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IO Auto Assignment Frequently Asked Questions

SUMMARY

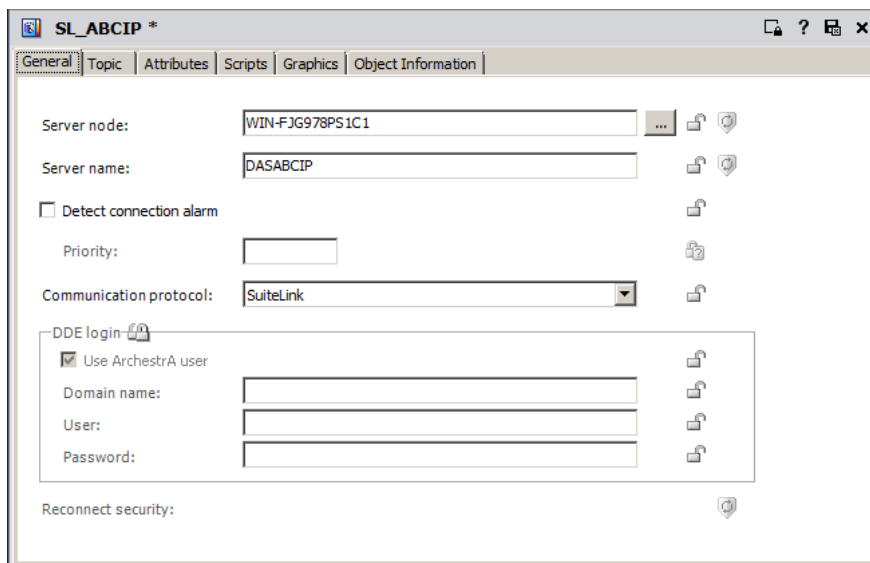
IO auto assignment is new for Wonderware System Platform 2014 R2. The I/O auto assignment feature now provides an automated n application objects to devices, and of specifying input sources and output destinations on attributes.

SUPPORTING INFORMATION

How is IO Device Mapping Configured?

Below is sample configuration:

First, create a DI object in Application Server. For example, a DDESuiteLinkClient object. This object will be configured to point to : DeviceGroup/Topic.



The screenshot shows a configuration window titled "SL_ABCIP *". It has tabs for General, Topic, Attributes, Scripts, Graphics, and Object Information. The General tab is active. Fields include: Server node (WIN-FJG978PS1C1), Server name (DASABCIP), Detect connection alarm (unchecked), Priority (empty), Communication protocol (SuiteLink), DDE login (checked), Use ArchestraA user (checked), Domain name (empty), User (empty), Password (empty), and Reconnect security (empty). Each field has a small icon to its right.

Figure 1: DI Object configuration

The Application objects will be configured in such a way that the name of the object matches the name of the item in the PLC and the name of the PLC attribute. For instance, you have a user defined PLC item named **PID_Pressure** with attributes named **PV**, **SP**, **CV**, can then create a UserDefined object in App Server named **PID_Pressure** then create attributes in this object to match the PLC attribute I/O feature from the list of available features for attributes that will be connected to live I/O.

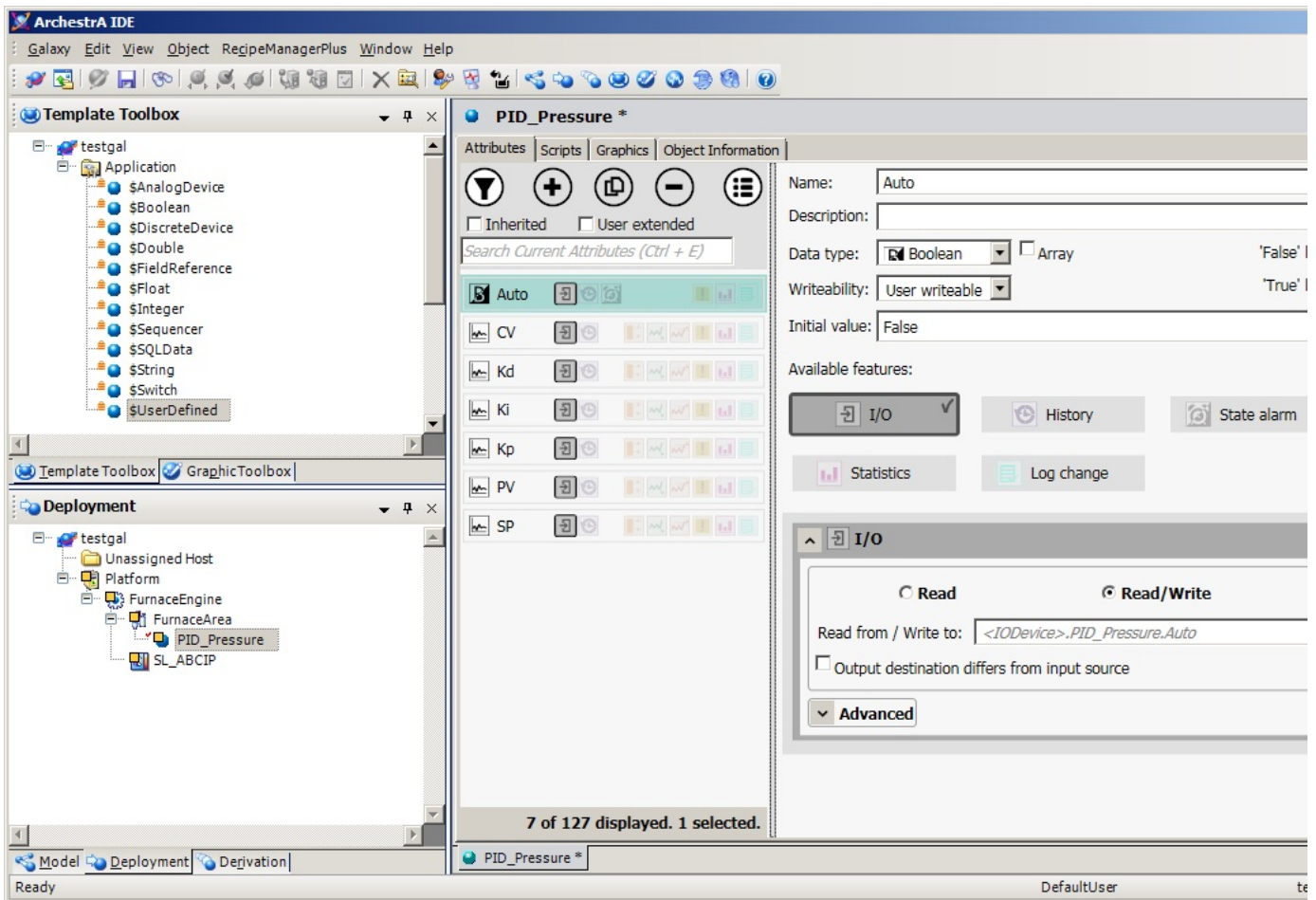


Figure 2: Attribute configuration

In the IDE, make sure that the **IO Devices** and **IO Device Mapping** windows are visible (use the **View** menu item in the IDE if needed). The **IO Devices** window allows you to move your App objects that contain IO under the DI object and scan group that will be used to obtain IO.

The example below shows the IO Devices window before and after the **PID_Pressure** object was moved from the **Unassigned IO Device** object/Scan Group to the **FurnaceArea** object/Scan Group:

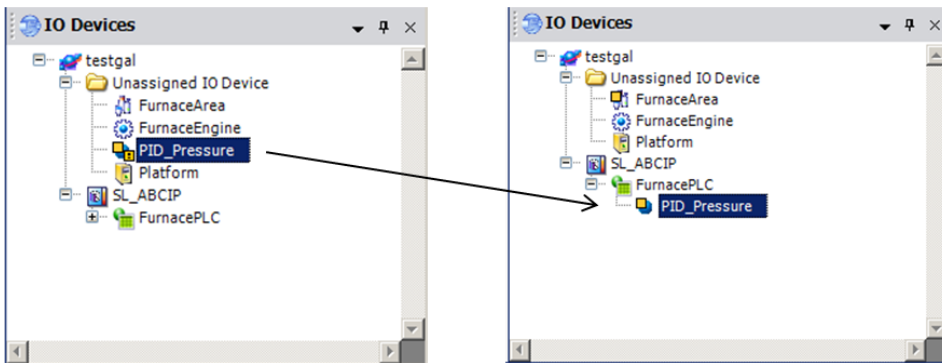
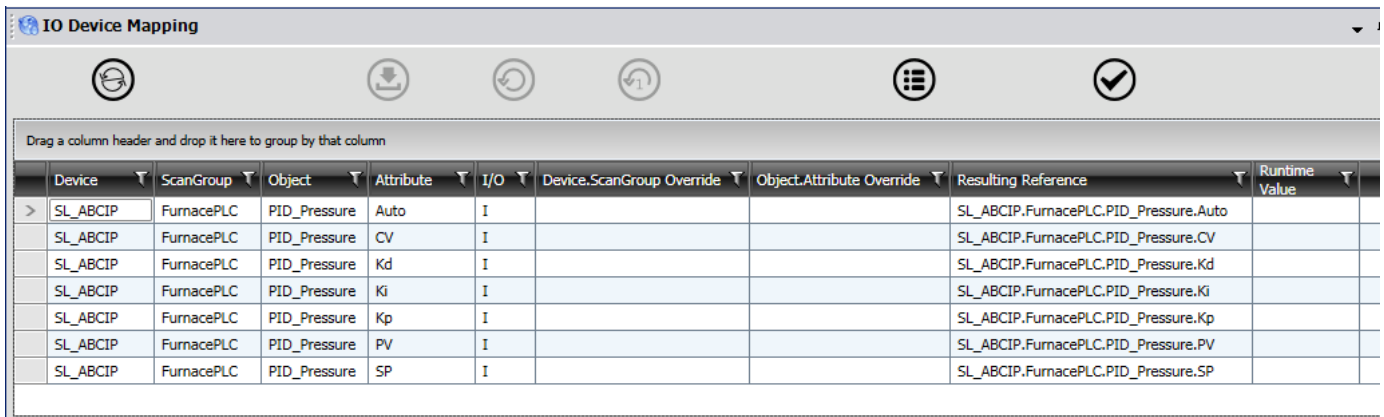


Figure 3: IO Devices configuration

After dragging the application object under the proper DI object and scan group you can use the IO Device mapping window to view the IO Reference.

The column named **Resulting Reference** contains the IO Reference that is assigned to the Object.Attribute.



Drag a column header and drop it here to group by that column

Device	ScanGroup	Object	Attribute	I/O	Device.ScanGroup Override	Object.Attribute Override	Resulting Reference	Runtime Value
> SL_ABCIP	FurnacePLC	PID_Pressure	Auto	I			SL_ABCIP.FurnacePLC.PID_Pressure.Auto	
SL_ABCIP	FurnacePLC	PID_Pressure	CV	I			SL_ABCIP.FurnacePLC.PID_Pressure.CV	
SL_ABCIP	FurnacePLC	PID_Pressure	Kd	I			SL_ABCIP.FurnacePLC.PID_Pressure.Kd	
SL_ABCIP	FurnacePLC	PID_Pressure	Ki	I			SL_ABCIP.FurnacePLC.PID_Pressure.Ki	
SL_ABCIP	FurnacePLC	PID_Pressure	Kp	I			SL_ABCIP.FurnacePLC.PID_Pressure.Kp	
SL_ABCIP	FurnacePLC	PID_Pressure	PV	I			SL_ABCIP.FurnacePLC.PID_Pressure.PV	
SL_ABCIP	FurnacePLC	PID_Pressure	SP	I			SL_ABCIP.FurnacePLC.PID_Pressure.SP	

Figure 4: Resulting Reference

How are the IO References automatically built?

When you drag an app object that is configured with IO references to the DI object and scan group in the IO Devices window, the IO built by using the Device.ScanGroup and Object.Attribute. For instance:

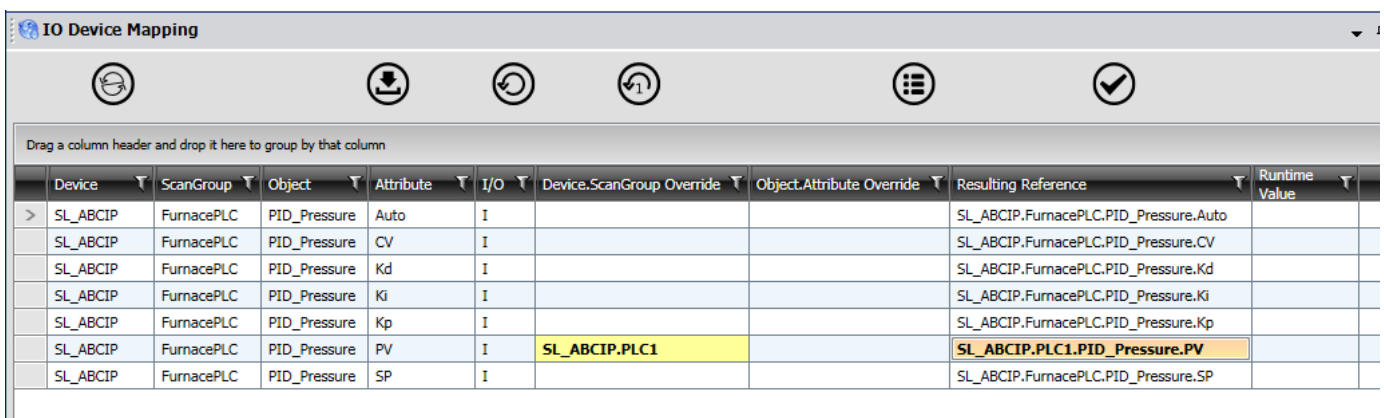
In the example above, we have a DDESuiteLinkClient object named **SL_ABCIP** which contains a Scan Group named **FurnacePLC**. created is named **PID_Pressure** with the following attributes (with the IO feature turned on): Auto, CV, Kd, Ki, Kp, PV, SP

The resulting IO reference for these attributes become: <Device>.<ScanGroup>.<Object>.<Attribute> or

SL_ABCIP.FurnacePLC.PID_Pressure.Auto
 SL_ABCIP.FurnacePLC.PID_Pressure.CV
 SL_ABCIP.FurnacePLC.PID_Pressure.Kd
 SL_ABCIP.FurnacePLC.PID_Pressure.Ki
 SL_ABCIP.FurnacePLC.PID_Pressure.Kp
 SL_ABCIP.FurnacePLC.PID_Pressure.PV
 SL_ABCIP.FurnacePLC.PID_Pressure.SP

Is it possible to override the Device.ScanGroup part of the automatically created IO reference?

Yes. In the IO Device Mapping window it is possible to override the Device.ScanGroup part of the IO reference for each reference. For automatically created reference is **SL_ABCIP.FurnacePLC.PID_Pressure.PV** and you want to change the ScanGroup part of the reference enter **SL_ABCIP.PLC1** in the **Device.ScanGroup Override** field in the IO Device Mapping table. The **Resulting Reference** column change to **SL_ABCIP.PLC1.PID_Pressure.PV**.



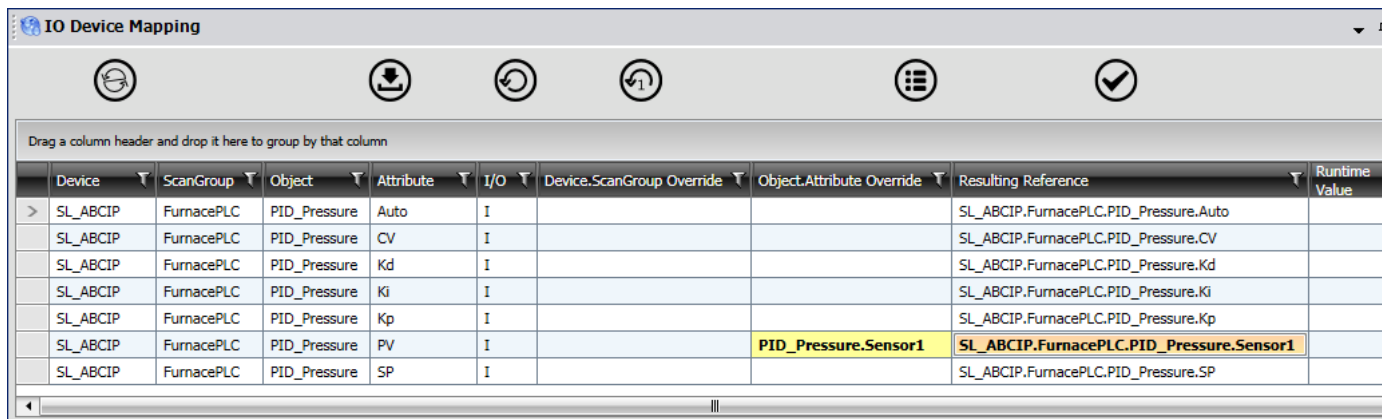
Drag a column header and drop it here to group by that column

Device	ScanGroup	Object	Attribute	I/O	Device.ScanGroup Override	Object.Attribute Override	Resulting Reference	Runtime Value
> SL_ABCIP	FurnacePLC	PID_Pressure	Auto	I			SL_ABCIP.FurnacePLC.PID_Pressure.Auto	
SL_ABCIP	FurnacePLC	PID_Pressure	CV	I			SL_ABCIP.FurnacePLC.PID_Pressure.CV	
SL_ABCIP	FurnacePLC	PID_Pressure	Kd	I			SL_ABCIP.FurnacePLC.PID_Pressure.Kd	
SL_ABCIP	FurnacePLC	PID_Pressure	Ki	I			SL_ABCIP.FurnacePLC.PID_Pressure.Ki	
SL_ABCIP	FurnacePLC	PID_Pressure	Kp	I			SL_ABCIP.FurnacePLC.PID_Pressure.Kp	
SL_ABCIP	FurnacePLC	PID_Pressure	PV	I	SL_ABCIP.PLC1		SL_ABCIP.PLC1.PID_Pressure.PV	
SL_ABCIP	FurnacePLC	PID_Pressure	SP	I			SL_ABCIP.FurnacePLC.PID_Pressure.SP	

Figure 5: Device.ScanGroup Override

Is it possible to override the Object.Attribute part of the automatically created IO reference?

Yes. In the IO Device Mapping window it is possible to override the Object.Attribute part of the IO reference for each reference. For automatically created reference is **SL_ABCIP.FurnacePLC.PID_Pressure.PV** and you want to change the Attribute part of the reference enter **PID_Pressure.Sensor1** in the **Object.Attribute Override** field in the IO Device Mapping table. The **Resulting Reference** column will change to **SL_ABCIP.FurnacePLC.PID_Pressure.Sensor1**.

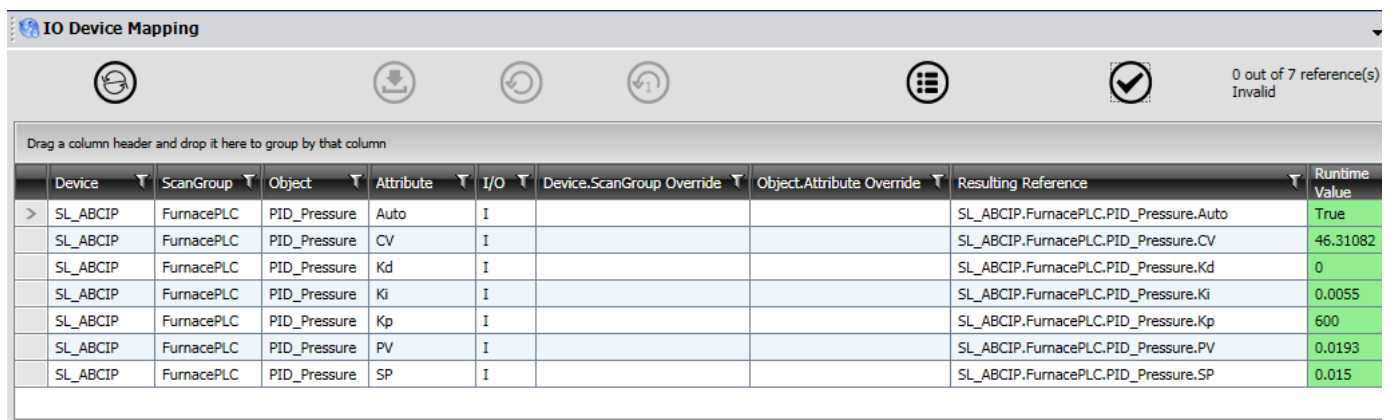


Device	ScanGroup	Object	Attribute	I/O	Device.ScanGroup Override	Object.Attribute Override	Resulting Reference	Runtime Value
SL_ABCIP	FurnacePLC	PID_Pressure	Auto	I			SL_ABCIP.FurnacePLC.PID_Pressure.Auto	
SL_ABCIP	FurnacePLC	PID_Pressure	CV	I			SL_ABCIP.FurnacePLC.PID_Pressure.CV	
SL_ABCIP	FurnacePLC	PID_Pressure	Kd	I			SL_ABCIP.FurnacePLC.PID_Pressure.Kd	
SL_ABCIP	FurnacePLC	PID_Pressure	Ki	I			SL_ABCIP.FurnacePLC.PID_Pressure.Ki	
SL_ABCIP	FurnacePLC	PID_Pressure	Kp	I			SL_ABCIP.FurnacePLC.PID_Pressure.Kp	
SL_ABCIP	FurnacePLC	PID_Pressure	PV	I		PID_Pressure.Sensor1	SL_ABCIP.FurnacePLC.PID_Pressure.Sensor1	
SL_ABCIP	FurnacePLC	PID_Pressure	SP	I			SL_ABCIP.FurnacePLC.PID_Pressure.SP	

Figure 6: Object.Attribute Override

Can I make sure my automatically generated IO References are valid before the Application object is deployed?

Yes. In the IO Device Mapping window, selecting the **check mark** icon will validate the references. For this to work correctly, the D are pointing to must be deployed.



Device	ScanGroup	Object	Attribute	I/O	Device.ScanGroup Override	Object.Attribute Override	Resulting Reference	Runtime Value
SL_ABCIP	FurnacePLC	PID_Pressure	Auto	I			SL_ABCIP.FurnacePLC.PID_Pressure.Auto	True
SL_ABCIP	FurnacePLC	PID_Pressure	CV	I			SL_ABCIP.FurnacePLC.PID_Pressure.CV	46.31082
SL_ABCIP	FurnacePLC	PID_Pressure	Kd	I			SL_ABCIP.FurnacePLC.PID_Pressure.Kd	0
SL_ABCIP	FurnacePLC	PID_Pressure	Ki	I			SL_ABCIP.FurnacePLC.PID_Pressure.Ki	0.0055
SL_ABCIP	FurnacePLC	PID_Pressure	Kp	I			SL_ABCIP.FurnacePLC.PID_Pressure.Kp	600
SL_ABCIP	FurnacePLC	PID_Pressure	PV	I			SL_ABCIP.FurnacePLC.PID_Pressure.PV	0.0193
SL_ABCIP	FurnacePLC	PID_Pressure	SP	I			SL_ABCIP.FurnacePLC.PID_Pressure.SP	0.015

Figure 7: Validate References

What does the Show Advanced Columns button do?

The Show Advanced Columns button will add the following columns to the IO Device Mapping table:

Attribute Data Type – The data Type configured in the Application object for the attribute.

Target Data Type – The data type read back from the DAServer (after selecting the Validate References button)

Runtime Quality – The quality of the data read back from the DAServer (after selecting the Validate References button)

Will I/O References that have been manually entered in the Application object be over-written by IO Device Mapping?

No. I/O Device Mapping will not over-write a manually entered I/O reference. If you have manually entered an I/O Reference and w select the **lightning bolt** button which will appear to the right of manually entered references (see figure 8 below).

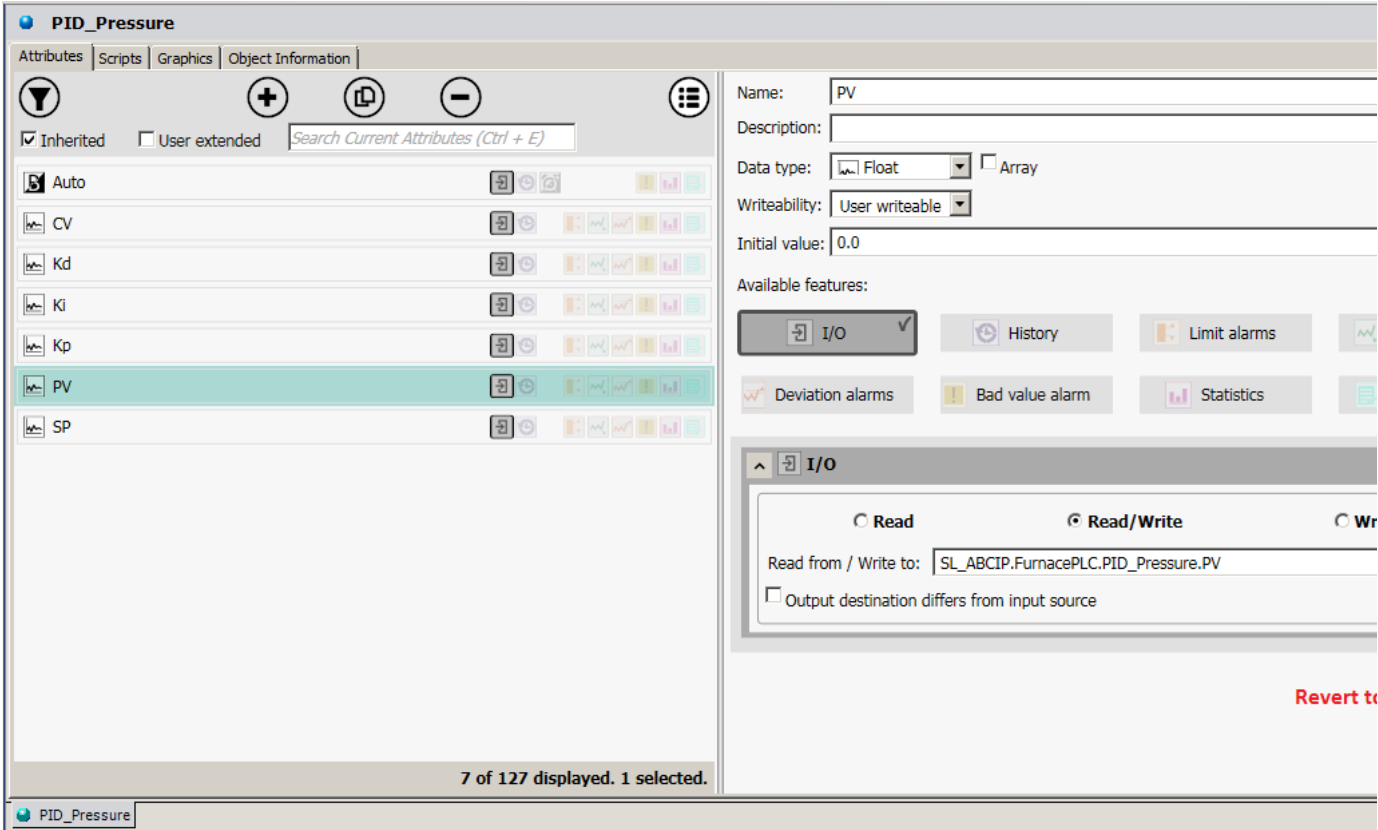


Figure 8: Revert to Autobinding

Can IO Device Mapping be used with other DI objects?

Yes. After the DI object has been configured, it will show up as an IO Device in the IO Devices window. The figure below shows an OPC Client, and Redundant DI object as IO Devices. Any of these objects can be used with IO Device Mapping.

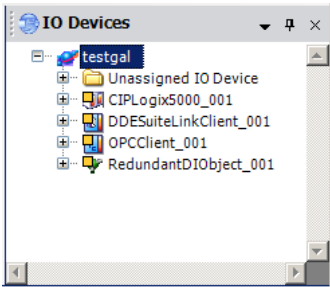
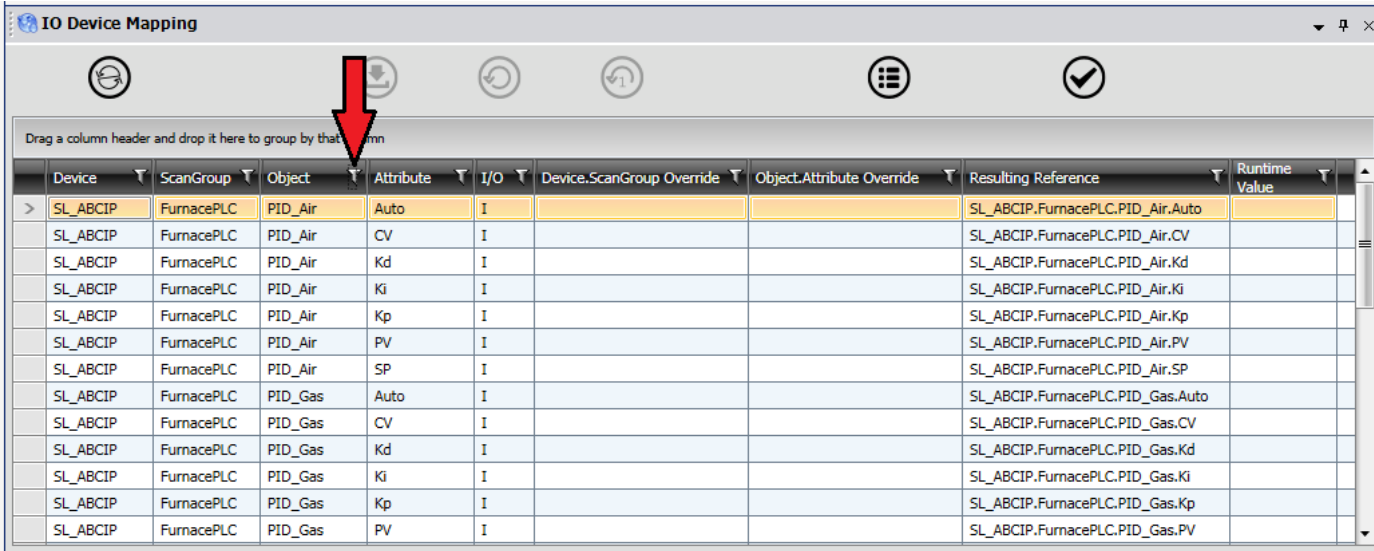


Figure 9: IO Devices

I have many IO references created with IO Device Mapping. Is there a way to filter the IO Mapping table items to make it mo

Yes. To filter the IO Mapping table, select filter icon in the table header:



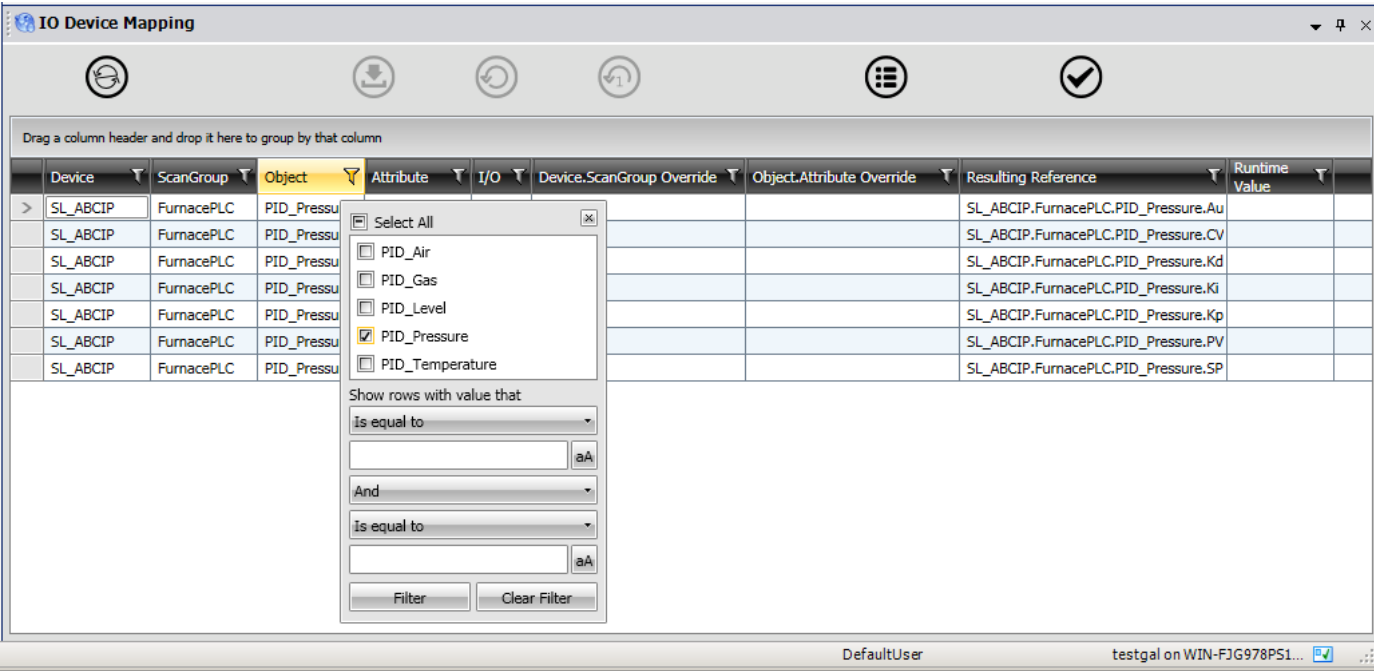
IO Device Mapping

Drag a column header and drop it here to group by that column

Device	ScanGroup	Object	Attribute	I/O	Device.ScanGroup Override	Object.Attribute Override	Resulting Reference	Runtime Value
> SL_ABCIP	FurnacePLC	PID_Air	Auto	I			SL_ABCIP.FurnacePLC.PID_Air.Auto	
SL_ABCIP	FurnacePLC	PID_Air	CV	I			SL_ABCIP.FurnacePLC.PID_Air.CV	
SL_ABCIP	FurnacePLC	PID_Air	Kd	I			SL_ABCIP.FurnacePLC.PID_Air.Kd	
SL_ABCIP	FurnacePLC	PID_Air	Ki	I			SL_ABCIP.FurnacePLC.PID_Air.Ki	
SL_ABCIP	FurnacePLC	PID_Air	Kp	I			SL_ABCIP.FurnacePLC.PID_Air.Kp	
SL_ABCIP	FurnacePLC	PID_Air	PV	I			SL_ABCIP.FurnacePLC.PID_Air.PV	
SL_ABCIP	FurnacePLC	PID_Air	SP	I			SL_ABCIP.FurnacePLC.PID_Air.SP	
SL_ABCIP	FurnacePLC	PID_Gas	Auto	I			SL_ABCIP.FurnacePLC.PID_Gas.Auto	
SL_ABCIP	FurnacePLC	PID_Gas	CV	I			SL_ABCIP.FurnacePLC.PID_Gas.CV	
SL_ABCIP	FurnacePLC	PID_Gas	Kd	I			SL_ABCIP.FurnacePLC.PID_Gas.Kd	
SL_ABCIP	FurnacePLC	PID_Gas	Ki	I			SL_ABCIP.FurnacePLC.PID_Gas.Ki	
SL_ABCIP	FurnacePLC	PID_Gas	Kp	I			SL_ABCIP.FurnacePLC.PID_Gas.Kp	
SL_ABCIP	FurnacePLC	PID_Gas	PV	I			SL_ABCIP.FurnacePLC.PID_Gas.PV	

Figure 10: Filter Icon

A filter dialog box will appear. You can select any object (in this example **PID_Pressure** is selected). You can also filter by using the **that** section of the filter box.



IO Device Mapping

Drag a column header and drop it here to group by that column

Device	ScanGroup	Object	Attribute	I/O	Device.ScanGroup Override	Object.Attribute Override	Resulting Reference	Runtime Value
> SL_ABCIP	FurnacePLC	PID_Pressu					SL_ABCIP.FurnacePLC.PID_Pressure.Au	
SL_ABCIP	FurnacePLC	PID_Pressu					SL_ABCIP.FurnacePLC.PID_Pressure.CV	
SL_ABCIP	FurnacePLC	PID_Pressu					SL_ABCIP.FurnacePLC.PID_Pressure.Kd	
SL_ABCIP	FurnacePLC	PID_Pressu					SL_ABCIP.FurnacePLC.PID_Pressure.Ki	
SL_ABCIP	FurnacePLC	PID_Pressu					SL_ABCIP.FurnacePLC.PID_Pressure.Kp	
SL_ABCIP	FurnacePLC	PID_Pressu					SL_ABCIP.FurnacePLC.PID_Pressure.PV	
SL_ABCIP	FurnacePLC	PID_Pressu					SL_ABCIP.FurnacePLC.PID_Pressure.SP	

Select All

☐ PID_Air

☐ PID_Gas

☐ PID_Level

☒ PID_Pressure

☐ PID_Temperature

Show rows with value that

Is equal to

And

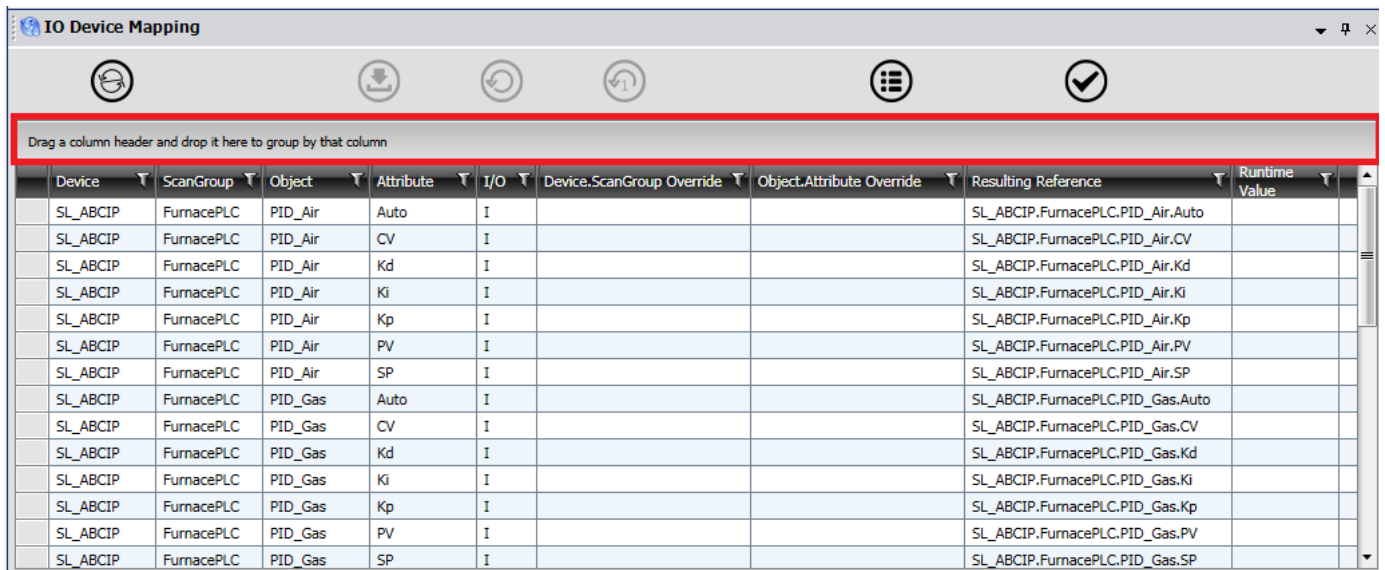
Is equal to

Filter Clear Filter

Figure 11: Filter Selection

Is there a way to group the IO Mapping table items to make it more manageable?

Yes. The **Grouped by** section of the **IO Device Mapping** table is shown below outlined in red:

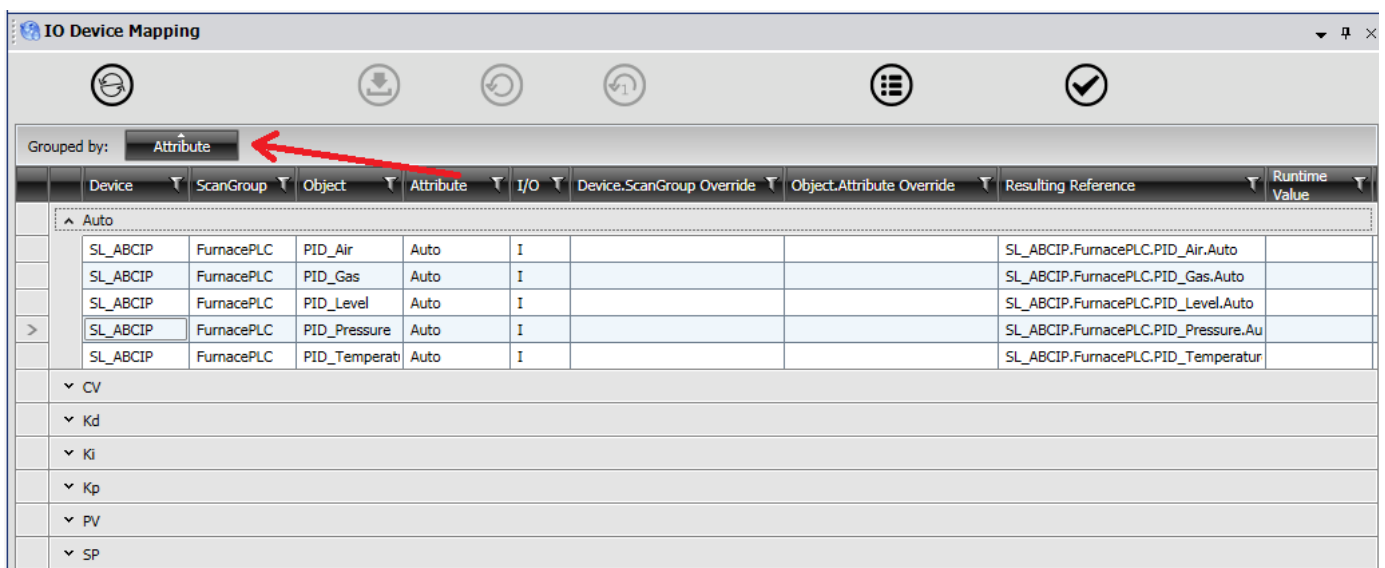


Drag a column header and drop it here to group by that column

Device	ScanGroup	Object	Attribute	I/O	Device.ScanGroup Override	Object.Attribute Override	Resulting Reference	Runtime Value
SL_ABCIP	FurnacePLC	PID_Air	Auto	I			SL_ABCIP.FurnacePLC.PID_Air.Auto	
SL_ABCIP	FurnacePLC	PID_Air	CV	I			SL_ABCIP.FurnacePLC.PID_Air.CV	
SL_ABCIP	FurnacePLC	PID_Air	Kd	I			SL_ABCIP.FurnacePLC.PID_Air.Kd	
SL_ABCIP	FurnacePLC	PID_Air	Ki	I			SL_ABCIP.FurnacePLC.PID_Air.Ki	
SL_ABCIP	FurnacePLC	PID_Air	Kp	I			SL_ABCIP.FurnacePLC.PID_Air.Kp	
SL_ABCIP	FurnacePLC	PID_Air	PV	I			SL_ABCIP.FurnacePLC.PID_Air.PV	
SL_ABCIP	FurnacePLC	PID_Air	SP	I			SL_ABCIP.FurnacePLC.PID_Air.SP	
SL_ABCIP	FurnacePLC	PID_Gas	Auto	I			SL_ABCIP.FurnacePLC.PID_Gas.Auto	
SL_ABCIP	FurnacePLC	PID_Gas	CV	I			SL_ABCIP.FurnacePLC.PID_Gas.CV	
SL_ABCIP	FurnacePLC	PID_Gas	Kd	I			SL_ABCIP.FurnacePLC.PID_Gas.Kd	
SL_ABCIP	FurnacePLC	PID_Gas	Ki	I			SL_ABCIP.FurnacePLC.PID_Gas.Ki	
SL_ABCIP	FurnacePLC	PID_Gas	Kp	I			SL_ABCIP.FurnacePLC.PID_Gas.Kp	
SL_ABCIP	FurnacePLC	PID_Gas	PV	I			SL_ABCIP.FurnacePLC.PID_Gas.PV	
SL_ABCIP	FurnacePLC	PID_Gas	SP	I			SL_ABCIP.FurnacePLC.PID_Gas.SP	

Figure 12: Grouped by section

To group by column, drag the column header to the **Grouped by** section. The IO Device Mapping table will now be grouped by that

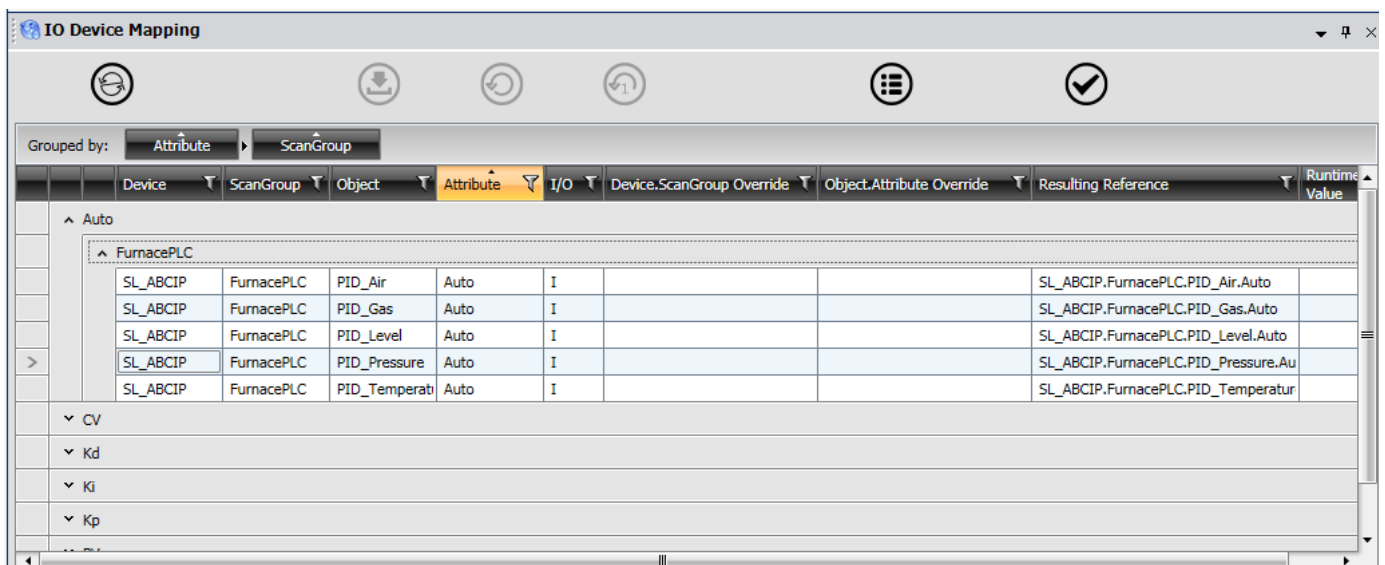


Grouped by: Attribute

Device	ScanGroup	Object	Attribute	I/O	Device.ScanGroup Override	Object.Attribute Override	Resulting Reference	Runtime Value
Auto								
SL_ABCIP	FurnacePLC	PID_Air	Auto	I			SL_ABCIP.FurnacePLC.PID_Air.Auto	
SL_ABCIP	FurnacePLC	PID_Gas	Auto	I			SL_ABCIP.FurnacePLC.PID_Gas.Auto	
SL_ABCIP	FurnacePLC	PID_Level	Auto	I			SL_ABCIP.FurnacePLC.PID_Level.Auto	
SL_ABCIP	FurnacePLC	PID_Pressure	Auto	I			SL_ABCIP.FurnacePLC.PID_Pressure.Au	
SL_ABCIP	FurnacePLC	PID_Temperatur	Auto	I			SL_ABCIP.FurnacePLC.PID_Temperatur	
CV								
Kd								
Ki								
Kp								
PV								
SP								

Figure 13: Grouping by columns

You can also drag multiple columns to the **Grouped by** section. For instance, to group by Attribute then by ScanGroup, drag the Attribute and ScanGroup column headers to the **Grouped by** section:



Grouped by: Attribute, ScanGroup

Device	ScanGroup	Object	Attribute	I/O	Device.ScanGroup Override	Object.Attribute Override	Resulting Reference	Runtime Value
Auto								
FurnacePLC								
SL_ABCIP	FurnacePLC	PID_Air	Auto	I			SL_ABCIP.FurnacePLC.PID_Air.Auto	
SL_ABCIP	FurnacePLC	PID_Gas	Auto	I			SL_ABCIP.FurnacePLC.PID_Gas.Auto	
SL_ABCIP	FurnacePLC	PID_Level	Auto	I			SL_ABCIP.FurnacePLC.PID_Level.Auto	
SL_ABCIP	FurnacePLC	PID_Pressure	Auto	I			SL_ABCIP.FurnacePLC.PID_Pressure.Au	
SL_ABCIP	FurnacePLC	PID_Temperatur	Auto	I			SL_ABCIP.FurnacePLC.PID_Temperatur	
CV								
Kd								
Ki								
Kp								
PV								
SP								

Figure 14: Grouping by multiple columns

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