.

Table 1: Example Tab with Parameters Grouped

9.3.4 Ungrouping parameters in a group box

You can use the Ungroup function to remove a group box. You can only invoke these functions on the *Form Layout* tab. The following procedure is for example purposes only to show how the Ungroup function may be used.

1 Highlight the group that you want to delete by left clicking on the first row and dragging down until the entire group is highlighted, including the group name. In this example, the **East Building** group is highlighted.
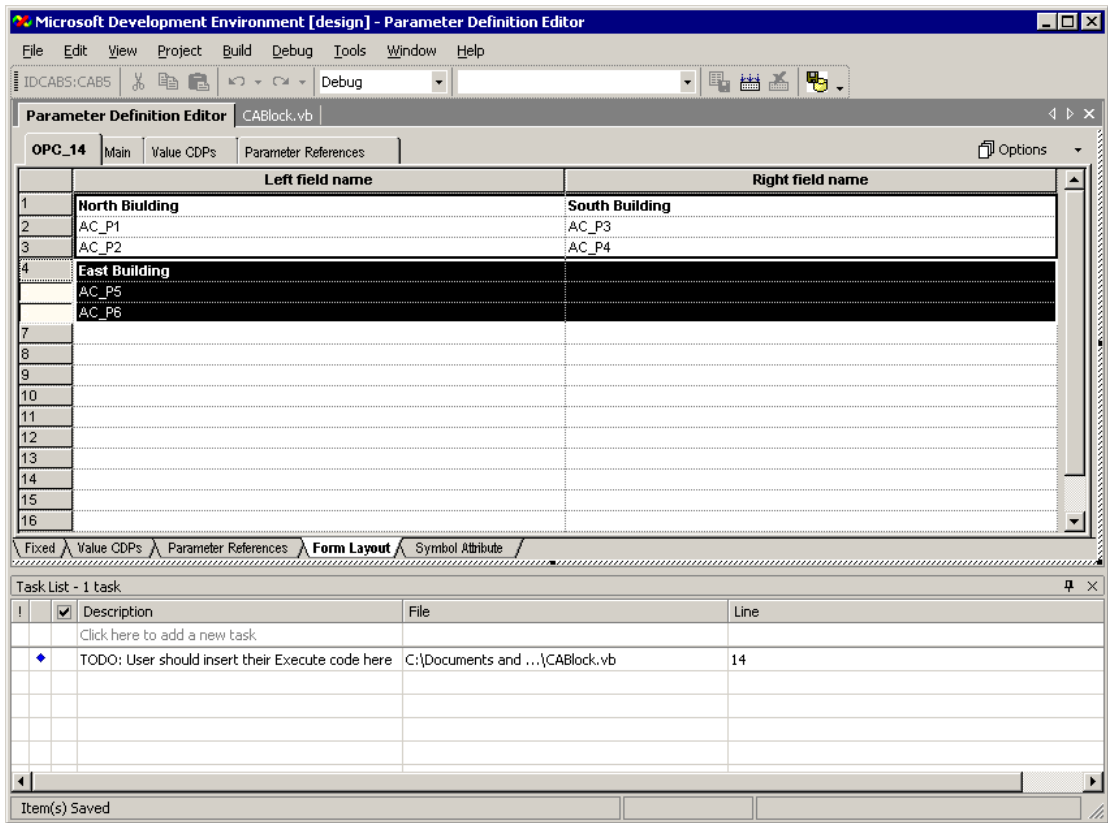
2 Right-click anywhere on the group and select **Parameters > Ungroup**. The group box and group title, East Building, will be removed.
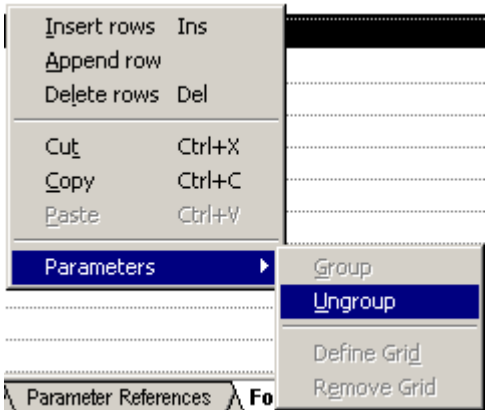
3 When an instance of this block is added to a project, the resulting edits of the group box tab will appear as follows:

Notice that the East Building group has been removed.

9.4 Reviewing the grid

The grid is an option available for CAB and CDB block types. Grids are used to show a group of parameters where each parameter is shown as one of the columns of the grid and each parameter value is shown in the grid rows.

Consider the following while reviewing the grid:

- The grid name is mandatory and must be entered in the left field name.
- The number of rows visible should be between 1 and 99.
- There is no right field name for the grid.
- Grid only supports array Custom Data Parameters. Grid does not support scalar CDPs or Parameter References.
- Only arrayed parameters are allowed in the grid.
- Parameter references are not allowed in the grid.

9.4.1 Creating a grid

Follow the steps in the following table to create a grid.

1 Select the parameters that are to be defined within the grid in the Form Layout grid as shown below. The selected parameters must be in sequence.
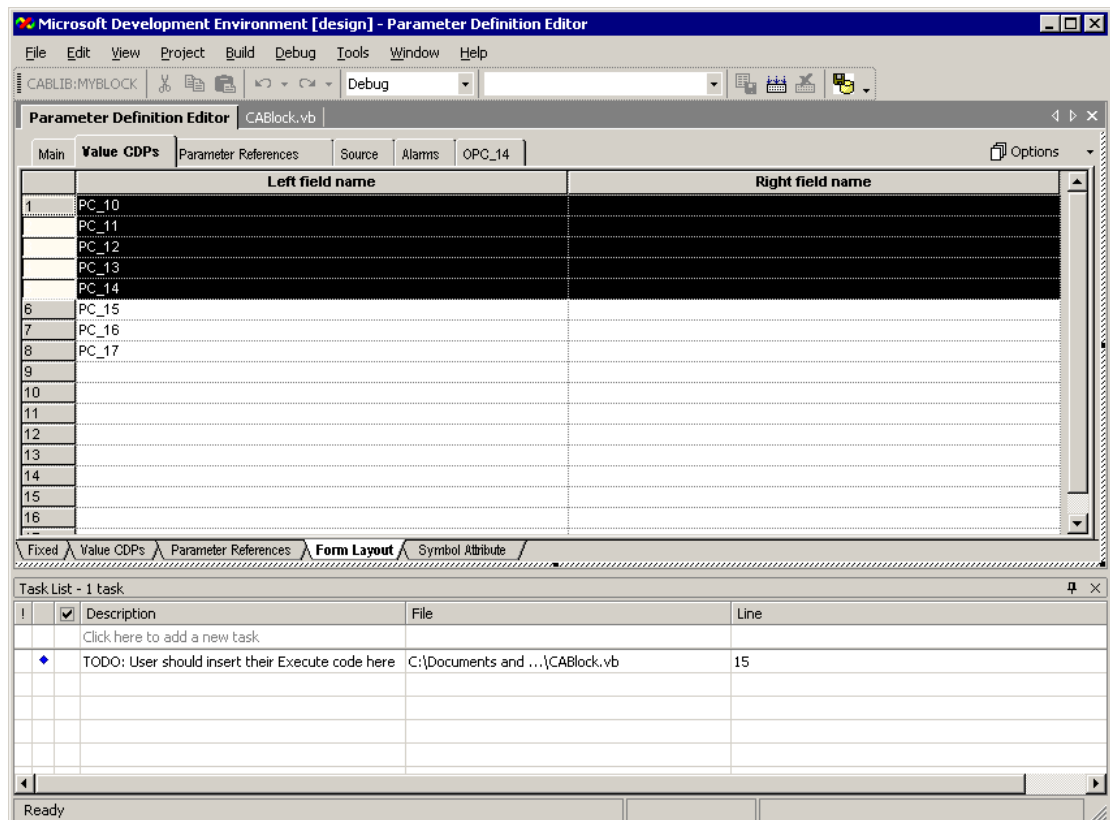
2 From the drop-down **Options** tab, select **Parameters > Define Grid**. Right-clicking on the highlighted parameters will also provide a drop-down menu where **Parameters > Define Grid** can be selected.
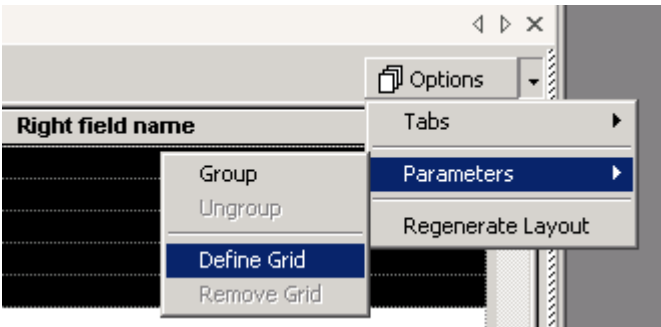
3 The number of the lines for the grid should be typed in the "Right field name" column. This is the maximum number of rows that will be shown at a time in the grid on the Configuration Form. If there are more rows than visible lines, then a scroll bar will be shown on the grid.

The grid name can be entered in the first row of the grid under the "Left field name."
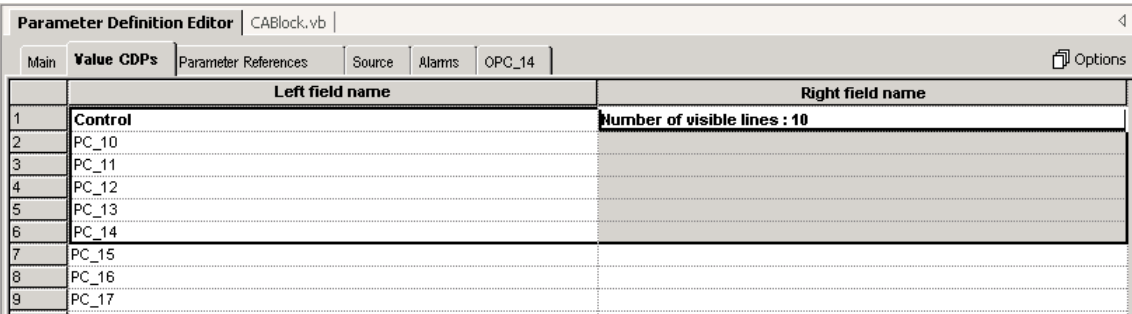
The resulting Configuration Form for this grid would look like the example below.
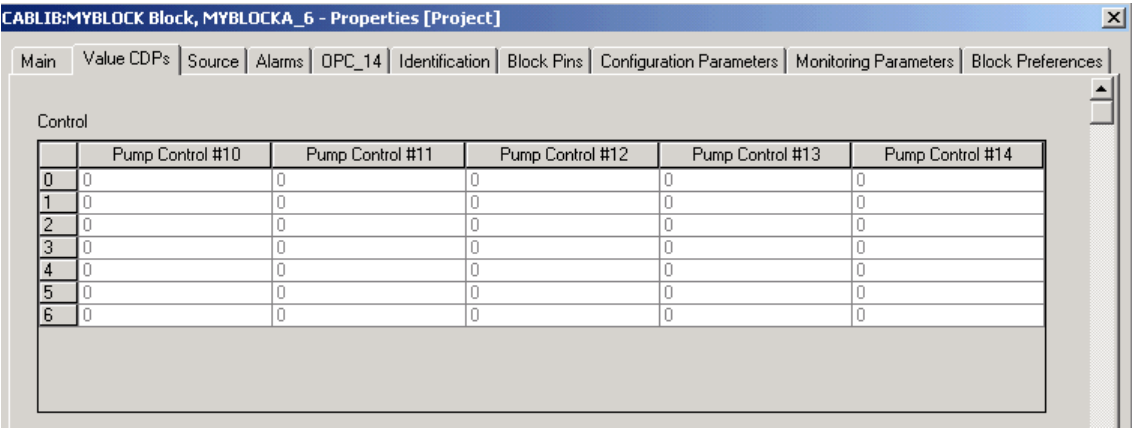
Tip

- Parameters can be added within the grid box by inserting a new row using the INS key and entering the parameter name or by right clicking and inserting a row.
- Parameters can be deleted by using the DEL key or by right clicking and deleting the row.

When two-dimension arrayed parameter of size 5x5 is added to the grid, it is shown as below in the configuration form. Note that the first column shows the two-dimension array index.

When the grid is formed with the combination of two dimension arrayed parameter (5x5 size) and the one dimension arrayed parameter (ten elements), the grid is shown as below in the configuration form. Note that the first column displays just the row numbers.

> **Tip**
> If the grid has more than one arrayed parameter, then the first column will show just the row number.

9.4.2 Deleting a grid

Follow the steps in the following table to delete a grid.

1 Select the complete grid that you want to delete.

2 From the drop-down **Options** tab, select **Parameters > Remove Grid**. Right clicking on the highlighted parameters will also provide a drop-down menu where **Parameters > Remove Grid** can be selected.

9.5 Advanced editing options

Following are the advanced editing options:

Related topics

9.5.1 Using advanced editing grid bitstrings

You can use the Advanced editing grid to edit the default values for parameters with a data type of BITSTRING on the *Standard* parameters or *Honeywell* parameters tab. Follow the procedure in the next table to edit BITSTRING values.

1 Click either the *Standard* parameter or Honeywell parameter tabs.

2 Locate the parameter with the BITSTRING value you want to change (for example, the MODE PERMITTED parameter for an AI block in a Honeywell ST3000 device).

3 Scroll to the Default value column and click the row for the MODE PERMITTED parameter. Click the arrow button in the row to open the bitstring values for parameter dialog box. Or, type the hexadecimal value in the cell directly and skip using the dialog box.

4 In the **Bit values** column, click the check box to select or clear a value as applicable. Select the check box, if the bit is to be set to that value.

5 Click the **OK** button to save your edits and close the dialog.

6 This completes the procedure. Any BITSTRING value edits are not active until the PDE is closed and all edits are saved. There is no validation whether the proper bit is set by directly entering the value. PDE validates only for the size of the BITSTRING.

> **Attention**
> The Advanced Editing Grid bitstrings is for use with Fieldbus block types only.
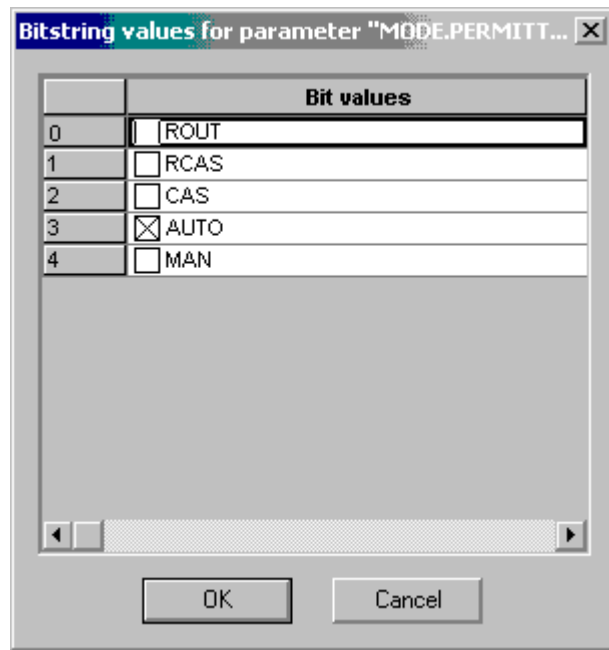
Figure 16: Example Advanced Editing Grid

- The first column in the Advanced Editing Grid dialog shows the bit that will be set, if the check box for the value is selected in the "Bit values" column.

- You set the bit value by selecting or clearing the check box in the "Bit values" column.

- The parameter must have a data type of bitstring for the Advanced Editing Grid dialog to be shown.

- Any BITSTRING value edits are not active until the PDE is closed and all edits are saved.

- There is no validation whether the proper bit is set by directly entering the value. PDE validates only for the size of the BITSTRING.

9.5.2 Using advanced editing grid for arrays

The arrayed parameter default value can be edited using the advanced array-editing grid. Based on the size of the array, number of rows, and number of columns will be shown in the grid. The values can be set to the individual elements of the array.

The single dimension array will be shown with one column. The number of rows corresponds to the first dimension of the array.
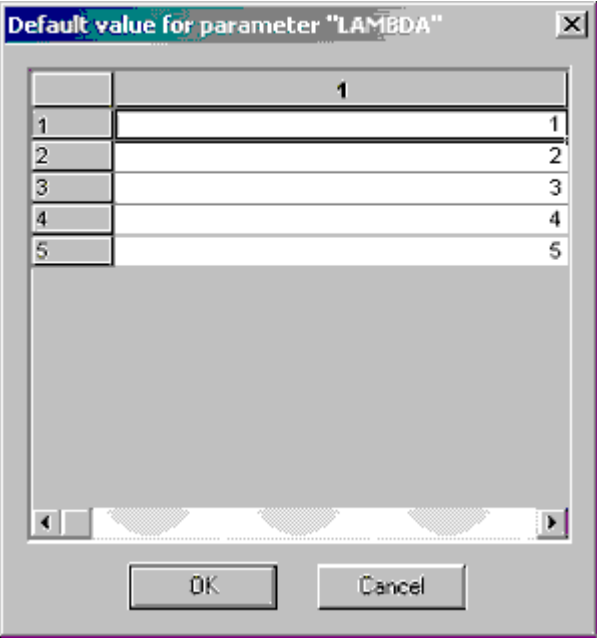
Figure 17: Advanced Editing Grid - Single Dimension Array

- The editing of the cell depends on the data type of the parameter.
- The value entered will be validated for its range with the min and max value of the parameter.
- Copy/Paste operation can be performed in the grid using the right click menu and accelerator keys CTRL+C and CTRL+V, respectively.

The two-dimension array will be as shown in the following figure. The number of columns corresponds to the second dimension of the array. The number of rows corresponds to the first dimension of the array.
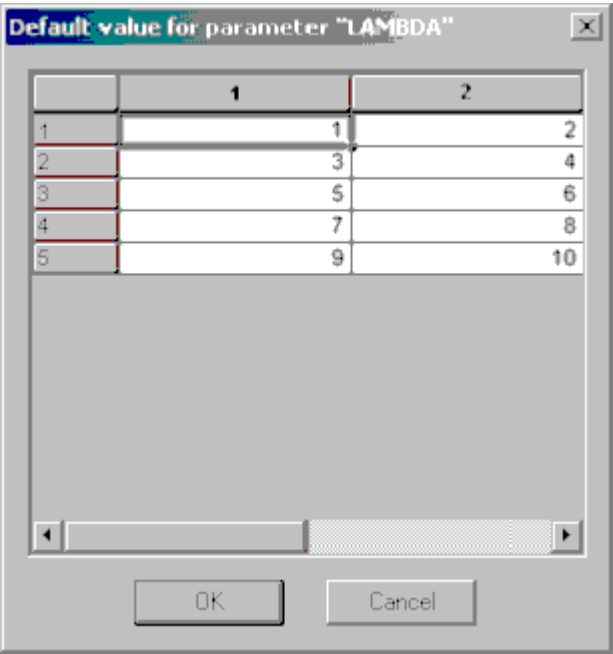
Figure 18: Advanced Editing Grid - Two Dimension Array, Size 5x2
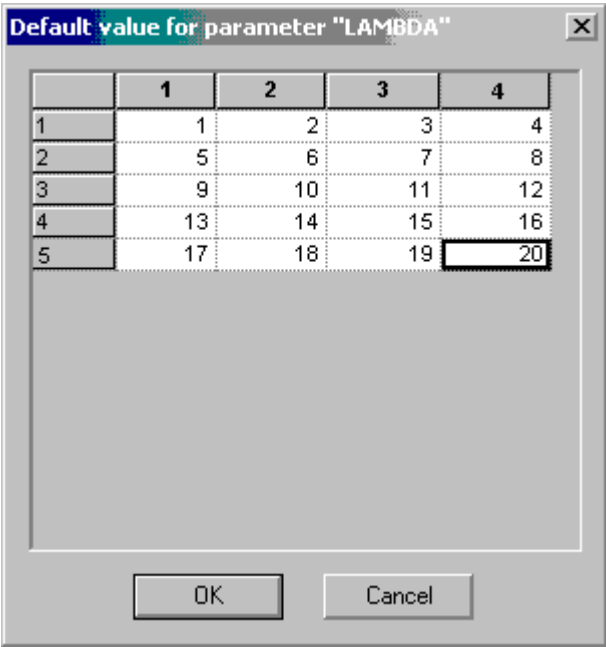
Figure 19: Advanced Editing Grid - Two Dimension Array, Size 5x4
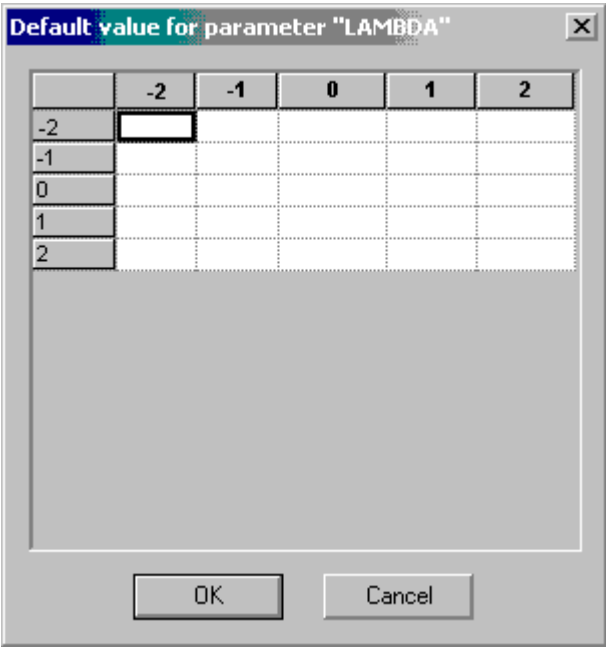

Figure 20: Advanced Editing Grid - Two Dimension Array, Size 5x5 with Negative Indices

To use the advanced editing grid for arrays

1   Click the *Honeywell* parameters tab.

2   Locate the parameter with dimension array value you want to change. For example, the USER_CHAR parameter for an ADV_POS_BASIC block in a Fisher_Controls DVC 5000 device.

3   Scroll to the "Default value" column and click the row for the USER_CHAR parameter. Click the arrow button in the row to open the Default value for parameter "USER_CHAR" dialog box.

4   In the first column, type the desired value for each element as applicable.

5   Click the **OK** button to save your edits and close the dialog.

> **Attention**
> Any array value edits are not active until the PDE is closed and all edits are saved.

9.6 Reviewing general parameter functions

The *Value* CDPs tab will not show all the attributes of the parameters. There are some attributes, which are internally managed. Using the Manage view feature can hide attributes. In such scenarios the need arises to copy the whole parameter definition irrespective of whether attribute is internally managed or hidden through views. The cut/copy/paste parameters will allow copying the whole parameter definition and pasting the definition as a new parameter. This feature will also work across PDE, meaning in one instance of PDE the parameters can be copied and pasted in another instance of PDE.

9.6.1 Cutting parameters

The following consideration should be observed when cutting parameters:

• When cutting parameters, be sure to select a complete row.

The following is used to cut parameters:

1 Click a parameter on the active tab and then right-click to open the right-click menu.

2 On the right-click menu, click **Cut parameters** to remove the parameter definition and copy it to the clipboard.

9.6.2 Copying parameters

The following considerations should be observed when copying parameters:

• Copy parameter menu is enabled only if any of the selected rows has a parameter definition.

• Multiple rows can be selected to copy multiple parameters.

The following procedure is used to copy parameters:

1 Click a parameter on the active tab and then right-click to open the right-click menu.

2 On the right-click menu, click **Copy parameters** to copy the selected parameter.

9.6.3 Pasting parameters

The following considerations should be observed when pasting parameters:

• The paste parameter menu is enabled only if there are any parameters available in the clipboard for pasting.

• The pasting starts from the row where the menu was right-clicked.

• Pasting on the row, which has defined parameter, overwrites the parameter attributes.

• A new parameter name is generated if the parameter name already exists.

The following procedure is used to paste parameters:

1 Click a parameter on the active tab and right-click to open the right-click menu.

2 On the right-click menu, click **Paste parameters** to paste the previously copied parameter in the selected row.

9.7 Automatic form layout

The automatic form layout generation is the feature that generates the form layout from the order of the parameters defined.

9.7.1 CDB and CAB

- Any update to the parameters in the *Value CDPs* main tab will be reflected in the *Value CDPs* tab of the Form Layout.
- The order of the parameter in the *Value CDPs* main tab and the *Value CDPs* tab of the Form Layout will be same.
- The GUI control used for the parameter will be decided while populating the data to the Engineering Repository Database (ERDB) based on the data type of the parameter.
- In the case where the form layout is disturbed, the form layout can be regenerated from the **Regenerate Layout** selection in the **Options** menu. This will create a layout by placing all the custom parameters in the Left field name of the form layout.
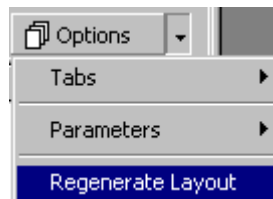
9.7.2 CDB

This feature is only available to:

- The *Value CDPs* tab on the form layout CDB.
- The *Value CDPs* tab in Form Layout Value CDPs is designated as the tab in which the custom parameters will be shown. Any custom parameter added in the *Value CDPs* main tab, would also be added to the Value CDPs tab of the *Form Layout* tab. If the order of the parameters in the Form Layout tab is altered, then the automatic form layout generation will work minimally.
- Any difference in the order of the parameters in the *Value CDPs* main tab and the second tab of the form layout will cause the automatic form layout generation to work minimally.
- The following should be considered.
- The parameter will be added to the end of the *Value CDPs* tab if the appropriate place for the new parameter could not be identified.
- Even if the above case fails then the parameter will be added to the first tab of the Form Layout.
- Failure in both the above cases will generate an error and the parameter should be added manually.

9.7.3 CAB

This feature is only available to:

- The *Value CDPs* tab and Parameter References tab.
- The " *Value CDPs* tab and *Parameter References* tabs in the Form Layout are designated as the tabs in which the Custom and Parameter Reference parameters will be shown respectively. Any custom parameter added in the Value CDPs main tab would also be added to the *Value CDPs* tab of the *Form Layout tab*. Any parameter reference added in the Parameter References main tab, would also be added to the *Parameter*

References tab of the *Form Layout* tab. If the order of the parameters in the *Form Layout* tab is altered, then the automatic form layout generation will work minimally.

- Any update to the parameters in the Parameter References main tab will be reflected in the *Parameter References* tab of the Form Layout.

- The order of the parameters in the *Parameter References* main tab and the *Parameter References* tab of the Form Layout will be same.

- Any difference in the order of the parameters in the *Value CDPs/Parameter References* main tab and the *Value CDPs/Parameter References* tab of the Form Layout respectively, will cause the automatic form layout generation to work minimally.

- The following should be considered.

- The parameter will be added to the end of the *Value CDPs/Parameter References* tab based on the parameter category, if the appropriate place for the new parameter could not be identified.

- Even if the above case fails then the parameter will be added to the first tab of the Form Layout.

- Failure in both the above cases will generate an error and the parameter should be added manually.

10 Reviewing PDE Views

You can customize the views of the Standard parameters, *Honeywell* parameters, and *Value CDPs* tabs in PDE to show only the parameter attributes that you select through view configuration.

Related topics

"Reviewing PDE views for CAB and CDB" on page 90
"Reviewing Manage PDE views for Fieldbus" on page 93

10.1 Reviewing PDE views for CAB and CDB

The view is an option in PDE to switch the columns of the grid on or off. The view information is stored with respect to the block type and is applied only to the Custom parameter grid (Value CDPs). The view information is carried along with the block type. If the block type opened by PDE has a view defined, then the block type view will be applied to the Custom parameter grid otherwise; the system default view will be applied.

Consider the following while reviewing the PDE views for CAB and CDB:

- You configure the parameter attributes through a check box selection in the Parameter Attributes list box.
- All the system default parameter attributes will be listed in the parameter attributes list.
- All the mandatory parameter attributes are shaded, since they are not available for configuration and they will always be selected.
- The grayed parameter attributes will always be selected and cannot be switched off.
- The parameter attributes list will have a check box to indicate the attributes to be shown in the grid. The checked items will be shown and un-checked items will not be shown in the grid.
- Clicking on the OK button will save the view information in memory with the block type definition.
- Only after the block type definition is written to disk, will the view information be physically written along with the block type definition.
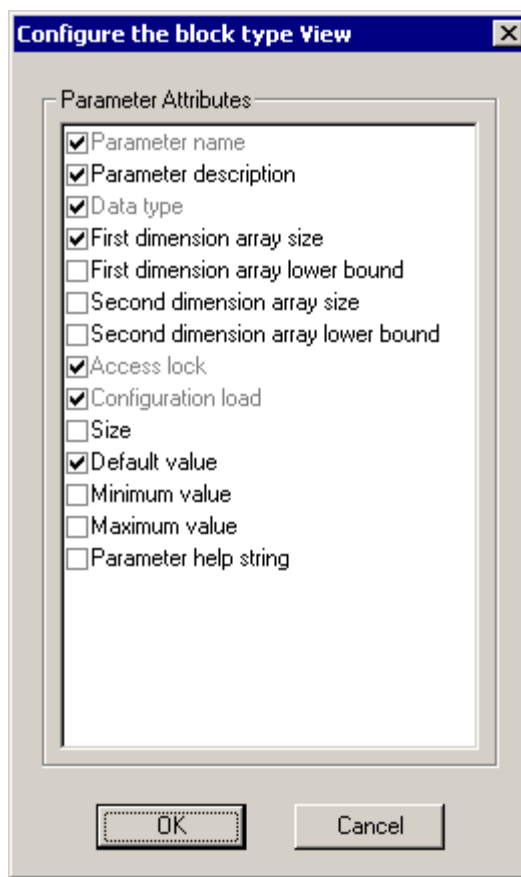- Clicking on the Cancel button will discard all the changes.

10.1.1 Launching Configure PDE views dialog for CAB

The PDE window should be opened to invoke the Configure PDE views dialog.

Selecting the menu item View > Configure PDE View will invoke the Configure PDE views dialog.
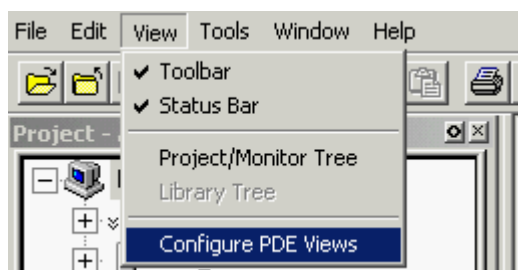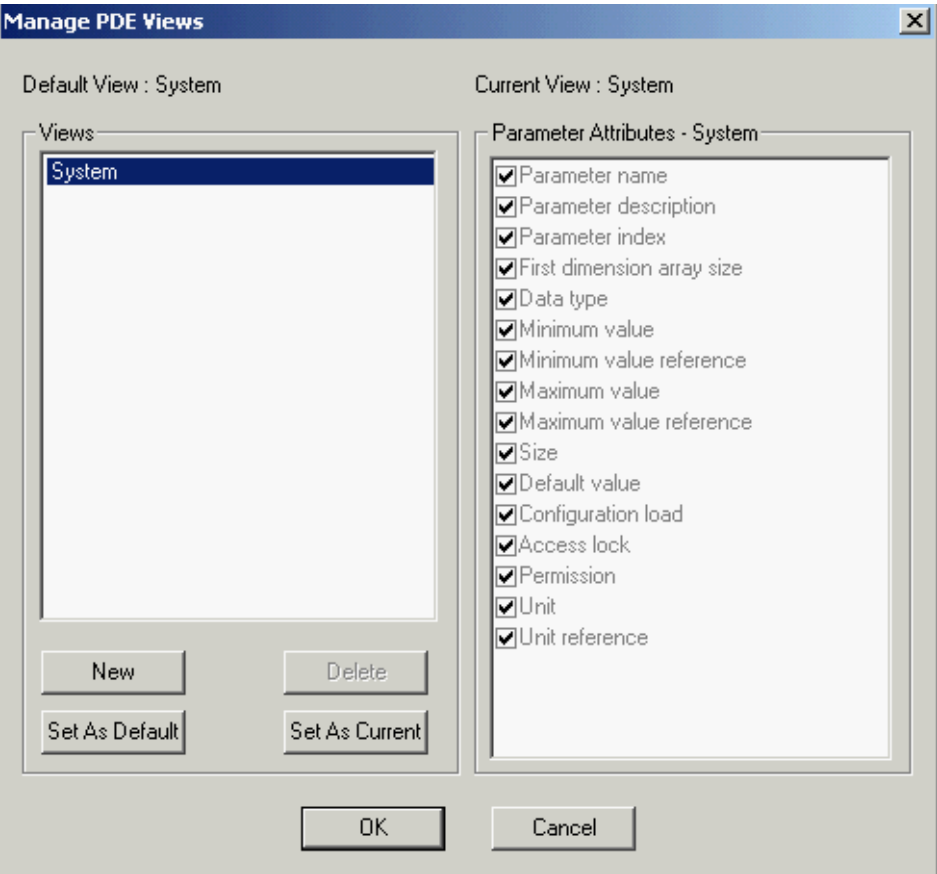
Table 2: PDE Views Dialog
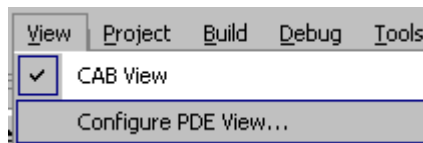
10.1.2 Launching Configure PDE views dialog for CDB

The PDE window should be opened to invoke the Configure PDE views dialog. Selecting the menu item View > Configure PDE Views will invoke the Configure PDE views dialog.

Table 3: PDE Views Dialog

10.2 Reviewing Manage PDE views for Fieldbus

Views are an option in PDE to switch the columns of the grid on or off. The view information is stored with respect to the user and is applied only to the Standard Parameters grid, and Honeywell Parameters grid. Views can be created and modified and applied from this Manage PDE views dialog for Fieldbus devices only.

Consider the following while reviewing Manage PDE views for Fieldbus:

- All the defined views of the current logged in user will be included in the Views list on Manage PDE Views dialog.
- The Default View field, shown just above the Views list, identifies the name of the current default view.
- The Current View field identifies the name of the current view being used.
- The Views list box is a single selection list.
- The Parameter Attributes list box is a multiple-selection list and it identifies the parameter attributes configured for the view selected in the Views list.
- You can select a view in the View list to check its configuration in the Parameter Attributes list.
- The System view is factory configured and you cannot modify or delete it. It will show all the parameter attributes.
- You must assign a unique name to each view you create.
- The Current view is shown just above the Parameter attributes list.
- In the Views list, the views are displayed or defined by the current logged-in user. Also, the current view is selected, but only one view can be selected at a time.
- The Parameter attributes list box is a multi-selection list. In this box, checked items are shown and un-checked items are not shown in the grid. Also, mandatory parameter attributes are grayed (always selected and cannot be switched off).
- Selecting a view in the Views list will show the parameters that are switched ON/OFF for the view in the parameters attributes list.
- Clicking the OK button prompts for a save if any modifications were done, and clicking the Cancel button discards all the changes.

10.2.1 Launching Manage PDE Views dialog

The PDE window should be opened to invoke the manage views dialog. Selecting the menu item View > Configure PDE Views will invoke the Manage PDE Views dialog.
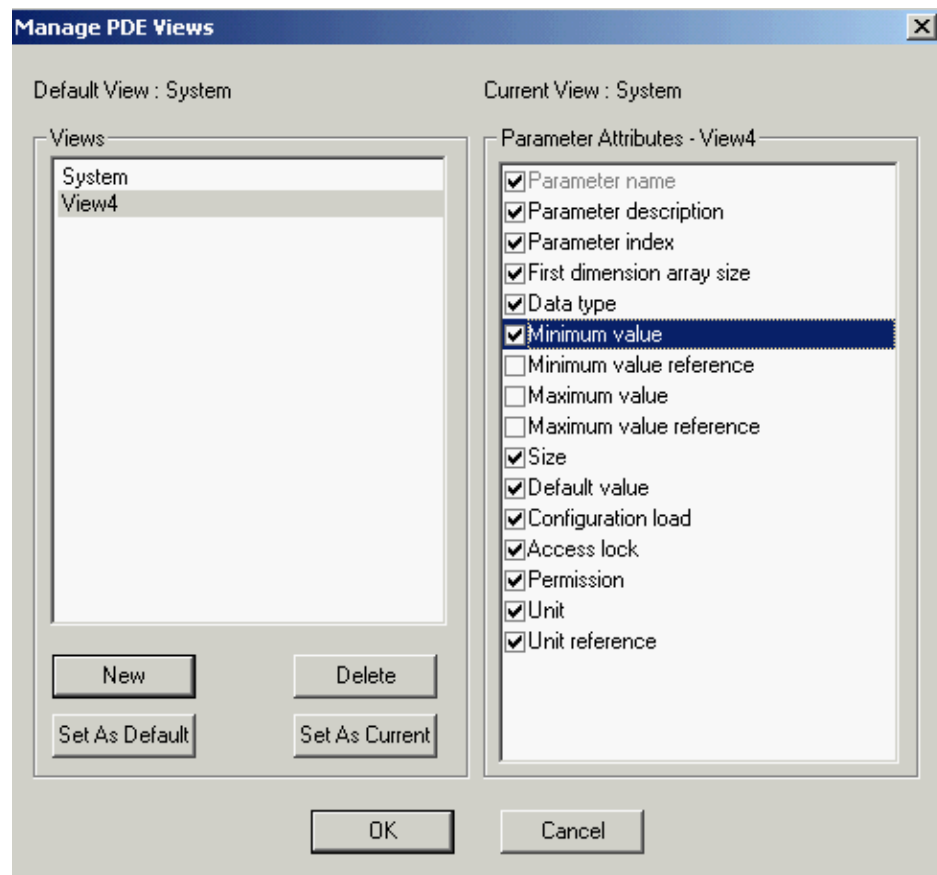
Table 4: PDE Views Dialog
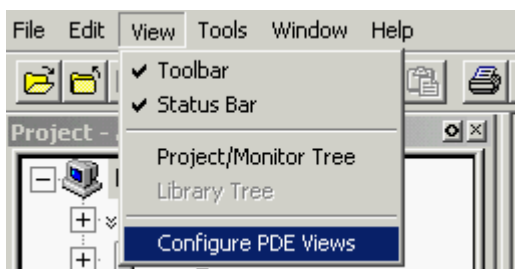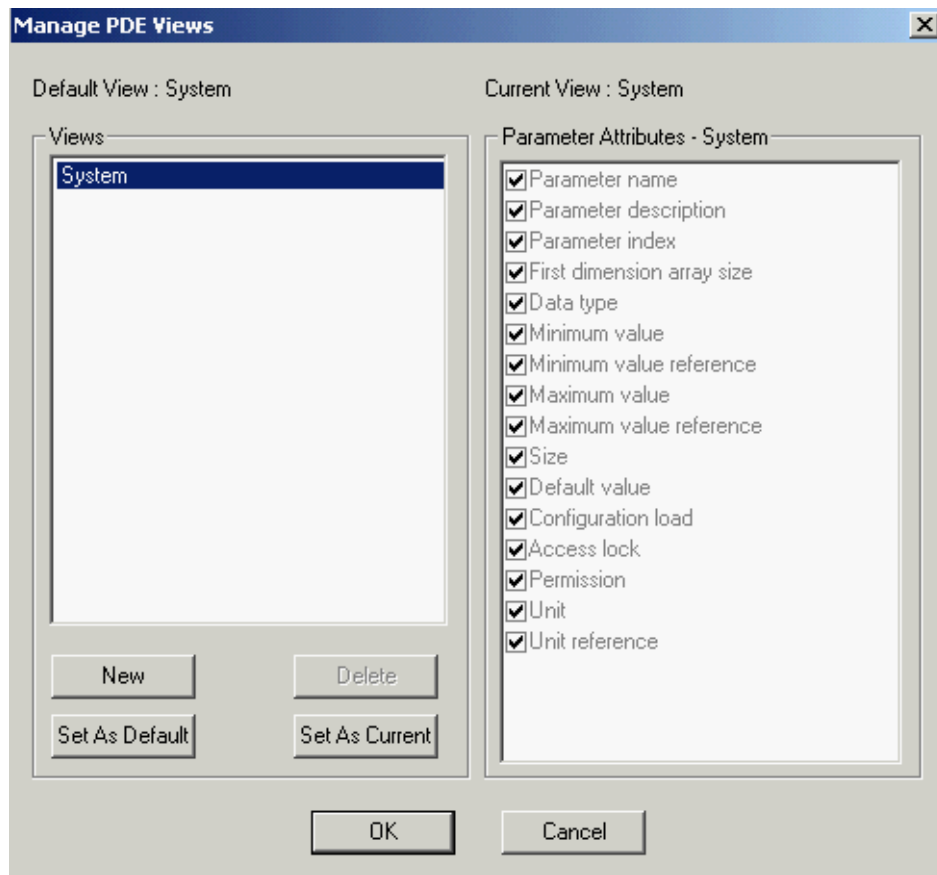
10.2.2 Creating new Manage view
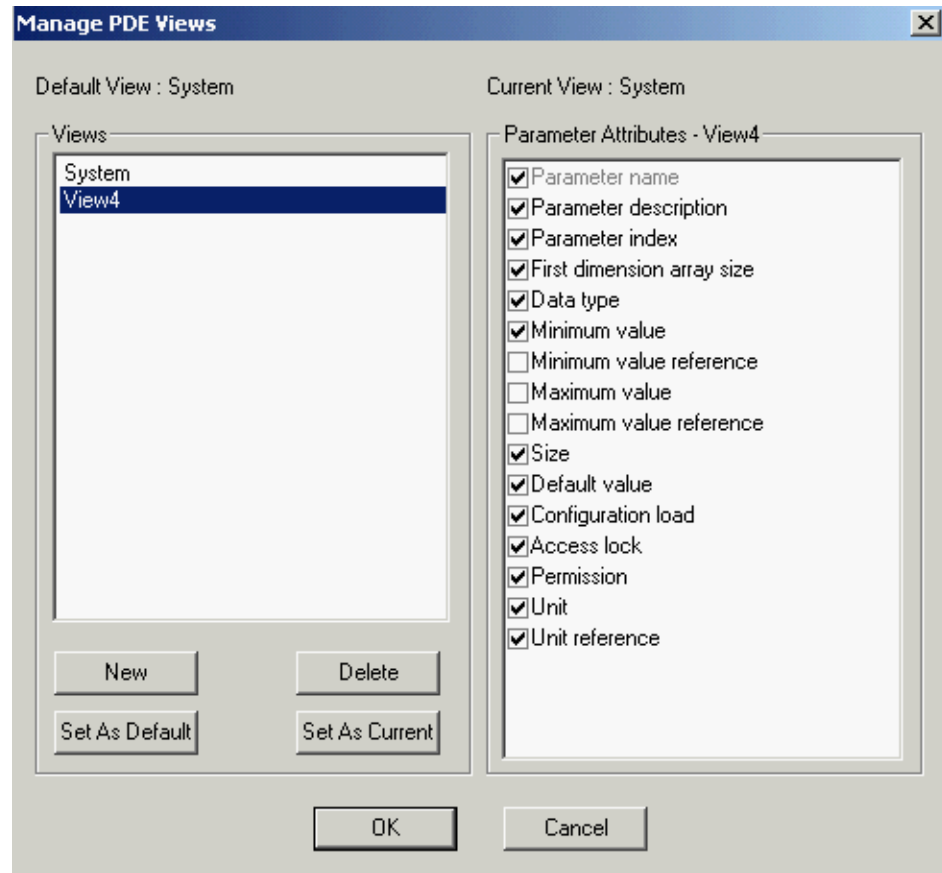
Use the following procedure to add a new view.

1 Click on **New**.

2 Type a unique name for the new view.

3 Select the parameters from the Parameter Attributes-System list to be shown for this view.

4 Click **OK.**

10.2.3 Deleting Manage view

Use the following procedure to delete a view.

1 Click on the view that you want to delete.

2 click **Delete**.

10.2.4 Setting view as default view

Use the following procedure to set a view as the default view.

1   Click on the view that you want to set as the Default view.

2   Click **Set As Default**.

3   Click **OK**.

10.2.5 Setting view as current view

Use the following procedure to set a view to the current view.

1   Click on the view that you want to set as the Current view.

2   Click **Set As Current**.

3   Click **OK**.

11 Launching and Closing PDE

Related topics

11.1 Launching PDE

Control Builder is running and you have logged on with engineering access level or higher, if you want to edit parameters. If you log on with Operator access level, you will be granted read-only access.

1 On the *Library* tab, click the plus sign for the device named folder.

2 Click the plus sign for the device icon to expose its blocks.

3 Double-click the desired device block.

4 The PDE for the selected block type opens in the Control Drawing area of Control Builder.

In the example below, a Fieldbus device has been selected from the library. The previous steps are the same if a CAB or CDB device had been selected.

11.2 Closing/re-opening PDE in VS.NET IDE when using CAB

The PDE window can be closed at any time within the Visual Studio .NET IDE. This can be done using the menu option **File** > **Close**. The PDE window should be the active window when using this menu item.

If any data is to be saved before closing the PDE window, the following message will be displayed to save the PDE data changes.
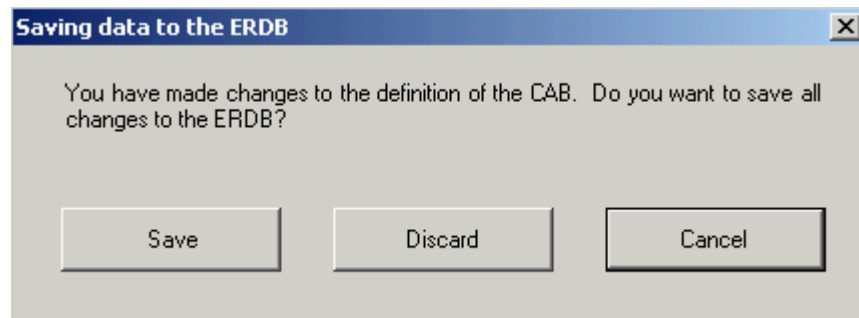
The closed PDE window can be opened any time using the menu option **File** > **Open** > **Parameter Definition Editor**.
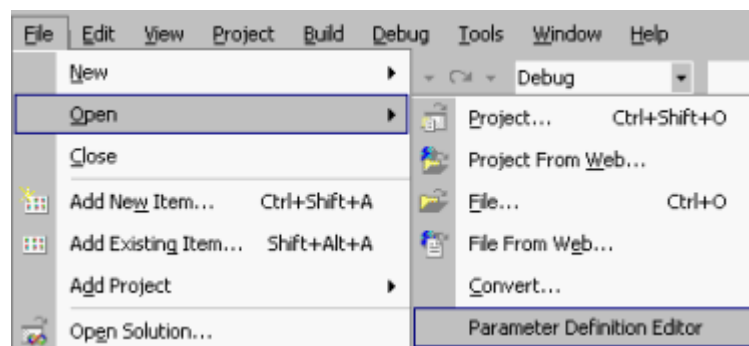
This will re-open the PDE with the saved data.

12 Error Messages

The error messages that are specific to the PDE will be stored internal to PDE and displayed by PDE. The error messages that are generated by the PDE are listed below. The messages are grouped based on the context in which the errors are generated.

Related topics

12.1 Editing parameter names

The following table identifies possible error messages when editing parameter names.

Error Message	Error Description
"Parameter name already exist. Please enter new parameter name."	The new parameter entered is not unique.
"Parameter name cannot be empty. Please enter the parameter name."	Editing the parameter name results in an empty string.
"Invalid character in the parameter name."	Invalid characters are entered for the parameter name.
"Length of the Parameter name exceeds the maximum length."	The length of the parameter name exceeds the specified length.
"First character in the Parameter name should be alphabetic."	The first character of the parameter is invalid.

12.2 Editing cells

The following table identifies possible error messages when editing cells.

Error Message	Error Description
"Invalid value entered in the cell. Please enter valid value."	The value entered is the cell is invalid. The invalid value could be non-numeric characters in the numeric cell, etc.
"The data type for the parameter is not defined. Cannot edit the cell."	A data type of the parameter is not defined and a cell is being edited that depends on the data type. This message is specific to the Default value, Min/Max value.

12.3 Editing array values

The following table identifies possible error messages when editing array values.

Error Message	Error Description
"Array value cannot be blank in the cell %1. Please enter the array value."	An intermediate array value is left blank in the array value editing grid.
"Invalid array size. Array size cannot be less than zero or empty."	Array size entered is invalid.
"First dimension of array should be defined to specify second dimension."	The second dimension is being edited without first specifying the first dimension.
"Invalid array value syntax. Cannot set the array value."	The syntax of the array definition is invalid. This message is applicable during paste operation.

12.4 Validating ranges

The following table identifies possible error messages when validating ranges.

Error Message	Error Description
"The value entered is less than the minimum value."	The default value of the parameter is less than its minimum value.
"The value entered is greater than the maximum value."	The default value of the parameter is greater than its maximum value.
"The minimum value cannot be greater than maximum value."	The minimum value of the parameter is greater than its maximum value.
"The maximum value cannot be less than the minimum value."	The maximum value of the parameter is less than its minimum value.
"Invalid string length. The length of the string cannot be zero."	The length of the string is entered as zero.
"The Default Value(s) is not in range due to change in the cell value. Cannot change the cell value."	The default value of the parameter is not within the range of minimum/maximum due to change in the minimum/maximum value.
"The value entered is greater than the maximum length allowed."	The default value entered for the string data type is greater than the length of the string specified.
"The value does not fit into the size of the data type."	The value entered in the cell does not fit the size of the data type.
"Invalid parameter for parameter reference. The parameter does not exist!"	The Min/Max/Unit parameter reference does not validate to any parameter. This message is specific to FF.
"The data size of the field is exceeding the maximum length of the field. The maximum length of the field is 255 characters."	The parameter description field exceeds the maximum length of 255 characters.
"One of the array values is invalid or does not fit into the size of the data type."	Multiple array values are being pasted or entered in the cell that resulted in an invalid value.
"The length of the string is greater than the maximum length allowed."	The length of the string is greater than the length specified in the size attribute.

12.5 Editing the Symbol attribute tab

The following table identifies possible error messages when editing the Symbol Attribute tab.

Error Message	Error Description
"The symbol attribute name is not defined. Cannot edit the cell."	The symbol attribute in the parameter name column is not defined and the pins are being assigned.
"The order is not unique in the column. Please enter the unique value."	The pin values entered in the symbol attributes tab is not unique.
"The pin exposure permission of parameter"%1" does not allow to configure"%2" pin."	The parameter entered for specifying symbol attribute does not have valid pin exposure permission.
"Parameter is already defined in the row %1."	The same parameter has been used more than once in the symbol attribute.
"Invalid syntax in parameter name."	The lexical syntax of the parameter name is invalid (as in using different character to specify the array index, etc.).
"Invalid array index specified in the parameter name."	The arrayed parameter is being referred, the array index is invalid.
"The array subscript is out of range."	The arrayed parameter subscript is out of range.
""Index for the parameter is invalid. The parameter is not an array."	The array index is specified for the non-arrayed parameter.
"Parameter is defined as array. But array subscript is not specified."	The array index is not specified for the arrayed parameter.
"Invalid parameter"%1". Please select the valid parameter."	An invalid parameter name is picked in the Parameter Picker dialog.

12.6 Editing form layouts

The following table identifies possible error messages when editing form layouts.

Error Message	Error Description
"Row [%1]: Invalid Parameter name entered in the row"	The parameter name for the form layout is invalid.
"Row [%1]: Group should have at least 1 parameter. Blank groups are not allowed!"	The group box does not have any parameter defined.
"Row [%1]: Grid should have at least 1 column. Blank grids are not allowed!"	The grid does not have any parameter associated with it.
"Row [%1]: The parameter in the row is already used once. Cannot use the same parameter in multiple tabs."	There are multiple instances of the same parameter in the form layout.
"Row [%1]: Parameter category""%2"" is not allowed in the form layout!"	A parameter other than custom/standard/vendor parameter category is used in the form layout.
"Row [%1]: Invalid number of lines visible specified in the row. The value should be >0."	The number of visible lines for the grid is invalid.
"Delete/Copy/Cut/Paste of MODE group is not allowed. This is a mandatory parameter group on the form layout."	The parameter/group of the MODE parameter is being deleted. This message is specific to Fieldbus.
"Form layout tab name cannot be empty."	The tab name entered is empty.
"The paste operation from the current row will likely overwrite the MODE group. This is a mandatory parameter group on the form layout and cannot be overwritten."	The paste operation is likely to overwrite the MODE group. This message is specific to Fieldbus.
"New row cannot be added to the MODE group. The MODE group is fixed."	A new row is being inserted into the MODE group. This message is specific to Fieldbus.
"Row[%1]: The left group name is mandatory."	The left group name is not specified.
"Row[%1]: The right group name is mandatory."	The right group name is not specified.
"Row[%1]: The grid name is mandatory."	The grid name is not specified.
"Row[%1] : Right field name is not allowed without left field name"	A row has only right field defined with a left field.
"Row[%1]: Right field name cannot be empty in the row."	A bottom row is left blank in the right field.
"The tab name"%1" is already used. Please enter the new tab name."	A new tab name entered already exist. The tab names should be unique.
"Cannot create/move tab before"%s" tab. "%s" tab position is fixed on form layout."	A user tries to create a new tab before the read-only tab. With FF, it is the"Alarm" tab and with CAB/CDB, it is the "Main" tab. Since the read-only tab position is fixed, no tabs can be created before the tab.
"Cannot DELETE any tab before"%s" tab. "%s" tab position is fixed on form layout."	User tries to delete a tab before any read-only tab. With FF, it is the"Alarm" tab and with CAB/CDB, it is the "Main" tab. Since read-only tab position is fixed, no tabs can be deleted before the tab.
"Cannot RENAME"%s" tab. "%s" tab is mandatory tab on form layout."	User tries to rename the read-only tab. With FF, it is the "Alarm" tab and with CAB/CDB, it is the "Main" tab. Since the read-only tab position and name are fixed, the tab cannot be renamed.
"Cannot DELETE"%s" tab. "%s" tab is mandatory tab on form layout."	A user tries to delete the read-only tab. With FF, it is the "Alarm" tab and with CAB/CDB, it is the"Main" tab. Since the read-only tab position and name are fixed, the tab cannot be deleted.

Error Message	Error Description
"Cannot MOVE"%1" tab. "%1" tab position is fixed on form layout."	User tries to drag and drop the read-only tab. With FF, it is the"Alarm" tab and with CAB/CDB, it is the "Main" tab. Since the read-only tab position and name are fixed, the tab cannot be deleted.
"Automatic form layout generation failed. The parameter"%1" was not added to the form layout. The parameter has to be added manually to the form layout."	The newly created parameter on the "Value CDPs"/ Parameter References tab was not added on the form layout. User changing the parameter order could cause this.
"Row [%s]: Parameter ""%s"" with category ""%s"" is not allowed inside grid."	The parameter, which belongs to category that is not allowed on the grid, is added to the grid.
"Row [%1]: Non arrayed parameter""%2"" is not allowed inside grid."	The non arrayed parameter is added as a column of the grid.

12.7 Validating manage views

The following table identifies possible error messages when validating manage views.

Error Message	Error Description
"%s - The view name already exists, please enter different view name!"	The duplicate view name is entered.
"No tabs are configured to be associated with views. Cannot configure views."	None of the tab is configured to show Manage views and the configure views dialog is invoked by the container.
"The active tab does not support views. Only the following tabs support views."	The tab configured for Manage views is not active and the configure views dialog is invoked.

12.8 Saving PDE data

The following table identifies possible error messages when saving PDE data.

Error Message	Error Description
"The parameter attribute ""%1"" is mandatory in the row ""%2""".	One of the mandatory parameter attributes is not specified. This message comes up while saving.
"Cannot save file. No file is opened to save".	No file is opened and the Save method of PDE is called.
"Error writing the XML file to the disk."	Any Error occurred while saving the .DEF.XML file. More information about the error will be logged in the EHI error log file.

13 Notices

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- Send an email to security@honeywell.com.

  or

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13.4 Training classes

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13 NOTICES