

PowerWorld Simulator Data View Dialog



Jamie Weber, Ph.D.

Director of Software Development



PowerWorld
Corporation

2001 South First Street
Champaign, Illinois 61820
+1 (217) 384.6330

support@powerworld.com
<http://www.powerworld.com>

History

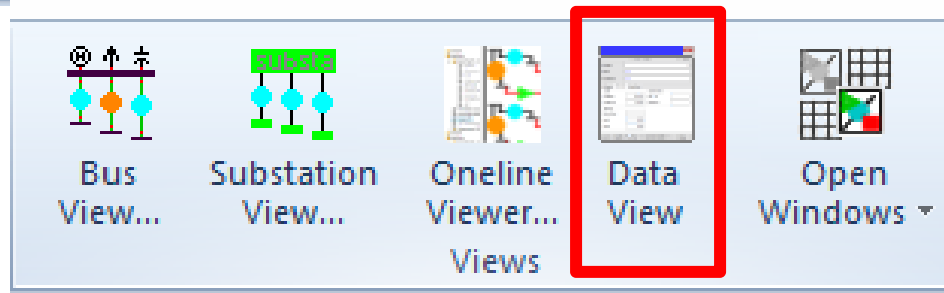
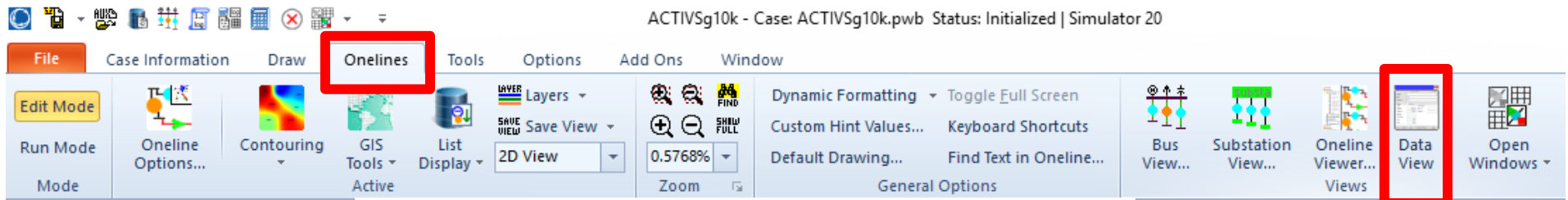
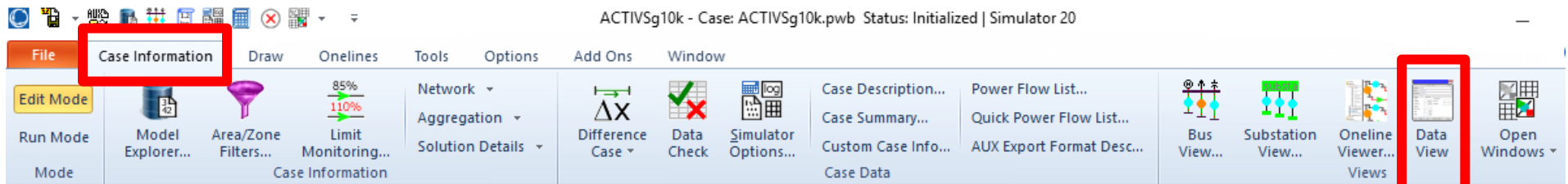


- June 2017 WECC PowerWorld User's Group Meetings: Users expressed the need to
 - Create customized user interface dialogs
 - Have those dialogs update automatically when navigating a oneline diagram or Bus View
- This led to the creation of the Data View Dialog that does this within a month after that meeting
- Moral
 - Attend these client and user meetings and ask for things: it just might work 😊

Accessing the Data View



- On Case Information and Onelines Ribbon Tabs
 - https://www.powerworld.com/WebHelp/#MainDocumentationHTML/Data_View.htm



Accessing the Data View



- Right-Click on Case Information Displays or use Case Information Toolbar

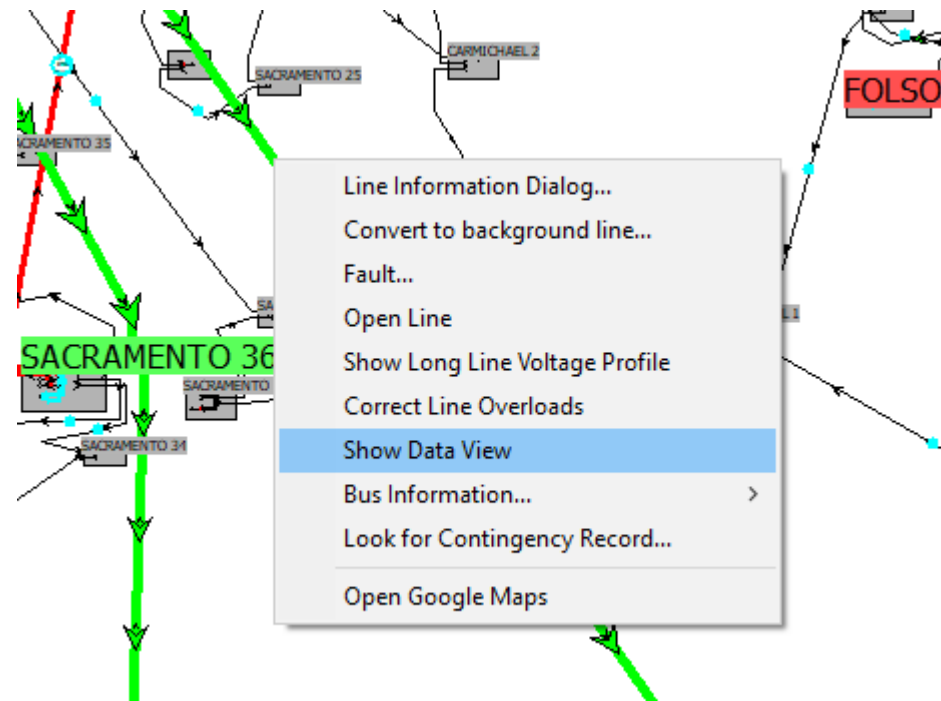
The screenshot shows the 'Model Explorer: Buses' window. On the left, the 'Explore' pane shows a tree view with 'Buses |Bus (10000)' selected. The main area displays a data table with columns: Bus, Number, Name, AreaName, and NomkV. A context menu is open over the table, and the 'Show Data View' option is highlighted with a red box. A red arrow points from the text 'Right-Click on Case Information Displays' to the context menu, and another red arrow points from 'or use Case Information Toolbar' to the toolbar icon.

Bus	Number	Name	AreaName	NomkV
1	10001	NEAH BAY 1	Washington	138.00
2	10002	FORKS 1	Washington	138.00
3	10003	OCEAN SHORES 1	Washington	138.00
4	10004	WESTPORT 1	Washington	138.00
5	10005	WESTPORT 2	Washington	138.00
6	10006	LONG BEACH 1	Washington	138.00
7	10007	LONG BEACH 1	Washington	138.00
8	10008	OCEAN PARK 1	Washington	138.00
9	10009	OCEAN PARK 2	Washington	138.00
10	10010	HOQUIAM 1	Washington	138.00
11	10011	PORT ANGELES	Washington	138.00

Accessing the Data View



- Right-Click on Oneline objects



What does a Data View Show?



- One row of a case information display

The screenshot displays the 'Model Explorer: Buses' window. On the left, the 'Explore' pane shows a tree view of the network model, with 'Buses |Bus (10000)' selected. The main window shows a table of bus data with columns: Bus, Number, Name, AreaName, NomkV, Vpu, kV, Vangle, SubLatitude, SubLongitude, LoadMW, LoadMvar, and GenMW. Row 3 is highlighted, corresponding to bus 10003, 'OCEAN SHORES 1' in the 'Washington' area.

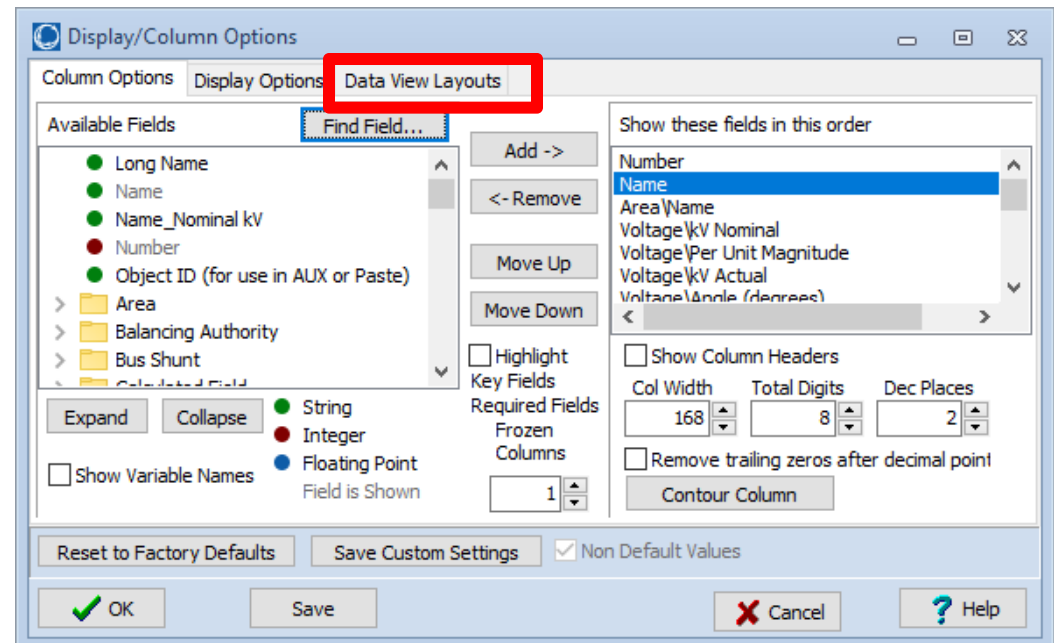
The 'Data View for Object' dialog box is open for bus 10003, showing the following values:

Number	10003
Name	OCEAN SHORES 1
AreaName	Washington
NomkV	138.00
Vpu	1.03145
kV	142.340
Vangle	-34.04
SubLatitude	47.0400
SubLongitude	-124.0570
LoadMW	14.39
LoadMvar	1.09
GenMW	
GenMvar	
ShuntMvar	
ActG	0.00
ActB	0.00
AreaNumber	1
ZoneNumber	1

Defining a Data View



- Data View use the SAME object as
 - Customized case information display
 - User-defined case information display
- Display/Column Options on a case information



https://www.powerworld.com/WebHelp/#MainDocumentation_HTML/Configuring_the_Case_Information_Displays.htm

How To Edit Customize Data View



- Data View Layouts on the Display/Column options dialog
 - This is how they are actually stored internally in Simulator, but this can be a bit weird to look through
- Right-Click on field in the Data View itself
- Use the Customization Pane

Data View Layouts on Display/Column Options dialog



Display/Column Options

Column Options | Display Options | Data View Layouts

	Variable Name	Width	Total Digits	Decimal Places	Tab Break	Tab Caption	Row Break	Row Caption	Col Break	Column Caption
1	Number	70	8	2	NO		NO		NO	
2	Name	168	8	2	NO		NO		NO	
3	AreaName	112	8	2	NO		NO		NO	
4	NomkV	60	8	2	YES	Voltages	NO		NO	
5	Vpu	46	8	5	NO		NO		NO	
6	kV	46	8	3	NO		NO		NO	
7	Vangle	54	8	2	NO		NO		NO	
8	SubLatitude	66	8	4	YES	Geography	NO		NO	
9	SubLongitude	77	8	4	NO		NO		NO	
10	LoadMW	64	8	2	YES	Devices	YES	Loads	NO	
11	LoadMvar	68	8	2	NO		NO		NO	
12	GenMW	60	8	2	NO		NO		YES	Generators
13	GenMvar	64	8	2	NO		NO		NO	
14	ShuntMvar	74	8	2	NO		YES	Shunts	NO	
15	ActG	42	8	2	NO		NO		NO	
16	ActB	41	8	2	NO		NO		NO	
17	AreaNumber	87	8	2	YES	Area/Zone	NO		NO	
18	ZoneNumber	90	8	2	NO		NO		NO	

OK Save Cancel Help

Using Tabs/Row/Column Breaks and Captions



Data View for Object

Find: Bus '10003' Type Refresh New

Number: 10003
 Name: OCEAN SHORES 1
 AreaName: Washington

Voltages Geography Devices Area/Zone

NomkV: 138.00
 Vpu: 1.03145
 kV: 142.340
 Vangle: -34.04

Layouts Modify DataGrid Options Close

Voltages **Geography** Devices Area/Zone

SubLatitude: 47.0400
 SubLongitude: -124.0570

Voltages Geography **Devices** Area/Zone

Loads Generators

LoadMW: 14.39 GenMW:
 LoadMvar: 1.09 GenMvar:

Shunts

ShuntMvar:
 ActG: 0.00
 ActB: 0.00

Voltages Geography Devices **Area/Zone**

AreaNumber: 1
 ZoneNumber: 1

Right-Click right on Data View



- Depending on where you click, you'll get options
 - Add Tab Break
 - Remove Tab Break
 - Edit Tab Caption
 - Add Row Break
 - Remove Row Break
 - Edit Row Break Caption
 - Add Col Break
 - Remove Col Break
 - Edit Col Break Caption

The screenshot shows the 'Data View for Object' window. At the top, there is a 'Find' field containing 'Bus '10003''. Below this, there are input fields for 'Number' (10003), 'Name' (OCEAN SHORES 1), and 'AreaName' (Washington). A tabbed interface is visible with four tabs: 'Voltages' (selected), 'Geography', 'Devices', and 'Area/Zone'. Under the 'Voltages' tab, there are four rows of data:

	NomkV	Vpu	kV	Vangle
	138.00	1.03145	142.340	-34.04

A context menu is open over the 'Vpu' field, displaying the following options:

- Remove Tab Break
- Edit Tab Break Caption
- Add Row Break
- Add Col Break

What do Breaks become?

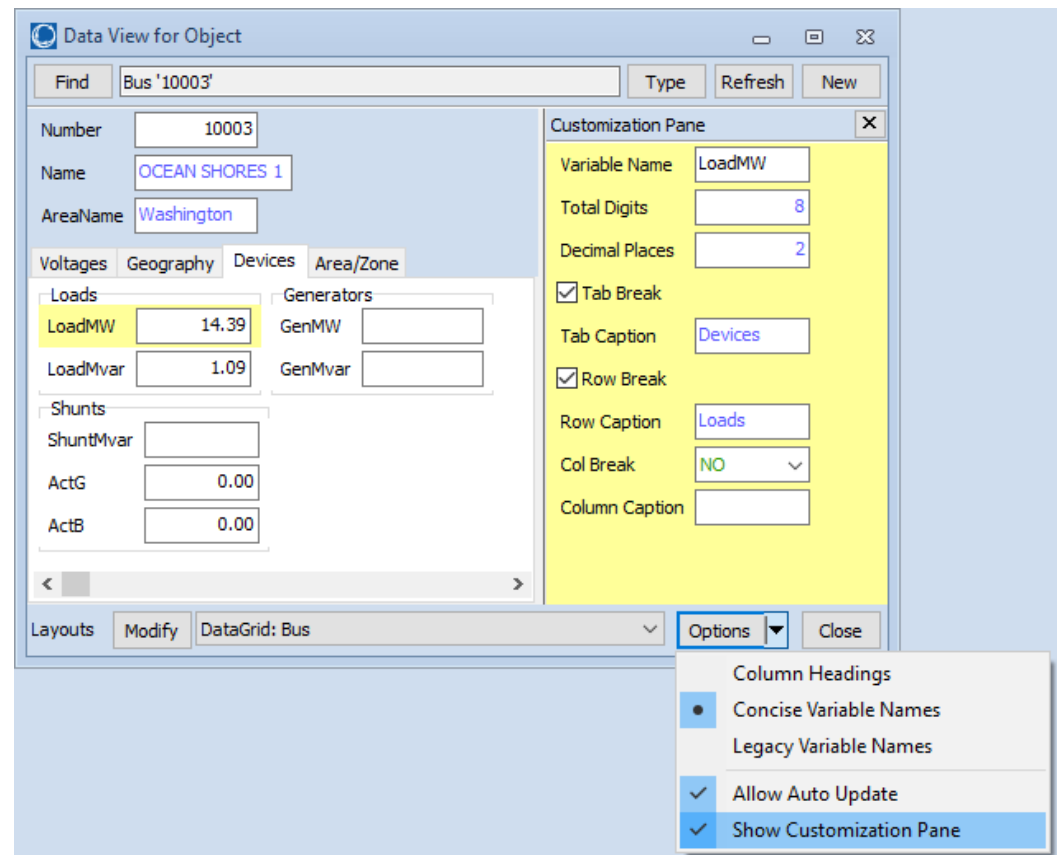


- Tab Break
 - Fields at and after the Tab Break are moved to the next tab of a Tabbed Control (everything before the first tab goes at the top of the dialog)
 - Caption for Tab Break becomes the caption of the tab.
 - If no caption is given, a number will be used for the caption instead
- Row Break
 - Fields at and after the Row Break are moved to the next “row” of the dialog
 - If caption is specified, a group box is created with this caption
 - If no caption, then no group box either
- Col Break
 - Fields at and after the Col Breaker are moved to a new column in the present “row” of the dialog
 - If caption is specified, a group box is created with this caption
 - If no caption, then no group box either

Show the Customization Pane on the Data View Dialog



- Under Options, choose Show Customization Pane
- Click on fields
 - Field will highlight in yellow
 - Customization Pane allows you to edit option for the field

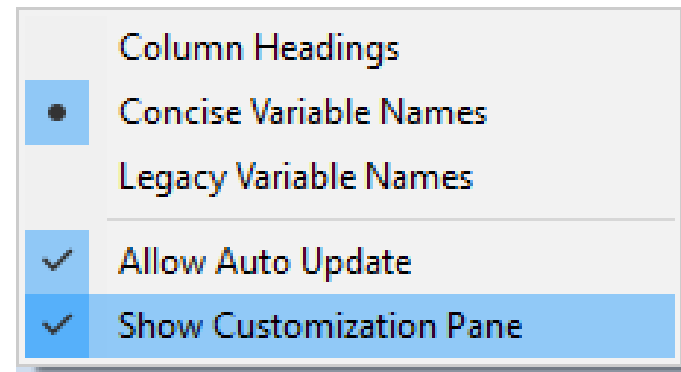


Other Options



- Choose which field labels to show

- Column Headings
- Concise Variable Names
- Legacy Variable Names



- Allow Auto Update

- When this is checked, if you click on an object on a online diagram then this Data View dialog will automatically update
- This also works *across* object types
 - Same concept as using advanced filters across object types
 - Same concept as using Calculated Fields across object types

Allow Auto Update on Data View Dialogs



- Open Multiple Data View Dialogs different object types
 - Example, Load, Bus, Area, and Zone
- Click on a Load object on a oneline
 - Load Data View will update as expected
 - Bus Data View for terminal bus of generator will update
 - Area Data View for the Area to which the generator belongs will update
 - Zone Data View for the Zone to which the generator belongs will update

Allow Auto Update on Data View Dialogs



Click on Load
All 4 Data View
Dialogs update

The screenshot shows the PowerWorld software interface with a network diagram. Four 'Data View for Object' dialog boxes are open, each displaying data for a different object. Red arrows point from a 'Load' object in the diagram to each of the four dialog boxes, indicating that clicking on the load object updates all four data view dialogs.

Data View for Object (Zone '48Z')

Find	Zone '48Z'	Type	Refresh	New
Number	482			
Name	Light Industry, 88			
LoadMW	949.32	LossMW	16.68	
LoadMvar	251.30	LossMvar	268.39	
GenMW	1479.50	ExportMW	513.49	
GenMvar	533.13	ExportMvar	97.04	
		LoadMWScale	1.00	

Data View for Object (Bus '46161')

Find	Bus '46161'	Type	Refresh	New
Longitude		Number	46161	
Latitude		Name		
SubNumber	353098171	AreaName		
SubName		NomkV	230.00	
Voltage	Load/Gen/Shunt	Area/Zone		
Vpu	1.01846			
kV	234.245			
Vangle	-8.03			

Data View for Object (Load '46161'1')

Find	Load '46161'1'	Type	Refresh	New
BusNum	46161	MW	13.08	
BusName		Mvar	6.33	
AreaName		MVA	14.53	
ZoneName		SMW	13.08	
ID	1	SMvar	6.33	
Status	Closed	DistStatus	Open	
		DistMWInput	0.00	
		DistMvarInput	0.00	

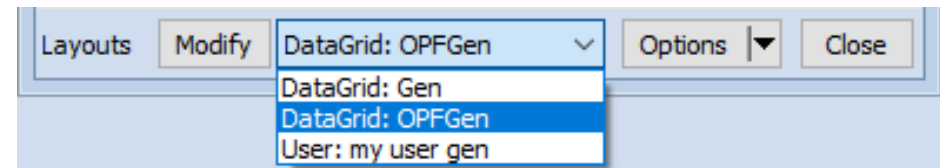
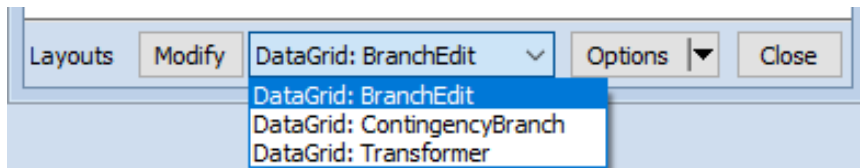
Data View for Object (Area '40')

Find	Area '40'	Type	Refresh	New
Number	40			
Name				
AGC	Off AGC			
GenMW	30607.24			
LoadMW	25115.37			
ShuntMW	0.00			
ExportMWSched	4439.30			
ExportMW	4440.20			
ACE	0.90			
EconDisplambda	Off Control			
LossMW	1051.67			

Data Grid Layouts List: Bottom of Data View Dialog



- There is a list at the bottom of the Data View Dialog
- This list shows all the presently customizable grids in Simulator that you have *already customized*
- It will also show any User-Defined Case Information Displays that you may have created in the Model Explorer
 - The user-defined case info grids essentially give you the ability to create your own dialogs!



User-Defined Case Information Displays



- Help documentation link
 - <https://www.powerworld.com/WebHelp/#MainDocumentation HTML/Model Explorer User Defined CaseInformation.htm>
- Right-click on the Explore Pane on the left of the Model Explorer to **Insert** or **Remove** User-Defined Case Info display

Insert/Remove User-Defined Case Information Displays



Right-Click on Explore Pane to insert a User-Defined Case Information Display

Number of Bus	Name of f	ID	Status	Gen MW	Gen Mvar	Set Volt	AGC	AVR	Min MW	Max MW	Min Mvar	Max Mvar	Cost Model	Part. Factor
1	46671 ALDER11	1	Closed	10.00	6.02	1.02899	NO	YES	0.00	26.00	0.00	13.00	None	26.00
2	46672 ALDER12	1	Closed	10.00	6.02	1.02899	NO	YES	0.00	26.00	0.00	13.00	None	26.00
3	47734 BHP 30	30	Open	0.00	0.00	1.01594	NO	YES	0.00	45.00	-15.00	35.00	None	45.00
4	47735 BHP 40	40	Open	0.00	0.00	1.01594	NO	YES	0.00	45.00	-15.00	35.00	None	45.00

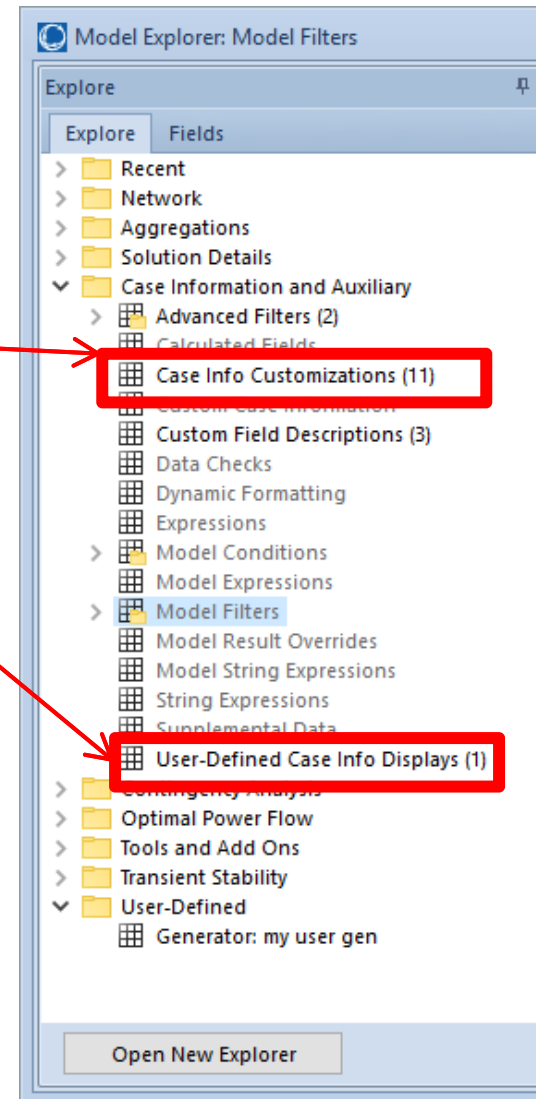
List of User-Defined Case Information Displays

17	40307 COWFALLS	1	Closed	17.00	10.00	1.03913	NO	YES	0.00	35.00	-10.00	10.00	None	35.00
18	46789 CUSHMN11	1	Closed	18.80	10.00	0.98261	NO	YES	0.00	23.00	0.00	10.00	None	23.00
19	46790 CUSHMN12	2	Open	0.00	0.00	0.98261	NO	YES	0.00	30.00	0.00	12.00	None	30.00
20	46791 CUSHMN2	3	Open	0.00	0.00	0.98261	NO	YES	0.00	30.00	0.00	12.00	None	30.00
21	46791 CUSHMN2	2	Open	0.00	0.00	0.98261	NO	YES	0.00	30.00	0.00	12.00	None	30.00
22	46791 CUSHMN2	1	Closed	25.90	12.00	0.98261	NO	YES	0.00	30.00	0.00	12.00	None	30.00
23	46419 DIABLO31	1	Open	0.00	0.00	1.00000	NO	YES	0.00	83.00	-17.50	35.00	None	83.00
24	46420 DIABLO32	2	Open	0.00	0.00	1.00000	NO	YES	0.00	83.00	-17.50	35.00	None	83.00
25	42711 ELECTRON	2	Closed	1.98	0.00	1.00000	NO	NO	0.00	3.50	0.00	0.50	None	3.50
26	42711 ELECTRON	1	Closed	1.98	0.00	1.00000	NO	NO	0.00	3.50	0.00	0.50	None	3.50
27	42711 ELECTRON	3	Closed	1.98	0.00	1.00000	NO	NO	0.00	3.50	0.00	0.50	None	3.50
28	42711 ELECTRON	4	Closed	5.98	0.00	1.00000	NO	NO	0.00	9.40	0.00	1.00	None	9.40
29	42011 ENGERCH1	1	Open	0.00	0.00	1.01700	NO	YES	0.00	38.30	-8.27	25.16	None	38.30
30	42012 ENGERCH2	2	Open	0.00	0.00	1.01700	NO	YES	0.00	38.30	-8.27	25.16	None	38.30
31													None	38.30
32													None	58.20
33													None	74.40
34													None	74.40
35													None	104.00
36													None	104.00

Passing Settings Between Cases: Use Auxiliary Files



- Objects you want to save
 - DataGrid
 - UserDefinedDataGrid
- Available on the Model Explorer under Case Information and Auxiliary Folder



Navigate to those Displays

Save as Auxiliary



```
DataGrid (Name,FilterPre,Filter,FontNonDefault,RowHeight,FontName,FontStyles,FontSize,
          FontColor,SortVariable,SortOrder,Zoom,FrozenCols)
```

```
{
"Bus" "YES" "" "NO "      13 "Segoe UI" ""      8      0 "" "Low To High" 100.00 -1
  <SUBDATA ColumnInfo>
    "Number"           70  8 2
    "Name"             168 8 2
    "AreaName"        112 8 2
    "NomkV"           60  8 2 YES "Voltages"
    "Vpu"             46  8 5
    "kV"              46  8 3
    "Vangle"          54  8 2
    "SubLatitude"     66  8 4 YES "Geography"
    "SubLongitude"    77  8 4
    "LoadMW"          64  8 2 YES "Devices"   YES "Loads"
    "LoadMvar"        68  8 2
    "GenMW"           60  8 2 NO  ""          NO  ""          YES "Generators"
    "GenMvar"         64  8 2
    "ShuntMvar"       74  8 2 NO  ""          YES "Shunts"
    "ActG"            42  8 2
    "ActB"            41  8 2
    "AreaNumber"     87  8 2 YES "Area/Zone"
    "ZoneNumber"     90  8 2
  </SUBDATA>
```