

USS User Manual

Electronic version generated on 2006-11-08 17:01

USS User Manual

Electronic version generated on 2006-11-08 17:01 Copyright © 2005 EADS SPACE Transportation and Rovsing A/S

This document is the user manual for the Unified Synoptic System (USS). USS is a visual frontend for monitoring and control systems. The USS software allows editing and execution of synoptic (graphical) displays within the Columbus program and CGS. It also provides import capabilities for display formats used within FWDU, GWDU, and NASA PCS.

The scope of this manual includes installation and usage instructions for the USS software. Note that this document is also available in <u>PDF</u> format.

Table of Contents

1. Welcome to USS: Installation and Getting Started	1
1.1. Installing the Product	1
1.1.1. Prerequisites	1
1.1.2. Installing the product	1
1.1.3. Installing platform independent version	2
1.1.4. Integration with CGS	2
1.2. Configuring System Settings	2
1.2.1. Configuring location of SCOE files	2
1.3. Getting Started	3
1.3.1. Starting the Editor	3
1.3.2. Starting the executor	3
2. Tutorial	5
2.1. Introduction	5
2.2. Installation of USS package	5
2.2.1. Lesson in installing USS package	6
2.3. Using the Editor GUI	. 11
2.3.1. Introduction	. 11
2.3.2. Docking mechanishm of editor panels	. 11
2.3.3 Tool views of the editor	14
2.3.4 Editor Print Facility	20
2.4 Making a Display	24
2.4.1 Introduction	24
2.4.1. Introduction 2.4.2 Making display	25
2.4.2. Making display	32
2.5. Inport existing displays	33
2.6 GUI Flements	30
2.6.1 Lesson in using the GUI elements (View Settings and Preferences)	30
2.6.1. Lesson in using the GUI elements (View Settings and Preferences)	. 39 49
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 49
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 49 . 51
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 49 . 51
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 49 . 51 . 51
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 49 . 51 . 51 . 58
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 49 . 51 . 51 . 58 . 58 . 58
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 49 . 51 . 51 . 58 . 58 . 75 . 75
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 51 . 51 . 58 . 58 . 75 . 75
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 51 . 51 . 58 . 58 . 75 . 75 . 82
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 49 . 51 . 51 . 58 . 58 . 75 . 75 . 82 . 82 . 82
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 51 . 51 . 58 . 75 . 75 . 82 . 82 . 87
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 51 . 51 . 58 . 75 . 75 . 82 . 82 . 82 . 87 . 87
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 51 . 51 . 58 . 58 . 75 . 82 . 82 . 87 . 82 . 87 . 98
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 51 . 51 . 58 . 75 . 75 . 82 . 82 . 87 . 82 . 87 . 98 . 98
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 51 . 51 . 58 . 75 . 82 . 87 . 87 . 98 . 98 . 98 . 108
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 49 . 51 . 51 . 58 . 75 . 75 . 82 . 82 . 87 . 98 . 98 108
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 49 . 51 . 51 . 58 . 75 . 75 . 82 . 87 . 87 . 98 . 98 108 108
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 49 . 51 . 51 . 58 . 75 . 75 . 82 . 87 . 87 . 87 . 98 . 98 108 108 117
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles 2.7.1. Lesson in viewing and changing DQI files 2.8. Create ASCII displays 2.8.1. Lesson in creating ASCII displays 2.9. Making a Graph Display 2.9.1. Lesson in creating Graph displays 2.10. Create Commanding Display 2.10.1. Lesson in creating Commanding displays 2.11. Navigation Display 2.12. Add Symbols 2.13. Create New Symbols 2.13. Lesson in creating Symbols 2.14. Lesson in creating advanced elements 2.15. Change USS Properties File 2.16. Select SCOE Files 	. 39 . 49 . 51 . 51 . 58 . 58 . 75 . 82 . 87 . 87 . 87 . 88 . 98 . 98 . 108 108 117 117
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles 2.7.1. Lesson in viewing and changing DQI files 2.8. Create ASCII displays 2.8.1. Lesson in creating ASCII displays 2.9. Making a Graph Display 2.9.1. Lesson in creating Graph displays 2.10. Create Commanding Display 2.10.1. Lesson in creating Commanding displays 2.11. Navigation Display 2.12.1. Lesson in creating Symbols 2.13. Create New Symbols 2.14.1. Lesson in creating advanced elements 2.15.1. Lesson in Creating advanced elements 2.16.1. Lesson in USS properties 2.16.1. Lesson in changing the SCOE file 	. 39 . 49 . 51 . 51 . 58 . 75 . 75 . 82 . 87 . 87 . 98 . 98 108 108 117 117
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles 2.7.1. Lesson in viewing and changing DQI files 2.8. Create ASCII displays 2.8. 1. Lesson in creating ASCII displays 2.9. Making a Graph Display 2.9.1. Lesson in creating Graph displays 2.10. Create Commanding Display 2.10.1. Lesson in creating Commanding displays 2.11. Navigation Display 2.12. Add Symbols 2.13. Create New Symbols 2.14. Lesson in creating Symbols 2.15. Change USS Properties File 2.16. Lesson in USS properties 2.16. Lesson in changing the SCOE file 2.17. Check Consistency 	. 39 . 49 . 51 . 51 . 58 . 58 . 75 . 82 . 87 . 87 . 88 . 98 . 98 . 108 108 108 117 117 119
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 51 . 51 . 58 . 58 . 75 . 82 . 87 . 98 . 98 . 98 . 98 . 108 108 117 117 119 119
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences)	. 39 . 49 . 49 . 51 . 58 . 75 . 75 . 82 . 87 . 82 . 87 . 82 . 87 . 87 . 98 . 98 108 108 108 117 119 119 124 131
 2.6.1. Lesson in using the GUI elements (View Settings and Preferences) 2.7. Changing DQI Styles	. 39 . 49 . 49 . 51 . 58 . 58 . 75 . 82 . 87 . 82 . 87 . 82 . 87 . 87 . 98 . 98 108 108 117 119 119 124 131 132

		2.19.1. Preparation	145
		2.19.2. Editor Tutorial	146
		2.19.3. Executor Tutorial	148
3. Edi	tor		153
3	3.1.	Introduction	153
	32	The Editor Workspace	153
		3.2.1 Arranging Views and Tab Windows	154
		3.2.2. Editor Menus	157
	2 2	Working with Displays	160
		2.2.1 Marging Displays	161
		2.2.2. Draviaving Displays	101
		2.2.2. Freviewing Displays	101
_		3.5.5. Target System and DQI Style	104
3	5.4.	Working with Elements	164
		3.4.1. Adding and Deleting Elements	165
		3.4.2. Editing Element Properties	166
		3.4.3. Selecting Elements	167
		3.4.4. Basic Operations	168
		3.4.5. Zooming In and Out	168
		3.4.6. Aligning and Distributing Elements	169
		3.4.7. Using the Grid	169
		3.4.8. Grouping Elements	169
		3.4.9. Working with Depth	170
		3.4.10. Changing the Element Default Values	170
2	3.5.	Using The Symbol Library	170
		3.5.1 Pre-Defined Dynamic Symbols	171
		3.5.2 Creating New Libraries and Symbols	172
	86	Flements' Advanced Properties	175
	5.0.	2.6.1 The Display	175
		2.6.2 Labol	175
		2.6.2. Label	175
		3.0.5. Data Field	170
		3.6.4. Command Button	1/9
		3.6.5. Command List	180
		3.6.6. Navigation Button	181
		3.6.7. Graphs	182
		3.6.8. Arc	190
		3.6.9. Polyline and Polygon	190
		3.6.10. Linear- and Elliptic- Tickmeter, Thermometer and Tankmeter	191
		3.6.11. Pipe, Valve and CheckValve	196
		3.6.12. Input Field	197
		3.6.13. File Chooser	197
		3.6.14. Image	198
3	3.7.	Data Sources	198
		3.7.1. Data Source Dialog	199
		3.7.2. Supported Data Source Types	201
		373 Dynamic Properties	202
		374 Expressions	202
	38	Mission Database	202
-	.0.	3.8.1 Importing Displays from the MDB	207
		3.8.2 Exporting Displays to the MDR	207
		2.8.2. Adding a Naw Display to the MDP	207
		2.9.4 Earoad Import from MDP (revert)	207
		2.8.5 Delete in MDD	208 209
			208
	5.9.	System Configuration Browser	208
3	5.10	0. Working with Projects	210
		3.10.1. Synoptic Hierarchy	210
	_	3.10.2. Consistency Check	210
	3.11	. Configuring the Editor	211

3.11.1. System Setting	211
3.11.2. Preferences	211
3.11.3. View Settings	212
4. Executor	213
4.1. Introduction	213
4.1.1. Configuring User Settings	213
4.1.2. Exiting the Executor	214
4.2. Monitoring and Control Configuration	214
4.2.1. Connecting to System to be Monitored and Controlled	215
4.2.2. Disconnecting System to be Monitored and Controlled	216
4.2.3. Switching Target for Commands	217
4.2.4 Checking Acquisition State	218
4.3 Window Handling	221
4 3 1 Saving Window Lavout	221
4 3 2 Loading Window Layout	222
4 3 3 Loading Disnlay from File System	223
4.3.4 Reloading Display from File System	223
4.3.4. Relocating Display Holl The System	225
4.3.5. Resizing Display Window to Default Size	225
4.3.0. Rescuring Display Window to Default Size	225
4.3.7. Navigating to Home Display	220
4.3.0. Navigating to Home Display	227
4.3.9. Showing/Inding the Tooloal	220
4.3.10. Closing Display	220
4.5.11. Closing All Displays	229
4.5.12. Closing Ouler Displays	229
4.5.15. Toggining Tabbed Mode	230
4.5.14. Undocking windows	230
4.5.15. Docking willdows	231
4.4. Display Interaction	232
4.4.2. Showing Flowert Dependent	232
4.4.2. Showing Element Properties	233
4.4.5. Snowing Display Properties	233
4.4.4. Copying Command to Clipboard	230
4.4.5. Copying Parameter Name to Clipboard	237
4.4.6. Issuing Telecommand via Command Button	237
4.4.7. Issuing Telecommand via Command List	241
4.4.8. Finding Displays with Parameter References	242
4.4.9. Finding Text in Display	244
4.4.10. Showing Line Graph for Parameter Value History	245
4.5. Help	246
4.5.1. Showing Display Help	246
4.5.2. Getting Executor Version Information	246
4.6. Miscellaneous	247
4.6.1. Print Preview	247
4.6.2. Printing Display	249
4.6.3. Creating Display Snapshot	250
4.6.4. Saving a Copy of Current Display	250
4.6.5. Configuring Status Display	251
4.6.6. Configuring Data Quality Indicators	252
5. Importing Foreign Display Formats	254
5.1. Introduction	254
5.2. Importing PCS/PREP Displays	254
5.3. Importing PWS/FWDU Displays	254
5.3.1. Extracting FWDU Displays from MDB	255
5.3.2. Generating SCOE XML files	255
5.3.3. Converting XBM Images to PNG Format	255
5.3.4. Converting the FWDU ASCII definition to USS Format	256

5.4. Importing GWDU Displays	256
5.4.1. GWDU to USS Conversion Details	256
6. Localizing Displays For Different Languages	264
6.1. Introduction	264
6.2. Translation workflow	264
6.3. Generating skeletons with the Skeleton Generator	264
6.4. Supported attributes	265
6.5. Format of Entry Keys	265
7. Reference	267
7.1. Menue references for the executor	267
7.1.1. File Menue	267
7.1.2. Navigate Menue	268
7.1.3. View Menue	268
7.1.4. Options Menue	268
7.1.5. Window Menue	269
7.1.6. Help Menue	269
7.2. XML Display File Format Schema	270
A. Example USS Configuration in MCS Environment	282
A.1. USS Editor Parameter	282
A.2. USS Executor Parameter	283
Glossary	285
References	296
Alphabetical index	297

List of Tables

3.1. Taget systems and DQI style files	164
3.2. Element Properties with "Default Capability"	170
3.3. Conversions	177
3.4. Flags	178
3.5. Examples	178
3.6. Supported Data Source Types and Ranges per Property and Element	201
3.7. Operators	203
3.8. Results of dragging TM/TC from the SCB	209
4.1. Indication of Acquisition Status for Status of Data Sources	221
5.1. GWDU display object conversion to USS object	257
5.2. GWDU attributes conversion to USS properties	262
6.1. Supported attributes	265

Chapter 1: Welcome to USS: Installation and Getting Started

In this chapter we'll explain how to install USS, and where to find more detailed information if you should encounter any problems during the installation. Next we'll explain how to adjust USS to the target environment by configuring the system settings. As an example we'll show how to configure the home display. And the last step in this chapter is the getting started part, in which we'll point you in the direction where you can start with the editor and executor.

1.1. Installing the Product

1.1.1. Prerequisites

To install the USS product in the target environment make sure that:

- 1. The distribution archive is available. For Linux systems, the archive has the filename uss-x.y.z-linux-i586.tar.gz where x.y.z is the release version identifier (e.g., 1.4.0).
- 2. The target environment fulfills the system requirements as specified in the INSTALL file of the distribution archive.

1.1.2. Installing the product

To install USS into the target environment:

1. Unpack the distribution archive into a directory on the target host or central file server. If the target directory is \$basedir, then the distribution unpacks into a directory \$basedir/uss-x.y.z where x,y,z are version numbers. Change the working directory to \$basedir/uss-x.y.z.

Important

The installation path may not contain any whitespace!

- 2. Read the README file for general and latest information.
- 3. Read the INSTALL file for detailed installation instructions.
- 4. Do one of the following:
 - Change the \$PATH environment variable settings to include \$basedir/uss-x.y.z/bin into the search path for executables.
 - Alternatively, create symbolic links to the programs in the bin directory to a directory that is already on the search path (e.g., /usr/local/bin).
- 5. Check ownership of files. All files under \$basedir/uss-x.y.z shall be owned by root. By

default, USS does not create or modify files under \$basedir. Therefore, it is possible to install and use USS on a read-only mounted filesystem.

1.1.3. Installing platform independent version

Note! This section only applies, if you are using the platform idependent version of USS.

- 1. Install USS as described in the section above.
- 2. Locate the JRE or JDK used on your system. (See \$JAVA_HOME environment variable)
- 3. Copy the files from \$basedir/share/fonts in to \$JAVA_HOME/jre/lib/fonts if you are using a JDK or into \$JAVA_HOME/lib/fonts if you are using a JRE.

1.1.4. Integration with CGS

To integrate USS with CGS 6.3.1 or higher, the CGS Installer should be used. It does automatically unpack the USS archives and changes some properties to meet the CGS needs. USS Editor and Executor are integrated in the top level user interfaces of CGS. Generation of XML SCOE files and export of displays from data base to file system is automatically done by CGS when required. USS displays stored in the mission data base are available through HLCL/UCL commanding and CGS screen setups.

For further information refer to CGS User Manual 6.3.1, section 7.3.2.4.13 USS Displays.

1.2. Configuring System Settings

After installation, the system settings should be configured to adjust USS to the target environment. To configure the system settings, follow these steps:

- 1. Open the file \$basedir/uss-x.y.z/etc/uss.properties with a text editor.
- 2. Read the comments in the configuration file and edit settings where necessary.
- 3. Save the changed file. The new settings will be used the next time one of the USS applications is started.

For settings in the uss.properties file that can also be set via the user interface (e.g. via properties dialog) the following rules apply: Settings made in the uss.properties file only define initial defaults. Once they are changed in the UI, the UI settings have preference over the uss.properties setting. This means that later changes in the uss.properties may be ignored.

The following explains the precedence of uss.config over uss.properties by explaining the setting of uss.cmd.telecommanding and the various effects on the executor depending on where it is set. Settings in uss.config have precedence over uss.properties. For example the installation configuration is that the uss.cmd.telecommanding is set to false in uss.config. Changes to uss.cmd.telecommanding in the running executor are also saved to uss.config. Changes to that value in uss.properties while the executor isn't running has no impact on the executor's preferences, because of the already mentioned precedence of uss.config over uss.properties.

1.2.1. Configuring location of SCOE files

1.2.1.1. Prerequisites

• USS must be installed.

1.2.1.2. Configuring location of SCOE files

The location for the SCOE files can be set in uss.properties.

To configure the location of the SCOE files:

1. Edit **uss.properties** file in **\$basedir/uss-x.y.z/etc/** with a text editor and set the corresponding property uss.scoe.dir to the new location of the SCOE files.

Example given: In MCS the SCOE files usually are in **\$CGS_HOME/etc/mda/ccu/xml** the the location can be set with:

• uss.scoe.dir = \${CGS_HOME}/etc/mda/ccu/xml

1.2.1.3. See also

• Configure system settings

1.3. Getting Started

USS consists of two major applications. The first one is the editor and the second is the executor. The editor is the application for creating USS displays for later execution in the executor. The editor supports the definition of layout, composition and dynamic properties of synoptic displays. The executor executes the displays which have been authored in the editor.

1.3.1. Starting the Editor

The editor is started via a shell script. Open a shell and enter uss-editor.sh. The editor will open in a new window.

Tip

In MCS, the editor and executor can be started from the task selector menu.

For more options on how to start the editor, take a look into the section starting the executor. In that chapter the starting via shell script is explained in more detail with lots of screenshots.

1.3.2. Starting the executor

The executor is started via a shell script. Open a shell and enter uss-executor.sh. The executor will open in a new window.

Tip

In MCS, the editor and executor can be started from the task selector menu.

The executor offers a number of command line parameters. Use the --help option for getting help on these:

```
uss-executor.sh --help
usage: uss-executor.[sh|bat] [OPTION]... [FILE]...
Start USS executor. If FILES are given, then load them as displays. OPTION
may be one or more of the following.
 -a,--animate
                     animate displays for preview
 -d,--default
                     start with the default layout (from last session)
 -h,--help
-l,--layout
                     print this text and exit load layout from file
 -m,--mcs
                     start with a connection to mcs
 -p,--project
                     sets project root for executor, overriding user
                     settings
 -r,--remote
                     enable remote control
 -s,--samplefile
                     start with sample file as dataprovider
 -x,--home
                     sets home display for executor, overriding user
                     settings
```

Chapter 2: Tutorial

2.1. Introduction

This tutotial is put together of a seies of lessons, going through some of the basic and advanced editing of the USS editor, as well as some advanced topics covering editing external to the USS Editor.

Lessons in creating command elements (9) and navigation elements (10) are made as a continous extended lessons, but can with slight modification be used seperately.

Lesson topics:

- 1. Installation of USS
- 2. Usage of the USS Editor
- 3. Creation of displays
- 4. Import of display of non-USS format
- 5. Major GUI elements
- 6. Howto Edit DQI style files
- 7. Creation nof ASCII displays
- 8. Making a graph display
- 9. Creation of displays with commands
- 10. Creation of displays with navigation
- 11. Adding symbols to displays
- 12. Creation of new symbols and symbol libraries
- 13. Creation of displays with advanced elements
- 14. Changing the USS property file
- 15. Changing the USS Editor SCOE file
- 16. Checking Consistency of Displays
- 17. MDB display actions
- 18. Quick tutorial

2.2. Installation of USS package

For Prerequisites for installation and other information on installation of USS, see install USS

2.2.1. Lesson in installing USS package

Assumption: The archive has the filename uss-2.6.0-linux-i586.tar.gz is used with this tutorial in home directory.

1. On the desktop find the Konquerer icon in the task bar, and click on it to start the file-browser.

🐝 🛃 🖹 💽 🔇	3 🔊 🎑 🗍	

Konquerer. is normally in the quick start icon bar

2. Konquerer normally opens in the home folder of the current user, click the release info file, to read the release info.



Konquerer showing the content of the user home folder

3. Konquerers embedded text viewer, shows release information. Click the back-button in konquerer to go back to the home folder.

Sur file:/home/uss/uss-2.6.0.release-info - Konqueror	?••×
Location Edit View Go Bookmarks Bookmarks Tools Settings Window Help	
	
🗈 Location: 🛐 file:/home/uss/uss-2.6.0.release-info	
USS version 2.6.0 (build-20060905-1608)	
🙊 Perforce change number: \$Change: 27240 \$	
Released by: mr	
Delivered to: eRoom, AIV	
	R

Release information whown in Konquerer embedded viewer

4. Find the USS package, compressed folder.



For Linux USS is delievered as a Gzipped, tar archive

5. Right-click the compressed archive and select 'Extract here' form popup menu.

🗔 New Window	
🔊 Und <u>o</u> : Copy	Ctrl+Z
∦r Cu <u>t</u>	Ctrl+X
🔄 <u>С</u> ору	Ctrl+C
<u>R</u> ename	F2
🗊 Move to Trash	Delete
🔀 Delete	Shift+Delete
🔖 Add to Bookmarks	
Open With	
🐟 Ark	
💩 Preview in Archiver	
🗟 Copy to public folder	
Extract here	
Edit File Type	
Properties	

Konquerer popup menu for USS compressed archive

6. Konquerer open default compression/decompression tool, normally Ark. Click ok to decompress in the home folder.

🚸 🛏 Extract - Ark 🛛 🔋 🗖 🗶
Extract to: file:/home/uss/
Files to be extracted
○ Current
 All
C Selected Files
O Pattern
<u>P</u> references
⊘K × <u>C</u> ancel

Ark compression tool

7. The decompression of the USS archive generates a uss installation folder.



Selected USS installation folder

8. Click to open USS installation folder.

- ×	file:/home/uss	/uss-2.6.0 - Ko	nqueror					?••×
Loca	ation <u>E</u> dit <u>V</u> iev	w <u>G</u> o <u>B</u> ookma	urks <u>T</u> ools <u>S</u>	ettings <u>W</u> indow	<u>H</u> elp			
	🔄 🔿 🏠	S 🙆 🖗)• 📬 🛍 d	🏐 🔍 🔍 🗄	₽ ₽ ₽ ₽			
	• L <u>o</u> cation: [) file:/home/u	ss/uss-2.6.0					• 1
× 🗞 🖉 🤤 🕼 🖈	INSTALL	doc <u>doc</u> <u>LICE NSE.</u> <u>html</u>	etc NEWS	examples Normality README	jre	iib	share	
<u>स</u>	 11 Item: 	s - 4 Files (167	.3 KB Total) -	7 Directories				<u>ছ</u>

Konquerer showing the contents of USS installation folder

9. Click the bin-folder inside the USS-folder.



Konquerer showing the contents of the uss-bin-folder

10. Find the uss-editor.sh file in the bin-folder.



Selected uss-editor.sh file

11. All shell scripts, i.e. files ending/with extension 'sh' are launch files for the USS applications for UNIX. Likewise all the batch-scripts, i.e. files ending 'bat' are launch files for the USS applications for MS Windows. Click the uss-editor.sh file, and the USS Editor starts.



Start splash picture of the USS Editor

2.3. Using the Editor GUI

2.3.1. Introduction

This lesson will introduce the usage of the basic user interface of the USS Editor. You shall work with the following subjects:

- 1. Docking mechanishm of editor panels
- 2. Tool views of the editor
- 3. Printing of displays

2.3.2. Docking mechanishm of editor panels

The USS Editor features a docking framework for tool- and display views. By default views are opened as frames inside the main editor application. Small docking control icons allows you to:

1. Undock/Minimize/Close - when view is docked, ie. inside main window

₹ = ×

2. Dock/Close - when view is undocked, ie. appears in a seperate window



3. Undock/Minimize/Maximize/Close - when views are collected in tabs (multiple views in tabs)

	ſ		-		×
--	---	--	---	--	---

2.3.2.1. Lesson in docking mechanishm of editor panels

1. Start by openning the editor via installed icon.

📲 🖼 USS Display Editor 2.6.0	se 🖬 🖬 🖬
<u>File Edit View Tools Element Window Help</u>	
📓 🔚 🔚 💾 🕮 🛄 📖 📮 📓 📓 uniform se	
🔄 Synoptic Hierarchy 👌 = × 🖉 👌 = 🗆 ×	[display#1] ? = x
• • • • • • • • • • • • • • • • • • •	
📄 Property Editor 🕴 = × 🝟 Symbol Library 🛛 👘 = 🗆 ×	
[display#1]	
P Behaviour P Behaviour P Behaviour P Context Help URL Opsname P Context Help URL P D D	
Source MDB CU Consistenc	

Editor started with default empty display created, three tool views open: Synoptic Hierarchy, Property Editor and Symbol Library. This is an example of start-up layout, the editor saved basic layout and which tools are open from previous editor closing.

2. Undock the view called Property Editor by clicking with left-mouse-button on the undock icon for the Property Editor View. The Property Editor will undock and still function as part of the editor application.

🕞 Property Editor 🛛 🖈 🗶 竇 Symbol Libr	rary e a x
[displav#1]	
₽ ↓ ■	
Appearance	
Background Color	R:238 G:238 B:238 - #EEEEEE
Background Symbol Library Name	•
Background Symbol Name	•
💡 Behaviour	
Show Execute Button	
💡 Context	
Help URL	
Opsname	
Source	MDB
Source MDB CU Consistency Date	
Source MDB CU Internal Version	
Source MDB CU Name	
Source MDB CU Pathname	
Source MDB CU Scope	
Source MDB CU Version	
Source MDB Element Configuration	
Source MDB Host	
Source MDB Instance	
Source MDB Mission	
Source MDB System Tree Internal Ver	
Source MDB System Tree Version	
Source MDB Version	
Target System	MCS
P Dimensions	
Height	560
Width	880
P Information	
Description	
Title	
₽ Log	
Insert New Change Entry	Add New Log Entry
Select Change Entry	▼

The Property Editor is undocked and can be moved around independently of the main application, on computers with multiple screens, the view can be moved to another screen to better take advanced of the setup.

3. Re-dock the Property Editor by clicking with left-mouse-button on the dock icon in the undocked view. The Property Editor will dock again.

IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	
<u>File Edit View Tools Element Window Help</u>	
8889 90 90 10 11 12 18 Uniform sc	
🗄 Synoptic Hierarchy 🕴 = × 🛛 👘 = 🗆 🗙	(display#1) ? = ×
P □ Open Displays Ino title assigned] on [display#1] P □ 7 /home/uss/uss-project I ib	
🕞 Property Editor 🍖 = 🗙 😇 Symbol Library 💦 🖉 = 🗆 🗙	
[display#1]	=
Appearance Background Color R:238 G:238 B:238 Background Symbol Library Background Symbol Name Background Symbol Name	
Show Execute Button	
Source MDB Source MDB Source MDB CU Consistenc	

The Property Editor is docked again and can be moved around inside the main application. The view will when moved (click and hold left-mouse-button) dock in different position or on top of other views.

4. Close Property Editor and Symbol Library views by clicking closing their common tab-view.

 Clicking this close button will close the following views: "Synoptic Hierarchy"
 "System Configuration Browser"
 Do you still want to close all the views in this group?

The editor will warn you of the closing of multiple views.

This concludes the lesson in the USS Editors docking mechanishm.

2.3.3. Tool views of the editor

The USS Editor features a multitude of tool-views, default views are opened in their latest position and size. The editor menu gives the easiest access to the tool-views.

- 1. Property Editor, show current selected item's propeties and allow to edit them if they are editable
- 2. Consistency Checker, show the results of latest consistency check for current display, information, warnings and errors are displayed
- 3. Synoptic Hierarchy, show all open displays, as well as the content of the USS project-folder, and can be used for easy navigation, when multiple displays are open

- 4. Symbol Library, show the currently open library and allows to change library and select symbols
- 5. System Configuration Browser, show the content from the currently SCOE file, and can be used for easily adding End-items to displays
- 6. View Settings, show display settings like grid configuration etc. for the currently selected display view

2.3.3.1. Lesson in tool views

1. Start by openning the editor via installed icon, when open close all tool-views and open Property Editor from menu: Views|Property Editor.



Editor started with default empty display created, property editor showing (layout might differ).

2. Undock the Property Editor.

🕞 Property Editor ×	2 0 ×
[display#1]	
2↓ 30 □	
Appearance	
Background Color	R:238 G:238 B:238 - #EEEEEE
Background Symbol Library Name	
Background Symbol Name	
Behaviour	
Show Execute Button	
💡 Context	
Help URL	
Opsname	
Source	MDB
Source MDB CU Consistency Date	
Source MDB CU Internal Version	
Source MDB CU Name	
Source MDB CU Pathname	
Source MDB CU Scope	
Source MDB CU Version	
Source MDB Element Configuration	
Source MDB Host	
Source MDB Instance	
Source MDB Mission	
Source MDB System Tree Internal Ver	
Source MDB System Tree Version	
Source MDB Version	
Target System	MCS
or Dimensions	
Height	560
Width	880
P Information	
Description	
Title	
₽ Log	
Insert New Change Entry	Add New Log Entry
Select Change Entry	

The Property Editor is undocked and it is showing the open display settings. Showed for a display is the following categories:

- a. Appearance Basic appearance of display like background colours
- b. Behaviour Only behaviour setting for display
- c. Context Information about displays context and references
- d. Dimensions Dimensions of display: width and height

- e. Information Description and title information
- f. Log Logging information for simple revision control
- 3. Close the Property Editor by clicking the close icon in the undocked view.
- 4. Open the Synoptic Hierarchy from menu: Views|Synoptic Hierarchy and undock it.



The Synoptic Hierarchy is undocked and it is showing the open display selected, as well as the displays (not-opened) saved in the USS project-folder. The Synoptic Hierarchy can be used to select displays and elements within, as well as it easily gives access to the project displays.

- 5. Close the Synoptic Hierarchy by clicking the close icon in the undocked view.
- 6. Open the System Configuration Browser from menu: Views|System Configuration Browser and undock it.

🕼 System Configuration Browser 🖈	2 D X
OPS View: Onboard Telemetry	•
🗣 🗂 BLB	
e Comms	
eclss	
🗭 🗂 EPDS	
epm	
🛉 🔶 🚍 FSL	
🕈 🗂 PAYLOAD	
PL	
🗣 🗂 SOL	

The System Configuration Browser is undocked and it is showing the content of the SCOE file, different OPS and Path views exist as well as categories:

- a. Onboard Telemetry
- b. Ground Telemetry
- c. Onboard Commands
- d. Ground Commands
- e. Onboard Events
- f. Ground Events

The System Configuration Browser can be used to SCOE content to the displays without hard configuration task.

- 7. Close the System Configuration Browser by clicking the close icon in the undocked view.
- 8. Open the Symbol Library from menu: Views|Symbol Library and undock it.



The Symbol Library is undocked and it is showing the open symbol library selected. The Symbol Library can be used to select libraries and symbols as well as it provides access to adding and editing symbol libraries and their symbols.

- 9. Close the Symbol Library by clicking the close icon in the undocked view.
- 10. Open the View Settings from menu: Views|View Settings and undock it.

🕞 View Settings 🔹 🛪	* = x
COL_HOME.uss	
💡 Grid	
Draw Color	R:192 G:192 B:192 - #COCOCO
Draw Style	Dots
Draw Thickness	1
Snap to Grid on Move	During
Snap to Grid on Resize	During
Spacing Horizontal	10
Spacing Vertical	10
💡 Zoom	
Zoom Factor in Percent	100
Zoom Step Size in Percent	10

The View Settings is undocked and it is showing the open view settings of the display selected. The View Settings can be used to alter the grid and appearance of the display in the editor. It has the same layout and features as the Property Editor Showed for a display is the following categories:

- a. Grid Basic appearance of Grid in the display view, as well as behaviour off elements when they are being moved or resized
- b. Zoom Zoom settings
- 11. Close the View Settings by clicking the close icon in the undocked view.

This concludes the introduction to the editors tool-views.

2.3.4. Editor Print Facility

The USS Editor features a standard printing feature, which gives access to basic layout and scaling of the printout.

2.3.4.1. Lesson in printing of displays

1. Start by openning the editor via installed icon.

IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	
<u>File Edit View Tools Element Window H</u> elp	
🔄 Synoptic Hierarchy 👌 = ×	[display#1] ? = x
<pre></pre>	
Property Editor e = x 🖉 Symbol Library e = = x	
[display#1]	
Appearance Background Color R:238 G:238 B:238 Background Symbol Library Background Symbol Name Backg	
Show Execute Button	
Source MDB Source MDB CU Consistenc	

Editor started with default empty display created.

2. In the editor select from menu: File|Print

X-₩ Print				×
<u> </u>	Page <u>S</u> etup	<u>A</u> ppearance		
-Print Ser	vice			
<u>N</u> ame:	hp4730		-	P <u>r</u> operties
Status:	Accepting job	5		
Type:				
Info:				Print To <u>F</u> ile
-Print Ran	ige	['	Copies	
● A <u>I</u> I			Number <u>(</u>	of copies: 1 -
⊖ Pagg	<u>e</u> s <u>1</u> To	1	<u>C</u> ollat	ie
				Print Cancel

The editors print dialog opens with default printer selected. The General tab the following print

properties can be selected:

- a. Name Selects Printer
- b. Properties Properties for printer if available
- c. Print To File Check if print should go to a post-script file
- d. Print Range Select the range of pages to print
- e. Copies Number of copies and how to handle multiple copies
- 3. Click the tab: Page Setup to show further properties

X-¤ Print	×
<u>G</u> eneral Page <u>S</u> etup <u>Appearan</u>	Ce
Media	
Size: A4 (ISO/DIN & JIS)	-
Sour <u>c</u> e: Automatically Select	-
Orientation	Margins
\Lambda 🔾 <u>P</u> ortrait	left (mm) right (mm)
🔺 🖲 <u>L</u> andscape	25.4 25.4
📓 🔿 Reverse Portra <u>i</u> t	top (mm) bottom (mm)
Image: White State Control	25.4 25.4
	Print Cancel

The Print dialog shows the Page Setup properties for printing, which are descripped below:

- a. Size Selects Paper size in printer
- b. Source Select paper source, ie. tray in printer
- c. Orientation How the print is oriented on the paper
- d. Margins Margins on the paper
- 4. Click the tab: Appearance to show further properties and check properties: Banner Page

X-M Print	<u>*</u>
<u>General</u> Page Setup	Appearance
Monochrome	O Dra <u>f</u> t <u>N</u> ormal
Sides	Job Attributes
👔 🖲 <u>O</u> ne Side	<u>Banner Page</u> P <u>r</u> iority: 1
Tumble	Job Name: USS Editor: Unnamed0
A O Duplex	<u>U</u> ser Name:
	Print Cancel

The Print dialog shows the Appearance properties for printing, which are descripped below, if available:

- a. Color Appearance Sets if print should be in color
- b. Quality Select output quality
- c. Sides Select the pages arrangement
- d. Job Attributes Selects job attributes, like banner page and priorities
- 5. Click print to print display.

The Print is printed on the configured printer with a banner page first.

6. In the editor select from menu: File|Print Preview



The Print Preview dialog shows the expected print layout.

This concludes the lesson in the USS Editors printing mechanishm.

2.4. Making a Display

This tutorial section explains the preparations needed in order to run both USS executor and USS editor. After this it gives a short tutorial on USS editor, which shows how to create a new ground ops (Satmon like) display, the converting of GWDU ground displays in batch operation and how to check GWDU displays for consistency. It finishes with a tutorial on USS executor, which explains how to connect and disconnect a display; shows direct commanding of FWDU displays, shows a GWDU display aswell as imported Satmon displays samples and PCS display samples and shows the commanding via MCS Tools.

2.4.1. Introduction

This lesson will go through the a basic display in the USS Editor. You shall work with the following subjects:

- 1. Making of a display
- 2. Adding elements

3. Previewing a display

2.4.2. Making display

The USS Editor can make display in the USS xml format via its GUI.

2.4.2.1. Lesson in making a display

1. Start by openning the editor via installed icon.



Editor started with default empty display created, three tool views open: Synoptic Hierarchy, Property Editor and Symbol Library. This is an example of start-up layout, the editor saved basic layout and which tools are open from previous editor closing.

2. Add a new display by selecting from menu: File|New

A new display is opened.

3. Add a label by choosing from menu: Element|Add|Label. Click on label and edit text of label and resize the label by pulling the corner of the label.



The New display has a label with your added text.

4. If Property Editor is not open, open it by choosing: Views|Property Editor

Property Editor Open

5. In the Property Editor check the Label Text Autosize.



The Label changes text size to match the size of the label.

6. Click on the in the display area outside the label area

Display is selected, and Property Editor shows the properies of the display.

- 7. Undock the Property Editor and edit the following properties by clicking in the field for the properties int Property Editor and editing:
 - a. Background color: Click button: '...' and add from color dialog a light blueish color.

X-₩ Pick a Colour				
My Colours Swatches	HSB RGB			
1				
Aquamarine	Bisque 3	Black	Blue 4	
Blue,Dodger	Blue,Light	Blue,Royal	Brown	
Brown, Light	Brown, Sandy	Cyan	Gray 83 UNIX	
Gray 83 PC	Green	Green, Dark	Green 4	
Green, Light	HoneyDew 3	Magenta	Misty Rose 3	
Olive Drab	Orange	Orange, Dark	Orchid, Dark	
Pink, Hot	Plum	Purple	Red	
Violet	White	Yellow	Yellow, Pale	
Midnight Blue	Blue, Light	Red, Dark	Palegreen 2	
Col37	Col38	Co139	Col40	
Preview				
📕 📰 R:165 G:42 B:42 - #A	52A2A Set	t as colour Brown	 Rename 	
		Den et		
OK Cancel <u>R</u> eset				

- b. Check the property: Show Execute Button
- c. Fill in the properties in the category: Information

🅞 Property Editor ×	(è o x
[display#1]	
• Appearance	
Background Color	R:173 G:216 B:230 - #ADD
Background Symbol Library Name	
Background Symbol Name	
💡 Behaviour	
Show Execute Button	
💡 Context	
Help URL	
Opsname	
Source	MDB
Source MDB CU Consistency Date	
Source MDB CU Internal Version	
Source MDB CU Name	
Source MDB CU Pathname	
Source MDB CU Scope	
Source MDB CU Version	
Source MDB Element Configuration	
Source MDB Host	
Source MDB Instance	
Source MDB Mission	
Source MDB System Tree Internal	
Source MDB System Tree Version	
Source MDB Version	1465
l arget System	MCS V
Dimensions	480
Height	480
o Information	070
Pescription	Test making a display
Title	My Display
e 100	my Display
Insert New Change Entry	Add New Log Entry
Select Change Entry	1
Selected Change Author	uss
Selected Change Comment	First revision
Selected Change Date	7/10/06
Selected Change Revision	1
-	

The Property Editor shows the edited properties for the display.

8. Add a Tankmeter, a Telecommand button and a Rectangle from the editor menu: Element|Add|...

Display contains a Label, Tankmeter, Telecommand button and a Rectangle.

9. Click the added Tankmeter to select it, edit it properties in the Property Editor to match:

🗶 🗝 Property Editor		
🕞 Property Editor 🔹 🗙	(e	o x
<tankmeter> TankMeter1</tankmeter>		
Appearance		
Fluid Color	CUSTOM_FLUID	
Shape Fill Color	R:65 G:105 B:225	
Shape Fill Style	Solid 💌	
💡 Behaviour		
Meter Color Show Status	v	
💡 Dimensions		
Depth	0	
Height	100	
Width	100	
X	130	
Y	140	
💡 General		
Data Source	MeterDS1	
o Information		
Comment		-
		_

Result after editing. TankMeter changes with it properties

Tip

In the Property Editor, the property: Data Source containts a button: '...', which gives access to the data source editing dialog

10. Click the added Telecommand to select it, edit it properties in the Property Editor to match:
| X-₩ Property Editor | |
|---|---------------------------|
| 🕞 Property Editor 🔹 🗙 | (e a x |
| <commandbutton> TeleComm</commandbutton> | and1 |
| | |
| ≜ ↓ 🗄 🔳 | |
| 💡 Appearance | |
| Button Type | Simple Text Button |
| Shape Fill Color | 🗏 🔜 R:212 G:212 B:212 |
| Shape Fill Style | Solid 💌 |
| 🛛 💡 Commanding | |
| Command | X |
| opposition Providence | |
| Depth | 0 |
| Height | 100 |
| Width | 100 |
| X | 300 |
| Y | 140 |
| 🛛 💡 Information | |
| Comment | |
| Name | TeleCommand1 |
| Released Label Text (Default) | CommandButton1 |
| Selected Elements | 1 element |
| Tooltip | |
| 🛛 💡 Misc | |
| Button Shape | |
| Corner Fill Color | 🗏 💻 R:0 G:0 B:0 – #000000 |
| Corner Fill Style | Solid |
| Corners Enabled | |
| J | |
| | |
| | |
| | |
| | |

Result after editing. Telecommand has changed.

Tip

In the Property Editor, the property: Command containts a button: '...', which gives access to the command editing dialog

11. Click the added Rectangle to select it, edit it properties in the Property Editor to match:

🕞 Property Editor 📃	(e 🗆 s
<rectangle> Rectangle4</rectangle>	
₫. 🗄 🗐	
Appearance	
Draw Color	🗏 📰 R:0 G:0 B:0 – #000000
Draw Style	Solid 💌
Draw Width	1
Shape Fill Color	🗏 🥅 R:255 G:255 B:255 – #F
Shape Fill Style	Solid 💌
o Dimensions	
Depth	-1
Height	180
Width	340
X	100
Y	110
💡 Information	
Comment	
Name	Rectangle4
Selected Elements	1 element
Tooltip	

Display is edited.

12. Now you should preview you created display to get a better feel for it appearance and test its behaviour. Select from menu: Tools|Previwer ... Display is opened in the previewer frame:

▶-₩ USS Editor	Preview: Untitled		• • ×
<u>F</u> ile <u>P</u> review			
My Di	splay		
		CommandButton1	
- Preview starte	d 4 Sep 2006 at 13:38:23	– Slider Index: 0	

13. Now you should use the slider at the bottom of the Previewer and see the Tankmeter level move Previewer frame snap-shoot:



- 14. Close the Previwer frame.
- 15. Save display by selecting from menu: File|Save Save dialog is opened, where you can enter display file-name

X-¤ Save displa	ıy as			
Save In: 📑 u	ss-project	-	a 🔒	
📑 lib				
File <u>N</u> ame:	MyDisplay,uss			
Files of <u>T</u> ype:	USS displays (*.uss)			
			Save	Cancel

16. Now try opening the display in the USS Executor select from menu: Tools|Executor Display is opened in the USS Executor, which is the real execution application for the display:

	1 2
Q-₩ USS Display Executor [uss@uss2]	• • ×
<u>File Navigate Yiew Options Window H</u> elp	
	♦ Untitled
Untitled	
● Untitled 🗖 🖬 🖂	A
My Display	
l'iy Dispiay	
CommandButton1	
	-
	•
04Sep06 13:42:19 INFO : Executor started.	
04Sep06 13:42:24 INFO : Opening display /home/uss/uss-project/MyDisplay.uss	
TM MCS ⇒ ½ ½ Upd: ● €	Not Connected

This concludes the lesson in the USS Editors docking mechanishm.

2.5. Import existing displays

The USS Editor can import displays from the following formats:

- 1. Old USS display versions (1, 2, 3) mostly used during development
- 2. FWDU displays
- 3. GWDU displays
- 4. NASA, PCS displays

Imported display definitions become USS displays meaning that they will have the USS XML-based file format and the .uss file extension. The imported displays cannot be exported back into the legacy display formats.

2.5.1. Lesson in importing a display

1. Start by openning the editor via installed icon.



Editor started with default empty display created, three tool views open: Synoptic Hierarchy, Property Editor and Symbol Library. This is an example of start-up layout, the editor saved basic layout and which tools are open from previous editor closing.

2. Open / import a GWDU display by selecting from menu: File|Open

The file open dialog is now open.

3. Browse via the open dialog to the display: CMD_QUEUES.gwdu Remember to change File of Type to All Files CMD_QUEUES.gwdu can be found under path: <USS_INSTALL_DIR>/examples/import/gwdu/msc/APM/COL_CC/MCS_OPS/CONFIG/SYN OPTICS/MCS

X-¤ Open	105	
TOP_LEVEL CMD_QUEU CMD_STAT DB_SERVER DOWNLINK PD_01.gwd PD_SBAND. PP_HOSC.gw	PP_ISS.gwdu PP_ISS.gwdu ES.gwdu DS.gwdu SAS_CONTROL.gwdu .gwdu _STAT.gwdu u gwdu wdu	
File <u>N</u> ame: Files of <u>T</u> ype:	CMD_QUEUES.gwdu GWDU displays (*.gwdu)	
		Open Cancel

The import display selected, preview shown.

4. Click open to open display.

₽-₩ USS Display Editor 2.6.0		• • ×
<u>File Edit View Tools Element Window Help</u>		
		4 +
uniform scaling [🔽 100 🔭 🐚 🚱 🚳		
🕞 Property Editor 👌 = × 🛛 💦 a = 🛛 🖈	[display#1] 🔞 /home/uss/uss/main/examples/import/gwdu/mcs/APM/COL_C	C/MCS_OPS/ (+ ► ₹ ₹ = □ ×
CMD_QUEUES.gwdu	MCS Command	Queues 🔒
	MCS Client Queues	USOC Qu
🛉 Appearance 🔺	Clijent StdQu LoadQu	-USOC
Background Color 🛛 🗖 R:0 G:0 B:0 - #000		
Background Symbol Libr	1: <u>M</u> <u>M</u> <u>M</u> <u>M</u> <u>M</u> <u>M</u>	11:
Background Symbol Name	7•• M·•• M••• M••• M••• M••• M••• M•••	-7:::
9 Behaviour		-5
Show Execute Button	?:. <u> </u>	.3.•.
💡 Context	4:: <u>M</u> .: <u>M</u> .: <u>M</u> .: <u>M</u> <u>M</u> .	:4::
Help URL	5:: MI: MI: MI: MI: MI: MI: MI: MI: MI: M	15:1
Opsname SYN_Cmd_Queues	C	· · · · · · · · · · · · · · · · · · ·
Source MDB		.0.
Source MDB CU Consist 14.12.2005 17:33:59	7:: Miterri Mi	:7::-
Source MDB CU Internal 316989981	8: · · · · · · · M· · · M· · · M· · · M· · · · · · · · · · · · · · · · · · · ·	·8:-
Source MDB CU Name MCS_AIV	M M M	
Source MDB CU Pathname \APM	9	
Source MDB CU Scope CCU	10: M M M M.	
Source MDB CU Version V7.1.0		
Source MDB Element Co APM	11: M M M M M M M M M M M M	
Source MDB Host	12 M M M	
Source MDB Instance MCS_AV1		
	<u>431. M. C.C.C. M. C.C. M</u> . C. M. C.	
	14: MILLIN MILL MILL MILL MILL MILL	
		••••••••••••••••••
		•

The imported display is shown shown in the editor, the import process is seamless and a convertion is done between GWDU and USS format. The display can now be edited, and saved to the USS display format.

5. In the Property Editor check the display import information given by the Source information

Image: Property Editor Image: Imag	(e a
CMD_QUEUES.gwdu	
Appearance	
Background Color	💻 R:0 G:0 B:0 - #000000
Background Symbol Library Name	▼
Background Symbol Name	▼
💡 Behaviour	
Show Execute Button	
💡 Context	
Help URL	
Opsname	SYN_Cmd_Queues
Source	MDB
Source MDB CU Consistency Date	14.12.2005 17:33:59
Source MDB CU Internal Version	316989981
Source MDB CU Name	MICS_AIV
Source MDB CU Pathname	\APM
Source MDB CU Scope	CCU
Source MDB CU Version	V7.1.0
Source MDB Element Configuration	APM
Source MDB Host	
Source MDB Instance	MICS_AIV1
Source MDB Mission	MASTER
Source MDB System Tree Internal Version	
Source MDB System Tree Version	12
Source MDB Version	MCS212-CGS626
Target System	MCS 🗸
P Dimensions	
Height	600
Width	800
P Information	
Description	
Title	APM-COL_CC-MCS_OPS-CONFIG-SYNOPTICS
စု Log	
Insert New Change Entry	Add New Log Entry
Select Change Entry	1.0
Selected Change Author	uss
Selected Change Comment	Automatic import of GWDU display
Selected Change Date	7/10/06
Selected Change Revision	1.0

- 6. Close the imported GWDU display.
- 7. Now import a PCS display with path: <USS_INSTALL_DIR>/examples/import/pcs/xml/Col_Cabin_FanAssemblies_ACT.xml

X-¤ Open				
Look <u>I</u> n: 🗖 xm	I		-	
Col_Cabi	n_Fan_Assemblies_ACT.xml n_Smoke_Detector_1.xml n_Smoke_Detector_2.xml JTION_AND_WARNING_VTC1.xm _1_and_2_Heater_Control_VTC1 _1_and_2_Heater_Control_VTC2 _1_and_2_Valve_Control_VTC2; _1_and_2_Valve_Control_VTC2;	il Lxml 2.xml xml xml	Cabin Fan Assembly 1 State	Cabin Fan Assembly 2 State VTC2 hardwire Delta Press kPa Fan Speed rpm On-Off Status PDI 2 120V Outlets Outlet Num 23 SSPC1 Pw
•		•		
File <u>N</u> ame:	ol_Cabin_Fan_Assemblies_ACT.xr	nl		
Files of <u>T</u> ype: P	REP displays (*.xml)			-
			Oper	n Cancel

8. Click open to open display.

	5.0				• • ×
File Edit View Tools Element Window Help					
uniform scaling [🔻					
🕞 Property Editor 🛛 🗕 🗙	× = - 5	Ro /home/uss/u	ss/main/examples/import/pcs/x	:ml/Col_Cabin_Fan_Assemblies_AC_ 🛛 🤻	- × (- = ×
Col_Cabin_Fan_Assemblies_A	ACT.xml				
P Appearance Background Color Background Symbol Library. Background Symbol Name Behaviour Background Symbol Name Behaviour Bowe Execute Button Context Help URL Opsname Source PCS Release Source PCS Release Source PCS Version Target System Dimensions Height Width Information Description Titte	PCS R9 R10-1.5 PCS x10-1.5 PCS x10-1.5 COL CFA 1-2 Act		Cabin Fan Assembly J State VTC 1 hardwire Delta Press KPa Fan Speed rpm On-Off Status PDU 1 120V Outlets Outlet Num 23 SSPC1 Pwr	Cabin Fan Assembly 2 State VTC2 hardwire Off Delta Press kPa Fan Speed rpm On-Off Status PDU 2 120V Outlets Outlet Num 23 SSPC1 Pwr	

The imported display is shown shown in the editor. The display can now be edited and saved to the USS display format.

9. In the Property Editor check the import information.

🕞 Property Editor 🔌 🗙	(e □ x
Col_Cabin_Fan_Assemblies_ACT.xml	
Appearance	
Background Color	
Background Symbol Library Name	
Background Symbol Name	
9 Behaviour	
Show Execute Button	
💡 Context	
Help URL	
Opsname	
Source	PCS
Source PCS Release	R9
Source PCS Version	R10-1.5
Target System	PCS
or Dimensions	
Height	323
Width	368
P Information	
Description	
Title	COL CFA 1-2 Act
P Log	
Insert New Change Entry	Add New Log Entry
Select Change Entry	1.0
Selected Change Author	uss
Selected Change Comment	Automatic import of PREP/PCS display
Selected Change Date	10/07/06
Selected Change Revision	1.0

The Property Editor shows the properties for the imported display.

10. Now import a Satmon display with path: <USS_INSTALL_DIR>/examples/import/satmon/1092.xml

X-₩ Open				
Look <u>I</u> n: 📑 s	atmon			
 1092.xml 1093.xml 1094.xml 1095.xml 1113.xml 1120.xml 1121.xml 	 1131.xml 1140.xml 1221.xml 1222.xml 1223.xml 1223.xml 1224.xml 1224.xml 	 1227.xml 1228.xml 1229.xml 1230.xml 1301.xml 1302.xml 1202.xml 	 1326.xml 1327.xml 1351.xml 1352.xml 1353.xml 1371.xml 1371.xml 	
1130.xml	1226.xml	1325.xml	1373.xml	
	[1007.000]		•	
File <u>N</u> ame:	1092.xmi			
Files of <u>T</u> ype:	Satmon displays	(*.xml)		·
				Open Cancel

11. Click open to open display.

IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII		• D ×
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> ools Element <u>W</u> indow <u>H</u> elp		
S <> B + B × <> < << << << << << << << << << << << <	▋���₽ ゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚゚	
uniform scaling [🔻 100 🗧 🦄 🙆 🚳 🚳 💻		
Property Editor e = x	🔞 /home/uss/uss/main/examples/import/satmon/1092.xml 🛛 ₹ = ×	× 0 = 5
1092.xml		
	SYSTEMS	
	CTCU1. PDU1.	WPA1
	Svs Bus Ena Stat SW	Mili
Packground Color R:0 C:0 P:0 - #000000	Svs Bus No Resp SW	M
Background Symbol Library	Svs Bus Erroneous Msg SW	M
Background Symbol Name	Svs. Bus. Msg. Error, SW	M
Behaviour	Svs Rus Rusv Flad SW	M
Show Execute Button	Sve Rue Taentest Else Ski	M
Context	Sve Due Unit France Fire Skirt Mar	M
Help URL		M DA 2
Opsname satmon_1092		WPA2_
Source	-Sys_Bus_Ena_Stat_SW	
Target System MCS 💌	. Sys_Bus_No_Kesp_Sw	M
ο P Dimensions	Sys_Bus_Erroneous_Msg_SWIIIII MII	M
Height 364	Sys_Bus_Msg_Error_SW	M
Width 782	•Sys_Bus_Busy_Flag_SW ••••••••••••••••••••••••••••••••••••	Mere
Y Information	Sys_Bus_Terminal_Flag_SW M	M
Description	Sys_Bus_Unit_Error_Flag_SW M.	M
Title Systems/Comms System Bu	SYSTEMS SPECIAL	
Q Log Insert New Change Entry Add New Log Entry	PDU1 Svs Bus Coupler Not Rdv DMC	Μ
Insert New Change Entry Add New Log Entry	PDU2 Svs Bus Coupler Not Rdv DMC	Μ
		>

The imported display is shown shown in the editor. The display can now be edited and saved to the USS display format.

12. In the Property Editor check the import information.

🕞 Property Editor 🛛	2 D X
1092.xml	
2↓ 🗄 🔳	
💡 Appearance	
Background Color	R:0 G:0 B:0 - #000000
Background Symbol Library Name	
Background Symbol Name	▼
9 Behaviour	
Show Execute Button	
💡 Context	
Help URL	
Opsname	satmon_1092
Source	
Target System	MCS
P Dimensions	
Height	364
Width	782
9 Information	
Description	
Title	Systems/Comms System Bus RT Status
ρ Log	
Insert New Change Entry	Add New Log Entry
Select Change Entry	1.0
Selected Change Author	uss
Selected Change Comment	Automatic import of Satmon display
Selected Change Date	10/07/06
Selected Change Revision	1.0

The Property Editor shows the properties for the imported display.

This concludes the lesson in the USS Editors import mechanishm. The USS Editor and Executor use the same import mechanishm.

2.6. GUI Elements

This lesson takes you through the major GUI elements of the USS Editor namely the View Settings and the Preferences.

2.6.1. Lesson in using the GUI elements (View Settings and Preferences)

1. Start by openning the editor via installed icon.

IN THE ISS Display Editor 2.6.0	
<u>File Edit View Tools Element Window Help</u>	
🗄 🖁 🖶 🖤 🖽 🛄 🖽 🗮 📓 uniform s	caling [🔻 100 🚣 🙀 💿 💿 💿 💌 🗾 🗽 🖡
Property Editor 👌 = ×	[display#1] ? = x
[display#1]	
₽ ↓ 🖭 💷	
Y Appearance	
Background Color R:238 G:238 B:238	
Background Symbol Library	
Background Symbol Name	
9 Behaviour	
Show Execute Button	
op Context	
Help URL	
Opsname	
Source MDB	
Source MDB CU Consistenc	
Source MDB CU Internal Ve	
Source MDB CU Name	
Source MDB CU Pathname	
Source MDB CU Scope	
Source MDB CU Version	
Source MDB Element Config	
Source MDB Host	
Source MDB Instance	

Editor started with default empty display created, three tool views open: Synoptic Hierarchy, Property Editor and Symbol Library. This is an example of start-up layout, the editor saved basic layout and which tools are open from previous editor closing.

2. Close all tool views and open the View Settings

🔽 View Settings 🔌 🗙	₹ □ x
[display#5]	
💡 Grid	
Draw Color	R:192 G:192 B:192 - #COCOCO
Draw Style	Dots 💌
Draw Thickness	1
Snap to Grid on Move	During
Snap to Grid on Resize	During
Spacing Horizontal	10
Spacing Vertical	10
💡 Zoom	
Zoom Factor in Percent	100
Zoom Step Size in Percent	10

A Display is open with the View Settings showing. The View Settings are not saved with the displays, the properties are non-persistent and only for viewing in the Editor. They provide a help when editing.

3. Change the grid colour to draw style to yellow and the draw style to Lines.

																								۵×
Ene Earc Free Tools clement Window Helb	0. 6	1 🕀					18	<u>@</u>	1 [<u>8</u> 1	1 [6		1	L	1		7 [2	4				
										-		~					C.N.		9	-				
	M		<u> </u>	•			0	- 20	<u> </u>															
uniform scaling [🔻 100 🔭 🐚 💿 💿	0 Ľ	2	1					╏					31-8				1	125						
View Settings 🗧 = ×	- 0 ×	[di	splay	#5]	е.	. ×											 				 	 (ē -	. a x
[display#5]																								
₹↓																								
₽ Grid																								
Draw Color R:204 G:255 B:0 - #C	.c																							
Draw Thickness 1																								<u>+</u>
Snap to Grid on Move During	┳║																							-
Snap to Grid on Resize During	-																							=
Spacing Horizontal 10																								
Spacing Vertical 10																								
9 Zoom																								+ 1
Zoom Factor in Percent 100																								H I
Zoom Step Size in Percent 10																								
																								+
																								-
																								#
																								+
																								F
																								+
		\square									H													
																								•

The Display grid colour change as well as the draw style, the grid is now fully drawn.

- 4. Now change the following properties:
 - a. grid spacing to 50/20 (Horizontal/Vertical)
 - b. set the Zoom factor to 200 %
 - c. grid draw tickness to 2 pixels

III-H USS Display Editor 2.6.0							I X
<u>File Edit View Tools Element Wi</u>	ndow <u>H</u> elp						
				6 🔽 🖡	+ +		
uniform scaling [🔻 100 🖉 🧏	<u> </u>						
🔽 View Settings 🛛 = ×	× = - 5	[display#5] 👌 🗕	× [2-0	x
[display#5]							
4							
9 Grid							
Draw Style	+ G:255 B:0 - #CC						=
Draw Thickness 2							
Snap to Grid on Move During	•						
Snap to Grid on Resize During	•						
Spacing Horizontal 50							
Spacing Vertical 20							
Y Zoom							
Zoom Factor in Percent 200							
Zoom Step Size in Percent 10							
Zoom Step Size in Percent							
a som step size (in percenty							-
		L					

5. Undock the View Settings and to get a better view of the settings changed.

🕝 View Settings & 🗙		(e a x
[display#5]		
2.↓ 🗄 🔳		
💡 Grid		
Draw Color	R:204 G:255 B:0 – #CCFF00	
Draw Style	Lines	-
Draw Thickness	2	
Snap to Grid on Move	During	-
Snap to Grid on Resize	During	-
Spacing Horizontal	50	
Spacing Vertical	20	
💡 Zoom		
Zoom Factor in Percent	200	
Zoom Step Size in Percent	10	

Walk-through of the Editor Preferences

1. Open the editor preferences by selecting from menu: Edit|Preferences.

Project	Project			
– 🗋 Display – 🗋 Consistency	Root folder	/home/uss/uss-project		Browse
– 🗋 Data Source	Default Setti	ngs for Project.		
– 🗋 Import				
— 🗋 Database				
— 🗋 MDB-General				
MDB-CDU				
MDB-CCU				
MDB-SCOE				
			<u>0</u> K	Cancel

The Editor preferences opens, it is arranged after categories (to the left) and each category contains a group of properties. No properties change in the system before the OK-button is pressed, so you can change properties without effect, as long as you do not press ok.

2. Click on the Project category

- 🗋 Project	Project		
- Display	Root folder	/home/uss/uss-project	Browse
- Data Source	Default Setti	ngs for Project.	
- 🗋 Import			
Database			
- MDB-CDU			
— 🗋 мрв-сси			
MDB-SCOE			
ļ			
		<u>0</u> K	Cancel

The project category contains the following properties:

a. Root Folder

The Root Folder defines where the uus-project is located, that is were MDB files are synchronized to, and provide common location for displays.

3. Click on the Display category

- 🗋 Project	Display	
- 🗋 Display	Zoom value	100
Consistency	Zoom step size	10
- Data Source	Grid style	Dots 💌
– 🗋 Database	Grid spacing width	10
— 🗋 MDB-General	Grid spacing height	10
	Grid snap on resize	During 🗨
MDB-CCU	Grid snap on move	During 💌
	Grid draw thickness	1
	Grid draw color	
	Display width	880
	Display target system	MCS
	Display height	560
	Display back ground color	
	Default Settings for New Creat	ed Display(s).

The display category contains the following properties, which are used as default for new displays:

- a. Zoom value: Default zoom value in percent
- b. Zoom step size: Default step size in percent for zooming in and out.
- c. Grid Style: Default grid style choose between: Non, Dots, Dashed, Lines
- d. Grid spacing width: Default grid spacing width in pixels
- e. Grid spacing height: Default grid spacing height in pixels
- f. Grid snap on resize policy: Default behaviour of snapping when resizing an element in a display
- g. Grid snap on move policy: Default behaviour of snapping when moving an element in a display
- h. Grid draw tickness: Default grid tickness in pixels
- i. Grid draw colour: Default grid colour
- j. Display width: Default display width when creating anew display
- k. Display target system: Default display target system when creating anew display
- 1. Display height: Default display height when creating anew display

- m. Display back ground colour: Default display back-ground colour when creating anew display
- 4. Click on the Consistency category

– 🗋 Project	Consistency		
- Display	Used OpNom language	UK English	-
- Data Source	Used OpNom check	OpNom with ESA	-
— 🗋 Import	Run OpNom check	V	
– 🗋 Database – 🗋 MDB-General	Settings for Consistency	Checker.	
— 🗋 MDB-CDU			
— 🗋 MDB-CCU			
└─ 🗋 MDB-SCOE			

The consistency category contains the following properties:

- a. Used OpNom language: The language to use while spell checking in the consistency checker
- b. Used OpNom check: The OpNom standard to use while checking in the consistency checker
- c. Run OpNom check: Wether or not to run OpNom checking in the consistency checker
- 5. Click on the Data Source category

– 🗋 Project	Data Source	
– 🗋 Display – 🗋 Consistency	Context list	Opsname
- Data Source - DImport	Context default	Onsname
- Database - MDB-General	Context default	opsname
- MDB-CCU - MDB-CCU - MDB-SCOE		
	Settings for Default D	ata Source Type and Shown List of Data Source T

The Data Source category contains the following properties:

- a. Context List: The list of contexts to be available in the Editor
- b. Context default: The default context to use from the context list
- 6. Click on the Import category

– 🗋 Project	Import
— 🗋 Display	Display import results
🛛 🗕 🗋 Consistency	
– 🗋 Data Source	Default Settings for Display Importing.
– 🗋 Import	
— 🗋 Database	
🛛 🗕 🗋 MDB-General	
— 🗋 MDB-CDU	
— 🗋 MDB-CCU	
🗏 🗋 MDB-SCOE	

The Import category contains the following properties:

- a. Display import results: Whether or not the editor should show a summary of results when import/opening external format displays
- 7. Click on the Database category

– 🗋 Project	Database	
– 🗋 Display	Database user	ops\$cgsadmin
– 🗋 Consistency	Database sid	oracle
– 🗋 Data Source	Database port	1521
– 🗋 Import – 🗋 Database	Database password	****
– 🗋 MDB-General	Database hostname	mdbs.eso-io.com
– 🗋 MDB-CDU	MDB DataBase Connectio	on Properties.
— 🗋 MDB-CCU		·
🗆 🗋 MDB-SCOE		

The Database category contains the following properties:

- a. Database user: The user to connect with
- b. Database sid: The system id (sid) of the MDB, normally oracle
- c. Database port: The TCP/IP port to connect to on the dB-server
- d. Database password: The dB passwod for the dB user specified
- e. Database hostname: The host / db-Server to use
- 8. Click on the MDB-General category

– 🗋 Project	MDB-General	
– 🗋 Display	Use CDU	V
Consistency	System version	12
- Data Source	System mission	MASTER
– 🗋 Database	System element config	АРМ
— 🗋 MDB-General	MDB General Properties Eg	. Connection / System Spec.
– 🗋 MDB-CDU		
– 🗋 MDB-CCU		
🖵 🗋 MDB-SCOE		

The MDB-General category contains the following properties:

- a. Use CDU: Whether or not to use CDU (contra CCU)
- b. System Version: System verion number
- c. System mission: System mission setting
- d. System element config: System element configuration
- 9. Click on the MDB-CDU category

– 🗋 Project	MDB-CDU	
– 🗋 Display	CU version	0
– 🗋 Consistency	CU test version	1
– 🗋 Data Source	CU revision	0
- D Import	Cll nath	APMACOMMON TEST SUPPAGED DATAVISS
Database		0
MDB-General	Cll instance	MCC AB/1
	co instance	
	CU domain	
	MDB CDU Connec	tion Properties.

The MDB-CDU category contains the following properties:

- a. Cu version: The CU version to use with CDU
- b. Cu test version: The CU test version to use with CDU
- c. Cu revision: The CU revision to use with CDU
- d. Cu path: The CU path to use with CDU
- e. Cu issue: The CU issue to use with CDU
- f. Cu instance: The CU instance to use with CDU
- g. Cu domain: The CU domain to use with CDU
- 10. Click on the MDB-CCU category

- 🗋 Project	MDB-CCU	
– 🗋 Display	CU path	\APM\COMMON_TEST_SUPP\GRD_DA1
- Consistency	CU name	USS_TEST
- Data Source	CU version	1
- Database	CU issue	0
– 🗋 MDB-General	CU revision	0
- 🗋 MDB-CDU	MDB CCU Connection Properties.	
— 🗋 MDB-CCU		
🛛 🗕 🗋 MDB-SCOE		

The MDB-CCU category contains the following properties:

- a. Cu path: The CU path to use with CCU
- b. Cu name: The CU name to use with CCU
- c. Cu version: The CU version to use with CCU
- d. Cu issue: The CU issue to use with CCU
- e. Cu revision: The CU revision to use with CCU
- 11. Click on the MDB-SCOE category

- 🗋 Project	MDB-SCOE	
– 🗋 Display	SID	0
 Consistency Data Source 	File path	/home/uss/Perforce/us Browse
– 🗋 Import	CU internal version	316989981
– 🗋 Database	Default Settings for SC	DE File.
— 🗋 MDB-General		
— 🗋 MDB-CDU		
— 🗋 MDB-CCU		
MDB-SCOE		

The MDB-SCOE category contains the following properties:

a. SID: The System Id (SID) of the SCOE to use

b. File path: The File path to the SCOE file Shown in the category is also the SCOE internal CU version.

12. Click on the browse button to change SCOE file

	se file
Look <u>I</u> n:	⊂ scoe ▼ ⊡ ⊡ □ □ □ □ □ □ □ □ □ □
🗧 😂 \EURE	CA Mission DUMMY_MISSION(8) - CCU: Q_TEST_DISTR V4.0.0(16-De
🛛 🤤 CCU 2	268436077, operational configuration 0, consistency date 11255313
🛛 📀 CCU 2	278561597, consistency date 1134023659000(08-Dec-2005 06:34:1
🛛 📀 CCU 2	278561660, operational configuration 0, consistency date 11546008
🛛 📀 \APM	Mission MASTER(12) - CCU: MCS_AIV V6.0.1(29-Sep-2005 08:32:57
🔷 \apm	Mission MASTER(12) - CCU: MCS_AIV V7.1.0(14-Dec-2005 17:33:59
CCS	Mission AEOLUS(4)\COMMON - CCU: EADS_SI_TEST V1.0.0(07-Jul-2
🔰 🤤 \MET(OP Mission EM(4) - CCU: LBU_FM1_OPS 2.0.1(15-Jul-2004 12:01:00)
•	
File <u>N</u> ame	:
Files of <u>T</u>	ype: XML SCOE/Info (*_info.xml)
	Choose file Cancel

Here the SCOE file can be selected, if you change it the System Configuration Browser will reload with the new information.

This concludes the lesson in the USS Editors preferences. Normally these settings are preset delivered from the system administrator.

2.7. Changing DQI Styles

The USS Editor and Executor use Data Quality Indicator definition to give information about the state of the data being processed.

2.7.1. Lesson in viewing and changing DQI files

The lesson assumes the XML editor KXML-editor is installed.

1. Opening the KXML-editor and browser to the >USS_INSTALL</etc directory. Here open the file: mcs_dqistyle.xml

Ø → mcs_dqistyle.xml - Kate	• • ×
<u>Eile Edit Document View Bookmarks Tools Settings H</u> elp	
<pre><?xml version="1.0" encoding="UTF-8"?></pre>	
StyleSet [</td <td>H</td>	H
ENTITY arrow_up "↑" ENTITY arrow_down "↓:"	
ENTITY arrow_updown "↕"	
<styleset></styleset>	
GRAPH LIMIT COLOR DEFINITIONS	
<graphlimitcolors></graphlimitcolors>	
<pre>(HighCautionLimit color="yellow"/></pre>	
<lowwarninglimit color="red"></lowwarninglimit>	
<pre></pre> <pre> </pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>	
<pre><highoffscalewarninglimit color="red"></highoffscalewarninglimit></pre>	
STATE DEFINITIONS	
REQUISITIONSTATUS STATES="UNKNUWN, REQUISITIONSTATUS STATES="UNKNUWN,	
NOT_MAINTAINED,	
NOT_ACQUIRED,	
INVALID,	
ACQUIRED,	
DATA INTERRUPTION,	
STATIC //	
<pre><monitoringstatus states="DISABLED,
TN LINITS</pre></td><td></td></tr><tr><td>IN LIMITS,
NOMINAL LIMIT VIOLATION.</td><td></td></tr><tr><td>NOMINAL_LOW_LIMIT_VIOLATION,</td><td></td></tr><tr><td>NOMINAL HIGH LIMIT VIOLATION,</td><td></td></tr><tr><td>DANGER HIGH LIMIT VIOLATION.</td><td></td></tr><tr><td>UNDEFINED,</td><td></td></tr><tr><td>UNKNOWN"></monitoringstatus></pre>	
<pre><deltamonitoringstatus states="DISABLED,</pre></td><td></td></tr><tr><td>IN_LIMITS,</td><td></td></tr><tr><td>DELTA_NUMINAL_LIMIT_VIOLATION,
DELTA_DANGER_LIMIT_VIOLATION.</td><td></td></tr><tr><td>UNDEFINED,</td><td></td></tr><tr><td>UNKNOWN"></deltamonitoringstatus></pre>	-
Use Of States in DQIStyle Elements</td <td></td>	
Line: 1 Col: 0 INS NORM mcs_dqistyle.xml	

The KXML-Editor shows the content of the xml-formatted DQI file for the MCS target system. The XML tree hierarchy is shown on the left and the content of the selected node on the right, where the content can be edited.

2. Browse in the XML tree hierarchy to the node: AcquisitionStatus and select it to show the content.

Eile Edit Document View Bookmarks Tools Settings Help Image: Setting Seting Seting Setting Setting Setting Setting Setting Se
Image: Construction Limit Color="yellow"/> <lowwarninglimit< td=""> Color="red"/></lowwarninglimit<>
Image: Second
<pre><highcautionlimit color="yellow"></highcautionlimit> <lowwarninglimit color="red"></lowwarninglimit></pre>
<pre><highwarninglimit color="red"></highwarninglimit> <lowoffscalewarninglimit color="red"></lowoffscalewarninglimit> <highoffscalewarninglimit color="red"></highoffscalewarninglimit> </pre>
(I STATE DEFINITIONS>
<pre><acquisitionstatus sustes="UNKNOWN,
REQUESTED,
NOT_MAINTAINED,
NOT_ACQUIRED,
NOT_RECEIVED,
INVALID,
ACQUIRED,
DATA_INTERRUPTION,
STATIC"></acquisitionstatus></pre>
<pre><monitoringstatus states="DISABLED,
IN LIMITS,
NOMINAL_LIMIT_VIOLATION,
NOMINAL_LOW LIMIT_VIOLATION,
NOMINAL_HIGH_LIMIT_VIOLATION,
DANGER_LOW_LIMIT_VIOLATION,
DANGER_HIGH_LIMIT_VIOLATION,
UNDEFINED,
UNKNOWN"></monitoringstatus></pre>
<pre><deltamonitoringstatus states="DISABLED,
IN_LIMITS,
DELTA_NOMINAL_LIMIT_VIOLATION,
DELTA_DANGER_LIMIT_VIOLATION,
UNDEFINED,
UNKNOWN"></deltamonitoringstatus></pre>
Use Of States in DQIStyle Elements<br Inclusion list example: monitoring="Disabled, Unknown" (Apply Style for Disabled Exclusion list example: monitoring="^Disabled, Unknown" (Apply Style for all mon Wildcard example : monitoring="*" (Apply Style for all monitoring states) -
<pre></pre> </td

Changing the values here will change the states used in the Editor Consistency Checker for the MCS target system.

2.8. Create ASCII displays

The USS Editor can be used to create pure ASCII displays in the USS display format. ASCII display contains only character based elements.

2.8.1. Lesson in creating ASCII displays

1. Start by openning the editor via installed icon.

IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII		• • ×
<u>File Edit View Tools Element Window H</u> elp		
🔚 🖁 🖶 🖤 🖽 💵 🖽 🖼 📾 🖉 uniform su		
Property Editor 👌 = ×	[display#1]	× = = 5
[display#1]		🔺
2↓ 🗄 💷		
Poskaround Color P:228 C:228 P:228		
Dackground Simbol Libron :		
Background Symbol Library		
Background Symbol Name		
9 Behaviour		
Show Execute Button		
9 Context		
Help URL		
Opsname		
Source MDB		1111
Source MDB CU Consistenc		
Source MDB CU Internal Ve		
Source MDB CII Name		
Source MDB CI Pathname		
Source MDB CU Scope		
Source MDB CU Version		
Source MDD Co Version		
Gaurae MDB Llast		
Source MDB Instance		
		🗸
		•

Editor started with default empty display created, three tool views open: Synoptic Hierarchy, Property Editor and Symbol Library. This is an example of start-up layout, the editor saved basic layout and which tools are open from previous editor closing.

2. Add a label by selecting in the menu: Element|Add|Label



A text-label is created in the new display.

- 3. Make four more labels and select them all by using the keyboard combination: CTRL+A
- 4. In the Property Editor click to edit the colour and click '...' button to open colour dialog. Select tab: RGB and choose the green colour: Red: 6, Green: 152, Blue: 6

X-¤ Pick a Colour	
My Colours <u>S</u> watches <u>H</u> S	B R <u>G</u> B
Re <u>d</u> Gree <u>n</u> <u>B</u> lue	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
Preview R:6 G:152 B:6 - #069806	Set as colour Green 4 v Rename
	OK Cancel <u>R</u> eset

5. Click Ok to the colour dialog.

➡ USS Display Editor 2.6.0			• • ×
<u>File Edit View Tools Eleme</u>	nt <u>W</u> indow <u>H</u> elp		
5 5 3 10 au <u>do</u>	📜 🗮 🔢 uniform scaling [
≶ 🖪 🚥 🚍 🖻 🖾 🕱			
< < , .	★ < < < < < < < < < < < < < < < < < < <	₩ 1	
🕞 Property Editor 🛛 🗕 🗙	₹ = 0 ×	[display#2] ? = ×	× 5
<label> Label1, <label> Label1 Label1#4, <label> Label1#5</label></label></label>	#2, <label> Label1#3, <label></label></label>	Best TeXt Label	
		Best Text Label	
Appearance Font	Lucida Sans Typowriter Regular	Best lext LabelD	
Font Color	R:6 C:152 B:6 - #069806		
Label Text Autosize			
Label Text Horizontal Alignment	Left		
Label Text Vertical Alignment	Center 💌		
💡 Behaviour	=		
Auto Text	OFF 💌		
Clipping	OFF 💌		
Context	Opsname 💌		
Label For	<none></none>		
opposition Providence			
Depth	0		
Height	15		
Width	91		
X	10		
Y	U		
Ľ		H	

The colours of all the label fonts are changed to a dark green.

6. Open the System Configuration Browser and find in the OPS View for Onboard Telemetry, the parameter \EPM\Gen_Com_AFS_RS485_Int_Stat



The end-item is selected.

7. Drag and Drop all the end-items to the display: Gen_Com_AFS_RS485_Int_Stat Gen_Com_Int_SM_RS485_Main_Stat Gen_Com_Int_VU_RS485_Main_Stat

Chapter 2: Tutorial

USS Display Editor 2.6.0	Heli		• • ×
		uniform scaling [🔻 100 🕆 🐚 🕝 🚱 🚱 🕑 🖻 🔄 🐌 🔭	
≶ 🖪 🖭 🚍 🖹 🖾 🕄 🖻 🗆 🔿	~		
	*		
🕞 Property Editor 🛇 💱 System Configu 🕢 🛪 🤻 🗕 🗆	×	[display#2]	8-0×
OPS View: Onboard Telemetry	•		🔺
		Test Text Label	
		Test Text Label	
— Air_Cooling_Diff_Press		Test Text Label	
— Analog_Input_Section_Fail		First Text Label	
- 🗋 Anomaly_Flag_Stat	=	. Jest Jext Label.	
🗣 🚍 CPU			
- 🗋 Command_History_Avail_Stat		EPM_Gen_Com_AFS_RS485_Int_Stat	=
- 🗋 Command_History_Table			
- 🗋 Command_Rejection_Stat			
🗢 🚍 EEPROM			
► 🚍 FCC		EPM_Gen_Com_Int_SM_RS485_Main_Stat	
- 🗋 Gen_Com_AFS_RS485_Int_Stat			
- 🗋 Gen_Com_Int_SM_RS485_Main_Stat			
- 🗋 Gen_Com_Int_SM_RS485_Red_Stat		EPM_Gen_Com_Int_SM_RS485_Red_Stat	
- 🗋 Gen_Com_Int_VU_RS485_Main_Stat			
Gen_Com_Int_VU_RS485_Red_Stat			
Gen_Com_LAN_SMSC_LTU_Stat		· · · · · · · · · · · · · · · · · · ·	· · · · · ·
Gen_Com_SMSC_COL_HRD_Stat		PM_Gen_Com_Int_V0_RS485_Main_S	tat
	-		
X Search	-1		· · · · · · 🗸
Jearci			P

The end-items are added as four label/data-field pairs

8. Select the four labels by hold keyboard key: CTRL and left-click with mouse on labels.



Four labels are selected.

- 9. Align the labels to their common left, by selecting form menu: Element|Align|Vertical Left
- 10. Unselect the labels by left-clicking with mouse on the display back-ground
- 11. Select the four fields by hold keyboard key: CTRL and left-click with mouse on labels.

Chapter 2: Tutorial

USS Display Editor 2.6.0		• • ×								
	uniform scaling [🔻 100 🕂 🦎 🌀 🌍 🚱 🔮 🖉 🗾 🐚 🍹									
		•								
🕞 Property Editor 🕼 System Configuration 🔹 🖘 🖘 🗆 🗙	[display#2] ₹ = ×	8 - 0 ×								
OPS View: Onboard Telemetry		🔺								
	Test Text Label Test Text Label Test Text Label Test Text Label Test Text Label Test Text Label									
Command_History_Avail_Stat Command_History_Table Command_Rejection_Stat	EPW_Gen_Com_AFS_RS485_Int_State									
EEPROM EPROM FCC Gen_Com_AFS_RS485_Int_Stat Gen_Com_Int_SM_R5485_Main_Stat	EPM_Gen_Com_Int_SM_RS485_Main_Stat B									
Gen_Com_Int_SM_R5485_Red_Stat Gen_Com_Int_SVLR5485_Main_Stat Gen_Com_Int_VU_R5485_Main_Stat Gen_Com_Int_VU_R5485_Red_Stat	EPM_Gen_Com_Int_SM_R5485_Red_Stat									
Gen_Com_LAN_SMSC_LTU_Stat	EPW_Gen_Com_Int_VU_RS485_Main_Stat									
X Search										

Four fields are selected.

12. Align the fields to their common left, by selecting form menu: Element|Align|Vertical Left



Four fields are aligned

13. Use the magnifying glass with a + in it, to zoom the display, to have a better look at the result

Chapter	2:	Tutorial
---------	----	----------

	E	рм	Ċ.	a'n	C	Ön	'n	٨F	Ś	P	57	85		Т'n	÷	S	÷s	÷						ŀ.	
			-9		-`		-	Ŷ	7-	-,`		.0.5	-		ŝ,	-7		i.							
											_														
	- Fi	DM	- C.	٥n	- C	`on	n	Tr	۱ + -	-5	м	RS	: 4	ጽ 5		Ma	i r	n - 1	•						
	E	РМ <u>-</u>	_G	en	_C	on	n <u>-</u>	Ir	۱t.	_S	M_	RS	54	85		٩a	ir	<u>ה</u> ו						ł.	
	E	РМ <u>.</u>	_G	en	C) Con	n <u>_</u>	Ir	rt_ ,	_S 	M	RS	54	85	- 	4a	i r	י_י י	н н	•	•	1	- 1 - 1		
	E	РМ <u>-</u>	_G	en	- C - C - C	Con N	n <u>-</u> 	Ir	nt. N	_S 	M	RS , ,	54 	85		¶a ,	i r	י <u>י</u> נ י	н н н	- - -	•	- 			
	E	РМ <u>.</u>	_G	en	C 	Con Con	n <u>-</u>	Ir	nt_ 	_S - - - -	M	RS	54	85		Ma ,	ir	י_נ י		* * *	•	1 1 1			
	E	РМ <u>.</u>	_G	en	C 	Con Con Con	n <u>-</u> 	Ir	1t_ 	_S - - - - -	M	RS	54	85		Ma N	ir	13 		•	•	•			
		PM_ 	_G	en	C		n <u>-</u> 	Ir		_S	M	RS	54	85	- - 	Ma N N	ir	13							
		PM_		en			n <u>.</u>	Ir Tr		_S	M	RS	54	85		Ma N									
	EI	РМ <u>.</u> РМ.	_C	en	C		n <u>_</u> n	Ir Ir		_s	M 	_RS	34	85		Re	ir d_	<u>_</u> S							
	EI	РМ <u>.</u> РМ <u>.</u>	_C	en		Con	n	Ir		_S S	M_ - - - - - - -	_RS	54	85		Ma Re	ir d_	<u>_</u> S							
	EI	РМ <u>.</u>	_C	en		Con	n	Ir Ir	1t.	_s _s	M_ - - - - - - - - -	<u>_</u> RS	54	85		Ma Re	ir d_	S							

14. Select the four labels added from the System Configuration Browser and Open the Property Editor. In the Property Editor change the font colour to same as the previous labels.

IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	
<u>File Edit View Tools Element Window</u>	<u>H</u> elp
	uniform scaling [🔻 100 🔓 🦌 🌍 🥥 🕐 🗾 😰 🕻
Property Editor 👌 = × 🕼 Sy 🔹 = 🛛 ×	[display#2]
Label69_EPM_Gen_Com_Int_VU_RS485_Mai	PM_Gen_Com_AFS_RS485_Int_Stat
Appearance Font Lucida Sans Type Font Color P:6 C:152 B:6	
Label Text Autosize	PM_Cen_Com_Int_SM_RS485_Main_
Auto Text CONTEXT Clipping OFF Context Opsname Label For	PM_Gen_Com_Int_SM_RS485_Red_S
Oimensions Depth O Height I5 Width O	
X 219 Y	PM_Gen_Com_Int_VU_RS485_Main_

Label colours change

- 15. Click on display back-ground (where there are no elements)
- 16. In the Property Editor select the Background colour of the display and change in to Black.

1155 Display Editor 2.6.0	· · ·	• 0 ×
File Edit View Tools Element Window	Help	
≶ 🖬 🚥 🚍 🖭 🔀 🗷 🗢	> ~) 🖏 🛽 👁 🤤 💕 🍈 👼	
		1
Property Editor 👌 = × 🕼 Sy 🔹 🗧 = 🗆 ×	[display#2]	×0-5
[display#2]		🔺
	EPM_Gen_Com_AFS_RS485_Int_Stat	
🛉 Appearance 🔺		
Background Color 🛛 🖿 R:0 G:0 B:0 –		
Background Symb		
Background Symb		
💡 Pehaviour	EPM_Gen_Com_Int_SM_KS485_Main_	
Show Execute Button 📃		
💡 Context		· · · · =
Help URL		
Opsname		
Source MDB		
Source MDB CU Co		
Source MDB CU Int		
Source MDB CU Na		· · · · · ·
Source MDB CU Pa		
Source MDB CU Sc		
Source MDB CU Ve		
Source MDB Eleme		
		🖵
		•

Display background is now black.

2.9. Making a Graph Display

The USS Editor can be used to create displays containing Graph of various kinds in the USS display format. Graphs can be used to show larger data-sets in a more intuitive way.

2.9.1. Lesson in creating Graph displays

1. Start by openning the editor via installed icon.

ISS Display Editor 2.6.0		• • ×
<u>File Edit View Tools Element Window</u>	<u>H</u> elp	
S S S S S S S S S S S S S S S S S S S		+ +
uniform scaling [🔻 100 🗧 🐚 🌀		
🅞 Property Editor 👌 = × 🔯 Sy 🔹 🗧 🗖 🗙	[display#1] ₹ = ×	×0-5
[display#1]		
Appearance Background Color R:238 C:238		
Background Symb		
Background Symb		
o Benaviour		
Context		
Help URL		
Opsname		
Source MDB		
Source MDB CU Co		
Source MDB CU Int		
Source MDB CU Na		
Source MDB CU Pa		
Source MDB CU Sc		
Source MDB CU Ve		
Source MDB Eleme		
		· · · · ·
		· · · · · · •

Editor started with default empty display created, three tool views open: Synoptic Hierarchy, Property Editor and Symbol Library. This is an example of start-up layout, the editor saved basic layout and which tools are open from previous editor closing.

2. Make a Line Graph by selecting from menu: Element|Add|Line Graph



A empty Line Graph is made in the upper left of the new display.

- 3. Use the mouse and left-click and drag on the right-bottom pick-control point (green square in bottom-right of line graph). This will resize the graph.
- 4. Use the mouse and left-click (and hold) in the middle of the graph and move the graph to the middle of the display.



The Line Graph is moved and resized.

5. Open the Property Editor to see the graph properties.

🚽 Property Editor 📃		(e a x
<linegraph> LineGraph1</linegraph>		
P Dimensions		
Height	360	
Width	430	
X	200	
Y	80	
💡 General		
Configure Graph	Click to edit	
Information		
Comment		
Name	LineGraph1	
Selected Elements	1 element	
Tooltip		

60

6. Click on ...-button in property: Configure Graph.

General Legend Gri	dline Domain Axis Range Axis
	Data-Set
User De	fined Curve Style 📃
Curve Style	
Style Sol	lid 💌
Colour R:0	G:0 B:255 - #0000FF
Width 1.0	
Use Axis	Range axis 💌 🛨 –
Axis Properties	
Axis La	bel Range Axis
Mo	de Data-Set 💌
Rotate Tick La	bel 🗌
Auto-Mo	ive 📃
Always Show Ze	ero 📃
Automatic Ran	ige 🗹
Axis Range	
	Upper 100.0
	Lower 0.0
	OK Cancel

The Graph Dialog opens for the Line Graph.

7. Click on domain tab

General Legend Gridline Domain Axis Range Axis
Axis Label Domain Axis
Mode Time Based Absolute 💌
Data-Set
Rotate Tick Label 📃
Auto-Move 📃
Always Show Zero 📃
Automatic Range 🔽
Axis Range
Upper 100.0
Lower 0.0
OK Cancel

The Graph Dialog shows the domain tab for the Line Graph

8. Click on gridline tab

General Legend Gridline Domain Axis Range Axis
Vertical Gridline
Style Dashed
Colour R:204 G:204 B:255 - #CCCCFF
wiath 1.0
Horizontal Gridline
Style Dashed
Colour R:204 G:204 B:255 - #CCCCFF
Width 1.0
OK Cancel

The Graph Dialog shows the grid line properties tab for the Line Graph

9. Change the horizontal and vertical grid colours to Brown from My Colours and click OK-button

X-M Pick a Colour									
My Colours Swatches HSB RGB									
Aquamarine	Bisque 3	Black	Blue 4						
Blue,Dodger	Blue,Light	Blue,Royal	Brown						
Brown, Light	Brown, Sandy	Cyan	Gray 83 UNIX						
Gray 83 PC	Green	Green, Dark	Green 4						
Green, Light	HoneyDew 3	Magenta	Misty Rose 3						
Olive Drab	Orange	Orange, Dark	Orchid, Dark						
Pink, Hot	Plum	Purple	Red						
Violet	White	Yellow	Yellow, Pale						
Midnight Blue	Blue, Light	Red, Dark	Palegreen 2						
Col37	Col38	Col39	Col40						
Preview									
R:165 G:42 B:42 - #A52A2A Set as colour Brown v Rename									
	OK Cano	cel <u>R</u> eset							

Grid colour are updated.

10. Click on legend tab
| General Legend Gridline Domain Axis Range Axis |
|--|
| Show Legend 🗹 |
| Label Color 🖿 R:0 G:0 B:0 - #000000 |
| No. of Sections 1 |
| Field Columns 6 |
| Field Decimals 2 |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| OK Cancel |

The Graph Dialog shows the legend properties tab for the Line Graph

11. Click on general tab

General Legend Gridline Domain Axis Range Axis
Title LineGraph
Background Color 🔤 R:255 G:255 B:255 - #FFFFFF 🛄
Plot Background Color 🔤 R:255 G:255 B:255 - #FFFFFF 📃
Step Curve 📃
Show Value Marker 📃
Orientation Oriental
Expiration
Method Image: Samples
Period [ms] 3600000
OK Cancel

The Graph Dialog shows the general properties tab for the Line Graph

12. In the general tab click the ...-button to open the Background colour selection dialog and select under My Colors the colour black

X-¤ Pick a Colour											
My Colours <u>Swatches HSB RGB</u>											
Aquamarine	Bisque 3	Black	Blue 4								
Blue,Dodger	Blue,Light	Blue,Royal	Brown								
Brown, Light	Brown, Sandy	Cyan	Gray 83 UNIX								
Gray 83 PC	Green	Green, Dark	Green 4								
Green, Light	HoneyDew 3	Magenta	Misty Rose 3								
Olive Drab	Orange	Orange, Dark	Orchid, Dark								
Pink, Hot	Plum	Purple	Red								
Violet	White	Yellow	Yellow, Pale								
Midnight Blue	Blue, Light	Red, Dark	Palegreen 2								
Col37	Col38	Co139	Col40								
Preview											
	53434		- Donamo								
K:103 G:42 B:42 - #A	52AZA 581		• Kename								
OK Cancel <u>R</u> eset											

The black colour under My Colours

13. Click ok to the colour dialog

General Legend Gridling	e Domain Axis Range Axis
Title Tes	t Line Graph
Background Color 💻	R:0 G:0 B:0 - #000000
Plot Background Color 📃	R:255 G:255 B:255 - #FFFFFF
Step Curve 🗹	
Show Value Marker 📃	
Orientation 🔘	Horizontal Vertical
Expiration	
Method	● Time ○ Samples
Period (ms)	3600000
ок	Cancel

Background colour is now set to be used in the Line Graph

14. Goto the range-tab and click the ...-button for the property: Data-Set

Context	Name	Unit	Data Type
Context	Name	Onit	Data Type
			-
I			
Details for	Data Source		
	No DataSource Selec	ted	
	OK	Cancel	

The Data Source Dialog is open. The dialog is used in the editor for all data source configuration for elements.

15. Click the Add-button to add a new data source

Context	Name	Unit	Data Type		Add
Opsname	NewExternalDataSource1		Integer		
					Remove
				•	
Data Source	Type				
External	Data Source				
🔾 Computa	ition				
Details for	External Data Source				
Opsname	 NewExternalDataSource1 				
Value Out;	out Engineering value		•	-	
U	Init				
Ту	pe Integer		•	-	
	ОК	Cancel			

The Data Source Dialog add a new external data source.

16. Under the details for the External Data Source click the ...-button to open the System Configuration Browser.



17. In the System Configuration Browser browse to the following: \BLB\Analog_Input_Section_Fail and select it

OPS View: Onboard Telemetry	•
Ŷ─ 🗂 BLB	
ATCS1	
← 🚍 AT CS2	
— 🗋 Analog_Input_Section_Fail	
🔶 🚍 BGB	

18. Click the Change-button followed by the Close-button

Context	Name	Unit	Data Type		Add
Opsname E	3LB_Analog_Input_Section_Fail		enum (EKK	^	Remove
					Kennove
				•	
Data Source	Туре				
External D	Data Source				
Computation	tion				
Details for E	xternal Data Source				
Opsname 🖣	BLB_Analog_Input_Section_Fail				
Value Outp	ut Engineering value			-	
Ur	nit				
Тур	De Enumeration				
	ОК	Cancel			

The External Data Source is now updated with the SCOE information.

19. Click the Ok-button to activate the data-source editing

General Legend Gridline Domain Axis Range Axis
Data-Set BLB_Analog_Input_Section_Fail
User Defined Curve Style 📃
Curve Style
Style Solid 💌
Colour R:0 G:0 B:255 - #0000FF
Width 1.0
Use Axis Analog Input 💌 + -
Axis Properties
Axis Label Analog Input
Mode Data-Set 💌
Rotate Tick Label 🗹
Auto-Move 📃
Always Show Zero 📃
Automatic Range 🔽
Axis Range
Lower 0.0
OK Cancel

The External Data Source is updated in the Graph dialog.

20. Click the Ok-button to activate the graph editing



The graph in the display is now updated to match the configuration.

21. To Preview the graph: Select from menu: Tools|Previewer

BLB_Analog_Input_Section_Fail								
		_						
		_						

The line graph is previewed.

2.10. Create Commanding Display

The USS Editor can be used to create commanding displays in the USS display format.

2.10.1. Lesson in creating Commanding displays

1. Start by openning the editor via installed icon.

₽ <mark>-</mark> ₩ USS Display Editor 2.6.0	
<u>File Edit View Tools Element Window</u>	<u>H</u> elp
uniform scaling [🔻 100 🗧 🐚 🌀	
🕞 Property Editor 👌 = 🗙 💽 Sy 🔹 🖶 🤕 a 🛛	[display#1] ≷ = × [
[display#1]	
Appearance Background Color R:238 G:238 Background Symb	
Packground Symb	
Show Execute Button	
Opsname	
Source MDB	
Source MDB CU Int	
Source MDB CU Na Source MDB CU Pa	· · · · · · · · · · · · · · · · · · ·
Source MDB CU Sc	
Source MDB CU Ve	

Editor started with default empty display created, three tool views open: Property Editor.

2. Open the System Configuration Browser.



The System Configuration Browser is shown.

- 3. Shift the System Configuration Browser to OPS View Ground Commands, using the view selector on the right.
- 4. Browse to the End-item \Cancel_Arch_Retrieval and select it.
- 5. Use the mouse and left-click (and hold) on the end-item and drag it to the open display.



A telecommand button is made in the display with text Cancel_Arch_Retrieval.

- 6. Browse to the End-item \Downlink_File and select it.
- 7. Use the mouse and left-click (and hold) on the end-item and drag it to the open display.



8. Use the keyboard key combination: CTRL + A , to select all.

																										-
			12	-	-	-	-	-		-	-	-	-	-	÷.,											-
			Ca	an	ce	1	Α	$\mathbf{r}\mathbf{c}$	h	R	et	ri	ie	va	1	μ.										-
		- 5											_		2	<u>c</u> .										2
		-							•							•										
											□.	-			-		۲.	-	-	-	-					
											₫	AR,	J	0	<u>۲-</u>	UP	Ŀ()A	D	F1						1
											2	-	-	-	-			-	-	-	-	- 🛛				1
											н.	_				-	-					a				
											2		n.,		-1	i n	4	E	÷ 7	~	.,	Y.				1
											र्		00	WI	П	In	к.	5		e		٣				
												-					-				_					
																										-
																										-
																										-
																										-

All created display elements from the drag-and-drop operations are selected.

9. Choose from menu: Element|Align|Vertical Left

· · · · · · · · · · · · · · · · · · ·	
Cancel Arch Ret	trieval n · · · · · · ·
	<u> </u>
· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
<mark>.</mark>	· · · · · · · · · · · · · · · ·
AR_FOR_UPLOAD_	FILES
· · · · · ·	—— —
· · · · · · · ·	
	· · · · · · · · · · · · · · ·
📮 Downlink_File	2 📮
· · · · · · · · · · · · · · · · · · ·	

Elements are aligned to the left-most position.

10. Left-click to select the Cancel_Arch_Retrieval Telecommand (top-most).

	• · · · · · • • • • • • · · · · · · · ·
	Cancel Arch Retrieval
	<u></u>
	• ••.••
	WAR FOR URLOAD FTLE
	VAR_FUR_UPLUAD_FILE
	Downlink File

Telecommand selected.

11. Open the Property Editor.

<button> StringTeleCommand3_Cancel_Arch_Retrieval</button>	🕞 Property Editor 🛛 = 🗙 💽 S	ystem Configurati 🕢 k 🗢 🥷 💶 🗙						
Y Appearance Button Type Simple Text Button Shape Fill Color R:212 G:212 B:212 Shape Fill Style Solid Y Commanding Button is Guarded Image: Command Coltre (OPS) Command COLTRE (OPS) Command COLTRE (PUI) Command FWDU (Opsname) start(VDPU_ISPR_A3_Line1 Command FWDU (SID) Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) O Y Dimensions Depth 0 Height 25 Width 135 X 253 Y 81 Y Information Comment StringTeleCommand3_Canc Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip Y Y Solid Corner Fill Color R:0 G:0 B:0 - #000 Corner Fill Color R:0 G:0 B:0 - #000 Corner Fill Style Solid	<button> StringTeleCommand</button>	3_Cancel_Arch_Retrieval						
Appearance Button Type Shape Fill Color Shape Fill Color R:212 G:212 B:212 Shape Fill Style Solid P Commanding Button is Guarded Command COLTRE (OPS) Command FWDU (Opsname) Start(VDPU_ISPR_A3_Line1 Command FWDU (SID) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) P Dimensions Depth O Height 25 Width 135 X 253 Y 81 P Information Comment Name Selected Elements 1 element Tooltip • Misc Button Shape Oval Corner Fill Color Relasel Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip • Misc Button Shape Oval Corner Fill Color R:0 G:0 B:0 - #000 Corner Fill Style Solid								
P Appearance Button Type Simple Text Button Shape Fill Color ■:212 G:212 B:212 Shape Fill Style Solid P Commanding Button is Guarded ■ Command COLTRE (OPS) ■ Command COLTRE (PUI) ■ Command FWDU (Opsname) start(VDPU_ISPR_A3_Line1 Command FWDU (SID) ■ Command GWDU (HLCL) ■ Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) ● P Dimensions ■ Depth 0 Height 25 Width 135 X 253 Y 81 P Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip ● P Misc ■ Button Shape Oval Corner Fill Color ■ Corners Enabled ■								
Appearance Button Type Simple Text Button Shape Fill Color R:212 G:212 B:212 Shape Fill Style Solid Q Commanding Button is Guarded Command COLTRE (OPS) Command COLTRE (PUI) Command FWDU (Opsname) start(VDPU_ISPR_A3_Line1 Command FWDU (SID) Command FWDU (SID) Command MCS (Opsname) execute_flap (FLAP: VDPU_I) Command MCS (Opsname) execute_flap (FLAP: VDPU_I) Command MCS (Pathname) P Dimensions Depth 0 Q Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip P								
Button Type Simple Text Button Shape Fill Color R:212 G:212 B:212 Shape Fill Style Solid Q Commanding Button is Guarded Button is Guarded Image: Command COLTRE (OPS) Command COLTRE (PUI) Command FWDU (Opsname) Command FWDU (Opsname) start(VDPU_ISPR_A3_Line1 Command FWDU (Pathname) Image: Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) Image: Command MCS (Pathname) P Dimensions Image: Command J_Canc Depth 0 Height 25 Width 135 X 253 Y 81 P Information Cancel_Arch_Retrieval Selected Elements 1 element Tooltip Image: Command J_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip Image: Corner Fill Color Image: Corner Fill Color Corner Fill Style Solid Corners Enabled	💡 Appearance							
Shape Fill Color R:212 G:212 B:212 Shape Fill Style Solid Q Commanding Button is Guarded Image: Command Coltre (OPS) Command COLTRE (OPS) Command FWDU (Opsname) Command FWDU (Opsname) start(VDPU_ISPR_A3_Line1 Command FWDU (Pathname) Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) P P Dimensions Depth Depth 0 Height 25 Width 135 X 253 Y 81 P Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip P Misc Solid Button Shape Oval Corner Fill Color R:0 G:0 B:0 - #000 Corners Enabled Solid	Button Type	Simple Text Button						
Shape Fill Style Solid ♀ Commanding Button is Guarded Command nullộ Command COLTRE (OPS) Command FWDU (Opsname) Start(VDPU_ISPR_A3_Line1 Command FWDU (Opsname) Start(VDPU_ISPR_A3_Line1 Command FWDU (SID) Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) ♀ Dimensions Depth 0 Height 25 Width 135 X 253 Y 81 ● Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip ♀ Misc Button Shape Oval Corner Fill Color Corners Enabled	Shape Fill Color	🗏 🔜 R:212 G:212 B:212						
Commanding Button is Guarded Command Command COLTRE (OPS) Command COLTRE (PUI) Command FWDU (Opsname) start(VDPU_ISPR_A3_Line1 Command FWDU (Pathname) Command FWDU (SID) Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname)	Shape Fill Style	Solid						
Button is Guarded Command Command COLTRE (OPS) Command COLTRE (PUI) Command FWDU (Opsname) start(VDPU_ISPR_A3_Line1 Command FWDU (Pathname) Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) P Dimensions Depth 0 Height 25 Width 135 X 253 Y 81 P Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip P Misc Button Shape Oval Corner Fill Color Corner Fill Color Corner Fill Color Corner Fill Style Solid Corners Enabled	💡 Commanding							
Command nullǫ Command COLTRE (OPS) Command COLTRE (PUI) Command FWDU (Opsname) start(VDPU_ISPR_A3_Line1 Command FWDU (SID) Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) • • Dimensions • Depth 0 Height 25 Width 135 X 253 Y 81 • Information • Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements Tooltip • • • Misc • • Button Shape Oval ▼ Corner Fill Color • • • Corner Fill Style Solid ▼ • Corners Enabled • • •	Button is Guarded							
Command COLTRE (OPS) Command COLTRE (PUI) Command FWDU (Opsname) start(VDPU_ISPR_A3_Line1 Command FWDU (SID) Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) P Dimensions Depth 0 Height 25 Width 135 X 253 Y 81 P Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip P Misc Button Shape Oval Corner Fill Color R:0 G:0 B:0 - #000 Corner Fill Style Solid Corners Enabled	Command	nullo						
Command COLTRE (PUI) Command FWDU (Opsname) start(VDPU_ISPR_A3_Line1 Command FWDU (Pathname) Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) P Dimensions Depth 0 Height 25 Width 135 X 253 Y 81 P Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip 9 Misc Button Shape Oval Corner Fill Color R:0 G:0 B:0 - #000 Corner Fill Style Solid Corners Enabled	Command COLTRE (OPS)							
Command FWDU (Opsname) start(VDPU_ISPR_A3_Line1 Command FWDU (Pathname) Command FWDU (SID) Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) P Dimensions Depth 0 Height 25 Width 135 X 253 Y 81 P Information Comment 8 Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip 9 P Misc Button Shape 0val Corner Fill Color R:0 G:0 B:0 - #000 Corner Fill Style Solid Corners Enabled	Command COLTRE (PUI)							
Command FWDU (Pathname) Command FWDU (SID) Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) P Dimensions Depth 0 Height 25 Width 135 X 253 Y 81 P Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip P Misc Button Shape Oval Corner Fill Color Name R:0 G:0 B:0 - #000 Corner Fill Style Solid Corner Senabled	Command FWDU (Opsname)	start(VDPU_ISPR_A3_Line1						
Command FWDU (SID) Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) P Dimensions Depth 0 Height 25 Width 135 X 253 Y 81 P Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip P Misc Button Shape Oval Corner Fill Color Name R:0 G:0 B:0 - #000 Corner Fill Style Solid Corners Enabled	Command FWDU (Pathname)							
Command GWDU (HLCL) Command MCS (Opsname) execute_flap (FLAP: VDPU_I Command MCS (Pathname) • Dimensions Depth 0 Height 25 Width 135 X 253 Y 81 • Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip • Misc Button Shape Oval Corner Fill Color Val Corner Fill Color #000 Corner Fill Style Solid	Command FWDU (SID)							
Command MCS (Opsname) execute_flap (FLAP: VDPO_1 Command MCS (Pathname) 0 Pepth 0 Height 25 Width 135 X 253 Y 81 P Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip P Misc Button Shape Oval Corner Fill Color R:0 G:0 B:0 - #000 Corner Fill Style Solid Corners Enabled	Command GWDU (HLCL)	and a first (FLAD, VDDLL)						
• Dimensions Depth 0 Height 25 Width 135 X 253 Y 81 • Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip	Command MCS (Opshame)	execute_flap (FLAP: VDP0_1						
♥ Dimensions Depth 0 Height 25 Width 135 X 253 Y 81 ♥ Information Comment StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip ♥ Misc Button Shape Oval Corner Fill Color R:0 G:0 B:0 - #000 Corner Fill Style Solid Corners Enabled	Command MCS (Patnname)							
Depth 0 Height 25 Width 135 X 253 Y 81 • Information Image: Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip • • Misc • Button Shape Oval Corner Fill Color • R:0 G:0 B:0 - #000 Corner Fill Style Solid Corners Enabled •	openthe Dimensions	0						
Height 25 Width 135 X 253 Y 81 • Information Image: Comment of the second s	Depth	25						
Width 155 X 253 Y 81 • Information Comment StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip • Misc Button Shape Oval Corner Fill Color R:0 G:0 B:0 - #000 Corner Fill Style Solid Corners Enabled	Width	125						
X 235 Y 81 P Information Comment StringTeleCommand3_Canc Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip 9 Misc Oval Button Shape Oval Corner Fill Color R:0 G:0 B:0 - #000 Corners Enabled Solid	V	252						
P Information Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip o Misc Button Shape Oval Corner Fill Color Corner Fill Style Solid Corners Enabled	1	275						
Y mormation Comment Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip • • Misc • Button Shape Oval Corner Fill Color • Corner Fill Style Solid Corners Enabled •	o Information	01						
Name StringTeleCommand3_Canc Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip • • Misc Oval Button Shape Oval Corner Fill Color I R:0 G:0 B:0 - #000 Corners Enabled I	Comment							
Released Label Text (Default) Cancel_Arch_Retrieval Selected Elements 1 element Tooltip Misc Button Shape Oval Corner Fill Color R:0 G:0 B:0 - #000 Corner Fill Style Solid Corners Enabled	Name	StringTeleCommand3 Canc						
Selected Elements 1 element Tooltip • Misc Button Shape Oval Corner Fill Color R:0 G:0 B:0 - #000 Corner Fill Style Solid Corners Enabled	Released Label Text (Default)	Cancel Arch Retrieval						
Tooltip • Misc Button Shape Oval Corner Fill Color R:0 G:0 B:0 - #000 Corner Fill Style Solid Corners Enabled	Selected Elements	1 element						
 Misc Button Shape Corner Fill Color Corner Fill Style Corners Enabled 	Tooltip							
Button Shape Oval Corner Fill Color Image: R:0 G:0 B:0 - #000 Corner Fill Style Solid Corners Enabled Image: R:0 G:0 B:0 - #000	o Misc							
Corner Fill ColorR:0 G:0 B:0 - #000Corner Fill StyleSolidCorners Enabled	Button Shape	Oval						
Corner Fill Style Solid	Corner Fill Color	🗏 💻 R:0 G:0 B:0 - #000						
Corners Enabled	Corner Fill Style	Solid						
	Corners Enabled							

Properties of Telecommand is shown

12. Click in the Property Editor on the buuton with text: Cancel_Arch_Retrieval for the property Released Label Text.

?	Cancel_Arch_Retrieval
	OK Cancel

Dialog with changable text is shown

13. Change text to: Cancel

?	Cancel
	OK Cancel

- 14. Click OK to change property.
- 15. Preview the created display by choosing: Tools|Preview (opens Preview Frame), click the created telecommand with label: Cancel



Previewer shows simulated command execution at the bottom.

2.11. Navigation Display

The USS Editor can be used to create displays that can be navigated by navigation-buttons in the USS display format. The navigation-buttons are complex hyperlinks between displays, using their relative path (navigation cannot happen on the display itself). Pictures in this lesson show the result from previous lesson as one of the displays used.

2.11.1. Lesson in creating Navigation displays

- 1. Start by openning the editor via installed icon, close all tool-views and make a new display, so that the editor contains two new displays.
- 2. Arrange the displays by dragging them (left-click-hold on display-tab), so that both are visible at the same time.

ISS Display Editor 2.6.0			• • ×
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> ools E <u>l</u> ement <u>W</u> indow <u>H</u> elp			
\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$. 🖪 🔍 🔍 🔒 🕞	👔 😫 😫 🖬	
	🖄 🔋 👟 😝	ā <u>ā</u>	
uniform scaling [🔻 100 🗸 🦌 🎯 🚳 🚳			
[display#1] ₹ = ×	₹ = □ × [dis]	play#2]	× = = 5
1			
· · · · · · · · · · · · · · · · · · ·			
Cancel_Arch_Retrieval			
AR_FOR_UPLOAD_FILE	· · · · · · · · · · · • • • • • • • • •		
· · · · · · · · · · · · · · · · · · ·			
•			
Downlink_File p			
	_		 · · · · · · · · · · · · · · · · · · ·
	<u>۲</u>	III	•

- 3. Make a label in each display. Select display by left-clicking on display-background Make a label from menu: Element|Add|Label
- 4. Change label-text in first display to Display 1 and Display 2 for label-text in second display. -Double left-click on label to start inline editing of label.

📲 🗝 USS D	isplay	Editor 2.6.0								• • ×
<u>F</u> ile <u>E</u> dit	View	<u>T</u> ools E <u>l</u> em	ent <u>W</u> indow <u>H</u>	lelp						
				uniform scaling []	- 10	0 🕂 🍗 🧿 🥥	00 🛛 🖻	₺		
	@	= 🛯 🖾 😫		~) 🖾 📱 👁	9	6 5	6		۵ 🗢	
. 🔍 🖪	€ €	🔌 🔒 🕺	* * ^ /	K 🔊 🔊 🖪 🚽		×				
[display#1]	₹ = ×			(i	×	[display#2] = ×	L			~ = = ×
Display 1						∯isplay 2 ∎		· · · · · · · · · · · ·		
										
			nceI_Arch_Retriev							
		VA	FOR_UPLOAD_FILE							
				~						
			DownIInk_File	-						
					· · ·					
• • • • • • • •					• • • •	•				• • • • •
Ľ						Ľ				

- 5. Click on Display 1 background to select it.
- 6. Save display by selecting from menu: 'File|Save'. Type in file name: 'Display1.uss'

Save <u>I</u> n: 📑 u	ss-project	•	a î	
📑 lib				
🗋 Unnamed0	uss			
File <u>N</u> ame:	Display1.uss			
Files of <u>Type</u> :	USS displays (*.uss)			-
			Save	Cancel

Save dialog is shown.

- 7. Click OK to save dialog to save display.
- 8. Use the mouse and left-click on the second display background to select it.

IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII					• • ×
<u>File Edit View Tools Element Window</u>	/ <u>H</u> elp				
	🖀 🛛 uniform scaling [💌 100			-	
S 🗉 🗆 🖃 🔛 🖉 🖬 🗆 🤇	○~) \\ 🛛 🖉 🕥 🤤 💕		😂 😒 🖬 🕨	• 🔒 😂 👄	
	× • • • • • •	6			
/home/uss/uss-project/Display1.uss 🛛 ह = ×	× = - 5	[display#2] ₹ = ×			× = = 5
Display 1		Display 2			
Cance1_Arch_Ret	rieval				
		· · · · · · · · · · · · · · · · · · ·			
VAR_FOR_UPLOAD_F	ILE				
Downlink_Fi	le				
		· · · · · · · · · · · · · · · · · · ·			
	▼	1			• • • •

Second diaply is selected.

9. Save display by selecting from menu: File|Save . Type in file name: Display2.uss

Save <u>I</u> n:	uss-project	
📑 lib		
🗋 Unnamed	0.uss	
File <u>N</u> ame:	Display1.uss	
Files of <u>T</u> ype	USS displays (*.uss)	-
		Cancel
		Save Cancel

Save dialog is shown.

10. Click OK to save dialog to save display the second display.

ile Edit View Tools Element Window Help	
/home/uss/uss-project/Display1.uss ?= × //home/uss/uss-project/Display2.uss ?= × ?	. 🗆 x
Display 1	
Cancel_Arch_Retrieval)	
VAR_FOR_UPLOAD_FILE	
Downlink File	

Second display saved.

11. Open tool-view: Synoptic Hierarchy



In the top of the Synoptic Hierarchy (shown un-docked) the two display with their respective label are shown. In the bottom the project-folder is shown, containing the two saved displays.

12. Right-click on Display1.uss in the bottom part of the Synoptic Hierarchy and select from pop-up menu: Add Navigation to Display.

Image: Provide the second			• • ×
<u>File Edit View Tools Element Window Help</u>			
🗄 🗄 📅 🕂 🛄 🔳 🔣 🛛 uniform scaling (v 100	- Va C C C E L & F	
	6		
	*	<u> </u>	
/home/uss/uss-project/Display1uss 👌 = ×	7 - 0 ×	/home/uss/uss-project/Display2uss ₹	(- 0 ×
Display 1		Display 2 Display1	
Cancel_Arch_Retrieval)	· · · · ·		
VAR FOR UPLOAD FTLF	· · · · · · · · · · · · · · · · · · ·		
Downlink File			
	- -		
	• • • • • •		

A navigation button is added to currently selected display (Display2.uss). The navigation button will navigate (upon activation) to Display1.uss, when Display2.uss is executed.

13. Save both displays again and close the Editor.

- 14. Open the Executor from installed icon.
- 15. In Executor open display file: Display2.uss from the Project-folder.

Q=# USS Display Executor [uss@uss2]	×
<u>File Navigate View Options Window Help</u>	
	•
Untitled	
Untitled 🛛 🗖 🗹	1
Display 2	
	•
04Sep06 15:32:51 INFO : Executor started. 04Sep06 15:33:05 INFO : Opening display /home/uss/uss-project/Display2.uss	99955
TM MCS 🚓 🖉 🦉 👷 Upd: 😁 Perf: 🗕 🔩 Not Connected	

16. Click on the navigation-button with text: Display1

}−¤ USS Display Executor [uss@uss2]				
ile <u>N</u> avigate <u>V</u> iew <u>O</u> ptions <u>W</u> indow <u>H</u> elp				
		I)))) 00:00:00	.000 < 🔿 🖲 Unt	itled
Untitled Untitled				
Untitled				
Display 1				
Cancel_Arch_Retrieval)				
Downlink_File				
SepO6 15:32:51 INFO : Executor started. SepO6 15:33:05 INFO : Opening display /home/uss/uss-proje	t/Displav2 uss			
Sep06 15:34:14 INFO : Opening display /home/uss/uss-proje	:t/Display1.uss			
	TM MCS 🛋	월 ¹ 월 Upd: 🕒	Perf: 😑 🔩 Not Connec	ted
1				

Executor opens Display1.uss in a new tab.

2.12. Add Symbols

The USS Editor can be used to create symbols that can be reused in the displays. Symbols are contained in Symbol Libraries.

2.12.1. Lesson in creating Symbols

- 1. Start by openning the editor via installed icon, close all tool-views.
- 2. Open the Symbol Library from menu: View|Symbol Library



3. In the Symbol Library select from the drop-down box (ComboBox) the symbol library: Electrical



4. In the library: Electrical select the symbol: E265_Fuse, by left-clicking with the mouse on the symbol.



Symbol E265_Fuse selected in Symbol Library (shown un-docked).

5. Left-click (Hold) and drag the symbol to the middle off open display, to add it to the new display.



The Symbol is added to the display, as an element using the image material given by the symbol. This element contains a reference to the symbol, so that if the symbol library is updated, the symbol-element in the display, will be likewise.

6. Resize the symbol-element by dragging its control-points in the corners (make it larger).



The symbol-element is resized.

7. Open the tool-view: Property Editor to show the properties for the element.

IN USS Display Editor 2.6.0		• • ×
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> ools E <u>l</u> ement <u>W</u> indow <u>H</u> elp		
🗧 🗃 🗐 明 🔠 🔟 🗏 📓 uniform s	scaling [🔽 100 🕆 🐂 🌍 🌍 🌍 😗 😰 🗽 🐌 🗜	
		•
Symbol Library 🕞 Property Editor 👌 = 🗙 👌 🖗 = 🗆 🗙	(display#1) ? = ×	(- 0 ×
<symbol> Symbol1</symbol>		
Appearance		
Auto Scale Image		
Keep Aspect Ratio		
Reset Image Size Reset to 155x72		
Rotation Degrees 0		📕
Dimensions		
Depth 0		
Height 220 =		
Width 380		
X 120		8
Y 100		/
 Information 		
Comment		
Library Name Electrical		
Name Symbol1		
Selected Elements 1 element		
		×

Symbol-element properties are shown.

8. Undock the Property Editor and click the property: Reset Image Size - button to reset back to the original size of the symbol.

🕞 Property Editor 🔌 🗙		(e a x
<symbol> Symbol2</symbol>		▲
≜↓ ः ≡		
💡 Appearance		
Auto Scale Image	V	
Keep Aspect Ratio		
Reset Image Size	Re	set to 155x72
Rotation Degrees	0	
op Dimensions		
Depth	0	
Height	280	
Width	440	
X	230	
Y	130	
Information		
Comment		
Library Name	Electrical	•
Name	Symbol2	
Selected Elements	1 element	
Symbol Name	E26S Fuse A	•
Tooltip		

Property is reset.

9. Re-dock the Property Editor.



The display shows the reset symbol-element in the display.

10. In the property editor click the property: Symbol Name.

📄 Property Editor 🔌 🗶 🔄		(e a x
<symbol> Symbol2</symbol>		
 Annearance 		
Auto Scale Image	K	
Keep Aspect Ratio		
Reset Image Size		Already reset
Rotation Degrees	0	
• Dimensions		
Depth	0	
Height	72	
Width	155	
X	230	
Y	130	
P Information		
Comment		
Library Name	Electrical	•
Name	Symbol2	
Selected Elements	1 element	
Symbol Name	E26S Fuse A	•
Tooltip		

11. In the property editor change the property: Symbol Name, to E30_Heater.

🕞 Property Editor 🗙		(e a x
<symbol> Symbol2</symbol>		^
≜ ↓ ≣ ≡		
💡 Appearance		
Auto Scale Image	V	
Keep Aspect Ratio		
Reset Image Size		Reset to 20x20
Rotation Degrees	0	
o Dimensions		
Depth	0	
Height	72	
Width	155	
X	230	
Y	130	
💡 Information		
Comment		
Library Name	Electrical	
Name	Symbol2	
Selected Elements	1 element	
Symbol Name	E30 Heater	
Tooltip		

12. Observe the display symbol-elements icon is changed to the heater icon.



13. Rotate the symbol-element by selecting from menu: Element|Element|Riotate|Left



The symbol-element is rotate counter-clockwise (left). This feature is available not only for symbol-elements. Some complex elements, cannot be rotated.

14. In the property editor click to the property: Auto Scale Image.

🕞 Property Editor ×	(e □ ×
<symbol> Symbol2</symbol>	▲
≜ ↓ 🗄 🔳	
• Appearance	
Auto Scale Image	
Keep Aspect Ratio	
Reset Image Size	Reset to 20x20
Rotation Degrees	270
ှ Dimensions	
Depth	0
Height	155
Width	72
X	271
Y	88
P Information	
Comment	
Library Name	Electrical
Name	Symbol2
Selected Elements	1 element
Symbol Name	E30 Heater
Tooltip	
	=

15. Uncheck the property: Auto Scale Image.

🕞 Property Editor 👻		(e o	×
<symbol> Symbol2</symbol>			
💡 Appearance			
Auto Scale Image			
Keep Aspect Ratio			
Reset Image Size		Reset to 20x20	
Rotation Degrees	270		
P Dimensions			
Depth	0		
Height	155		
Width	72		
X	271		
Y	88		
P Information			
Comment			
Library Name	Electrical	•	
Name	Symbol2		
Selected Elements	1 element		
Symbol Name	E30 Heater		
Tooltip			
			=

16. Observe that the icon of the symbol-element is resize to its real size (in pixels) and but the extend of the symbol-element is persistent.



2.13. Create New Symbols

The USS Editor can be used to create new symbols and symbol-libraries.

2.13.1. Lesson in creating Symbols

- 1. Start by openning the editor via installed icon, close all tool-views.
- 2. Open the Symbol Library from menu: View|Symbol Library



3. Make a new label by selecting from menu: Element|Add|Label



Label is created in the display.

4. Open the property editor from menu: View|Property Editor

😇 Symbol Library 🗍 📄 Property Editor	x==5
<label> Label1</label>	
≜ ↓ ∄ ≡	
💡 Appearance	
Font	Lucida Sans Typewriter Regular, 0
Font Color	R:0 G:0 B:0 - #000000
Label Text Autosize	
Label Text Horizontal Alignment	Left 💌
Label Text Vertical Alignment	Center 💌
💡 Behaviour	
Auto Text	OFF
Clipping	OFF 💌
Context	Opsname 💌
Label For	<none></none>
or Dimensions	
Depth	0
Height	15
Width	37
X	10
Y	10
9 Information	
Comment	
Label Text	label1
Name	Label1
Selected Elements	1 element
Tooltip	

Properties are shown from label.

5. Set the properties to match approximately, following picture:

🕞 Property Editor ×		2 D X
<label> Label1</label>		
💡 Appearance		
Font	Serif.plain, 0, 10	
Font Color	💻 R:165 G:42 B:42 - #A52A2A	
Label Text Autosize	v	
Label Text Horizontal Alignment	Center	-
Label Text Vertical Alignment	Center	
💡 Behaviour		
Auto Text	OFF	-
Clipping	OFF	-
Context	Opsname	-
Label For	<none></none>	-
💡 Dimensions		
Depth	0	
Height	15	
Width	37	
X	10	
Y	10	
💡 Information		
Comment		
Label Text	Test Symbol from Label	
Name	Label1	
Selected Elements	1 element	
Tooltip		

Change: Font, Font Color, Label Text Autosize, Label Text Horizontal Alignment, Label Text Vertical Alignment and Label Text. Giving the following label result:



6. Resize the label by dragging its control-points in the corners (make it larger).
•Test Symbol from Label•

The label is enlarged; text is followed because we set the property 'Label Text Autosize' to checked.

7. Open the Symbol Library from menu: View|Symbol Library.

管 Symbol Library र 🗕	× 🕞 Property Editor	× = = 5
👩 3D Graphics		▼ Edit
at a		
3D1 Camera Control Mod	3D1 Camera Rotate	3D1 Camera Translate
3D10 Restore View	3D11 Roll Left	3D11 Roll Left Alterna
	\mathbf{i}	
3D11 Roll Right	3D11 Roll Right Altern	3D12 Save View
Δ	\odot	\odot
3D13 Step Size	3D14 Target	3D15 Translation Backward
\otimes		
3D15 Translation Forward	3D16 View Direction Fr	3D16 View Direction Fr
	\bigcirc	=
3D16 View Direction To	3D17 Zoom	3D2 Camera Options
Symbol Library shown.		

8. Click the button: Edit, and in the pop-up menu select: Create New Library

X-M Ne	w Library 🔀
?	Enter the name of the new Library
	OK Cancel

Dialog for setting new library name is shown.

9. Set name to: Test Library.

	ew Library 🔀
?	Enter the name of the new Library Test Library OK Cancel

10. Click Ok, and select new Library in the drop-down-box (ComboBox)

😇 Symbol Library 🛛 🖉 = 🗙 📄 Property Editor	× = = 5
🚽 Test Library	▼ Edit

A new empty symbol library is created.

11. Add a new symbol, created from the previously created label, by clicking the button: Edit in the symbol library and selecting: Create Symbol from Selected Elements

X-∺ Cr	eate new Symbol from elements 🗷
?	Name: Type: O Image (SVG) (Image (SVG)) SubDisplay (USS)
	OK Cancel

Dialog shows the configuration possibilities for the new symbol.

12. Select Type: Image (SVG) and name the symbol: Test Symbol.

X-∺ Cr ?	Peate new Symbol from elements Name: Test Symbol Type: O SubDisplay (USS)
	OK Cancel

13. Click button: OK to create symbol.

😇 Symbol Library	🥐 🔌 🔛 🕞 Property Editor			2 a x
🦪 Test Library			•	Edit
Test Symbol from Label				
Test Symbol				
The symbol is created i	in the new library. Symbols can onl	y be created in the u	ser s	 ymbol librar

The symbol is created in the new library. Symbols can only be created in the user symbol libraries, because predefined symbol libraries are destributed as part of the USS package an will be overwritten on system update. They are USS-version persistent so to speak.

14. Now add a rectangle to the display from menu: Element|Add|Rectangle.

u -									_							
Ł																
4																
٢.																
1																
Ŀ																
Ŀ																
Ł																

15. Move the rectangle, so that it acts as a border to the previously created label.

P						 								-0	-													- q	-
																												-	-
																												-	
																													-
																													-
																												-	
		٦.		-	14	 C	-			-	L		-	1		C.	2	-	1	-		Т	۰.	-	L		-	1	-
											_																		
P	1		e	S	t	2	y	/:]			J)	0		1		ľ	0	1	I	1	1	Ĵ,	d) (e	1	
Î	1	-	e	S	l	2	y	/*]			l.)	0					0	1	1	1	1	-i	đ	I.)(e	1	
	1	-	e	S	l	 5	y	/*] 	-) 	0					0	- - -	1 	1		-1	a) (e	1	
	1	-	e	S		 3)	/*]			. I .) 	0					0		1 	1	1	-	a)) 	e	1	
			e	S		3))	0					0		1	1			a 			e	1	
			e 	S 		5))								1	1			a 			e	1	
			e	S 		5							-					-		1				a 			e 	1	
			e	S																1				a 			e	1	
	1		e	S)))									1	1					e	1.	
	1		e	S))													1	1						e		
	1		e	S		3)																					1	

16. Select both by using the menu: Edit|Select All.



Label and rectangle are selected.

17. In the symbol library press button: Edit, and select from pop-up menu: Create new Symbol from selected Elements.

	eate new Symbol from elements 💌
?	Name:
-	○ Image (SVG) Type: ③ SubDisplay (ISC)
	© SubDisplay (USS)
	OK Cancel

Configuration dialog is shown.

18. Set the properties, Name: Test Sub-Display Symbol Type: SubDisplay (USS)

Х-∺ с	reate new Symbol from elements 🗷
?	Name: Test Sub-Display Symbol One of the symbol of the sym
	OK Cancel

19. Click button: OK to create symbol.

管 Symbol Library 🛛 🤻	× 🕞 Property Editor) (* o x
🦪 Test Library		▼ Edit
Test Symbol From Label	Test Speaked From Label	
Test Sub-Display Symbol	Test Symbol	

Symbol is created as a Sub Display. Sub Display are real USS-displays that can be embedded in the symbol, this powerful feature, allows for high versatility in creating symbol.

20. Delete created elements in the display, by selecting from menu: Edit|Delete

📲 🗏 USS Display Editor 2.6.0			- O ×
<u>File Edit View Tools Element Window</u>	<u>H</u> elp		
S ⊂ ■ + ■ × × × ×	* *		
) ~) 🖄		
uniform scaling [🔻 100 🐥 🐚 🎯			
🝟 Symbol Library 👌 🗕 🗙	× = = 5	[display#1] / = ×	7 - 0 ×
😽 Test Library	▼ Edit		· · · · · · · ·
Test Spelar Free Lakel			
Test Sub-Display Symbol Test Symbol			

Label and rectangle are deleted.

21. Select the created symbol: Test Sub-Display Symbol in the symbol Library.

□ USS Display Editor 2.6.0			• • ×
<u>File Edit View Tools Element W</u> indow	<u>H</u> elp		
S ⊂ ■ + ■ X × × ×			
🍯 💷 🔤 🗏 🖾 🗷 🖸 🗆 🔾	> ~) \\		
uniform scaling [🔻 100 🗧 🐂 🎯	000		
🝟 Symbol Library 🛛 = ×	× 0 = 5	[display#1] ₹ = ×	× = - 5
🦪 Test Library	▼ Edit		
Text Spelar Pres Labor			
Test Sub-Display Symbol Test Symbol			
			· · · · · · · · · · · · · · · · · · ·

Symbol selected.

22. Left-click (hold) on selected symbol and drag it to the middle of the open display to add it.

III-₩ USS Display Editor 2.6.0		• • ×
<u>File Edit View Tools Element Window H</u>	<u>d</u> elp	
Ø 🛯 🚽 🗎 🗶 💙 🔨		
uniform scaling [👻 100 🛨 🐚 🤤 😂		
🝟 Symbol Library 👌 = ×	(display#1) ? = ×	× = = 5
📢 Test Library	▼ Edit	
test light from Line)		
Test Sub-Display Symbol Test Symbol		
		· · · · · · · ·
	Test Symbol from Label	
	a	
<u> </u>		•••••

The symbol containing a sub-display is added; inside the sub-display are the label and rectangle elements.

2.14. Use advanced elements

The USS package feature several advanced display elements, which give powerful visualisation posibilities.

2.14.1. Lesson in creating advanced elements

- 1. Start by openning the editor via installed icon, close all tool-views.
- 2. Open the Property Editor from menu: View|Property Editor

USS Display Editor 2.6.0		• • ×
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> ools E <u>l</u> ement <u>W</u> indow <u>H</u> elp		
	scaling [🔻 100 🚽 🐚 🚱 🚱 🕑 🖭 🔄 🖡 🖡	
R C R R R R R R R R R R R R R R R R R R		
Property Editor P = x	[[display#1] * = ×	~ ×
[display#1]		
γ Appearance Background Color R:238 G:238 B:238		
Background Symbol Library		
Show Execute Button		
Help URL		
Source MDB CU Consistency		
Source MDB CU Internal Ver		
		• • • •

3. Make a new Elliptic Meter by selecting from menu: Element|Add|Elliptic Tick Meter



The elliptic formed meter is created in display.

- 4. Undock property editor and move it, so the display can be fully seen (without overlapping from property editor).
- 5. Enlarge meter by dragging its corner-control-points and move it to the middle of the display by left-clicking (hold) on the Elliptic Tick Meter and dragging it.



Elliptic Tick Meter is resized and located approximately in the middle of display.

6. In the property Editor set the property: Border Used, to checked and set border color to R: 0, G: 0 and B: 139 (a blue colour).

🕞 Property Editor 🔹 🗙		e a x
<elliptictickmeter> EllipticTickMeter1</elliptictickmeter>		
💡 Appearance		
Border Color	💻 R:0 G:0 B:139 - #00008B	
Border Used	v	
Draw as Circle		
Label Text		
Meter Tick Indicator	Bar	-
Meter Tick Label Style	Left or Top	-
Shape Fill Color	R:0 G:0 B:0 - #000000	
Shape Fill Style	None	-
Start Angle	120	
Sweep Angle	300	
Tick Color	💻 R:0 G:0 B:0 - #000000	
Tick Indicator Color	R:255 G:255 B:255 - #FFFF	FF
Tick Indicator Thickness	6	
💡 Pehaviour		
Field Style	[Disabled]	-
Meter Color Show Status	v	
Meter Major Tick Frequency	2	
Meter Tick Base	-50	
Meter Tick Unit	5	

7. Redock the property editor.



8. In property editor set property: Label Text, to Ellip. Tick Meter

🕞 Property Editor 🛛 🥭 🗕 🗙		₹ = 0 ×
<elliptictickmeter> EllipticTickMeter1</elliptictickmeter>		
💡 Appearance		
Border Color	R:0 G:0 B:139 - #00008B	
Border Used	v	
Draw as Circle		
Label Text	Ellip Tick Meter	
Meter Tick Indicator	Bar	-
Meter Tick Label Style	Left or Top	-
Shape Fill Color	E R:0 G:0 B:0 - #000000	
Shape Fill Style	None	-
Start Angle	120	
Sweep Angle	300	
Tick Color	🔲 R:0 G:0 B:0 - #000000	
Tick Indicator Color	R:255 G:255 B:255 – #FFFFFF	
Tick Indicator Thickness	б	
💡 Behaviour		
Field Style	[Disabled]	–
Meter Color Show Status	v	
Meter Major Tick Frequency	2	
Meter Tick Base	-50	
Meter Tick Unit	5	
Label is shown in meter.		

9. In property editor set property: Meter Tick Indicator, to Slider (Kite)

📄 Property Editor 🛛 🥷 🗕 🗙	× = = 5
<elliptictickmeter> EllipticTickMeter1</elliptictickmeter>	▲
💡 Appearance	
Border Color	R:0 G:0 B:139 - #00008B
Border Used	V
Draw as Circle	
Label Text	Ellip Tick Meter
Meter Tick Indicator	Slider (Kite)
Meter Tick Label Style	Left or Top
Shape Fill Color	R:0 G:0 B:0 - #000000
Shape Fill Style	None
Start Angle	120
Sweep Angle	300
Tick Color	R:0 G:0 B:0 - #000000
Tick Indicator Color	R:255 G:255 B:255 - #FFFFFF
Tick Indicator Thickness	6
Indicator is changed.	

10. In property editor set property: Field Style, to Center

 The second se	×
💡 Behaviour	
Field Style	Center 🔹
Meter Color Show Status	
Meter Major Tick Frequency	2
Meter Tick Base	-50
Meter Tick Unit	5
P Dimensions	

Field is now shown and centered.

11. In property editor set the following properties: Start angle: 90 Sweep angle: 180 Tick Color: R: 165, G: 42, B: 42 Tick Indicator Color: R: 102, G: 205, B: 170



The Elliptic Tick Meter changes appearance and meter-range is changed.

12. Select data source field in the property editor.

E	FICK Educi Fond Color		// / / / / / / / / / / / / / / / / / / /	 1
l	💡 General			
	Data Source	MeterDS1		
	P Information			
L	Commont			 1

13. Click the property button: '...', to open the data source configuration dialog.

Contout	blausa	L Los St.	Dete To		
Context	Name	Unit	Data Type		Add
Opsname			Float		
					Remove
				Ŧ	
	_				
Data Source	Type				
External I	Data Source				
- -					
U Computa	tion				
-Details for F	External Data Source				
Opsname 🛉	-				
				-	
Value Outp	ut Engineering value			•	
11	ait				
				41	
Ту	pe Float		•	-	
	OK	Cancel			

The data source dialog is used by the editor to edit all data sources related to display elements.

14. In the data source dialog, chnage the Data Source Type to Computation

	• •	-	
Data Source Type			
External Data Source			
Computation			

Details are changed to computation details.

- 15. Select from drop-down-box (ComboBox) with text: Select Symbol, the expression-symbol: PI.
- 16. Click in Expression field and type on keyboard: + (plus-key)
- 17. Open the System Configuration Browser by clicking the button: ... Select the path-location: \Comms\CTC1\Unit_Temp_DMC (OPS View: Onboard Telemetry)



18. Click button: Add, followed by button: Close.

Expression	
PI + CTC1_Unit_Temp_DMC	
Select Symbol 💌 Select Construct 💌 Select Function	–

Label and rectangle are selected.

19. In the data source dialog set the Unit to: deg C

Conte	ext	Name	Unit	Data Type	Add
opsnam	ie		laegres C	Float	Remove
					-
-Data S	ource	Туре			1
⊖ Ext	ernal	Data Source			
Cor	nputa	tion			
-Detail:	s for (omnutation			
Exnre	ssion	Sompacation			
PI + C	TC1_U	nit_Temp_DMC			
Salact	Syml	ol - Salact Construct	Select Eurotion		
Select	. Synn	Select construct	Select Function		
Evalu	ation ssion	Valid			
Unit		- 6			
Unit	degre	sc			
Type	Float			•	
Name	Expre	ssion1			
		OK	Cancel		

Unit is changed, the unit is a textual property of the data source.

- 20. Click button: OK to change data source.
- 21. Open previewer from menu: Tools|Previwer



The created Elliptic Tick Meter is previewed.

22. Use the slider at the bootom of the open dialog, to simulate values given to the data source and the effect on the meter..

Chapter 2: Tutorial



The indicator moves as the slider is moved.

2.15. Change USS Properties File

The USS package feature a common configuration system, which is located in the home folder in the folder: .uss-<USS_VERSION> (EX: .uss-2.6.0)

2.15.1. Lesson in USS properties

The USS Editor and Executor use Data Quality Indicator definition to give information about the state of the data being processed.

the lesson assumes the XML editor KXML-editor is installed, as well as the Kate (KDE editor).

1. Opening a file browser to the >HOME_DIRECTORY</.uss-<USS_VERSION> (EX: .uss-2.6.0) directory. Here open the file: uss.config (you might need to change file-filtering to All-Files)

×-1	file:/home/us	s/.uss-2.6.0 - Ko	nqueror					?••×
Lœa	ation <u>E</u> dit <u>V</u> ie	w <u>G</u> o <u>B</u> ookma	rks <u>T</u> ools <u>S</u> e	ettings <u>W</u> indow	<u>H</u> elp			
	 (*) (*)	እ 🙆 🗞 ነ	• 🖬 🛱 <	i 🔍 🔍				
	• L <u>o</u> cation: [💐 file:/home/us	s/.uss-2.6.0					- 12
×				2	2	2		
	default	<u>preview-data</u>	<u>report</u>	<u>editor-</u> layout.dat	<u>MCS220-</u> <u>CGS630</u>	<u>system.loq</u>	<u>system.loq.1</u>	
<i>\</i>		1	\odot					
<u></u>	<u>user.loq</u>	<u>uss.confiq</u>	<u>uss.layout</u>					
¥ ∖₹	o 10 lterr	ns - 7 Files (15.8	MB Total) - 3	Directories				T

Folder contains many files, ie. log-file, the folder also contains the uss.config file, which contains the settings for USS.

2. Opening the Kate-editor and browser to the >HOME_DIRECTORY</uss-<USS_VERSION> directory. Here open the file: uss.config.

🤣-🛏 uss.config - Kate	X
<u>Eile E</u> dit <u>D</u> ocument <u>V</u> iew <u>Boo</u> kmarks <u>T</u> ools <u>S</u> ettings <u>H</u> elp	
xml version="1.0" encoding="UTF-8"? properties SYSTEM "properties.dtd"	Ĥ
<properties> <proversity< pre=""></proversity<></properties>	
<map></map> <rue></rue>	
<map></map> <node name="eads"></node>	
<pre><map></map> <node name="space"></node></pre>	
<pre><map></map> <node name="uss"></node></pre>	
<map></map> <node name="config"></node>	
<pre><map></map> <node name="Config"></node></pre>	
<map></map>	
<pre><entry key="uss.view.showsynopichierarchy" value="false"></entry></pre>	
<pre><entry key="uss.view.showconsistencychecker" value="false"></entry></pre>	
<pre><entry key="uss.view.showsystemconfigurationbrowser" value="false"></entry></pre>	
<pre>(entry key="uss.view.snowilbraryeoltor" value="raise" /></pre>	
centry key="uss.view.editor.x" value="20.0"/>	
Centry Rey- uss. view. editor width wilve-"000.0" ()	
Centry Rey-uss view editor head value- 500 0 //	
Centry key="uss toolbar editor standard-toolbar" value="3.0.21" />	
(entry key="uss toolbar editor edit-toolbar" value="6,0,21" />	
<pre><entry key="uss toolbar editor element-toolbar" value="2 0 21"></entry></pre>	
<pre><entry key="uss.toolbar.editor.zoom-toolbar" value="4 0 21"></entry></pre>	
<pre><entry kev="uss.toolbar.editor.transform-toolbar" value="1 0 21"></entry></pre>	
<pre><entry key="uss.toolbar.editor.layout-toolbar" value="0 0 21"></entry></pre>	
<pre><entry key="uss.toolbar.editor.layers-toolbar" value="5 0 21"></entry></pre>	
<pre><entry key="uss.view.tabscrolling" value="false"></entry></pre>	
<pre><entry key="uss.view.tabplacement" value="North"></entry></pre>	-
	•
Line: 1 Col: 0 INS NORM uss.config	

The Kate-Editor shows the content of the xml-formatted uss.config file for the USS system. The Kate editor contains features for context highlighting. Browse down to see the uss properties, they can be changed manually by editing via Kate.

- 3. Close the Kate editor again.
- 4. Opening the KXML-editor and browser to the >HOME_DIRECTORY</.uss-<USS_VERSION> directory. Here open the file: uss.config.



The KXML-Editor shows the content of the xml-formatted uss.config file for the USS system. The XML tree hierarchy is shown on the left and the content of the selected node on the right, where the content can be edited.

	Namespace	Name	Value
1		key	uss.view.editor.x
2		value	0.0

Changing the values here will change view settings X value of the editor, which can be edited through the Editor Preferences also.

6. Try changing the value to 25.0, to set the Editors default view setting for the X value.

	Namespace	Name	Value
1		key	uss.view.editor.x
2		value	25.0

The value is change, and will be used in future invocations of the editor. If editor is open it has to be restarted to laod the new value.

2.16. Select SCOE Files

The USS package uses a SCOE file, to ease creation of end-items.

2.16.1. Lesson in changing the SCOE file

1. Start by openning the editor via installed icon, close all tool-views.

📴 🖶 USS Display Editor 2.6.0	• • ×
<u>E</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> ools Element <u>W</u> indow <u>H</u> elp	
$ \circ \circ \circ \bullet \bullet \times \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	
uniform scaling [100 - 1 - 10 - 10 - 10 - 10 - 10 -	
[[display#1] ? = x	(- 0 ×
1	A
	-

2. Close the open default new display, to allow changing of the SCOE file.

III → USS Display Editor 2.6.0	• • ×
<u>E</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> ools E <u>l</u> ement <u>W</u> indow <u>H</u> elp	

No display open.

3. Open the editor preferences by selecting: Edit|Preferences

 Project Display Consistency Data Source Import Database MDB-General MDB-CDU MDB-CCU MDB-SCOE 	
	OK Cancel

USS Editor preferences dialog is opened.

Left-click with the mouse on the right to the category: MDB-SCOE. 4.

– 🗋 Project	MDB-SCOE	
– 🗋 Display	SID	0
– 🗋 Consistency	File nath	/home/uss/Perforce/us
– 🗋 Data Source	rine paen	jionejassirenoreejas
– 🗋 Import	CU internal version	316989981
– 🗋 Database	Default Settings for SCC	DE File.
— 🗋 MDB-General		
- 🗋 MDB-CDU		
— 🗋 мдв-сси		
MDB-SCOE		

The preferences for the SCOE File is shown, some properties are only informational (can not be changed and are read from file choosed).

Click button: Browse, to open a dialog for changing the SCOE File. 5.

X-M Choos	se file
Look <u>I</u> n:	⊆ scoe ▼ ⊡ В В В
🔁 \EURE	ECA Mission DUMMY_MISSION(8) - CCU: Q_TEST_DISTR V4.0.0(16-De
🧧 😂 сси 2	268436077, operational configuration 0, consistency date 11255313
🛛 🥝 CCU 2	278561597, consistency date 1134023659000(08-Dec-2005 06:34:1
🛛 🕝 CCU 2	278561660, operational configuration 0, consistency date 11546008
🛛 📀 \APM I	Mission MASTER(12) - CCU: MCS_AIV V6.0.1(29-Sep-2005 08:32:57
📮 \APM I	Mission MASTER(12) - CCU: MCS_AIV V7.1.0(14-Dec-2005 17:33:59
🛛 🤤 \CGS I	Mission AEOLUS(4) \COMMON - CCU: EADS_SI_TEST V1.0.0(07-Jul-2
	OP Mission EM(4) - CCU: LBU_FM1_OPS 2.0.1(15-Jul-2004 12:01:00)
•	
File <u>N</u> ame	e:
Files of <u>Ty</u>	ype: XML SCOE/Info (*_info.xml)
	Choose file Cancel

The dialog opens in the default SCOE file directory.

6. Select a new SCOE file.

X-¤ Choose file			
Look <u>I</u> n: 📑 s	coe	-	a 🔒 🔛
CONTRACTION (EURECA M	ission DUMMY_MISSION(8) - CCU: Q_TEST_	DISTR V4.0.0(16-De
🛛 🤤 CCU 26843	6077, operational configu	iration 0, consiste	ncy date 11255313
🛛 🔮 CCU 27856	1597, consistency date 1	134023659000(08	3-Dec-2005 06:34:1
🔮 CCU 27856	1660, operational configu	iration 0, consiste	ncy date 11546008
🛛 🔮 \APM Missi	ion MASTER(12) - CCU: M(CS_AIV V6.0.1(29-	Sep-2005 08:32:57
🗧 \ominus \APM Missi	ion MASTER(12) - CCU: M(CS_AIV V7.1.0(14-	Dec-2005 17:33:59
🔤 \CGS Missi	on AEOLUS(4) \COMMON -	- CCU: EADS_SI_TI	EST V1.0.0(07-Jul-2
🔁 \METOP Mi	ssion EM(4) - CCU: LBU_F	M1_OPS 2.0.1(15-	Jul-2004 12:01:00)
•			•
File <u>N</u> ame:	278561660_0_info.xml		
Files of <u>T</u> ype:	XML SCOE/Info (*_info.xr	nD	-
		Choose file	Cancel

New SCOE file selected.

7. Click button: Choose File.

X-₩ Preferences			
- 🗋 Project	MDB-SCOE		
- Display	SID	0	
- D Consistency	File path	278561660_0_info.xml Browse	
- 🗋 Import	CU internal version	278561660	
- Database	Default Settings for SC	DE File.	
MDB-General			
- 🗋 MDB-CCU			
MDB-SCOE			
		<u>O</u> K Cancel	

The new SCOE file is now choose.

8. Click button: OK, to change the editor preferences (uss.properties file). The editor will reload the System Configuration Browser (based on the SCOE file)

Loadir	ng new S	COE configuration. Please wait
		Cancel
f many CCOI	7 file telree	acma sacanda

Reloading of new SCOE file takes some seconds.

9. A confirmation box occures to rerun consistency checker on open displays, all displays (project-folder) or not to run-checker.

i	The SCOE file Select the disp	settings has been plays to run the co	changed. nsistency checker on:
	Open Displays	All Displays	Don't Run

Choose not to run.

10. SCOE file is reloaded in the System Configuration Browser.



2.17. Check Consistency

The USS Editor can check the consistency of created displays against the configured SCOE file and there by save time for display developers.

2.17.1. Lesson in checking display consistency

1. Start by openning the editor via installed icon, close all tool-views.



2. Add a label (menu: Element|Add|Label) Double-click (left-mouse-button) to edit text inline and write text: Label for check



Label created and text changed.

3. Add a TankMeter (menu: Element|Add|TankMeter)



TankMeter created.

4. Open Property Editor (Menu: View|Property Editor)



The properties for the advanced element TankMeter is shown.

5. Choose from menu: Tools|Check Consistency.



A dialog opens stating display is inconsistent and there is one problem.

6. Click button: OK and the tool-view: Consistency Result opens.

📩 Consistency Results 🖈		
Result	Reference	Descriptio
	Info	2006-07-10 20:39:38: Starting consistency chee
	Info	Detailed Version: CCU 268436077, operational o
	Info	SCOE files used: file:/home/uss/Perforce/uss/ma
	Info	OpNom Spell Check Performed: OpNom (incl. ESA
ERROR	<tankmeter> TankMeter1</tankmeter>	Invalid Opsname: "null". Invalid SID=null and inval
	Info	Validation of 1 data-sources FAILED with 1 errors
	Info	2006-07-10 20:39:38: FAILED: Consistency che

The consistency results shown the information processed by the consistency checker and the results. One error is marked red, stating that the TankMeter has a invalid data source with invalid parameters: OpsName, SID and pathname.

7. Select/focus the Property Editor again, and select the property: Data Source.

🕞 Property Editor 🛛 = 🛪 😰 System	m Configuration Browser 🛛 🔊 Consist 🕢 🕫 🥷 🕳 🗖	×	[display#1] ₹ = ×			
<tankmeter> TankMeter1</tankmeter>						
💡 Appearance						
Shape Fill Color	R:255 G:255 B:255 - #FFFFFF					
Shape Fill Style	Solid 💌					
TankMeter Indicator Color	R:255 G:200 B:0 - #FFC800					
💡 Pehaviour						
Meter Color Show Status						
💡 Dimensions						
Depth	0					
Height	100			label for check		
Width	210					
X	150					
Y	140			· · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
🛛 💡 General						
Data Source	MeterDS1	.				
💡 Information					1	
Comment				- T	T	
Name	TankMeter1				j.	
Selected Elements	1 element					
Tooltip				••••••		
💡 P Limits-Domain						
Meter Maximum	100					
Meter Minimum	0					

Property: Data Source highlighted.

8. Click button: ..., to change open the data source dialog.

Context	Name	Unit	Data Type		Add
Opsname			Float		Remove
					Kennove
				▼	
Data Source T	ype				
External Da	ata Source				
🔾 Computati	on				
Details for Ext	ternal Data Source				
Opsname 🔻					
Nature Output					
value Output	Engineering value				
Unit					
Туре	Float				
	ОК	Cancel			

Data source dialog opens showing the data source attached to the TankMeter.

9. Click under Details for External Data Source on button: '...', to open the System Configuration Browser.



System Configuration Browser opens (in OPS View: Onboard Telemetry).

10. In the search field (left of button: Search) type: 'Sensor', and click button: Search.



System Configuration Drowser searches and selects the end-field. (DDD/E55/515

11. Click button: Change.

Name	Unit	Data Type
BLB_LSS_S13_O2_Sensor	pct	Float

System Configuration Browser changes the data source in the Data Source Dialog.

12. Click button: Close.

X-¤ Tar	ıkMeter1 ·	Edit Data Source				Ξ×
BLB_LS	N: 5_513_02.	ame _Sensor	Unit pct	Data Type Float		Add
						Remove
					Ļ	
Data	Source Ty	/pe				
● Ex	ternal Da	ta Source				
⊖ Co	omputatio	n				
Detai	ils for Ext	ernal Data Source				
Opsr	name 💌	BLB_LSS_S13_02_S	Sensor			
Valu	ie Output	Engineering valu	e			
	Unit	pct				
	Туре	Float				
		01	K Cance	1		

Data Source Dialog now has a fully configured data source.

13. Click button: OK, in data source dialog.

💡 General		
Data Source	BLB_LSS_S13_O2_Sensor	
P Information		
Chourn Data Source in property editor is now a	honood	

Shown Data Source in property editor is now changed.

14. Now check consistency again (Tools| Check Consistency).

i	Display Consistent
	ОК

Dialog shows that display is now consistent.

15. Click button: 'OK', to close confirmation dialog.

16. Select/focus the Consistency Results View again.

Х-₩ Ргор	erty Editor, System Configurati	ion Browser, Consistency Results
🕞 Propert	y Editor 🛛 😨 System Configuration	Browser 🔊 Consistency Results 🛛 🕹 🗙 🛛 🖓 🖻 🗙
Result	Reference	Description
	Info	2006-09-05 10:13:19: Starting consistency check on: Untitled (File: Unnamed0)
	Info	Detailed Version: \APM Mission MASTER(12) - CCU: MCS_AVV V7.1.0(14-Dec-2005 17:33:59)
	Info	SCOE files used: file:/home/uss/Desktop/USS_RC2_Acceptance/uss-2.6.0/share/scoe/316989981_0_o
	Info	OpNom Spell Check Performed: OpNom (incl. ESA).
	<label> Label1</label>	Label text 'label for check' contains 2 errors. Incorrect Words are: label at position 0 (alternatives: lab el,
ОК	<tankmeter> TankMeter1</tankmeter>	Opsname, SID, Pathname and Type checked without errors for datasource with Opsname "BLB_LSS_S13
	Info	Validation of 1 data-sources passed (0 datasources are Computations)
	Info	2006-09-05 10:13:19: Passed: Consistency check had no errors.
	·	

17. To generate a HTML report, select from menu: File|Generate HTML report

★-¤ Unnamed0 - Mozilla (Build ID: 2002101714-UnitedLinux)	×
<u> </u>	
Search So the file:///home	
Unnamed0	Ξ
label for check	
🔟 🖂 🞯 🚺 Document: Done (0.311 secs)	ſ

2.18. MDB Displays

The USS Editor can work with a MDB. Displays can be synchronized (normally and forced/over-

write), submitted (new displays / check-in of changes) and Deleted.

Lesson setup: A working connection to a MDB is needed, proper setup of editor preferences to the MDB in question.

2.18.1. Lesson in using the editor MDB interfacing

1. Start by openning the editor via installed icon, close all tool-views.

	33 0	rspiaj	/ Eai	itor.	2.6.	U																																														
ie <u>F</u>	Edit	View	To	ols	EĮ	em	ent	3	∆in	do	w	H	elp																																							
	黒		200	8		li l			H					uni	ifo	rm	s	cal	lir	10	ſ	1,	-		10		^	1	V.,							9		e]	1	21	1	ŀ										
													s L		_	_		_								_	×	_					_	_		_					_					_						
	DF	B		N	×	2	5	B				•	~)	¢	1			8	5		•		Ø			6		ā		1	3	C	1		5	5			H		6	2	5		4	•				
0		€,	₹.	<u>a</u>			2	6	V	1		\approx			5		(C)					-J.,		Ċ		3	6																									
displa	ay#1]	e _ :	×																																														(8	_ (1
										-									-				-							-				 														 	 -		_	Ē
																																																				-
-													-						-				-					-	-		-	-																 	 -			ļ

2. Open Property Editor from menu: View|Property Editor

🕞 Property Editor 🛛 🧶 🗕 🗙	x = = 5
[display#1]	
Packground Color	P-229 C-229 P-229 - #EEEEE
Background Sembel Librony Nome	R.230 G.230 B.230 - #EEEEE
Dackground Symbol Library Name	
Background Symbol Name	
9 Benaviour	
Snow Execute Button	
ontext	
Help URL	
Opsname	
Source	MDB
Source MDB CU Consistency Date	
Source MDB CU Internal Version	
Source MDB CU Name	
Source MDB CU Pathname	
Source MDB CU Scope	
Source MDB CU Version	
Source MDB Element Configuration	
Source MDB Host	

3. Make a label (Menu: Element|Add|Label) and set property: Label Text, in property editor to: Test MDB Connection.

	-	-		-		-		-	-	-	-	-	-	-	-	_	-	-	_	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	
-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-		-					-	-						-	-	-			-	-	-		-		-	-		
-	-	-	-	-	-	<u>d</u> (es	t	М	DB	i c	Ō	mīm	ūr	ni (ća	ti	Ö	ń	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	آ و	es	ţ	M	DΒ	ļ	Ō	mīm	ūr	n <u>i</u> (ća	ti	0	ņ	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	₫ (ës	ţ	MI -	DB	[] (mīm -	ūr	nj (ča	ţi	0	ņ	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	₫ (eis	t -	М - -	DB 		- - -	- - -	ūr	11 (- -	cia	ţi	0	ņ	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	₫(es	t 	MI - - -	DB 	-	-	mīm - - -	ūr - -	11 (- - -	ća	.ti - -		n - -	-	-	-	-	-	-	-	-	
-	-		-	-	-	₫* 	es - - -	t 	MI - - -	DB 		-	- - - -	- - - -	11 (- - -	ča 	.ti - - -	 	<u>n</u>	-	-	-		-	-	-	-	
-			-	-	-	₫* 	e's - -	t 	MI - - - -	DB 	-	-	mīm - - - -	- - - -	11 (- - - - -	- - - -	.ti - - -	-	n_ 								-	
						 	es - - - -	t 	MI - - - - -	DB 	-		- - - - -	- - - - -	11 (- - - - -	- - - -	.ti - - - -	0 - - -	n								-	
				-	-			t 					mīm - - - -	ūr - -	11 (- - - -	ca	ti -	0	n	-							-	
					-			t 		DB 			mim - - - -	ür	11 (- - -		.ti	0	n 	-				-				
	-		-					t		DB - - - - - -				ür	11 (.ti 	0	n 									
								t	MI 	DB 				ür	11 (ća - - - - -	.ti		n · · · · · · · · · · · · · · · · · · ·									
								t		DB			- - - - - -	ür			.ti		n .									
								t					- - - - - - - -	ür					n · · · · · · · · · · · · · · · · · · ·									

Teh MDB Browser is loading configuration data from the MDB (can take minutes).

4. Select from menu: File|MDB|MDB Browser



The MDB Browser is loading configuration data from the MDB (can take minutes).

5. After loading of MDB configuration data, the MDB browser dialog opens.

-	-					
APM						
🦕 🗂 сомм	ON TEST S	TIPP				
	0.1 <u>0</u> 120120	0				
<u>۹</u> – ا	055					
-م	EDITOR	2				
م	EXECUT	FOR				
o-	MDBIO					
item Name:						
Item Type						
item type.	Unified Sy	noptic D	isplays	(USS)		
		_				
			Sync	Lock	For Edit	Close

6. Open and select the MDB path: '\APM\COMMON_TEST_SUPP\GRD_DATA\USS\EDITOR\MANUAL_TESTS', and press button: Sync.



7. Close MDB Browser (press button: 'Close').

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-			-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-			-	-		-	-	-	-	-	-	-	-	-	-			-	-	-	-		-	-	-	-
-	-			-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
-	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-																										
					-	<u>न</u> ः	eis	ŧ۴.	м	DB	10	-b	mīm	۱Ū۲	١İ/	сa	ıti	io	ń.	-	-	-	-	-	-	-	-
-	-	-	-	-	-	đ	es	ţ	М	DB	Ċ	-o	mīm	ūr	ij,	ca	ţ	0	ņ	-	-	-	-	-	-	-	-
-	-	-	-	-	-	d -	es	ţ	M	DB -		-0 -	mīm -	ūr	ii -	ca	iti -	i 0	ņ	-	-	-	-	-	-	-	-
-	-	-	-	-	-	<u>,</u>	es	÷.	М -	DB -	-	-	- -	- -	1 <u>1</u> -	ca	iti -	i 0 	ņ	-	-	-	-	-	-	-	-
-	-	-	-	-	-	- - -	es	- -	М - -	DB 	-	-	- - -	iŭr -	1] - -	cia 	.ti - -		<u>n</u> -	-	-	-	-	-	-	-	-
-	-	-	-	-	-	- - - -	es	- - -	M - - -	DB 	-	-	- - -	- - -	1] - - -	ca 	.ti - -	 	<u>n</u>	-	-	-	-	-	-	-	-
-	-	-	-	-	-	- - - - -	es - -	- - -	- - - -	DB 	-	-	- - - -	- - - -	1] - - - -	- - -	- - - -	-	<u>n</u>	-	-	-	-	-	-	-	-
-	-	-	-	-	-	- - - - -	es - - -	:t	M	DB 	-	-	- - - -	- - - -	1]) - - - -	- - - -	- - - -	-	<u>n</u>	-	-	-	-	-	-	-	-
-	-		-	-	-	- - - - -	es - - -	:t - - -	M	DB 	-	-	- - - -	iūr - - -	11. - - -	- - - -	.ti - - -	-	<u>n</u>	-	-		-	-	-	-	
	• • • • • •	-	-	-			es	;t	M			-		iūr - - -	11. - - -	ca			n · · · · · · · · · · · · · · · · · · ·								
		•	•				es	:t	M	DB		-		iūr - - -	1 <u>1</u>	ca			n .								
								.t.	M					iūr - - - -	11			0	n .								
								t	M					iùr - - - -	11				n								
-								t	M	DB				iùr - - - - -	11				n								
								t	M					iùr - - - -	11			0	n								

Dialog closes.

Save display by selecting from menu: 'File|Save'. 8.

Save <u>I</u> n: 📑 u	ss-project	-	a 🖯	
CDU_31699	90119			
📑 lib				
Display1.us	55			
Display2.us	s			
File <u>N</u> ame:	Unnamed0.uss			
Files of <u>T</u> ype:	USS displays (*.uss)			-
			Save	Cancel
The save dialog app	pears, opened in the uss-project folder.			

9.

save-path: '<uss-project-directory>/<CU_DIRECTORY>/APM/COMMON_TEST_SUPP/GRD_DATA/US S/EDITOR/MANUAL_TESTS/' And file-name: 'MDBTEST.uss'
Save <u>I</u> n: 📑 M	IANUAL_TESTS	- A C 285
File <u>N</u> ame:	MDBTEST, uss	
Files of <u>T</u> ype:	USS displays (*.uss)	-
		Save Cancel

10. Click button: Save, to save file.

/home/uss/uss-project/CDU_316990119/APM/COMMON_TEST_SUPP/GRD_DATA/USS/EDITOR

Display is saved in correct path MDB synchronization.

11. To add display to MDB, choose from menu: File|MDB|Export adding to MDB.



Confirmation is shown, when display is submitted.

12. To verify the MDB export of the new display, choose from menu: File|MDB|MDB Browser And browse to the to the MDB-path: \APM\COMMON_TEST_SUPP\GRD_DATA\USS\EDITOR\MANUAL_TESTS



MDB Browser shows exported display.

13. Select the MDB display: MDBTEST, and press button: sync.



14. Now open the display again for editing by clicking the button: 'Lock For Edit', in the MDB Browser.



- 15. Click button: Close, in MDB Browser.
- 16. Close the open display, selecting from menu: File|Close. Open Synoptic Hierarchy by selecting from menu: View|Synoptic Hierarchy.



Synoptic Hierarchy shows the project-files.

- 17. Browse to the saved display in the project-folder via the Synoptic Hierarchy, path: '<uss-project-directory>/<CU_DIRECTORY>/APM/COMMON_TEST_SUPP/GRD_DATA/US S/EDITOR/MANUAL_TESTS/MDBTEST'.
- 18. Right-click on project-display: MDBTEST.uss, and choose from pop-up menu Open display.



Display is reopened.

- 19. Add a polygon from menu: Element|Add|Polygon.
- 20. Add a navigation button from menu: Element|Add|Navigation Button.

Button1 Button1 Test MDB communication

The display has additional elements: polygon and navigation button.

- 21. Select the polygon by left-clicking on it.
- 22. Move the polygon by left-click (hold) and dragging it.
- 23. Left-click (hold) and move one of the control-points of the polygon, to change its shape.

	_		_																															ļ,
-									₽	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-									Ŀ	-	-	-		-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	
-			В	ut	to	n	1		Þ	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		
-									Ł	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	٠	-	-	-	Ū,	-	-	-	b,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
- I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1	_	_	-		-						-			-												_				-	_		_	
	_	_	_	_	_	_	_			_	_			_		-	_		_					_	_	_				_	_		_	
															Ζ.		\sum																	
														1)	-												-		-	
														l																				
	-													2	1					2	7	-	-											
-	-	-	-	-		-				-					.)	-	-			-	-	-		-	-	2	-	-	-		-	-		
-		-	-	-		-				-						-			т	-i-	+	M	DP	·				ъŝ.		+-		ri.		
-																				52	Ļ	M	νB	.0	-0	uin	ur	Ū.	ça	ų.	0	Ū.		
		-			-	-		-										-	-	-	-	-		-			-	-	-	-		-		

Polygon is changed.

- 24. Open the Property Editor by selection menu: View|Property Editor.
- 25. Select the button by left-clicking on it.

🔄 Synoptic Hierarchy 🕞 Property Edito	or e=×	- 🗆 ×	c //home/uss/uss-project/CDU_316990119/APM/COMMON_TEST_S
<button> OpenDisplay1</button>			
Appearance			
Button Type	Simple Text Button	-	
Shape Fill Color	R:212 G:212 B:212 - #D4D4D4		
Shape Fill Style	Solid	-	
Commanding]
Action	Display open	-	
Open New Window			
Target			
o Dimensions			Button1
Penth	0		
Height	45		
Wedth	80		
V	10		
× ·	10		
I Information	20		
o information			
Comment			
Name	OpenDisplay1		
Released Label Text (Default)	Button1		
Selected Elements	1 element		
Tooltip			
9 Misc			
Button Shape	Rectangle	-	
Corner Fill Color	🗏 💻 R:0 G:0 B:0 - #000000		Test MDB communication
Corner Fill Style	Solid	-	
Corners Enabled			

Button properties are shown in the Property Editor.

26. Click on the button: Button1, for the property: Released Label Text to open text edit dialog.

27.

?	Test MDB
	OK Cancel

Dialog for multi-line text edit shows new text.

- 28. Click button: OK.
- 29. Save display by choosing from menu: File|Save.
- 30. Submit the changes to the MDB by selecting from menu: File|MDB|Export to MDB.

i	Files submitted to MDB : Ok
	ОК

Confirmation is shown of submition.

31. Delete the display file in the MDB, by selecting from menu: File|MDB|Delete.



After deletion of the display in the MDB, the editor will ask for confirmation to delete the display on the local file-system.

32. Click button: Yes, to delete the tutorial display-file.

2.19. Quick Tutorial

This tutorial section explains the preparations needed in order to run both USS executor and USS editor. After this it gives a short tutorial on USS editor, which shows how to create a new ground ops (Satmon like) display, the converting of GWDU ground displays in batch operation and how to check GWDU displays for consistency. It finishes with a tutorial on USS executor, which explains how to connect and disconnect a display, shows direct commanding of FWDU displays, shows a GWDU display aswell as imported Satmon displays samples and PCS display samples and shows the commanding via MCS Tools.

2.19.1. Preparation

This section explains the preparations needed in order to run both USS executor and USS editor.

- 1. Start MCS Console
 - a. Start Task Selector by typing **ts** into the command shell.
 - b. Start TSCV and press continue on all warnings that may appear.
 - c. Start MCC_Client.
 - Shutdown MCC_Client if already running.
 - Start MCC_Client and wait until it reaches active status.
 - d. Start HCI Online Test Control.
 - In the HLCL shell type **init_client** to start TM acquistion.
- 2. Keep "DOWNLINK_STATUS" GWDU display open (for later USS side-by-side test).
- 3. Switch to an empty desktop workspace.
- 4. Open a task selector by opening a shell and typing **ts**& into it.

2.19.2. Editor Tutorial

This section gives a short editor tutorial. It shows how to create a new ground ops (Satmon like) display, the converting of GWDU ground displays in a batch operation and how to check GWDU displays for consistency.

2.19.2.1. Creating new ground ops (Satmon like) display

2.19.2.1.1. Setting project root folder and MDB configuration

- Close all open displays, this is a requirement to change the project root folder
- Choose **Edit > Preferences**
- In the popup dialog choose **Project** tab in the tree structure on the left.
- Click Browse button to set the Root folder to /home/<user>/uss-project .

2.19.2.1.2. Importing and exporting displays from and to MDB

- Start my making a new display from menu choose: File|New
- Add a label by choosing from menu: Element|Add|Label, and add a text by editing label text in Property Editor (open it if not open by choosing from menu: Views|Property EDitor)
- Save display by choosing from menu: File|Save. In dialog save display to location and displayname (capitalize name of display):

[USS-Project-folder]/[CU-DIRECTORY]/APM/COMMON_TEST_SUPP/GRD_DATA/USS/EDI TOR/MANUAL_TESTS/TUTORIAL.uss

- Press ok to save dialog, and choose from menu: File|MDB|Export adding to MDB
- Wait for operation to finish and press ok to confirmation dialog. Displays are now exported to the MDB.
- Close all displays by choosing from menu: File|Close all, displays might need to be save or cancelled.
- Choose File > MDB > MDB Browser (sync/lock-for-edit).
- Select $\Delta PMCOMMON_TEST_SUPPGRD_DATAUSSEDITORMANUAL_TESTSTUTORIAL in the browser.$
- Right-click then select **Sync** from the Version Control popup-menu and wait for synchronization to complete.
- In the popup dialog click **OK**.
- Click Apply.
- In the **synoptic hierarchy** on the right side select root folder (the one which you have configured in Setting project root folder and MDB configuration.
- Navigate to \APM\COMMON_TEST_SUPP\GRD_DATA\USS\EDITOR\MANUAL_TESTS.
- Right-click on TUTORIAL.uss and select **Open Display**. TUTORIAL opens in editor view.
- Right-click on display. Select Lock-for-Edit on MDB.
- In the popup dialog click OK.
- Edit display.
- Choose **File > Save** display.
- Right-click on display. Select **Export to MDB**.
- In the popup dialog click OK.
- In the popup dialog click OK.

2.19.2.1.3. Editing displays

- Creating Elements i.e. labels, fields etc.
 - 1. Choose **Elements** > **Add**.
 - 2. Select Label or Data Field.
- Changing properties of elements.
 - 1. Right-click on newly created element (label, data field etc.)

- 2. From the popup dialog select action you would like to perform (e.g. align, move, order, rotate or scaling).
- Drag and drop an item from the system configuration browser onto the display.
- Drag and drop multiple items from the system configuration browser onto the display.

2.19.2.1.4. Previewing a display

- Save current display by choosing **File > Save**.
- Choose **Tools > Preview Display...**.
- Watch display open in a previewer, the slider (in the bottom of window) can be used to see any dynamic contents.
- Close previewer window.

2.19.2.2. Converting GWDU ground displays as batch operation

- Choose **Tools > Run Batch Operation...** .
- Click Browse and set **source directory** to <USS base directory>/examples/import/gwdu.
- Click Browse and set destination directory to /home/<user>/uss-project .
- Click **Convert**: The batch process starts.
- Click Close.
- After conversion: Close and reopen synoptic hierarchy.
- Open a converted USS display in /home/<user>/uss-project/mcs/... for example (/APM/COL_CC/MCS_OPS/CONFIG/SYNOPTICS/MCS/DOWNLINK_STAT.uss).

2.19.2.3. Checking GWDU display for consistency

- Open /APM/COL_CC/MCS_OPS/CONFIG/SYNOPTICS/MCS/DOWNLINK_STAT.uss.
- Choose **Tools > Consistency Check...**.
- In the **Consistency checker** report displayed at the bottom, double click line with error item, item gets selected in display.

2.19.3. Executor Tutorial

This section gives a short tutorial on how to use the executor. It shows how to connect to and disconnect displays from MCS. It explains direct commanding from a FWDU display aswell as commanding via MCS Tools. It explains how to show a GWDU display, imported Satmon display and PCS display samples.

2.19.3.1. Connecting and opening displays

- Choose **Options > MCS Connection...** to connect to MCS.
- In the popup dialog enter the correct connection data for service (e.g. CIS) and host (e.g. localhost) and port (e.g. 7060).
- Then click Connect.
- Open **Col Home** display.

2.19.3.2. Show direct commanding (from FWDU display)

- Open /APM/FLTSYS/OPS/SYNOPTICS/ECLSS/CFA1 display.
- Choose **Options > Preferences...** Enable direct commanding.
- In the popup window select Commanding in the tree structure on the right side.
- Check Enable Commanding.
- Check Direct Commanding.
- Click OK.
- Right-click in white box under Fan Speed.
- In the popup dialog select Line Graph.
- Leave line graph window open.
- In the display click on Pwr Off command button.
- Click **Execute** button in the bottom of the display: Watch command feedback in response panel. Pwr changes to Off, Fan Speed drops to 0 rpm. Watch line graph changing value.

2.19.3.3. Show GWDU display

- Open APM/COL_CC/MCS_OPS/CONFIG/SYNOPTICS/MCS/DOWNLINK_STAT.gwdu to show updated telemetry
- Click **TM Packet Status...** button
- Show monitoring
- Show display navigation
- Show parameter properties
 - 1. Right-click on parameter.

- 2. In the popup dialog select Properties.
- 3. Click Close.
- Show display search for selected paramter
- Right-click on parameter.
- In the popup dialog select Find Parameter In Other displays.
- Click Close.

2.19.3.4. Show commanding via MCS Tools

- Choose **Options** > **Preferences**.
- Select Commanding in the tree structure on the right.
- Check Enable Commanding.
- Uncheck Direct Commanding.
- In Command Target select or enter Manual Stack@mcs-cc-3.
- Click OK.
- Start MCS Tools: Task Selector > Onboard Commanding.
- In MCS Tools select **Options > Preferences**. Set remote commanding to **Manual Stack@mcs-cc-3**.
- Select CFA1 Deactivation and Execute.
- Select row in manual stack, **Enable, Activate**.
- Select CFA1 Activation and Execute.
- Select row in manual stack, **Enable, Activate**.

2.19.3.5. Show imported Satmon display samples

- Choose File > Open....
- Open \$USS_HOME/examples/import/uss/satmon/4005.uss.
- Compare with screenshot of original display:

2 4005 - PDU1&2	Outle	ts Summary			
PDU1	_Outle	ets_ PDU1 Details	PDU2	Outlets_	PDU2 Details
PDU1_Outlet_Trip	_Stat_	SW OK	PDU2_Outlet_Trip	Stat_SW	OK
PDU1_ISPR_ 0	n/0ff	Current Sys Cntl	PDU2_ISPR_ O	n/Off Cur	rent Sys Cntl
[1] A1_Main_Pwr_Bus	OFF	0.00[A]DISABLED	[1] A1_Aux_Pwr_Bus	OFF 0.	00[A]DISABLED
[2] A2_Main_Pwr_Bus	OFF	0.00 A DISABLED	2 A2_Aux_Pwr_Bus	OFF 0.	00 ^[A] DISABLED
3 A3_Main_Pwr_Bus	OFF	0.00 A DISABLED	3 A3_Aux_Pwr_Bus	OFF 0.	00 ^[A] DISABLED
[4] A4_Main_Pwr_Bus	OFF	0.00[A]DISABLED	4 A4_Aux_Pwr_Bus	OFF 0.	00[A]DISABLED
5 01_Main_Pwr_Bus	OFF	0.00 A DISABLED	51 02_Main_Pwr_Bus	OFF 0.	00 A DISABLED
[6] F1_Aux_Pwr_Bus	OFF	0.00[A]DISABLED	[6] F1_Main_Pwr_Bus	OFF 0.	00[A]DISABLED
[7] F2_Aux_Pwr_Bus	OFF	0.00[A]DISABLED	[7] F2_Main_Pwr_Bus	OFF 0.	00[A]DISABLED
[8] F3_Aux_Pwr_Bus	OFF	0.00[A]DISABLED	[8] F3_Main_Pwr_Bus	OFF 0.	00[A]DISABLED
[9] F4_Aux_Pwr_Bus	OFF	0.00[A]DISABLED	[9] F4_Main_Pwr_Bus	OFF 0.	00[A]DISABLED
[10]02_Aux_Pwr_Bus	OFF	0.00[A]DISABLED	[10]01_Aux_Pwr_Bus	OFF 0.	00[A]DISABLED
[11]SUP1_Pwr_Out3	OFF	0.00[A]ENABLED	[11]SUP3_Pwr_Out3	OFF 0.	00[A]ENABLED
<pre>[12]SUP1_Pwr_Out2</pre>	OFF	0.00[A]ENABLED	[12]SUP3_Pwr_Out2	OFF 0.	00[A]ENABLED
<pre>[13]SUP1_Pwr_Out1</pre>	OFF	0.00[A]ENABLED	[13]SUP3_Pwr_Out1	OFF 0.	00[A]ENABLED
[14]SUP2_Pwr_Out1	OFF	0.00[A]ENABLED	[14]SUP4_Pwr_Out1	OFF 0.	00[A]ENABLED
<pre>[15]SUP2_Pwr_Out2</pre>	OFF	0.00[A]ENABLED	[15]SUP4_Pwr_Out2	OFF 0.	00[A]ENABLED
<pre>[16]SUP2_Pwr_Out3</pre>	OFF	0.00[A]ENABLED	[16]SUP4_Pwr_Out3	OFF 0.	00[A]ENABLED
120V_Subsy	stem_P	Pwr_Bus	120V_Subsys	stem_Pwr_	Bus
Ō	n/Off	Current Sys Cntl	0	n/Off Cur	rent Sys Cntl
<pre>[17]Rack_D1_Pwr_Bus</pre>	ON	2.38[A]ENABLED	[17]Rack_D1_Pwr_Bus	ON 0.	00[A]ENABLED
<pre>[18]PDU2_Red_Pwr_Bu</pre>	SON	0.00[A]ENABLED	<pre>[18]PDU1_Red_Pwr_Bus</pre>	SON 0.	00[A]ENABLED
[20]ATU1_Pwr_Bus	ON	0.00[A]ENABLED	[20]ATU2_Pwr_Bus	ON 0.	00[A]ENABLED
<pre>[21]MLU_Pwr_Bus</pre>	ON	0.89[A]DISABLED	[21]MLU_Pwr_Bus	ON 0.	89[A]DISABLED
[22]VDPU_Pwr_Bus	ON	0.00[A]ENABLED	[22]VDPU_Pwr_Bus	ON 0.	00[A]ENABLED
[23]Fan_Pwr_Bus	ON	1.49[A]ENABLED	[23]Fan_Pwr_Bus	ON 1.	04[A]ENABLED
[24]SD1_Pwr_Bus	ON	0.00[A]DISABLED	[24]SD2_Pwr_Bus	ON 0.	00[A]DISABLED
[28]HCU1_Pwr_Bus	ON	2.53[A]DISABLED	[28]HCU2_Pwr_Bus	OFF 0.	00[A]DISABLED
28V_Subsy	stem_F	Pwr_Bus	28V_Subsys	stem_Pwr_	Bus
0	n/Off		OI	n/Off Cur	rent Sys Cntl
[29]CTCU1_Pwr_Bus	ON	0.60[A]ENABLED	[29]CTCU2_Pwr_Bus	ON 0.	00[A]ENABLED
30_Subsys_Pwr_Bus1	ON	0.34[A]ENABLED	[30]Subsys_Pwr_Bus1	ON 0.	68[A]ENABLED
[31]Subsys_Pwr_Bus6	ON	0.00[A]ENABLED	[31]Subsys_Pwr_Bus6	ON 0.	00[A]ENABLED
[32]Subsys_Pwr_Bus2	ON	1.98[A]ENABLED	[32]Subsys_Pwr_Bus2	ON 1.	43[A]ENABLED
[33]Subsys_Pwr_Bus7	ON	0.00[A]ENABLED	[33]Subsys_Pwr_Bus7	ON 0.	00[A]ENABLED
[34]Subsys_Pwr_Bus8	ON	0.00[A]ENABLED	[34]Subsys_Pwr_Bus8	ON 0.	00[A]ENABLED
[35]Subsys_Pwr_Bus3	ON	1./1[A]ENABLED	[35]Subsys_Pwr_Bus3	ON 2.	39[A]ENABLED
[36]Subsys_Pwr_Bus4	ON	2.05[A]ENABLED	[36]Subsys_Pwr_Bus4	ON 0.	61[A]ENABLED
[37]Subsys_Pwr_Bus9	ON	0.00[A]ENABLED	[37]Subsys_Pwr_Bus9	ON 0.	OULAJENABLED
[38]VIC1_Pwr_Bus	ON	0.2/[A]DISABLED	138JVTC1_Pwr_Bus	ON 0.	27 LA DISABLED
[39]VIC2_Pwr_Bus	ON	0.2/[A]DISABLED	1239_VIC2_Pwr_Bus	ON 0.	27 [A]DISABLED
[40]Subsys_Pwr_Bus5	ON	1.23[A]ENABLED	[40]Subsys_Pwr_Bus5	ON 1.	23LA ENABLED
[41]Subsys_Pwr_Bus1	UON	0.00[A]ENABLED	[41]Subsys_Pwr_Bus10	JON 0.	00[A]ENABLED

• Open \$USS_HOME/examples/uss/satmon/5001.uss

• Compare with screenshot of original display:

5001 - TCS W ate	r Loop O	verviev	v				_ 🗆	X
TCS Status Variavles			_FDIR_Ena	_Stat_SW	WFSVs_			
WPA_Active_Pump_SW	WPA	_Accum_(Overpressure		ISPR_	Open/Cl	ose Posn	
WPA_Redun_Stat_SW	AVAIL	W	PA_Enter_BSM		WFSV A1	OPEN/XX	XXXX/100.0	
TCS_V1v_Manua1_Mode_	Stat_SW		WPA_Recon		WFSV A2	OPEN/XX	XXXX/100.0	
					WFSV A3	OPEN/XX	XXXX/100.0	
WPA1_		WPA2_			WFSV A4	OPEN/XX	XXXX/100.0	
Sys_Bus_Ena_Stat_SW	ENABLED	Sys_Bus	s_Ena_Stat_S	W DISABLE	DWFSV F1	OPEN/XX	XXXX/100.0	
Pwr_Stat_DMC	ON	Pwr_Sta	at_DMC	OFF	WFSV F2	OPEN/XX	XXXX/100.0	
Pump_DP_DMC	87.96	Pump_D	P_DMC	0.00	WFSV F3	OPEN/XX	XXXX/100.0	
Massflow_DMC	299.77	Massflo	DW_DMC	0.00	WFSV F4	OPEN/XX	XXXX/100.0	
Pump_Running_Stat_DM	IC ON	Pump_R	unning_Stat_	DMC OFF	WFSV 01	OPEN/XX	XXXX/100.0	
Motor_Speed_DMC	5599.5	Motor_	Speed_DMC	8002.4	WFSV 02	OPEN/XX	XXXX/100.0	
Motor_Temp_DMC	32.4	Motor_	Temp_DMC	60.6		_		
Input_Voltage_DMC	122.97	Input_0	current_DMC	0.00	DPSB1		PSB2	_
Input_Current_DMC	2.1/	Input_	Voltage_DMC	0.04	DPCVICI) 40.0 L	P(VIC2) 40.	.0
EU_BOX_Temp_DMC	25.4	E0_BOX	_Temp_DMC	60.6	DPI(WPA	1)39.9	P1(WPA2)1./	0
					DPSB3	1) 20 0 5		70
WPAL_	10 7	WPAZ_	Form DMC	20 4	DPI(WPA	1)39.9 L	PZ(WPAZ)1./	0
Water_Temp_DMC	19.7	water_	remp_DMC	29.4	wrep4			
WDA1 Filton Dolto	213.00	Water_	ilton Dolto	0.00	WISBI		2 MM/D 17	0
WPAI_FITTEr_Derta_	0 56	WPAZ_F	/2 DMC 0	56 /0 56	NOIII_PTE	Tomp1/2	$D_{M} = 0.16$	0
WDA1 Accum	/0.30	WDAD A		30 /0.30	WTCD2	Temp1/2_	DMC10.9/10.	9
Abs Dross1/2 MVD170	<u><u>8</u>/170 <u>8</u></u>	Abc Dru	$ccum_{0}$	0 1/120 1	Rodup B	lonum To		0
$\frac{1}{2}$ $\frac{1}$	0/1/9.0	Lig Oty	$\frac{2551}{2}$ DMC 0	5 / 0 3		Tomp1/2	DMC20 5/20	5
$D_{POSSUP01/2} DMC 170$	8/170 8	Drossu	$r_01/2$ DMC 0	00 / 0 00	WTSP3	Temp1/2	UMC29. J/29.	
WDA1 Cntlloon S	tat DMC		Cntlloon	Stat DMC		n1/2 DMC	5 00/5 0	20
Accum			CITCT_COOP		WTSR/	PT/2_DMC	5.00/5.0	0
	ACTIVE	Plenum	Temp	INACTIVE	CHX Tem	n1/2 DMC	29 5/29	5
CHX Temp	ACTIVE	CHX Ter	10	TNACTIVE	WTSB5 N	edium	23.3723.	
Plenum Delta Press	ACTIVE	Plenum	Delta Press	TNACTIVE	HX Temp	1/2 DMC	9.50/9.5	50
				1.0.001212	WTSB6	OW	5150,515	
WMVs					HX Temp	1/2 DMC	1.49/1.4	19
WMV1_MDV_		WMV2	2_MDV_			_,		
Nom_Redun_Pwr_Stat_D	MC NOMINA	AL Nom	_Redun_Pwr_S	tat_DMC NO	DMINAL	WOOVs		
MVD/SOV_Pwr_Stat_DMC	ON /OF	MVD	/SOV_Pwr_Sta	t_DMC OFF	/OFF	WPA Op	en/Close	
$MDV_VIv_Posn1/2_DMC$	73.5/73	5 MDV	_Vlv_Posn1/2	_DMC 52.0	0/52.0	WOOV1 OP	EN/XXXXXX	
WMV1_SOV1_		WMV2	2_SOV1_			WOOV2 XX	XX/CLOSED	
Close/Open_Stat_DMCX	XXXXX/XXX	X Clos	se/Open_Stat	_DMCXXXXXX	x/xxxx	MT-HX		
WMV1_SOV2_		WMV2	2_SOV2_			WOOV3 OP	EN/XXXXXX	
Close/Open_Stat_DMCX	XXXXX/XXX	X Clos	se/Open_Stat	_DMCXXXXXX	x/xxxx	W00V5 XX	XX/CLOSED	
						WOOV4 OP	EN/XXXXXX	
WMV3_MDV_		WMV/	4_MDV_			LT-HX		
Nom_Redun_Pwr_Stat_D	MC NOMINA	AL Nom_	_Redun_Pwr_S	tat_DMC NC	DMINAL	W00V6 OP	EN/XXXXXX	
MVD/SOV_Pwr_Stat_DMC	ON /OFF	MVD,	/SOV_Pwr_Sta	t_DMC OFF	/OFF	WOOV7 XX	XX/CLOSED	
MDV_V1v_Posn1/2_DMC	77.2/77.	.2 MDV_	_Vlv_Posn1/2	_DMC 52.0	0/52.0	WOOV8 OP	EN/XXXXXX	
WMV3_SOV1_		WMV/	4_SOV1_			CHX		
Close/Open_Stat_DMCX	XXXXX/XXX	Close Close	se/Open_Stat	_DMCXXXXXX	X/XXXX	WOOV9 OP	EN/XXXXXX	
WMV3_SOV2_		WMV/	4_SOV2_			WOOV10XX	XX/CLOSED	
Close/Onen Stat DMCY	YYYYY/YY/		co/Onon Stat	CYYYYYY	YYYYY			

2.19.3.6. Show PCS display samples

- Choose File > Open Display.
- Open \$USS_HOME/share/displays/pcs/xml/Columbus_ECLSS.xml
- $\bullet \quad Open \\ $USS_HOME/share/displays/pcs/xml/Col_Air_Sensors.xml \\$
- Open line graph on Liquid Carryover Sensor 1.

Chapter 3: Editor

3.1. Introduction

The USS Editor is the application for creating USS displays for later execution in the USS Executor. The Editor supports the definition of layout, composition and dynamic properties of synoptic displays. The operations of the Editor will be familiar to users of MS Visio with the addition of connecting graphical elements with MDB end-items.

The Editor can connect to the Columbus MDB to retrieve and store display definitions or it can work with displays directly on the file system.

The Editor comes with static and dynamic symbols as defined in Appendix C of the Display and Graphics Commonality Standard. The symbols are found in the Symbol Library and can be dragged and dropped onto the synoptic display.

The Editor can import existing display definitions from

- SAMMI II
- DataView/Gipsy
- PREP

Imported display definitions become USS displays meaning that they will have the USS XML-based file format and the .uss file extension. The imported displays cannot be exported back into the legacy display formats.

3.2. The Editor Workspace

When opening the Editor, the workspace will appear. The workspace contains menus, toolbars, the display area in a tab window to the right and a number of views to the left.

The Editor menus addapt to selections and disables options that are not possible, examples are MDB and element operations

<u>File Edit View I</u> ools Element <u>Window</u> Help
uniform scaling [%] 🔻 100 😓 🦙 🚳 🚳 🕥 🖃 💷 🏠 🖡 🔍 🖸 🍕 🍕 🖗
(display#1) <pre> </pre> </th
Synoptic hierarchy = x Open Displays Synoptic hierarchy = x Syn

The windows can be arranged within the Editor by dragging them to the desired position. The views in the Editor are:

- The display area: The area for creating the display by adding and arranging elements
- System configuration browser: The System configuration browser is a tool-view for the Editor to ease creation of data sources, commands and navigation. It is based on the SCOE XML file in a tree structure. The System configuration browser can show the SCOE information in OPS or Path view (OPS or path -name is used for sorting SCOE xml-nodes). It provides Drag and Drop functionality for TM and TC information and filtering and hierarchical browsing of the selected MDB configuration
- Synoptic hierarchy: The Synoptic Hierarchy is a tool-view for the Editor to ease navigation of currently open displays and the USS project displays (defined by the project root-folder). It provides possibility to create navigation target to project displays, and easy opening hereof.
- Symbol library: The library of symbols that can created, edited and dragged onto the display
- Property editor: View and edit the properties of the selected element(s)
- Display View Settings: Preferences for current display
- Consistency results: Report of the last run consistency check

The toolbars can be dragged and docked to any position.

3.2.1. Arranging Views and Tab Windows

The layout of the Editor can be customized. Windows can be minimized, maximized, closed and moved around to dock in order to create a personalized window layout.

3.2.1.1. Docking mechanishm of editor panels

The USS Editor features a docking framework for tool- and display views. By default views are opened as frames inside the main editor application. Small docking control icons allows you to:

1. Undock/Minimize/Close - when view is docked, ie. inside main window

2	_	×	Ì
			3

2. Dock/Close - when view is undocked, ie. appears in a seperate window



3. Undock/Minimize/Maximize/Close - when views are collected in tabs (multiple views in tabs)

ſ	-	×)
		_	٦

3.2.1.2. Basic Concepts

The Views listed above are layed out in tab windows .

Property editor = * [display#1]	🔄 Synoptic hierarchy 📃	¤ ×
Appearance Background color Context	R:0 G:0 B:0 - #000000	
Opsname Source		=
Provide a construction of the construction of	560	
Width PInformation Description	880	
Opsname Opsname of selected	l display(s)	

A Tab Window containing two Views: Property Editor and Synoptic Hierarchy

A *window divider* can be dragged with the left mouse button to resize the windows. A window divider is the grey area between windows. When the mouse is over the window divider it changes shape to a double arrow.

3.2.1.3. Drag and Drop Windows

Rearrange the docking windows by dragging and dropping. To move a window press and hold down the left mouse button on its tab and drag the window. A *docking frame* will show where the window will dock when releasing the mouse.



A docking frame

The drag operation can be aborted using the right mouse key or Esc.

A complete tab window can also be dragged using the area to the right of the tabs.

A view can be dragged into another tab window.

The tabs of the views within a tab window can be rearranged by dragging the tabs to their new position.

3.2.1.4. Minimize and Maximize

Views and tab windows can be minimized to the *window bar* at the bottom edge of the Editor by clicking the minimize button. The previous location of a minimized or maximized window is remembered so that it can be restored to that location. The minimized window can also be shown by clicking on it. The window can be hidden by clicking on the tab again. The windows can be restored by clicking the restore buttons. A tab window can be maximized by clicking the maximize button or by double clicking the tab.

æncychecker 🛚 🛪	🗙 🌘 🏚 Consistency checker 🛚 🛪	🕼 System configuration browser 🛚 🕏 🗙	🍯 Library editor 🛚 🛪 🕕	📄 Display view settings 🛚 🛪
-----------------	-------------------------------	--------------------------------------	------------------------	-----------------------------

The window bar

3.2.1.5. Tab Layout

Tabs are scrolled when there is no room for all the tabs to be visible at the same time. A tab can then be quickly selected via a drop down list. The selected tab is scrolled so it becomes visible.





3.2.2. Editor Menus

The Editor menus addapt to selections and disables options that are not possible, examples are MDB and element operations

The following top menu items exist in the editor:

- File: File / Display manipulations (open, save, reload, MDB operations, print etc.) Click for File menu description
- Edit: Editing / selecting of displays and elements, and preferences. Click for Edit menu description
- View: Opening / Closing of editor tool views. Click for View menu description
- Tools: Editor Internal / External Tools. Click for Tools menu description
- Element: Display element manipulations. Click for Element menu description

- Window: Window zooming and navigation. Click for Window menu description
- Help: Help menu. Click for Help menu description

3.2.2.1. Editor Edit Menu Item

The following operations are available from the **Edit** menu (some operations are inactive if they are not feasable):

- Undo: Undos the latest edit in current display
- **Redo**: Redos the latest undo in current display
- **Copy**: Copies current element selection to clipboard
- **Cut**: Cuts current element selection to clipboard
- **Paste**: Pastes content of clipboard to current display
- **Duplicate**: Duplicates current element selection in current display
- Set Element as Default: Sets current selected element as default for new elements
- Delete: Delete current element selection
- Button Edit: Sub menu for button release / press look editing
- Select Invert: Inverts the current element selection (non-selected becomes selected and vice a versa)
- Select All: Selects all elements in current display
- Select All of Same Type: Selects all elements of same type in current display
- Select All of Same Depth: Selects all elements of same depth (depth property) in current display
- Focus to Property Editor: Opens / focuses to the Property Editor showing properties for currently selected elements
- **Preferences**: Open the preferences configuration dialog

3.2.2.2. Editor View Menu Item

The following operations are available from the **View** menu (by toggle a view is meant: If view is open it is closed, and vice a versa):

- System Configuration Browser: Toggles the System Configuration Browser tool view
- Synoptic Hierarchy: Toggles the Synoptic Hierarchy tool view
- Symbol Library: Toggles the Symbol Library tool view
- Property Editor: Toggles the Property Editor tool view
- View Settings: Toggles the View Settings tool view

- Consistency Results: Toggles the Consistency Results tool view
- Toolbar: Sub-menu Toolbar for adding/removing toolbars
- Refresh: Refresh of open views

3.2.2.3. Editor Tools Menu Item

The following operations are available from the **Tools** menu (some operations are inactive if they are not feasable):

- **Preview Display...**: Opens the Previewer for currently selected display
- **Open Display in Executor...**: Opens the Executor for currently selected display (save needed)
- **Consistency Check**: Executes a consistency check for currently selected display (opens Consistency Results on errors)
- Run Batch Operation...: Open the dialog for executing batch operations
- Find Parameter...: Open dialog for selecting an end-item to search for in project-displays (in project-root-folder)

3.2.2.4. Editor Element Menu Item

The following operations are available from the **Element** menu (some operations are inactive if they are not feasable):

- Add: Sub-menu containing all display elements that can be added to current selected display
- Align: Sub-menu containing all alignment operations that can applied to current selected elements
- **Grouping**: Sub-menu containing all grouping operations that can applied to current selected elements
- Move: Sub-menu containing all movment operations that can applied to current selected elements
- **Depth**: Sub-menu containing all depth arrangment operations that can applied to current selected elements
- Rotate: Sub-menu containing all rotation operations that can applied to current selected elements
- Scaling: Sub-menu containing all scaling operations that can applied to current selected elements
- Transform: Performs a transform to current selected elements

3.2.2.5. Editor Window Menu Item

The following operations are available from the **Window** menu (some operations are inactive if they are not feasable):

- Zoom: Sub-menu containing all zooming operations that can applied to current selected display
- Back: Goes back to previously selected display

• Forward: Goes forward to previously selected display (opposite direction of Back)

3.2.2.6. Editor Help Menu Item

The following operations are available from the **Help** menu (some operations are inactive if they are not feasable):

- Help Contents: Opens the Help contents in the web-browser
- Search...: Opens the a search dialog for searching the help contents
- About...: Shows the product information for the USS Editor

3.3. Working with Displays

The following operations are available from the **File** menu (some operations are inactive if they are not feasable):

- New: Create new, empty USS display
- **Open...**: Open existing USS, FWDU, GWDU or PREP display from the file system
- **Reload**: Revert to the saved version of the current display file. This function can be used to discard changes made in the display since the last save or to acquire changes made in the display file outside the editor
- **Close**: Close the current display
- **Close all**: Close all open displays
- Save: Save the current display to the file system
- Save as...: Save the new display to the file system
- Save all: Save all open displays to the file system
- MDB | Browser (sync/lock-for-edit/delete): Show the MDB browser
- MDB | Import from MDB: Import display from the MDB
- **MDB** | **Forced Import from MDB** (**revert**): Import display from the MDB and overwrite local display file, no matter synchronization state
- MDB | Lock-for-Edit on MDB: Lock-for-Edit the display from the MDB
- MDB | Export adding to MDB: Export a new display to the MDB
- **MDB** | **Export to MDB**: Export display to the MDB
- MDB | Delete in MDB: Delete display in the MDB
- Create HTML Report...: Create a detailed report about the current display
- **Export to Image...**: Export the current display to an image with or without annotation, supported formats [GIF, PNG, SVG]

- **Print...**: Print the current display
- Print Preview...: Preview the print of current display
- Preferences...: Change Editor preferences for new displays
- Recent files: List of the 4 most recent files for easy access
- Exit: Exit the Editor

3.3.1. Merging Displays

For users of GWDU the function of merging displays will be familiar. In the USS Editor merging is done by selecting, copying and pasting elements between the displays to be merged. Copy-pasting can be done as described in Basic Operations.

3.3.2. Previewing Displays

The Editor allows for previewing USS displays. From the menu select Tools | Preview... If the display has been modified since it was last saved, the Editor pops-up a dialog requesting for the display to be saved.

The preview will show the synoptic display as it will look when executed (see screen shot below). The preview mode supports different ways of entering simulation data into the display as described in the following sections.

Automatically generated values used by the animator and slider are generated by a Sinus curve and also cycles through varying acquisition and monitoring states.



The previewer

3.3.2.1. Animator

Using the Animator (Preview | Animator) a new value is applied to each field every second.

3.3.2.2. Slider

The slider applies a new value when the slider is moved to a new position. Each step on the slider has a position number and the values are always the same for a specific position. If e.g. the slider is moved to position 5 and then to position 6 and back to position 5 again then the values are the same as the first time the slider was at position 5. This consistency holds as long as the display is unchanged.

Field : PRIM_CUR_A_Field102		
Droperties		
🛃 Line <u>G</u> raph		
📋 Copy OPS Name to Clipboard		
Copy Display <u>Title to Clipboard</u>		
Show Information		
🔣 Change DataSource VALUE (Float) of Opsname::CTC2_Prim_Current_A_DMC		
ổ Save default data for DataSource VALUE (Float) for Opsname::CTC2_Prim_Current_A_DMC		
👔 Load data for DataSource VALUE (Float) for Opsname::CTC2_Prim_Current_A_DMC		

The previewer context menu

3.3.2.3. Slider With Manual Specification

Change Data Source Value				
2	Name:	Opsname::CTC2_Prim_Current_A_DMC		
	Binding:	VALUE		
	Туре:	Float		
	Eng. Value:	2.3		
	Raw Value:	1024		
	Acquisition Status:	NOMINAL		
	Monitoring Status:	DISABLED		
		OK Cancel		

Manual specification of data source values.

When a DataField or another element with a data source is right clicked in Slider mode the popup menu above appears. Selecting Change data source..., the dialog above appears. This dialog allows to directly enter the value of a data source. Note that when the slider is moved, the manually entered value is lost.

3.3.2.4. Slider With Values From File

When the slider is used the data source values can be loaded from and saved to file. Save and load of data source values are available from the popup menu shown above. The layout of the data source value files is illustrated in the figure below. The files are comma separated and can be modified with a text editor.

```
Engineering Value, Raw Value, Acquisition Status, Monitoring Status
-8.66025403784439,-8.66025403784439,NOMINAL,IN LIMITS
-7.965299180241967,-7.965299180241967,NOMINAL,DISABLED
-7.144726796328037, -7.144726796328037, NOMINAL, IN LIMITS
-6.211477802783113,-6.211477802783113,NOMINAL,IN LIMITS
-5.180270093731311,-5.180270093731311,NOMINAL, IN LIMITS
-4.0673664307580095,-4.0673664307580095,NOMINAL,DISABLED
-2.8903179694447223,-2.8903179694447223,NOMINAL,IN LIMITS
-1.6676874671610273, -1.6676874671610273, NOMINAL, IN LIMITS
-0.4187565372920082,-0.4187565372920082,NOMINAL, IN LIMITS
0.8367784333231448,0.8367784333231448,NOMINAL,DISABLED
2.079116908177585,2.079116908177585,NOMINAL, IN LIMITS
3.288666467385826,3.288666467385826,NOMINAL, IN LIMITS
4.4463517918492705,4.4463517918492705,NOMINAL, IN LIMITS
5.533915492433431,5.533915492433431,NOMINAL,DISABLED
6.534206039901047,6.534206039901047,NOMINAL,IN LIMITS
7.431448254773937,7.431448254773937,NOMINAL, IN LIMITS
8.211492091337036,8.211492091337036,NOMINAL, IN LIMITS
8.862035792312145,8.862035792312145,NOMINAL,DISABLED
9.372819894918912,9.372819894918912,NOMINAL, IN LIMITS
```

3.3.2.5. Manipulating previewed elements

Each element being previewed has a pop-up menu (mouse-right-click), which can be used to manipulate and copy the element to clipboad.

Pop-up menu items for previewed elements (not all items are present for all elements):

- **Properties**: Change properties for element, this will open a dialog with properties that can be changed in priview mode
- LineGraph: Shows the attached data source values in a Line Graph to for showing of variation over time
- **Copy OPS name to clipboard**: Copies the OPS name to clipboard, meaing it can be pasted elsewhere as text (other program etc.)
- Copy Displat title to clipboard: Copies the display title to clipboard, meaing it can be pasted else-

where as text (other program etc.)

- Show Information: Open a dialog showing any information available for element
- Change Data Source Value ...: Open a dialog for manipulating directly in preview-mode the value and states of the data source attached to the element
- Save default data for Data Source Value ...: Saves the samples created for the data source attached to the element, this enables manipulaton of the data, so states of interest for data source can be reached
- Load data for Data Source Value ...: Loads previously saved samples a data source, this enables manipulaton of the data, so states of interest for data source can be reached

3.3.2.6. Preview in Executor

The display can also be opened directly in the Executor by selecting Tools | Open Display in Executor... from the menu. When you select "open display in executor" a new executor instance will be started, which is not connected to a remote system, but which is running in preview mode. Any executor instance already running will not be affected.

3.3.3. Target System and DQI Style

The target system for the display is defined with the property **Target system** of the display: Click the display, open the Property Editor and locate the property Target system.

The allowed target systems and their associated DQI style file are listed in the table below.

Target stystem	DQI style file
PWS	pws_dqistyle.xml
PCS	pcs_dqistyle.xml
MCS	mcs_dqistyle.xml

Table 3.1. Taget systems and DQI style files

The style files define foreground and background colours, characters and tooltip to display on data fields for all combinations of acquisition and monitoring status.

The style files can be edited in any standard text editor. Changes take effect when the Editor/Executor is restarted.

3.4. Working with Elements

USS displays are built up by adding and arranging elements on the display area and linking these elements to MDB end-items.

All elements provided with the USS Editor are IDAGS compatible and are:

- Label
- Data field (including LCD)
- Navigation button
- Command button
- Command list / combo-box
- Graphs (Line, Strip, and Bar graph)
- Shapes (Polyline, Rectangle, Ellipse, Arc, Polygon)
- Symbol (including Status light)
- Image
- Meters (Linear, Elliptic, Tank and Thermometer)
- Pipe, Valve and CheckValve
- Input field

See the section Elements for information about specific properties and handling of the elements.

Symbols in the Symbol Library can either be pre-defined as shipped with the USS Editor or userdefined. See Creating New Symbols to create new symbols in the library.

3.4.1. Adding and Deleting Elements

There are a number of ways to add elements to a display:

- Use the toolbar buttons Add new label, Add new rectangle, etc.
- Right-click on the display area and use the context menu that appears.
- Use the **Element** | **Add** menu
- Use a keyboard shortcut. Keyboard shortcuts are shown for each command in the menu of the Editor.
- Drag symbols from the Symbol Library
- Data Fields and Commands: Drag TM or TC from the System Configuration Browser
- Drag elements from the Synoptic Hierarchy Open Displays onto the current display
- Drag elements between display folders in the Synoptic Hierarchy Open Displays
- Navigation button: Right click the Synoptic Hierarchy and select Add Navigation to display

Elements are deleted by selecting the elements and:

- pressing the **Delete** button; or
- selecting **Edit** | **Delete**

3.4.2. Editing Element Properties

All properties of the elements are available for inspection and/or modification in the Property Editor show below.

<label> Label66</label>				
₽↓ 🗄 🔲				
Appearance				
Font	Lucida Sans Typewriter Regular, 0, 10			
Font Color	R:0 G:0 B:0 - #000000			
Label Text Autosize				
Label Text Horizontal Alignment	Left			
Label Text Vertical Alignment	Center			
💡 Behaviour				
Auto Text	OFF 💌			
Clipping	OFF 💌			
Context	Opsname 💌			
Label For	<none></none>			
P Dimensions				
Depth	0			
Height	15			
Width	43			
X	10			
Y	10			
P Information				
Comment				
Label Text	label66			
Name	Label66			
Selected Elements	1 element			
Tooltip				
Y				
Location coordinate Y from top (0) to bottom				

Property Editor showing properties for a label

The top line in the Property Editor shows the element type and name. The three buttons are used for sorting the properties, toggling between category and flat list view and for toggling the bottom description pane on and off.

Categories can be folded and unfolded by clicking the handle icon next to each category title.

The Property Editor has different in-line fields for setting the properties:

- Edit field
- Drop-down box
- Check box
- Button ... popping up a custom dialog
- Insert, Add or Remove button changing the fields of the Property Editor
- Read-only properties such as **Element type** shown their property name in grey.
- Database icon for dynamic properties.

Properties for the **Command button** element in the **Command** category are entered as a text string. Note that the Editor does not perform any check on the correctness of the command string entered.

3.4.3. Selecting Elements

An element on a display is selected by clicking it with the left mouse button.

Use the Synoptic Hierarchy to:

- To select an element that is covered by another element
- To select the labels on a button

Multiple elements are selected by dragging a selection rectangle around them (see figure below) or by holding down the Shift key while clicking with the left mouse button.



Two elements and a selection rectangle



Two selected elements: Primary and secondary

The *primary* selected element has green selection rectangles whereas the *secondary* selected elements have cyan selection rectangles. The align operations exploit the concept of primary and secondary selection.

Elements are deselected by clicking the display area outside the selection or selecting **Edit** | **Deselect**. Further selection operations available on the **Edit** menu are:

- Select Invert
- Select All
- Select Elements of Same Type
- Select Elements of Same Depth

3.4.4. Basic Operations

• Undo-redo: All operations performed on elements in the Editor can be undone (**Edit** | **Undo** or Ctrl+Z) and redone (**Edit** | **Redo** or Ctrl+Shift+Z).

Note that each display has its own list of undoable operations. This implies e.g. that cut-and-paste of an element from display 1 to display 2 followed by Undo (on display 2) will only undo the paste operation, not the cut operation. To make the element reappear on display 1 Undo must also be performed there. This approach is identical to e.g. Microsoft Word when working on multiple documents.

- Move: Selected element(s) can be moved with the **Element** | **Move** commands or the arrow keys on the keyboard
- Drag-drop: Element(s) can be dragged and dropped between displays in the Synoptic Hierarchy Open Displays
- Copy, cut, paste: Work both on and between open displays.
- Rotate: Elements can be rotated in steps of 90 degrees
- Resize: Resizing elements is done by dragging one of the selection rectangles or directly setting the width, height, x and y properties in the property editor

3.4.5. Zooming In and Out

The following zoom operations are available on the **Windows** | **Zoom** menu:

- Zoom in: zoom in with the Zoom step size that is set in the Zoom Properties by default 10%
- Zoom out: zoom out with the Zoom step size that is set in the Zoom Properties by default 10%
- Last Zoom: Toggle the zoom between the current and the last zoom value
- **100% Zoom:**: Reset zoom to 100%
- **Fit to window** Fit the display area in the available space
- View Zoom and Grid Properties: Set the zoom properties for the current display. Zoom properties for new displays are set in the User Preferences (Edit | Preferences...)

3.4.6. Aligning and Distributing Elements

Elements can be aligned and distributed with the functions on the **Element** | Align... menu.

Using **Element** | **Align** | **Vertically Distributed** or **Horizontally Distributed** the selected elements are distributed so space between the elements (or the overlap in case of too little space) becomes the same.

3.4.7. Using the Grid

The grid on the display area is used to align and snap elements to the display during display development. **Element | Align | Grid properties...** sets the grid properties for the current display. Grid properties for new displays are set in the User Preferences (**Edit | Preferences...**)

Example: The grid and alignment functions can be used to arrange fields in a tabular layout. In View Settings, set for example the Spacing Vertical to 2 pixels more than the height of the fields to be arranged. Then drag the fields to their approximate positions and they will snap to the correct place as illustrated in the screen dump below.



Tabular layout of fields

3.4.8. Grouping Elements

Elements can be grouped to create 'compound' elements. Compound elements can consist of any type of elements including other compounds. When elements are grouped a new compound element is automatically created. The compound element can be modified in the property editor and its constituents can be inspected in the Synoptic Hierarchy Open Displays.

3.4.9. Working with Depth

The 'depth' property of elements determines which elements are drawn on top if the elements overlap. The depth is set through the **Element** | **Depth...** menu or directly in the **Depth** property using the property editor. The element with the highest depth value is drawn on top.

Graphs are always drawn on top of other elements.

3.4.10. Changing the Element Default Values

All elements are created with the default element properties. The default properties for an element can be set by right-clicking on the element and selecting **Set as Default**. Affected element properties are listed in the table below.

Note that if an element is created when another element is selected, then the new element will get the size of the selected element and not the set default size.

Property	Saved as default for
FillStyle (Fill colour and style)	Shapes, Buttons, Meters
TextStyle (Font face and colour)	Label, ComboBox, CommandList, Field, Input- Field
Rotation	Label, Buttons, Field
DrawStyle	Shapes
AutoSize	Label
AutoWrap, ShowUnit, ShowIndicators, Unit- TextStyle	Field
BorderColor, Height, Width	Meters
TickIndicator, LabelStyle, FieldStyle, Fonts	Elliptic/LinearTickMeter, Thermometer
StartAngle, SweepAngle, DrawAsCircle	EllipticTickMeter
Orientation	Graph and Meters
SelectionColor	CommandList

Table 3.2. Element Properties with "Default Capability"

Shapes are Arc, Rectangle, Polygon and Ellipse. Meters are TankMeter, Elliptic/LinearTickMeter and Thermometer.

3.5. Using The Symbol Library

The Symbol Library contains a number of pre-defined IDAGS compliant symbols in categories: 3D

Graphics, Communication, Communications, Computers, Electrical, Events, Fluid, General, Groups, Logic, Mechanical, Misc, Modes, Radiation Monitoring, Robotics, Sensors, Station Modules, Tasks and USS.

Symbols can be dragged onto the display by clicking the symbol, holding down the <u>right</u> mouse button, dragging the symbol to the display and releasing the right mouse button. Note that multiple symbols can be selected by holding down the **Shift** key during selection.



The USS library in the Symbol Library

3.5.1. Pre-Defined Dynamic Symbols

The USS library in the Symbol Library contains, among others, a number of dynamic symbols. The USS library is illustrated above.

State names for predefined dynamic symbols in the USS library can be inspected by selecting the symbol in the library and then opening the Property editor. This is illustrated below.

DynamicLed	
2↓ 🗄 🔳	
💡 Base	
Symbol Base URL	jar:file:C:\uss\uss\main\share\icons\esl\iconsEsl.jar!/
Symbol Default Image	U23_led_grey.svg
Symbol Name	DynamicLed
Comment Comment	
Symbol Comment	
P Selected-State	
Symbol Image	jar:file:C:\uss\uss\main\share\icons\esl\iconsEsl.jar!/U22_led_green.svg
Symbol State Name	green
States	
Symbol Dynamic Image	[green;grey;red;yellow;]
Symbol States	[Ljava.lang.String;@1b149e1
Symbol Static	Dynamic
Symbol Dynamic Image	
a symbols dynamic imag	es

Inspecting properties of a symbol in the library

3.5.2. Creating New Libraries and Symbols

New 'user' libraries can hold symbols with different contents: Image or USS sub-display. **Images** can be raster images (gif, jpg or png) or vector graphics (svg). Images can be created outside the Editor in an image manipulation program, stored to file and added to a library in the USS Editor. Images can also be created inside the USS Editor but only based on already existing symbols and elements.

USS sub-displays are different from images as they are composed of USS elements whose properties are retained from their creation. USS sub-displays can be seen as synoptic templates. USS sub-displays can be used by reference or by copy. If used **by reference** the contents of the **instance**¹ will be controlled by the symbol in the library and cannot be updated in the display. If used **by copy** the instance is not connected to the symbol in the library but behaves as an ordinary group of elements.

Another aspect of a symbol is whether it is static or dynamic. A **static** symbol contains one image or sub-display whereas a dynamic can contain many images (but not sub-displays) each identified with a State Name. An instantiated dynamic symbol must be connected to a data source having the defined state names as output. At run time, the symbol will change between its states showing the associated images, depending on data source output.

Libraries are created, renamed and deleted by clicking the Edit button next to the library name, and selecting the appropriate action from the context menu that appears. Note that renaming and deleting libraries or symbols will lead to dangling references in displays that contain symbols from the renamed or deleted library. Dangling references can be found by the Consistency Checker.

A symbol in a library is created by selecting elements on the display area and clicking the Edit button

¹The symbol on the display as opposed to the symbol in the library
next to the library name, and selecting Add Selected Elements as Symbol from the context menu that appears. After specifying the symbol name and type (image or sub-display, see above) the new symbol will appear in the Symbol Library.

New symbols can be used by dragging them to the display as any other symbol shipped with the Editor. By dragging a sub-display to the display area a instance by reference is created. To use the subdisplay by value, right click the symbol and select Add Symbol Components to Display.

It is recommended to use the Symbol Library for images on the display instead of the image element as described in section Image.

3.5.2.1. Advanced Editing of Symbols

Specifying dynamic properties of a symbol is done in the dialog below. Right click the symbol and select Edit Symbol in order to perform advanced editing.

🐚 Edit Symbol				×
Symbol Name:	Tank with label			
Symbol Comment:	A tank meter with label below			
Library:	My symbols			
Туре:	Static			•
Default State Icon:				-
Selected State Name:		-	Add	Delete
State Icon:	Tank with label.usc	•	Add E <u>x</u> te	ernal Icon
State Icon Preview:	Tank with label.usc			
	Help Apply Cancel			

Dialog for definition of a symbol

The Symbol Comment field is for notes about the symbol, it will not be visible at run time.

To make a dynamic symbol from a static one:

- 1. Switch the Type to Dynamic
- 2. For each state:
 - a. Click Add and enter the state name
 - b. A new image for the state can be added directly by clicking Add External Icon. Sub-panels cannot be used as state icons.
 - c. Select the icon (i.e. symbol) from the State Icon list

3. Select the default state icon

3.5.2.2. Version Control of Symbol Libraries

Like the USS displays the user libraries can be version controlled. The MDB interface for symbol libraries in the USS Editor, handles synchronization, submitting, locking, deleting with configured MDB.

Create <u>N</u> ew Library
Rename Lib <u>r</u> ary
<u>D</u> elete Library
Create New <u>S</u> ymbol
Add <u>S</u> elected Elements as Symbol
Open MDB Library Sync Dialog
Export to MDB
Import From MDB
Forced Import From MDB (revert)
Lock-for-Edit on MDB
Delete in MDB

Location of MDB actions for user/MDB symbol libraries

The symbol library MDB actions are located in the symbol library view, under the edit popup-menu (press button: Edit).

MDB actions available on user/MDB symbol libraries:

- 1. Synchornization Browser Browser for viewing available symbol libraries in MDB
- 2. Export to MDB submit symbol library, new or modified
- 3. Import from MDB synchronizing of symbol library
- 4. Forced Import from MDB (revert) synchronizing of symbol library, overwritting existing local library
- 5. Lock-for-Edit on MDB Lock-for-Edit of symbol library, lock library in MDB, to enable editing
- 6. Delete in MDB Deletion of symbol library

MDB Library Sync Dialog is a small tool that enables the synchronization of symbol library not present in the uss-project folder. The dialog opens a connection to the MDB and looks in the specified symbol library synchronize folder (configured under Preferences: MDB-General|Symbol library location). A list is generated of symbol libraries present and the user can choose to force synchronize (revert) the selected library.

🗙 🛏 Synchronize Libraries in MDB 🔳 🛤							
SYMLIB		-					
Force							
	Synchronize	Close					

MDB Library Sync Dialog

NB! The Display MDB Browser, located under editor menu: 'File|MDB|MDB Browser' cannot be used to handle symbol library MDB actions.

3.6. Elements' Advanced Properties

This section describes specific properties and handling of the elements. The purpose is not to describe all elements types and their properties, but rather to answer frequently asked questions. Please refer to Working with elements for a complete list of the element types.

3.6.1. The Display

The Target System is described in section Target system and DQI style.

The **Display Description** appears in the Display Report. The Display Description can be html as shown in the screen shot below.

P Information	
Description	<html><h1>My display</h1></html>
Title	My display

3.6.2. Label

The label text can be edited directly on the display by double click the label. The changes are accepted by pressing Enter and reverted by pressing Escape.

When TM is dragged onto a display, a label and data field is created. The label is associated with the field. This association/binding can be changed with the Behaviour | Label For property of the label.

When the label is associated with a field the properties in the screen shot below can be used to change the text that the label shows and clipping of the text.

P Behaviour		
Auto Text	CONTEXT	
Clip Indicator		
Clip Length	20	
Clipping	LEFT	
Context	Opsname	•
Label For	Field1 CTC2 Failure Stat DMC FAILURE STS	

The Auto Text property has three possible settings:

- OFF: The label text is not taken from the TM.
- CONTEXT: The label text is taken from the TM as specified with the Context property.
- BASENAME: The label text is taken from the TM as specified with the Context property. This setting is different from CONTEXT only if the Context property is set to Pathname.

For the CONTEXT and BASENAME settings, note that the label text from the TM is copied into the Label Text property at editing time and not updated dynamically at run time. Further, if the SCOE file is changed the label can be inconsistent with the SCOE TM value - run a consistency check.

The Context property determines which part of the TM is copied in to the Label Text. The Context drop down list contains the contexts defined in the Editor Preferences.

Clipping determines which part of the Label Text will be shown if the label is too small to contain all the label text.

3.6.3. Data Field

Data field can be created by dragging one or more TM from the System Configuration Browser on to an empty area on the display background.

The Field data formatting is described in section Field data formatting below.

The Data Source is described in section Data Sources below.

LCD elements are Data Fields using an LCD font. In the Property Editor, Appearance category, Font property open the "Pick a font" dialog and select font LCD or LCD2.

Data Fields properties

Appearance	
Field Data Autowrap	
Field Data Formatting	
Field Data Text Horizontal Alignment	Right 💌
Field Data Text Vertical Alignment	Center 💌
Font	Lucida Sans Typewriter Regular, 0,
Font Color	R:0 G:0 B:0 - #000000
Show Data Indicators	
Show Unit	

Data Field Properties in Property Editor

The Data Field has several unique propeties:

- Data Auto Wrap: If checked the data field will wrap (put multiple lines) data which is too wide for the field
- Data Formating: See below
- Data Text Horizontal Alignment: Left, Center or Right alignment of data text in field

- Data Text Vertical Alignment: Bottom, Center or Top alignment of data text in field
- Font: The font to use for text
- Font Colour: The colour to use for text
- Show Data Indicators: if checked the data field will indicate quality of incoming data
- Show Unit: if checked the data field show unit of attached data source

3.6.3.1. Field Data Formatting

Data fields have the property "Field data formatting" which specifies the formatting of the data value in the field. The format is specified using the "printf style" which will be well-known to C programmers.

The format specifier has the following syntax:

```
%[flags][width][.precision]conversion
```

The optional flags is a set of characters that modify the output format. The set of valid flags depends on the conversion.

The optional width is a non-negative decimal integer indicating the minimum number of characters to be written to the output.

The optional precision is a non-negative decimal integer usually used to restrict the number of characters. The specific behaviour depends on the conversion.

The required conversion is a character indicating how the argument should be formatted. The set of valid conversions for a given argument depends on the argument's data type.

Conversions

Conversion	Argument Category	Description
'd'	integral	The result is formatted as a decimal integer
'o'	integral	The result is formatted as an octal integer
'x', 'X'	integral	The result is formatted as a hexadecimal integer
'e', 'E'	floating point	The result is formatted as a decimal number in compu- terized scientific notation
'f'	floating point	The result is formatted as a decimal number
'g', 'G'	floating point	The result is formatted using computerized scientific notation or decimal format, depending on the precision and the value after rounding.
'a', 'A'	floating point	The result is formatted as a hexadecimal floating-point number with a significand and an exponent

Table 3.3. Conversions

Flags

The following table summarizes the supported flags. 'y' means the flag is supported for the indicated argument types.

Flag	Integral	Floating Point	Description
'_'	у	У	The result will be left-justified
'#'	y [3]	у	The result should use a conversion-dependent al- ternate form
'+'	y [4]	У	The result will always include a sign
11	y [4]	у	The result will include a leading space for positive values
'0'	У	У	The result will be zero-padded
'''	y [2]	y [5]	The result will include locale-specific grouping separators
'('	y [4]	y [5]	The result will enclose negative numbers in paren- theses

Table 3.4. Flags

[2] For 'd' conversion only.

[3] For 'o', 'x', and 'X' conversions only.

[4] For 'd', 'o', 'x', and 'X' conversions applied to BigInteger or 'd' applied to byte, Byte, short, Short, int and Integer, long, and Long.

[5] For 'e', 'E', 'f', 'g', and 'G' conversions only.

Width

The width is the minimum number of characters to be written to the output.

Precision

For the floating-point conversions 'e', 'E', and 'f' the precision is the number of digits after the decimal separator. If the conversion is 'g' or 'G', then the precision is the total number of digits in the resulting magnitude after rounding. If the conversion is 'a' or 'A', then the precision must not be specified.

For integral types, the precision is not applicable.

Examples

Table 3.5. Examples

Syntax	Example output	
%d	13	
USS User Manual	178	2006-11-08 17:01

Syntax	Example output
%03d	013
%5.2f	12.67

3.6.4. Command Button

A command button can easily be created by dragging TC from the System Configuration Browser to the display area.

Command Button properties

Appearance	
Button Type	Simple Text Button
Shape Fill Color	R:212 G:212 B:212 - #D4D
Shape Fill Style	Solid 💌
Commanding	
Command	X
🗢 Dimensions	
Information	
Comment	
Name	TeleCommand1
Name Released Label Text (Default)	TeleCommand1 CommandButton1
Name Released Label Text (Default) Selected Elements	TeleCommand1 CommandButton1 1 element
Name Released Label Text (Default) Selected Elements Tooltip	TeleCommand1 CommandButton1 1 element
Name Released Label Text (Default) Selected Elements Tooltip 9 Misc	TeleCommand1 CommandButton1 1 element
Name Released Label Text (Default) Selected Elements Tooltip	TeleCommand1 CommandButton1 1 element Oval
Name Released Label Text (Default) Selected Elements Tooltip Misc Button Shape Corner Fill Color	TeleCommand1 CommandButton1 1 element Oval R:0 G:0 B:0 - #000000
Name Released Label Text (Default) Selected Elements Tooltip Misc Button Shape Corner Fill Color Corner Fill Style	TeleCommand1 CommandButton1 1 element Oval R:0 G:0 B:0 - #000000 Solid

Command Button Properties in Property Editor

The Command Button has several unique properties

- Button Type: Defines capabilities and appearance of the button
- Shape Fill Color: Defines the fill colour of the button, i.e. the colour of the button
- Shape Fill Style: Defines the fill style, i.e. solid = fill button, none = no colouring of button
- Command: Shown attached command, press mini-button: '...' to open command edittor and 'X' to remove command
- Button Shape: How button is drawn (Oval, rectangular or flat, i.e. no 3D effect)
- Corner Fill Color: Colour of drawn corners
- Corner Fill Style: Defines the fill style, i.e. solid = fill corners, none = no colouring of corners

• Corners Enabled: if checked the corners are drawn

The Button Type property aggregates two properties of a button:

- Whether it has both a pressed and a released state or is 'simple' with only one state. The state determines which label or compound is shown on the button at run-time.
- Whether the contents is Text or a Compound containing any composition of elements

The contents of compound buttons is edited in a special mode of the Editor illustrated in the screen shot below. First set the button to the needed size. This is important as later resizing of the button will also resize its contents. Right-click it and select Edit Released/Pressed Button Compound. In the button-edit mode only a subset of the element types are available. When finished editing, close the CompoundEdit tab to return to normal mode.



The button editor

3.6.5. Command List

Commands can easily be added to an existing command list by dragging TC from the System Configuration Browser to the command list. Multiple commands can be dragged by selecting them in the System Configuration Browser and dragging to the command list with the *right* mouse button pressed down.

A command list is changed into a command combo box (command pop-up) with the property Show as Combo Box.

Sample_AP_Test1 Start_Arch_Retrieval	Sample_AP_Test1																
Stop_Arch_Retrieval	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	_	-		_	_			_	_		_	_		_	_	_	

The same Command List element configured in two different ways

Command List properties

Appearance	
Background Color	R:255 G:255 B:255 - #FFFFFF
Font	SansSerif.plain, 0, 12
Font Color	💻 R:0 G:0 B:0 - #000000
Selection Color	E R:176 G:196 B:222 - #B0C4DE
Show as Combo Box	
ommand-List	
Command Add/Remove	Add Remove
Command Chosen	Command#1
Command Label	Command#1
Command Labels	[Command#1]
Command Move Up/Down	Up Down
Number of Commands	1
P Commanding	
Command	X

Command List Properties in Property Editor The Command List has several unique properties (see)

- Background Color: The color of the background inside the command list
- Font: The font to use for text
- Font Color: The colour to use for text
- Selection Color: The colour to use for selected text
- Show as Combo Box: if checked the command list is drawn as a combo-box, instead of a open list
- Command Add/Remove: Press mini-button: 'Add' to add a new command, and mini-button: 'Remove' to remove selected command
- Command Chosen: Selected command, use drop-down combo-box to select another
- Command Label: Command label, type in field to change
- Command Move Up/Down: Press mini-buttons: 'Up' and 'Down' to move the command, up or down respectively in list
- Command: Shown selected command, press mini-button: '...' to open command editor and 'X' to remove command

3.6.6. Navigation Button

The target display for a navigation button can be set by right clicking a USS display in the Synoptic Hierarchy and selecting Add Navigation to display

Button Type property: see Command Button.

Navigation Button properties

💡 Commanding		
Action	Display open	•
Open New Window	v	
Target		

Navigation Button Properties in Property Editor

The Navigation Button has some unique properties, but share many properties with command button above

- Action: Whether the navigation target specified should be opened or closed
- Open New Window: If checked the open action will not replace the current display, but open a new display inside the USS Executor
- Target: The navigation target to apply the above action, i.e. open or close

3.6.7. Graphs

Data sources can be added to graphs by dragging TM from the System Configuration Browser.

Line and Bar graph examples (Previewed in Editor)



3.6.7.1. Line Graphs

Line Graphs are configured in the Property Editor by clicking the ... button at the property 'Configure Graph'. The Line Graph Properties dialog below is opened.

Line Graph Range properties

General Legend Grid	dline Domain Axis Range Axis	
Data-Set		
User Det	fined Curve Style 📃	
Curve Style		
Style Sol	id 💌	
Colour R:0	G:0 B:255 - #0000FF	
Width 1.0		
Use Axis	Range axis 🔻 + -	
Axis Properties		
Axis Lat	bel Range Axis	
Mode Data-Set		
Rotate Tick Label		
Auto-Move		
Always Show Zero 📃		
Automatic Range 🗹		
Axis Range		
Upper 100.0 Lower 0.0		
OK Cancel		

Line Graph Range properties in Graph dialog

Line Graph Range Tab properties

- Data-set: Click button: '...' to edit range data sources
- User Defined Curve Style: If checked, curve styles can be defined individually for each curve, i.e. range data source
- Curve Style (Box): If using user defined curve styles; Style: solid, dashed and dotted, colour and line-width can be defined for selected range data source (see Data-set)
- Use Axis: Select which Axis to use for selected range data source (see Data-set). Or press buttons: '+' or '-' to add respectively remove axes

- Axis Label: The label of the axis
- Mode: Select mode of selected axis (see Use Axis); select between data-set (i.e. values from range data source) or Time-Based-Absolute for time values
- Rotate Tick Label: If checked, Tick label is rotated
- Auto-Move: If checked, Graph will move automatically
- Always show Zero: If checked, Graph will always show the zero on the axis
- Automatic Range: If checked, Graph will change the range of the axis to keep values
- Upper Range: Upper limit of axis (Automatic Range unchecked)
- Lower Range: Lower limit of axis (Automatic Range unchecked)

Line Graph Domain properties

General	Legend	Gridline	Domain Axis	Range Axis
	Ax	is Label Do	main Axis	
		Mode Ti	me Based Absolu	ute 💌
	D	ata-Set		
	Rotate Tio	ck Label 📃		
	Aut	o-Move 📃		
	Always Sho	ow Zero 📃		
	Automati	c Range 🔽		
Axis Ran	ge			
		Upper	r 100.0	
		Lower	r 0.0	
		ОК	Cancel	

Line Graph Domain properties in Graph dialog

Line Graph Domain Tab properties

- Axis Label: The label of the axis
- Mode: Select mode of axis; select between data-set (i.e. values from domain data source) or Time-Based-Absolute for time values
- Data-set: Click button: '...' to edit domain data source (Mode set to Data-set)
- Rotate Tick Label: If checked, Tick label is rotated
- Auto-Move: If checked, Graph will move automatically

- Always show Zero: If checked, Graph will always show the zero on the axis
- Automatic Range: If checked, Graph will change the range of the axis to keep values
- Upper Range: Upper limit of axis (Automatic Range unchecked)
- Lower Range: Lower limit of axis (Automatic Range unchecked)

Line Graph Gridline properties

General	Legend Gridline Domain Axis Range Axis	
-Vertical Gri	idline	
	Style Dashed 💌	
c	colour 🔜 R:204 G:204 B:255 - #CCCCFF 🛛 🛄	
	Width 1.0	
Horizontal	Gridline	
	Style Dashed	
	alour P:204 C:204 P:255 #CCCCEE	
	Width 1.0	
	OK Cancel	

Line Graph Gridline properties in Graph dialog Line Graph Gridline Tab properties

- Vertical Gridline (Box): Style: solid, dashed and dotted, colour and line-width can be defined for vertical gridlines
- Horizontal Gridline (Box): Style: solid, dashed and dotted, colour and line-width can be defined for horizontal gridlines

Line Graph Legend properties

General	Legend	Gridline	Domain	Axis	Range Axis	
		Show Leg	jend 🔽			
Legend St	yles					
L	abel Style			Style	Example	
I	Field Style			Style	Example	
	Unit Style			Style	Example	
Legend La	ryout					
		No. of	Sections	1		
		Field	Columns	6		
		Field I	Decimals	2		
		ОК	Cano	el :		

Line Graph Legend properties in Graph dialog

Line Graph Legend Tab properties

• Show Legend: If checked, legend will be shown/drawn

- Legend Styles (Box): Click buttons: '...' to edit label, field and unit text styles respectively
- Label Color: Click button: '...' to edit label colour in legend
- No. of Sections: Sets number of section the legend fields are put into
- Field Columns: Defines how many columns the fields uses, i.e. how many numbers
- Field Decimals: Of the columns above, field decimals defines how many of them are used for decimal part of field value

Line Graph General properties

General Legend Gridline Domain Axis Range Axis
Title LineGraph
Background Color 🔤 R:255 G:255 B:255 - #FFFFFF 🛄
Plot Background Color 🔤 R:255 G:255 B:255 - #FFFFFF 🛄
Step Curve 📃
Show Value Marker 🔚
🔾 Horizontal
Orientation Vertical
Expiration
Time
Samples
Period [ms] 3600000
OK Cancel

Line Graph General properties in Graph dialog

Line Graph General Tab properties

- Title: Title of graph in display
- Background Color: Defines background colour of graph
- Plot Background Color: Defines plot background colour of graph, i.e. background of curves drawing area
- Step Curve: If checked, graph are drawn in step, i.e. non-continuously
- Show Value Marker: If checked, graph places a marker for every real value, i.e. to indicate points that are not interpolated
- Orientation: Choose between Horizontal and vertical orientation of plot inside graph
- Expiration (Box): Choose method for defining expiration, choose between Time (how long time to keep samples/values) and samples (how many samples/values to keep). And define in input field below the actual value.

A graph can be converted into a real-time graph by setting the checkmark the **LineGraph range axis auto move** property. A real-time graph has a time-based horizontal axis where the plot continues and scrolls to the left as times passes on even when no parameter update is received.

3.6.7.2. Strip Graphs

The property **StripGraph LineGraph Weight** can be used to set the relative height og the line graphs within the strip graph. The property has no unit -- the relative height is set as the weight relative to the total weight for all line graphs in the strip graph.

Strip Graph properties

💡 General		
Configure Graph	Click to edit	
Select Sub Graph	LineGraph1	+
Sub Graph Weight	50	

Strip Graph Properties in Property Editor

The Strip Graph element has several unique properties.

- Configure Graph: Click mini-button: '...' to edit main strip graph (opening dialog with a sub-set of line graph properties)
- Select Sub Graph: Control sub graphs (line graphs), change ordering with up/down arrows, select sub graph with drop-down combo box, and press mini-button: '...' to edit currently select sub graph (opening dialog with a sub-set of line graph properties)
- Sub Graph Weight: Set the currently select sub graph weight, see above for weighting explaination

3.6.7.3. Strip Graphs

The property **StripGraph LineGraph Weight** can be used to set the relative height og the line graphs within the strip graph. The property has no unit -- the relative height is set as the weight relative to the total weight for all line graphs in the strip graph.

Bar Graph properties The Bar Graph element is a chart graph / histogram. The Bar Graph has many

common properties with the line graph, containing more or less as sub-set of line graph properties.

Bar Graph Range Tab (differencies compared to line graph)

- Contains only one range acis definition common for all range data source
- No Tick and therefore no property: Rotate Tick Label
- No Auto-Move property
- Bar Graph has the posibilty to limit the automatic range, properties: Autmatic Range Lower/Upper Bound

Bar Graph Domain Tab (differencies compared to line graph)

• Bar Graph does not have any domain data sources or axes, therefore only domain axis property: Label

Bar Graph General Tab (differencies compared to line graph)

• Bar Graph does not have value markers and step curve properties

3.6.8. Arc

The Arc element is drawn as a sub-section of an ellipse, where the size of the element determines the shape of the ellipse.

Arc properties

💡 Appearance	
Arc Angle Length	180
Arc Start Angle	0

Arc Properties in Property Editor

The Navigation Button has some unique properties

- Arc Angle Length: Length of the arc in degrees (360 for a full ellipse)
- Arc Start Angle: Start angle of the arc in degrees (clockwise, start at right-most point)

3.6.9. Polyline and Polygon

To add or delete a point to a polyline or polygon, right-click on a point of the shape and select appropriate action on the context menu that appears.

Polygon (and Polyline) popup



Polygon Popup menu

Polygon (and Polyline) popup actions

- Add Point: Adds a point to pick-point (green-box) chosen
- Delete Point: Delete point pick-point (green-box) chosen
- Edit Point: Opens small dialog for editing point pick-point (green-box) chosen, i.e. x and y coordinate

3.6.10. Linear- and Elliptic- Tickmeter, Thermometer and Tankmeter

Data sources can be added to meters by dragging TM from the System Configuration Browser.

The meters consist of two major variations: LinearTickMeter, EllipticTickMeter and Thermometer with tick indicators, and the TankMeter with none.

The meters cannot be rotated, so placing must be done with properties on the meter elements, i.e. Linear Tick Meters gauge can be rotated, with the orientation property.

3.6.10.1. Linear Tick Meter

The Linear Tick Meter is a linear gauge with a minimum and maximum. Most of the properties of the Linear Tick Meter are apperance properties.

Linear Tick Meter properties

💡 Appearance	
Border Color	
Border Used	
Label Text	
Meter Tick Indicator	Bar 💌
Meter Tick Label Style	Left or Top 💌
Shape Fill Color	R:0 G:0 B:0 - #000000
Shape Fill Style	None
Tick Color	R:0 G:0 B:0 - #000000
Tick Indicator Color	R:255 G:255 B:255 - #FFFFFF
Tick Indicator Thickness	6
P Behaviour	
Field Style	[Disabled]
Meter Color Show Status	V
Meter Major Tick Frequency	2
Meter Tick Base	-50
Meter Tick Unit	5
Orientation	Horizontal
🗢 Dimensions	
💡 Font	
Field & Label Font	Lucida Sans Typewriter Regular, 0,
Field & Label Font Color	R:0 G:0 B:0 - #000000
Tick Label Font	Lucida Sans Typewriter Regular, 0,
Tick Label Font Color	R:0 G:0 B:0 - #000000
💡 General	
Data Source	MeterDS1
🗢 Information	
💡 Limits-Domain	
Meter Maximum	50
Meter Minimum	-50

Linear Tick Meter Properties in Property Editor The Linear Tick Meter has several unique properties

- Border Color: Colour of border
- Border Used: If checked, border is drawn
- Label Text: Text of label shown
- Meter Tick Indicator: Type of indicator drawn
- Meter Tick Label Style: Placement of Label with respect to indicator
- Shape Fill Color: Defines the fill colour of the meter, i.e. the colour of the meter
- Shape Fill Style: Defines the fill style (background), i.e. solid = fill meter, none = no colouring of meter

- Tick Color: Color of ticks drawn
- Tick Indicator Color: Color of tick indicator drawn
- Tick Indicator Tickness: Tickness (in pixels) of tick indicatorin drawn
- Field Style: Location of internal data field (i.e. legend)
- Meter Color Show Status: The gauge fill colour changes to display data quality
- Meter Major Tick Frequency: Placement of major (larger) ticks
- Meter Tick Base: Placement of 'first' major (larger) tick
- Meter Tick Unit: Spacing between ticks, spacing between major ticks will be ('Meter Major Tick Frequency' x 'Meter Tick Unit')
- Orientation: Orientation of the meter/gauge
- Field & Label Font: Fonts of field and label inside meter
- Field & Label Font Color: Colors of fonts of field and label inside meter
- Tick Label Font: Font tick label inside meter
- Tick Label Font Color: Colors of font tick label inside meter
- Meter Maximum: Largest value shown in meter
- Meter Minimum: Lowest value shown in meter

3.6.10.2. Elliptic Tick Meter

The elliptic tick meter is equivalent to the Linear Tick Meter, except for one property and the appearance, i.e. drawn as an ellipse instead of a lineary scale.

Elliptic Tick Meter properties

💡 Appearance	
Border Color	
Border Used	
Draw as Circle	
Label Text	
Meter Tick Indicator	Bar 💌
Meter Tick Label Style	Left or Top 💌
Shape Fill Color	🔳 R:0 G:0 B:0 - #000000
Shape Fill Style	None 💌
Start Angle	120
Sweep Angle	300
Tick Color	🔳 R:0 G:0 B:0 - #000000
Tick Indicator Color	R:255 G:255 B:255 - #FFFFFF
Tick Indicator Thickness	6
P Behaviour	
Field Style	[Disabled]
Meter Color Show Status	v
Meter Major Tick Frequency	2
Meter Tick Base	-50
Meter Tick Unit	5
🗢 Dimensions	
💡 Font	
Field & Label Font	Lucida Sans Typewriter Regular, 0,
Field & Label Font Color	🔳 R:0 G:0 B:0 - #000000
Tick Label Font	Lucida Sans Typewriter Regular, 0,
Tick Label Font Color	🔳 R:0 G:0 B:0 - #000000
💡 General	
Data Source	MeterDS2
🗢 Information	
💡 Limits-Domain	
Meter Maximum	50
Meter Minimum	-50

Elliptic Tick Meter properties in Property Editor

The Elliptic Tick Meter has some unique properties, but otherwise the same properties as the linear tick meter (except property: Orientation).

• Draw as Circle: Instead of drawing an ellipse, a circle is drawn instead

3.6.10.3. Thermometer

The Thermometer is equivalent to the Linear Tick Meter, except for one property and the appearance, i.e. drawn as a thermometer (kelvin and degrees celcius drawn).

Thermometer properties

Appearance	
Border Color	
Border Used	
Label Text	
Meter Tick Indicator	Bar 💌
Meter Tick Label Style	Left or Top 💌
Shape Fill Color	R:0 G:0 B:0 - #000000
Shape Fill Style	None 💌
Tick Color	R:0 G:0 B:0 - #000000
Tick Indicator Color	R:255 G:255 B:255 - #FFFFFF
Tick Indicator Thickness	6
P Behaviour	
Field Style	[Disabled]
Meter Color Show Status	V
Meter Major Tick Frequency	2
Meter Tick Base	-50
Meter Tick Unit	5
🗢 Dimensions	
💡 Font	
Field & Label Font	Lucida Sans Typewriter Regular, 0,
Field & Label Font Color	R:0 G:0 B:0 - #000000
Tick Label Font	Lucida Sans Typewriter Regular, 0,
Tick Label Font Color	R:0 G:0 B:0 - #000000
💡 General	
Data Source	MeterDS4
🗢 Information	
💡 Limits-Domain	
Meter Maximum	50
Meter Minimum	-50

Thermometer properties in Property Editor

The Thermometer does not have any unique properties, but is a special case of the Linear Tick Meter, with the same properties (except property: Orientation).

3.6.10.4. Tank Meter

The Tank Meter element represents a fluid tank, with fluid definition.

Tank Meter properties

💡 Appearance	
Fluid Color	CUSTOM FLUID
Shape Fill Color	R:255 G:255 B:255 - #FFFFFF
Shape Fill Style	Solid 💌
P Behaviour	
Meter Color Show Status	v
- Dimensions	
💡 General	
Data Source	MeterDS3
🗢 Information	
💡 Limits-Domain	
Meter Maximum	100
Meter Minimum	0

Tank Meter Properties in Property Editor

The Tank Meter has one unique property, otherwise the properties are the same as the linear tick meter (except fewer).

• Fluid Color: The Fluid can be predefined or a custom, i.e. color. Press mini-button: '...' to open color editing for custom fluid

3.6.11. Pipe, Valve and CheckValve

Pipes and valves can be used together to present a flow system. However, pipes and valves remain independent, unconnected elements on the drawing surface. A pipe can be positioned precisely using the cursor keys.

Valve (and CheckValve) can be assigned states: INDETERMINATE, CLOSED, IN_TRANSITION, OPEN These states can be set statically and/or assign with a data source via the DataSource dialog. Data source assigned to the valves state property must return Strings or enumerated values, which correspons to the states above.

Valve properties

Appearance		
Fluid Color	CUSTOM FLUID	•
Modifier	GENERIC	•
Three Way Valve		

Valve properties in Property Editor

The Valves have some unique properties.

- Fluid Color: The Fluid can be predefined or a custom, i.e. color. Press mini-button: '...' to open color editing for custom fluid
- Modifier: Graphical Symbol in valve, symbolising usage
- Three Way Valve: If checked the valve is three-way instead of two-way

Pipe properties

Appearance	
Fluid Color	CUSTOM FLUID
P Dimensions	
Depth	0
Diameter	5
Height	15
Show 3D Effect	
Width	35
Х	411
Y	159

Valve Properties in Property Editor

The Pipe has some unique properties, as valves, see property: Fluid.

- Diameter: Pipe diameter, i.e. size of drawn pipes
- Show 3D Effect: Draw Pipe with 3D effect

3.6.12. Input Field

Input Fields can be used give an input to the system while the synoptic display is executing. Computation can refer to input fields, and use them as arguments in their computation.

Input Field properties

9 General		
Parameter Command	None	\mathbf{T}
Parameter Command Parameter		•

Input Field Properties in Property Editor

The Input Field has some unique properties, and can refer to a command in same display, acting as input to that command.

- · Parameter Command: Reference to command in other element in current display
- Parameter Command Parameter: Parameter in above command

3.6.13. File Chooser

File Chooser is an extension of Input Field. It can be used to set a file name as command parameter to the Input Field. To select a file open a file browser by clicking the small button at the right side of the Input Field and browse to the file that name should be set as parameter.

File Chooser properties

- Absolute Path: Set this flag to determine that the absolute path and file name instead of file name only will be set as parameter.
- File Filter: Define file filter(s) that will be added to the file browser. A file filter is a pair of extension (e.g. "*.xml" or ".xml") and description.

• Start Directory: Start Directory String is used to set a path to directory as starting point for the file browser. The path may contain one or more environment variables. **Note:** The string is a platform dependent path.

3.6.14. Image

The use of the image element is deprecated because external images based on the image element are stored on the file system and can not be exported to the MDB.

Instead use images from the Symbol Library:

- 1. Ensure a user library exists and is open for editing as described in the section Symbol Library.
- 2. On the Symbol Library click **Edit** and select **Create New Symbol**.
- 3. In the dialog that appears click **Add External Icon**, browse to and select the image file and click **Choose Images**.
- 4. Select the image in the **State Icon** drop down list.
- 5. Enter the name of the image in the **Symbol Name** field.
- 6. Click Apply
- 7. Drag the image from the Symbol Library to the Display.

Image properties

Appearance	
Auto Scale Image	v
Image Pathname	C:\p4_busch1666_rmelgaard\uss\
Keep Aspect Ratio	
Reset Image Size	Reset to 192x90
Rotation Degrees	0

Image Properties in Property Editor

The Image element has several unique properties.

- Auto Scale Image: If checked, upon rezing the image is automatically scalled
- Image Pathname: Location of image, i.e. image source
- Keep Aspect Ratio: If checked, scaling keeps the original aspect of image, i.e. ratio between width and height of original image
- Reset Image Size: Click mini-button with original size as label to resize the image to that size
- Rotation Degrees: Rotation of image in degrees, 360 degrees for a full circle, direction clockwise

3.7. Data Sources

A Data Source bound to an element provides data to the element when the display is executed. The

Editor supports binding properties of an element to a data source. When the data source provides the *value* that the element presents (e.g. the value of a Data Field or the temperature value of a thermometer), the Data Source is a *Value* property; the other possibility is a *dynamic property* which determines other properties of the element than its value (e.g. its colour or position on the display).

Another aspect of a data source is whether it is *external* or a *Computation*. External data sources are simply MDB end-items without further processing. Computations are defined by specification of an expression and can perform calculations on other data sources as described in the section expression.

3.7.1. Data Source Dialog

Data sources can be bound to a property in two different ways:

- Using drag-and-drop from the System configuration browser.
- Using the Data Source dialog as described in this section.

The Data Source dialog is opened from the Property editor by clicking the database icon (for dynamic properties) or the button with three dots (for value properties) next to the property value.

The top part of the dialog is a table of already defined data sources for the specific property of the specific element. Selecting a line in the table, the details of the selected data source are shown. The Add and Remove buttons are for adding and removing data sources. The Add button will be disabled when the maximum number of data sources for the property has been reached - this maximum is typically 1 - graphs accept more.

When the data source's type has been set, the lower part of the dialog will change to present the details of the selected type. External data sources are most conveniently selected using the '...' button that opens a System configuration browser. This will automatically fill in the selected end-item's name, unit and type.

Edit Data Source					×
Context Opsname CF/ Opsname CF/ Opsname CF/ Data Source Ty External Data	Name A1_Fan_Temp_DMC A2_Fan_Temp_DMC	Unit degC degC	Data Type Float Float	Add Remove]
Computation	1				
Details for Exte	rnal Data Source				
Opsname 💌	CFA1_Fan_Temp_DMC			•	
Value Output	Engineering value		•	•	
Unit	degC				
Туре	FLOAT		•	•	
	Apply OK	Cancel			

Data source dialog showing details for an external data source

A computation is defined by an expression. Expressions can also contain MDB end-items and names of data sources defined in other expressions. The name of a computation cannot contain spaces.

Details for Computation
Expression
(BLB_OHD_Surv_Section_Temp + BLB_OHD_Surv_Section_O2_Sensor_Voltage) / PI
Select Symbol Select Construct Select Function Select Evaluation Evaluat
Unit
Type Float
Name Expression0

Data source dialog details for a computation

Note that changing the type from e.g. external to computation and back to external again will clear all properties of the defined data source.

3.7.2. Supported Data Source Types

The table below summarizes which data sources are supported for which elements and element properties.

Properties	Property type	Elements	Data types suppor- ted	Range / allowed val- ues
х	Dynamic Property	Label	Integer	Non-negative
Y		Data Field	Float	
Width		Shapes		
Height		Input Field		
		Pipe		
Fill Color Draw Color	Dynamic Property	Misc.	String Enum	A proper formatted col- or-string ^a
Corner Color			Any	
Value	Data Souce	Meters Data Field	Integer Float	Any range
			State-Code Any	
Value	Data Souce	LineGraph StripGraph	Integer Float State-Code Any	Any range
Value	Data Souce	BarGraph	Integer Float	Any range

Table 3.6. Supported Data Source Types and Ranges per Property and Element

Properties	Property type	Elements	Data types suppor- ted	Range / allowed val- ues
			Any	
Value	Data Souce	InputField	Any	Any range
Value	Data Souce	Symbol	Any (the value after conversion to string is used)	Matching the symbol's state names ^b
Value	Data Souce	Valve CheckValve	Any (the value after conversion to string is used)	"INDETERMINATE" "CLOSED" "IN_TRANSITION" "OPEN"

^a Examples: "red", "green", "#f4a460"

^bState names for predefined dynamic symbols in the USS library can be inspected as described in the section Pre-Defined Dynamic Symbols.

3.7.3. Dynamic Properties

Dynamic properties are properties whose value is controlled by a data source. The dynamic properties are listed in the section Supported Data Source Types above

The screen shot below shows the icon for dynamic properties. If the property is bound to a data source the icon becomes bright whereas unbound properties have a grey icon.

Example: If the Height property is bound to a data source that varies, the element will change its height at run-time.

Height	3 13
Width	24
Х	239
Y	230

Dynamic properties - the height property is bound to a data source

3.7.4. Expressions

Expressions in the USS Editor support JFormula expressions. JFormula is a library for evaluating mathematical expressions. Mathematical expressions accept the following set of operators: +, -, *, /, %, ^ where '%' stands for the modulo operator and '^' for the power operator. Parenthesis to any level is supported. The expression may contain variables as well as functions.

3.7.4.1. Operators

Supported operators for expressions are divided into several different types:

- numerical
- boolean
- string
- list
- conditional
- and other operators.

The following table explains the different operator types.

Table 3.7. Operators

Туре	Operator	Example
Numerical operators Boolean operators	 + - * / : Basic operators % : Modulo operators ^ : Power operators ~, xor : operators ~, xor : operators && and : And operators , or : Or operators !, not : Not operators !, not : Not operators < : less operator > : great operator >= : great or equal operator 	(-1 + 50*2)/(2^4) !(A && (B < 10)) NOT (A XOR (B equals C)) A != 2 B > 2 "string1" == "string2" A or B A or (B <> C)
	==, equals : equal operators !=, <> : not equal operators	
String operators	<pre>== : 2 strings are equal != : 2 strings are not equal <> : 2 strings are not equal</pre>	"string1" == "string2" : false "string1" + "a" : "string1a" "abc" > "aaa" : true

Туре	Operator	Example
	< : The first string less lexically than the second one	"zyx" < "bcd" : false
	> : The first string great lexically than the second one	
	<= :The first string less or equals lexically than the second one	
	>= : The first string great or equals lexically than the second one	
	+ : Concat string	
List operators	+ : Concat two lists	(1,2)+(3,4) = (1,2,3,4)
	- : Substract a list to another one	(1,2) + 3 = (1,2,3)
	in : Test if an element is inside a list	3+(1,2)=(1,2,3)
		(1,2,3,4)-(3,4)=(1,2)
		(1,2,3,4)-3=(1,2,4)
		2 in (1,2,3)=true
		4 in (1,2,3)=false
Other operators	= : set a variable operator	A = [2 - A] * 2
	[] : absolute value	22
	² : power 2 operator	10%=0.1
	% : Percent operators	
Conditional operators	if then	if (A > 2) then "Ok"
	if then else	if (A <=2) THEN B=3 else B=4

3.7.4.2. USS Library Extensions

mdbSid: Returns the engineering value for the data source with the given SID:

(Note that the sid argument has to be specified in quotes. See sample expressions.)

```
Variant mdbSid( String sid )
{
    engineeringValue = getDataFor(sid).getValue();
    return( engineeringValue )
```

}

mdbPath: Returns the engineering value for the data source with the given Pathname:

(Note that the pathname argument has to be specified in quotes. See sample expressions.)

```
Variant mdbPath( String pathname )
{
    engineeringValue = getDataFor(pathname).getValue();
    return( engineeringValue )
}
```

transformStateCode: Transforms a Columbus MDB state code into an IDAGS conformant state code:

(IDAGS conformant state codes consist of one or multiple literals separated by space. All literals begin with a capital letter.)

String transformStateCode(String stateCode)

3.7.4.3. Selected Computations from PREP Library

The following computations from the PREP library are available:

a1EqualToInt: Returns a value of true if the value from the PUI is equal to the constant int value. Pseudo code:

```
int alEqualToIntComp( int valve, int valve_state )
{
    If (valve_state = valve)
            result = 1
    else
            result = 0
    return( result )
}
```

ANDComp: Takes the input arguments and Logically ANDs them together. Pseudo code:

```
int ANDComp (int arg1, int arg2, int arg3 .. int argN)
{
    result = (arg0 and arg1 and arg2 and and arg(N-2) and arg(N-1) and argN)
    return( result )
}
```

GreaterThanConstComp: Determine if value of input PUI is greater than the supplied constant value. Pseudo code:

```
boolean GreaterThanConstComp (float PUI, const float CONSTANT)
{
    if(PUI > CONSTANT) return true;
    else return false;
}
```

MultiCompareComp: Does multiple comparisons. If all comparisons are true, return true. Otherwise return false. Every PUI should be associated with a CONST. Pseudo code:

OrComp: Takes the input arguments and calculates their sum.

```
int ORComp( arg0, arg1, ..., arg(N-1), argN)
{
    result = (arg0 or arg1 or arg2 or ... or arg(N-2) or arg(N-1) or argN)
    return( result )
}
```

3.7.4.4. Sample USS Expressions

In this chapter we'll introduce some typical USS expression examples.

3.7.4.4.1. Data Source Engineering Value Access Examples

The following examples show how data source engineering values are accessed in an expression.

In this example a data source is referenced via its Opsname.

```
IF (CTCU1_Cabin_Temp1_DMC >= 20) THEN "Warm" ELSE "Cold"
```

In this example a data source is referenced via its SID.

IF (mdbSid("274015849") >= 20) THEN "Warm" ELSE "Cold"

In this example a data source is referenced via its Pathname.

IF (mdbPath("\APM\FLTSYS\ECLSS\CTCU1\CABIN_TEMP1") >= 20) THEN "Warm" ELSE "Cold"

3.7.4.4.2. Color Dynamics Example

This is an example for setting the background colour of a rectangle depending on a parameter value.

if ds_SIM == "RT_NORM" then "#86B78A" else "#B88687" (use hex color values)

3.7.4.4.3. Int to String Mapping Example

This is a NASA PCS Example, which converts an integer parameter referenced by PUI to a string value:

IF (EMDC01SW1060J == 0) THEN "On" ELSE IF (EMDC01SW1060J == 1) THEN "Off" ELSE "ERR

3.7.4.4.4. Acquisition Status Modification Example

This example sets the acquisition status as a result of an expression.

```
acquisition_status = if ((VTC1_INT_DATA_MASTER_SLAVE_MODE_SW == 1 &&
VTC1_INT_DATA_APM_MODE_SW == 1) || (VTC2_INT_DATA_MASTER_SLAVE_MODE_SW
== 1 && VTC2_INT_DATA_APM_MODE_SW == 1)) then "Nominal" else "Stale"
```

Where valid values for acquisition_status are: Nominal, Missing, Dead, Stale, Unknown.

3.8. Mission Database

The settings for the MDB connection are made in Preferences, use the Project root folder setting to define: Where MDB displays are stored. If displays are keept locally in different locations, the uss project folder root has to be set when changing local store point (i.e. USS only maintains one project folder root).

3.8.1. Importing Displays from the MDB

The USS Editor can import USS displays from the MDB, stored in a tree-like structure containing the displays. The import function covers to possible actions sync (synchronize) and lock-for-edit (locking of display in MDB)

Synchronization: When an updated version of a display is needed (latest version of display in MDB), synchronization is performed from the Editor. When invoking **File** | **MDB** | **Import**, an MDB Browser is opened. The MDB Browser shows the tree-structure of the MDB and here multiple displays can be selected by navigating the tree. The selected displays can be synchronized, by right-clicking and selecting **sync**. Click **apply** or **cancel** to quit the MDB Browser, **apply** will before closing the Browser, sync the selected displays, **cancel** will only quit (this will not undo previous synchronized displays). Synchronization is always done to the Project Folder.

Lock-for-Edit: When a display needs to be locked for edit (locking the display in MDB, ensuring only one person edits the display at a time), lock-for-edit is performed from the Editor. In the MDB Browser the selected displays can be lock-for-edit, by right-clicking and selecting **lock-for-edit**, this will also synchronize the selected displays.

Results of Lock-for-edit action on a display:

- In MDB: The display (end-item) is locked to the database user. This results in nobody else being able to lock it and only the person, who locked the display in the first place, can submit an updated display (unlocking it in doing so).
- Locally / on the file system: An updated version display is copied to the file system (placed appropriately in project-root-folder), and the display-file is changed to read-writable for edit.

3.8.2. Exporting Displays to the MDB

The Editor can export USS displays to the MDB, **Note:** Only displays locked for edit can be exported to the MDB.

3.8.3. Adding a New Display to the MDB

When adding a new display to the MDB, first ensure that the MDB configuration is correct (refer to

Preferences and take care of the CU Version setting, which is important when adding displays to the MDB.

The editor will on submitting check for the following MDB naming constraints: Display names can be a maximum of 16 charactersin MDb notation, filenames must be in uppercase, and filenames cannot containt a minus (-).

Do the following steps to add a new display to the MDB:

- 1. Create the new display
- 2. Save the display to a location in the project folder equivalent to the MDB path. Use only capital letters for the display name and no more than 16 characters, otherwise the MDB will not accept it. E.g. the file system path *ProjectFolder*\ CDU_316990119\ APM\ COMMON_TEST_SUPP\ GRD_DATA\ USS\ EDITOR\ MANUAL_TESTS is equivalent to MDB path (for CDU with Id: 316990119) \APM\ COMMON_TEST_SUPP\ GRD_DATA\ USS\EDITOR\ MANU-AL_TESTS. *ProjectFolder* is configured in Preferences.
- 3. Right-click on the display (in Synoptic Hierarchy or on the display itself) to get a popup menu.
- 4. In the popup-menu choose **MDB Export adding to MDB** and the Editor will then:
 - Connect to MDB. While the Editor is connecting to the MDB a "Connecting to MDB" dialog is visible, this can take up to 10 minutes depending on the connection.
 - Locate the display path in MDB
 - Add the display to the MDB
 - On success the Editor will display a confirmation, on error an error message.

3.8.4. Forced Import from MDB (revert)

Forced Synchronization: When undoing of an action is needed (reverting to latest version of display in MDB), forced synchronization is performed from the Editor. Open the previously synchronized or lock-for-edit display, located in the project folder. When invoking **File** | **MDB** | **Forced Import from MDB** (revert), the Editor will overwrite the display with the MDB version and set display-file to read-only in the local filesystem. NB! The edited display-file will be overwritten and cannot be recovered after this operation (i.e. can be seen as a re-import of a changed display, reverting changes).

3.8.5. Delete in MDB

Deletion of diplay: When deletion of a display is needed (removing of display from MDB), delete in MDB is performed from the Editor. Open the previously synchronized display, located in the project folder. When invoking **File** | **MDB** | **Delete in MDB**, the Editor will delete the display in the MDB and delete the locally stored display-file in the local filesystem. NB! The display-file will be lost and cannot be recovered after this operation.

3.9. System Configuration Browser
The System configuration browser (SCB) shows a tree view of the SCOE file selected on the MDB-SCOE page in Preferences. The SCB is used to drag observable (TM) and activitable end-items (TC) onto the display or elements thus creating, adding or updating data sources as described in the table below.

Target	Result
TM to Display area	Create Data Field (TM). Multiple TM can be dragged at once.
TC to Display area	Create Command Button (TC). Multiple TC can be dragged at once.
TM to selected Data Field	Update data source for the field.
TC to Command List	Add TC to the list.
TM to graph	Add TM as data source for the graph. TM must be of type statecode, integer of float.
TM to meter	Update data source for the meter. TM must be of type integer of float.

 Table 3.8. Results of dragging TM/TC from the SCB

The current system configuration version (CCU internal version) is shown as a tooltip in System Configuration Browser by holding the mouse over title "PATH/OPS View: ...".

The View (Path or Ops) and the Category (onboard/ground TM/TC) is switched with the combo box above tree -- see screen shot below.

🕼 System Configuration Browser 🖕 🗙 🦉 ৰ 🕨 🖶 🗖	display	#1] = *
OPS View: Onboard Telemetry	-	_
	Views 🔶	
	Category >	Onboard Commands
		Ground Commands
- 🗋 Analog_Input_Section_Fail		Ground Telemetry
⊷ 🚍 BGB		Onboard Telemetry
📗 🔶 🚍 CPU		

System Configuration Browser - toggling category

Detailed information about an end item can be obtained by right clicking the end item and selecting Properties. The tool tip that appears when holding the mouse over the end item gives SID and Path information -- see screen shot below.



System Configuration Browser context menu

The SCB contains a search function at the bottom: enter the string to search for and click the **Search** button. To search again press F3.

3.10. Working with Projects

3.10.1. Synoptic Hierarchy

The Synoptic Hierarchy is a tool-view for the Editor to ease navigation of currently open displays and the USS project displays (defined by the project root-folder). It provides possibility to create navigation target to project displays, and easy opening hereof.

The Synoptic hierarchy displays two structures:

- Open Displays: The displays currently open in the Editor. Below each display all elements on the display are shown. This view can also be used to drag elements between displays and to inspect compound objects for their contents.
- Synoptic Hierarchy: the file folder structure for the XML based USS displays files below the Project root folder. This view can ve used to easily create navigation buttons by right click a display in the hierarchy and selecting **Add Navigation to display**.

Displays in the upper list are already open. Click a display in this list to set focus to it. The displays in the second list can be opened by right clicking and selecting **Open Display**.

3.10.2. Consistency Check

By selecting the Consistency check from the Tools menu, the current display is checked against the current SCOE file. A report is generated listing all inconsistencies:

- For all data sources Opsname, SID and Pathname are checked if they match each other. If the Opsname is found but the SID or Pathname does not match the data in the SCOE file then the SID or Pathname found in the SCOE file is proposed in the report.
- The data source Unit is checked if it matches the data in the SCOE file.
- The data source Type is checked. If the data type is enum the data is checked if it contains all the statecodes in the right order.
- Computation-data sources will be checked if they return any syntax errors.
- Displays referenced by OpenDisplayCommand (e.g. navigation buttons) is checked if the display exists in the file system.
- A labels that is associated with a field-data source and is set to show opsname or pathname will be checked that the label text shows that opsname or pathname.
- Opnom check. Checks that all label texts conform to the OpNom definition or English as set in the Preferences.

• It is checked that all element names are unique.

3.11. Configuring the Editor

The Editor can be configured in two levels: The system settings with are set by the administrator of the tool and the User Preferences set by the display author.

3.11.1. System Setting

System settings are defined in the uss.properties file which is common for the Editor and Executor. The uss.properties file can be edited in any standard text editor.

3.11.2. Preferences

The preferences setting are accessed though **Edit** | **Preferences...** on the menu. These are the preference pages:

- **Project**: The root folder for the synoptic hierarchy
- **Display**: Grid and zoom settings for new displays. To change the settings for the current display, use the View Settings.
- **Consistency**: OpNom setting for the Consistency Checker. The consistency checker verifies that the text of labels conforms to OpNom.
 - Used OpNom language: Determines which language dictionary to use in addition to the OpNom dictionary. English words in the selected dictionary will not be flagged by the consistency checker.
 - Used OpNom check: Toggles the ESA Annex to the OpNom on/off.
- **Data Source**: Context setting for the data source editing, defines which contexts shall be possible and which are the default context.
 - **Context List**: Determines the list of contexts used by the editor, mainly in the data source dialog, but also during drag-and-drop operations from the System Configuration Browser.
 - **Default Context**: Defines which context is the default one from the list above, used mainly in data source dialog.
- **Data Source**: Definition of the **Context List** which is the set of TM identifiers e.g. Opsname, Pathname, SID, PUI. The Context list is used in data source dialogs and the Label Context property. **Context default** is the context that is shown in Context selection combo-boxes as the default entry.
- **Import**: Import of display files
- Database: MDB connection settings
- **MDB-General**: General MDB connection parameters

- MDB-CDU: MDB CDU connection parameters
- MDB-CCU: MDB CCU connection parameters
- **MDB-SCOE**: SCOE file path

The preferences are stored in the uss.config file which should not be modified outside the Editor.

For information on how to configure the Editor in the MCS environment, see USS Editor Parameter.

3.11.3. View Settings

The View Settings property pane can be accessed from the View menu. The View Settings present and allow modification of the grid and zoom settings for the current display. In order to change grid and zoom default settings for new displays, use the Preferences.

er	🦉 Symbol Library 🔚 Synoptic Hierarchy	🖉 View Settings 💶 🗙 🛛 🔹 🖬 🗙
	display#1]	
	₽↓ 🗄 💷	
	💡 Grid	
	Draw Color	R:192 G:192 B:192 - #C0C0C0
	Draw Style	Dots 💌
	Draw Thickness	1
	Snap to Grid on Move	During
	Snap to Grid on Resize	During
	Spacing Horizontal	10
	Spacing Vertical	22
	💡 Zoom	
	Zoom Factor in Percent	100
	Zoom Step Size in Percent	10

View setting

Chapter 4: Executor

4.1. Introduction

USS provides a synoptic display execution environment for onboard and ground application. The executor can be run on ground based computers using LINUX, SOLARIS and MS Windows. The executor executes displays which have been authored with the editor.

This chapter explains how you can configure the executor as you wish e.g. by enabling tooltips, and how you can exit the executor. Starting the executor is explained in Getting Started.

4.1.1. Configuring User Settings

4.1.1.1. Prerequisites

• Executor must be running.

4.1.1.2. Configuring User Settings

To view and change your personal executor application settings:

- 1. Choose **Options > Preferences...**.
- 2. In the popup window, select what you want to configure. (E.g. select **Tooltips** in the tree structure on the left side.) Other choices would be Project, Commanding, Tab Appearance, Snapshots, Reports, Import or Freeze mode.

X-₩ Preferences	
 Project Commanding Tab Appearance Tooltips Snapshots Reports Import Freeze Mode 	Tooltips ✓ Enable Tooltips
	<u>O</u> K Cancel

- 3. Change the settings (e.g. Check or uncheck the checkbox to enable/disable tooltips.).
- 4. Click **OK**.

4.1.2. Exiting the Executor

4.1.2.1. Prerequisites

• Executor must be running.

4.1.2.2. Exiting the Executor

To exit the executor:

- 1. Choose File > Exit.
- 2. Executor exits. The current window layout is saved and can be restored on the next run.

4.1.2.3. See also

• Starting the Executor

4.2. Monitoring and Control Configuration

4.2.1. Connecting to System to be Monitored and Controlled

4.2.1.1. Prerequisites

• Executor must be running.

4.2.1.2. Connecting to System to be Monitored and Controlled

To establish data connection with the system to be monitored and controlled:

- 1. Do one of the following:
 - Choose **Options > MCS Connection...** .
 - Click the **Not Connected** button in the statusbar.

O-₩ USS Display E	Executor [cgsad	min@mcs-ws-1]					- D X			
<u>File</u> Navigate <u>v</u> i	iew <u>O</u> ptions	<u>window H</u> eip	44 41 00 11 0		•00.000 (m)	COL Synontics Home Page	COL Home Pa			
COL Synoptics H										
G COL Synoptic	LS HUME Paye (C	OL_HUME_Page_MCD)				Version: Ops Products 3.0.0				
							71			
External					Ovhd Fwe					
Payload SOLAR EPF SOZ	СМ U 2 СМ U 3 ММ С	0.4 Storage	03 Storage	ISPR 02 ETC Pwr Main Pwr Bus Aux Pwr Bus	ISPR 01 FS L Pwr Main Pwr Bus Aux Pwr Bus	Set Cabin				
R	CRAW				Ovhd Aft					
EUTEF EPF Sox R N	VMN 2	ISPR A4 HRF 2 Pwr Main Pwr Bus Aux Pwr Bus	ISPR A3 EPM Pwr Main Pwr Bus Aux Pwr Bus	ISPR A2 BIOLAB Pwr Main Pwr Bus Aux Pwr Bus	ISPR A1 ER 6 Pwr Main Pwr Bus Aux Pwr Bus	VCA 1 ATU 1 Environment ECLSS	2 5 7			
EPF SDX R	VCR 1 VCR 2 VCA 2 PPS B PLCU VDPU	D4 Storage	D3 S/S PDU 2 VTC 2	D2 S/S PDU 1 VTC 1	D1 S/S CHX 1/2 CWSA 1/2 WPA 1/2	CTCU1 CTCU2 CTCU2 CTCU2 degC CTCU2 degC TPS1Air Press mmHg				
SDN N R	CLSW 1	SUP 4	ICER E2 MARES	SUP 3	Fwd Deck	<pre>PPCS 1 Press mmHg PPOS1 Press mmHg</pre>	ndi			
	CMIL 1	1	1	1						
01Aug06 03:57:48 INF 01Aug06 03:57:53 INF	FO : Executor sta FO : Opening disp	urted. 1ay /home/cgsadmin/prj.	/uss/main/examples/uss	/fwdu/APM/FLTSYS/OPS/S	SYNOPTICS_ROOT/COL_HOME	.uss				
				TM MCS ⇒ 🖉 🖇	💡 🥞 Upd: 🔴 P	erf: 😑 🋃 Not Connected				

2. In the popup dialog change the connection parameters as needed.

Х-м мс	5 Connection	
Service	CISim	
Host	localhost	
Port	7060	
	<u>C</u> onnect	Cancel

3. Click **Connect.**

Connection to MCS/CIS established (reflected by executor **status indicator**, i.e. former gray icons turn green and button in statusbar which switches from Not connected button into **Connected** button.

TM MCS 라얏 옷 시 먹 Upd: 🕒 Perf: 👄 🔩 Connected	onnected
--	----------

4.2.1.3. See also

• Disconnecting System to be Monitored and Controlled

4.2.2. Disconnecting System to be Monitored and Controlled

4.2.2.1. Prerequisites

• Connection must have been established already.

4.2.2.2. Disconnecting System to be Monitored and Controlled

To stop data connection with the system to be monitored and controlled:

- 1. Do one of the following:
 - Choose **Options > MCS Connection...** .
 - Click the **Connected** button in the statusbar.



2. The popup dialog appears.

Х-₩ мс	S Connection	
Service	CISim	
Host	localhost	
Port	7060	
[Dis <u>c</u> onnect	Cancel

3. Click **Disconnect**.

4. In the log window the text "**Disconnected from CIS**" is displayed.

Disconnected from CIS (reflected by executor status indicator, which turns from green back to gray and the text of the button now again shows **Not Connected**).

TM MCS ⇒ 🧏 🖉 🧏	Upd: 🥠 Perf: 😑	🔩 Not Connected
----------------	----------------	-----------------

4.2.2.3. See also

• Connecting System to be Monitored and Controlled

4.2.3. Switching Target for Commands

4.2.3.1. Switching Target for Commands

You can switch between different targets for the commands. The available targets are:

- 1. direct command string to CIS,
- 2. stack either manual or auto stack,
- 3. local log file/window as command target.

The using of local log file/window as command target turns effectively the sending of remote commands off.

To switch target for commands:

- 1. Choose **Options > Preferences...**.
- 2. In the popup dialog select **Commanding**.
- 3. Check Enable Commanding.
- 4. Uncheck **Direct Commanding**.

5. From dropdown list choose new **Command Target** (e.g. Manual or Auto Stack).

X-¤ Preferences	
Project Commanding Tab Appearance Tooltips Snapshots Reports Import Freeze Mode	Commanding Direct Commanding Command Target Auto Stack@mcs-ws-1 Confirm tele commands before sending
	<u>O</u> K Cancel

- 6. Check **Confirm tele commands before sending** if you wish commands to be confirmed.
- 7. Click **OK**.

From now on, all commands are directed to the new target.

4.2.4. Checking Acquisition State

4.2.4.1. Prerequisites

• Connected to monitored system.

4.2.4.2. Checking Overall Acquisition State

USS provides an indication of acquisition status. The executor gives indicators on the update performance indicator. In case of severe problems the user is notified. User notification is done via dialogs and/or a log window.

You can verify:

- that a display still gets updates from the monitored target system, and
- that the display executor software is functioning (i.e. the display is not frozen due to local software

failure).

as described below.

To check overall acquisition state:

- 1. Select display to check.
- 2. In the statusbar two fields show continously updated icons.

O-HUSS Display Execut File Navigate View C	or [cgsadı ptions <u>h</u> E	nin@mcs-ws-1] Vindow Help	4480	• I)	:00.000	● COL Synoptics Home Page (COL	• 🗆 🗙 _Home_P;					
COL Synoptics Home Page (COL_Home_Page_MCD)												
External Paybad SOLAR BPF SOZ	СМ U 2 СМ U 3 М М С	04 Storage	03 Storage	ISPR 02 ETC Pwr Main Pwr Bus Aux Pwr Bus	ISPR 01 FS L Pwr Main Pwr Bus Aux Pwr Bus	set Cabin						
R EuTEF EFF SOX N R VMN 1 ATU 2 VMN 1 VMN 1	CLSW 2 CMU 4 MMU 1 Spare	ISPR A4 HRF 2 Pwr Main Pwr Bus Aux Pwr Bus	ISPR A3 EPM Pwr Main Pwr Bus Aux Pwr Bus	ISPR A2 BIOLAB Pwr Main Pwr Bus Aux Pwr Bus	Ovhd Aft ISPR A1 ER 6 Pwr Main Pwr Bus Aux Pwr Bus	VCA 1 ATU 1	=					
EPF SDX N R PF5 B	HRM PLCU VDPU	D4 Storage	SUP 2 D3 S/S PDU 2 VTC 2	D2 S/S CTCU 1 PDU 1 VTC 1	SUP 1 Aft Deck D1 S/S CHX 1/2 CWSA 1/2 WPA 1/2	Cabin Temp1 CTCU1 degC CTCU2 degC TFS1 Air Press mmHg						
EPF N R 31Ju106 09:56:26 INFO : Ex	CLSW 1 CNU 1 ecutor sta	SUP 4	ISPR F3 MARES	SUP 3	Fwd Deck	PPCS1Press mmHg PPOS1Press mmHg						
31Ju106 09:56:35 INFO : Op	ening disp	lay /home/cgsadmin/prj,	/uss/main/examples/uss	/fwdu/APM/FLTSYS/OPS/S	YNOPTICS_ROOT/COL_HOME	erf: 🜒 🛃 Not Connected						

• **Update:** The first item is a small clock icon with a needle moving once a second. Every time a parameter in the display is updated the timer is reset and starts over again. The clock indicates the time since the last update for the active display. The color of the icon changes depending on when the last update of the selected display has been. Green means it has been updated within the last 30 seconds.

Upd: (•	Pe	erf:	0	2	No	t Cor	nnec	ted				
Indica	ites	s t	im	e si	nce	last	upd	ate 1	for th	e	activ	e Disj	play:
GREEN	J	:	<	30	se	cond	ls						
YELLO	JW	:	be	twe	een	30	and	60	sec	0	nds		
RED		:	>	60	se	cond	ls						

If the last update was between 30 and 60 seconds the icon is yellow.



If the display hasn't been updated for more than one minute the icon turns red.



• The second and last item is the **performance indicator**. It indicates the performance of the view system. If the update latency is less than 500 milliseconds the icon is green. If the latency is bigger than 500 milliseconds the color changes to yellow. Red means that the update latency is bigger than 5000 milliseconds, which means that some data may be dropped.

Upd: 🕐 P	'erf: ອ	2	Not C	Connecte	d				
	Indicate	s p	erforn	nance of	the view s	sys	:tem :		
	GREEN	:	view	update	latency	<	500 mi	llisec	onds
	YELLOW	:	view	update	latency	>	500 mil	llisec	onds
	RED	:	view	update	latency	>	5000 m:	illise	conds

4.2.4.3. Display Status Indicator

Each display has a coloured indicator that changes colour according to the state of its data sources.



The following table lists all four possible status indicator and the corresponding states of data sources in the display.

Table 4.1. Indication of Acquisition	Status for Status of Data Sources
---	--

Status Indicator	Status of Data Sources
Status indicator is not displayed at all.	Display contains no data sources.
Status indicator is grey.	For each data source in the display the status is "not monitored".
Status indicator is green.	At least one data source is "in limits" and no data source has a caution (soft/nominal) or warning (danger) limit violation.
Status indicator is yellow.	At least one data source has a caution (soft/nominal) limit violation and no data source has a warning (danger) limit violation.
Status indicator is red.	At least one data has a warning (danger) limit violation.

4.3. Window Handling

4.3.1. Saving Window Layout

4.3.1.1. Prerequisites

• At least one display must be open, otherwise the menu item is disabled.

4.3.1.2. Saving Window Layout

You can save the layout of all displays including size and position so that the window layout can be restored later.

To save window layout:

- 1. Choose **File > Save Layout As...**.
- 2. In the File chooser dialog, select the folder in which you want to save the layout (e.g. folder layout).
- 3. In the file name textarea enter the name under which you want to save the layout.

X-¤ Save Layoı	ıt As	
Save <u>I</u> n: 📑 Ia	yout	▼ A A C 88 E
File <u>N</u> ame:	default.layout	
Files of <u>T</u> ype:	USS Layout files (*.layout)	-
		Save Cancel

4. Click Save.

4.3.1.3. See also

• Loading Window Layout

4.3.2. Loading Window Layout

4.3.2.1. Prerequisites

• Window layout must exist.

4.3.2.2. Loading Window Layout

To load a previously saved window layout:

- 1. Choose **File > Load Layout...**.
- 2. If there are already any displays open you'll be asked if you wish to close all open displays before loading a new layout. Select either **Yes**, **No or Cancel**. If you chose **No** a display which is already open and is also contained in the layout will be opened twice. So if you don't want any display to be opened more than once click **Yes**.



3. In the File chooser dialog, select the layout you which to load (e.g. default.layout).

X-¤ Load Layoı	ıt	
Look <u>I</u> n: 📑 I	ayout	▼ 🛱 🗂 🗂 🔡 💳
🗋 default.lay	out	
File <u>N</u> ame:	default.layout	
Files of <u>T</u> ype:	USS Layout files (*.layout)	▼
		Onen Cancel
		Open Cancel

4. Click **Open**.

The current layout is replaced with the selected layout.

4.3.2.3. See also

• Saving Window Layout

4.3.3. Loading Display from File System

4.3.3.1. Prerequisites

• Window layout must exist.

4.3.3.2. Loading Display from File System

USS supports the displaying of at least 20 synoptic displays in parallel. A display can be loaded multiple times.

The file hierarchy is the directory tree of the file system e.g. /examples /uss /fwdu, where the directories are the nodes and the displays are the leafs of the hierarchy structure. The displaying of the filename depends if it is a PCS, FWDU or GWDU display. The filename of a PCS display is defined by the NASA. The filename of a FWDU display is its MDB enditem name, which is defined by the display author when storing the display into the MDB. The same naming rules apply to GWDU displays. In the headline of the window the display's opsname is displayed not its filename. If you want to view the filename you must choose File > Properties as described in chapter Show display properties.

To load display from file system:

You can load a saved display from the file system as described below.

- 1. Choose **File > Open...**.
- 2. In the File chooser dialog, select the display you which to load. A preview will be displayed on the right hand side.

X-¤ Open Look <u>I</u> n: □ S	YNOPTICS_ROOT	
COL_HOME	.uss 155	
File <u>N</u> ame: Files of <u>T</u> ype:	COL_HOME.uss USS displays (*.uss)	▼ Open Cancel

3. Click Open.

The display is loaded and opened. No check for duplicate displays is made, i.e. a display can be loaded multiple times.

4.3.4. Reloading Display from File System

4.3.4.1. Prerequisites

• Make sure that the display is currently selected.

4.3.4.2. Reloading Display from File System

You can reload a display from file system after changes have been made to the file e.g. with the editor.

To reload display from file system:

- 1. Select Display by clicking on its tab. The selected tab changes to a different color.
- 2. Choose **File > Reload**.

Display is reloaded from file system.

4.3.5. Resizing Display Window

4.3.5.1. Prerequisites

• There must be at least one display open.

4.3.5.2. Resizing Display Window

USS allows to resize a synoptic display. The contents of the display such as fonts and graphics are rescaled accordingly.

To resize display window:

• Click and drag window border.

4.3.6. Resetting Display Window to Default Size

4.3.6.1. Prerequisites

• There must be at least one display open.

4.3.6.2. Resetting Display Window to Default Size

You can reset a display window to its predefined default size.

To reset display window to default size:

• Choose **Window > Reset to default size**.

The display window is reset to its default size.

4.3.7. Navigating Display Hierarchy

4.3.7.1. Navigating Display Hierarchy

USS provides the capability to navigate between different displays. You can navigate through the display hierarchy in order to find, open or select a display. The display hierarchy mirrors the subsystem structure in which displays are organized. You can open another synoptic from the synoptic tree visualization or from navigation buttons. Navigation buttons can also have the property to specify that the current window will be replaced on open.

Navigation in this context means nothing else then exploring any set of displays. Where displays are selected via point and click. They are automatically loaded.

To navigate display hierarchy:

Do one of the following:

- Navigating via hierarchy panel:
 - 1. Choose **View > Show Hierarchy**, if hierarchy isn't already visible.
 - 2. The display hierarchy (see red rectangle in next screenshot) is shown as a tree panel on the left side of the workspace.
 - 3. Click into hierarchy panel. Select Display. The selected display opens. If it was already open, the selected display is focused, otherwise the display is loaded and opened.

O → USS Display Executor [c	gsadmin@mcs-ws-1]				• • ×
File Navigate View Optio	ons <u>W</u> indow <u>H</u> elp				
				COL Synoptics	Home Page (COL_Home_P
2	● COL Synoptics H				
/home/cgsadmin/prj/uss	COL Synoptics Hom	ie Page (COL_Home_Page_MCE))		
🕈 🚍 OPS					version. e
← □ SYNOPTICS ← □ SYNOPTICS_RO					
	External Payload				Ovhd Fwd
	SOLAR	CMU 2 04 Storage	03 Storage	ISPR 02 ETC ISPR 01	FSL
► 📑 PAYLOAD	EPF SO Z	CMU 3		Pwr Main Pwr Bus Main Pwr B	us Se
	N			Aux Pwr Bus Aux Pwr Bu	is Cat Ter
	R	1			Ovhd Aft
	EUTEF Panel 2 EPF Volume	CLSW 2 ISPR A4 HRF 2	ISPR A3 EPM	ISPR A2 BIOLAB ISPR A1	ER 6
	SOX ATU 2	CMU 4 Pwr MMU 1 Main Pwr Bus	Pwr Main Pwr Bus	Pwr Main Pwr Bus Main Pwr B	Pwr VCA 1
	R VMN 1	Spare Aux Pwr Bus	Aux Pwr Bus	Aux Pwr Bus Aux Pwr Bu	s Environ
	VMN 2 VCR 1			SUP 1	ECLSS Cabin To
	EPF SDX VCR 2		SUF 2		CTCU1
	N VCA 2	HRM D4 Storage	D3 S/S CTCU 2	D2 S/S CTCU 1 S/S	СНХ 1/2 СТСU2
		VDPU	PDU 2	PDU 1	CWSA 1/2
	EPF		VIC 2	VICT	WFA 1/2
	SDN N	SUP 4		SUP 3	Fwd Deck
	R	CLSW 1 HDF 1	(MADES	(MSG	FDD PPOS1 F
	J_		II		
31Jul06 10:03:15 INFO : Executo 31Jul06 10:03:28 INFO : Opening	or started. g display /home/cgsadmin/pr	j/uss/main/examples/uss/fwdu/AF	M/FLTSYS/OPS/SYNOPTICS_	ROOT/COL_HOME.uss	
			6 6 7 9 9		
		TM	MCS ⇒ 😤 🦉 📲	Upd: 🕓 Perf: 😑 🔩 Not Co	nnected

- Navigating via buttons:
 - Navigate via buttons embedded in display by display author. The navigation strategy is defined by the display author.

4.3.8. Navigating to Home Display

4.3.8.1. Prerequisites

• Home display must be configured via **Options** > **Preferences...** . Select **Project** tab on left hand side. Either click **Use selected display** to set current active display as home display or click **Browse...** button in border area labeled **Home Display**.

4.3.8.2. Navigating to Home Display

USS provides the capability to navigate between different displays. The standard or default home display is the **COL Synoptics Home Page** under /examples /uss /fwdu /APM /FLTSYS /OPS /SYNOPTICS_ROOT /COL_HOME.uss. If the home display isn't configured as explained above under prerequisites following error message will appear.



To navigate to home display:

Do one of the following:

• Click on the **homepage button** in the toolbar.



• Choose **Navigate > Home**.

Home display is opened.

4.3.9. Showing/Hiding the Toolbar

4.3.9.1. Prerequisites

• Executor is running and toolbar is visible.

4.3.9.2. Showing/Hiding the Toolbar

USS provides the capability to hide the toolbar to provide more space for the display view.

• Choose **View > Toolbar**, if toolbar isn't already hidden.

Toolbar is hidden.

4.3.10. Closing Display

4.3.10.1. Prerequisites

• Display must be open and selected.

4.3.10.2. Closing Display

Closes only one display: the currently selected display.

To close display:

- Select Display you wish to close. The tab is displayed in a different color.
- Do one of the following:
 - Choose File > Close.
 - Right-click on tab select Close.

Display is closed.

4.3.10.3. See also

- To close all open displays: Closing All Displays
- To close all displays but the currently selected display: Closing other displays

4.3.11. Closing All Displays

4.3.11.1. Prerequisites

• At least one display must be open.

4.3.11.2. Closing All Displays

Closes every open display.

To close all displays:

• Choose **File > Close all**.

All displays are closed.

4.3.11.3. See also

- To close only one display which must be selected: Closing Display
- To close all but the currently selected display: Closing Other Displays

4.3.12. Closing Other Displays

4.3.12.1. Prerequisites

• At least one display must be open.

4.3.12.2. Closing Other Displays

Closes all open displays but the selected one. So at the end there's only one display left: the currently selected display. It isn't possible to select more displays to be left open.

To close other displays:

- Do one of the following:
 - Choose **File > Close Other**.
 - Right-click on tab select Close Other.

All displays but the selected one are closed.

4.3.12.3. See also

- To close only one selected display: Closing Displays
- To close every open display: Closing All Displays

4.3.13. Toggling Tabbed Mode

4.3.13.1. Toggling Tabbed Mode

Displays can be shown either on a tabbed window (one window at a time) or as iconized internal windows (many in parallel).

To toggle tabbed mode:

• Choose **Window > Tabbed mode**.

GUI shows displays according to new tabbed mode.

4.3.14. Undocking Windows

4.3.14.1. Prerequisites

• At least one display must be open and selected.

4.3.14.2. Undocking Windows

USS executor allows to undock windows from the executor so that they open in an external standalone window. All or just a single undocked window can be docked back into the executor. Only one window at a time can be undocked, so there's no multiple undocking although multiple docking is possible. To undock windows:

• Choose **Window** > **Undock** in the executor.

The selected display is opened in an external standalone window.

X-¤ Untitle	d (COL_Go_Ho	ome_MCD	• 🗆 🗙
<u>F</u> ile <u>N</u> avig	jate <u>O</u> ptions	Window	<u>H</u> elp
	C 968		

4.3.15. Docking Windows

4.3.15.1. Prerequisites

• At least one window must have been undocked.

4.3.15.2. Docking Windows

Undocked windows which are displays which have been opened in an external standalone window can be docked back into the executor. Either a single display can be docked back or all undocked windows can be docked back into the executor. But there's no multiple undocking, though.

4.3.15.2.1. Docking a Single Window

You can dock a single selected undocked window back into the executor.

To dock a single window:

- Select the undocked window.
- Choose **Window > Dock** in the undocked (that is external standalone) display.



The undocked window is docked back into the executor.

4.3.15.2.2. Docking All Windows

You can dock all undocked windows back into the executor.

To dock all windows:

• Choose **Window > Dock All** in the executor.

All undocked windows are docked back into the executor.

4.4. Display Interaction

4.4.1. Showing Tooltip for Element

4.4.1.1. Showing Tooltip for Element

You can see tooltips associated with the element. You can turn tooltips globally on or off. In synoptic displays USS shows the opsname for enditems as defined in the MDB. Tooltips are available over data fields and in parameter properties dialogs.

To show tooltip for element:

- Move mouse cursor over element.
- Tooltip appears at mouse position.

To enable/disable tooltips:

- Choose **Options > Preferences...** .
- On the tree structure on the left side select **Tooltips**.
- Uncheck checkbox before enable tooltips to disable tooltips. Check checkbox to enable tooltips again.

X-¤ Preferences		X
 Project Commanding Tab Appearance Tooltips Snapshots Reports Import Freeze Mode 	Tooltips ✓ Enable Tooltips	
	<u>O</u> K Cancel	

• Click OK.

It is not possible to configure the amount of time over which the tooltip is displayed.

4.4.2. Showing Element Properties

4.4.2.1. Show Element Properties

With show element properties you can get detailed information about TM/TC elements. USS provides a detailed information window on selection of display elements. The window shows the static and dynamic properties of the according parameters, e.g. parameter name (pathname, opsname), current parameter raw value, current parameter calibrated value. USS also provides a telemetry parameter query/debug popup.

To show element properties:

- 1. Right-click on any element (e.g. telemetry parameter f.e. CTCU1_CABIN_TEMP1_DMC in display COL Synoptics Home Page under /examples /uss /fwdu /APM /FLTSYS / OPS /SYNOPTICS_ROOT /COL_HOME.uss).
- 2. Select **Properties** from element pop-up context menu.
- 3. A non-modal dialog appears with detailed information about the element properties. The dialog contents are updated as long as the dialog is open.

X-₩ Parameter CTCU1_C	Cabin_Temp1_DMC [cgsadmin@mcs-ws-1]	
		📄 update
Data Source Type	Telemetry	
Opsname	CTCU1_Cabin_Temp1_DMC	
Pathname	\APM\FLTSYS\ECLSS\CTCU1\CABIN_TEMP1	
SID	274015849	
Formatted Value		
Raw Value		
Engineering Value		
Engineering Unit	degC	
Туре	Float	
Output	Engineering value	
Processing Status	UNKNOWN	
Acquisition Status	UNKNOWN	
Monitoring Status	UNKNOWN	
Delta Monitoring Status	UNKNOWN	
Soft Limit (lower)		
Soft Limit (upper)		
Hard Limit (lower)		
Hard Limit (upper)		
Soft Limit (delta)		
Hard Limit (delta)		
Expected Value		
Acquisition Time		
Time Since Acquisition		
APID		
TM Packet		
Calibration Rule		
	Close	

4. Click Close.

4.4.2.2. Showing Expression of Display

You can view the expressions of a display. Just right-click on any dynamic element e.g. rectangle, select Properties in the popup menu and in the popup window there'll be a table row called Expression in which the expression is listed.

To show expression of dynamic element:

- 1. Right-click on any dynamic element.
- 2. In the popup dialog select **Properties**.
- 3. The Parameter Information window will popup displaying the expression and other values.

X-M Element Properties	- (CheckValve2)
VALUE FLUID	
	🗌 undate
Data Source Type	Computation
Expression	if <u>state</u> < -5 then "OPEN" else if <u>state</u> < 0 then "IN_TRANSITION" else if <u>state</u> < 5 then "CLOSED" else "INDETERMINATE"
Formatted Value	
Raw Value	
Engineering Value	
Engineering Unit	
Туре	Any
Output	Engineering value
Processing Status	UNKNOWN
Acquisition Status	UNKNOWN
Monitoring Status	UNKNOWN
Delta Monitoring Status	UNKNOWN
Soft Limit (lower)	
Soft Limit (upper)	
Hard Limit (lower)	
Hard Limit (upper)	
Soft Limit (delta)	
Hard Limit (delta)	
Expected Value	
Acquisition Time	
Time Since Acquisition	
APID	
TM Packet	
Calibration Rule	
	Close

4. Click Close.

4.4.3. Showing Display Properties

4.4.3.1. Prerequisites

• Display must be open and selected.

4.4.3.2. Show Display Properties

USS provides several display properties including title, author, version and revison. Display properties also include a display comment, and change comments for each revision.

To get detailed information about a display:

- 1. Select **File > Properties**.
- 2. A non-modal dialog appears with detailed information about the selected display.

X-¤ Display Inf	formation - COL Synoptics Home Page (COL_Home_Page_MCD)
Title	COL Synoptics Home Page
Opsname	COL_Home_Page_MCD
Filename	/home/cgsadmin/APM/FLTSYS/OPS/SYNOPTICS_ROOT/COL_HOME.uss
Source	CU Consistency Date: 31.08.2005 23:36:25 CU Internal Version: 268436077 CU Name: ASS_400_M1_INT CU Pathname: \APM CU Scope: CCU CU Version: 4.0.0 Element Configuration: APM MDB Host: 149.243.225.45 MDB Instance: APM_MASTER MDB Version: APM320-CGS450 Mission: MASTER System Tree Internal Version: 269435592 System Tree Version: 12
Target System	PWS
Description	
Help URL	Open
	Current Revision
Author	mr
Number	1.0
Date	2006-07-26 09:28:12
Comment	Automatic import of FWDU display
	Close

3. Click **Close**.

4.4.4. Copying Command to Clipboard

4.4.4.1. Prerequisites

• Display must be open and selected.

4.4.4.2. Copying Command to Clipboard

A command in this context is a command string as text. The content of the text depends on the underlying target system. You can copy the command to clipboard for use in other applications.

To copy command to clipboard:

1. Right-click over a command button. (E.g. Pwr On under label PDU1 CTCU1 Pwr Bus in dis-

play COL Activation Part 1 under /examples /uss /fwdu /APM /FLTSYS /OPS / SYNOPTICS /ACTIVATION /ACT_PT_1.uss).

2. Select **Copy Command to Clipboard** from popup context menu.

The opsname based command is copied to clipboard.

execute_flap (FLAP: PDU1_CTCU1_Pwr_Bus_On_AP(0), ONBOARD_RECEPTION_NODE: \APM\FLTSYS\SW_SYS\CCSDS_CONFIG\END_NODES\DMC_DMS_SERV, ONBOARD_EXECUTION_NODE: USM_SW_DMC_USS_Swop_Instance);

4.4.5. Copying Parameter Name to Clipboard

4.4.5.1. Prerequisites

• Display must be open and selected.

4.4.5.2. Copying Parameter Name to Clipboard

You can copy the parameter name to clipboard for use in another application.

To copy parameter name to clipboard:

- 1. Right-click over a parameter name. (E.g. parameter **CTCU1 Cabin Temp Setpoint** in display **Set Cabin Temp** under /examples /uss /fwdu /APM /FLTSYS /OPS /SYNOPTICS / ECLSS /CABIN_TEMP.fwdu).
- 2. Select **Copy OPS Name to Clipboard** from popup context menu.

The opsname of parameter is copied to clipboard. For the above mentioned example the following text: CTCU1_Cabin_Temp_Setpoint_DMC.

4.4.6. Issuing Telecommand via Command Button

4.4.6.1. Prerequisites

• Selected display contains command button.

4.4.6.2. Issuing Telecommand via Command Button

Commands can be sent in different ways. They can be sent in 1-step-commanding, this is done in displays without execute button. In displays with execute button they are sent as 2-step-commanding. Two step commands always require selecting two command buttons in order to execute the command to be sent, this is done by the execute button. Commands can then be send as direct or remote commanding. Direct commanding needs to be confirmed by the user, whereas remote commands are send without confirmation to autostack or manualstack. The following activity diagram shows what happens when a user clicks a command button in a display.



USS allows for operator initiation of commands from synoptic displays. Command buttons are used to execute predefined commands.

4.4.6.2.1. 1-Step-Commanding

To issue command via 1-Step-Commanding:

- 1. Click on command button.
- 2. Command is sent using one of these methods:
 - Command is asynchronously sent to target system. The command button is immediately available for further command initiation. A sample display for this kind of command is the PCS display COL Atmosphere (which can be found under /examples /import /pcs / xml-all /col_atmosphere.xml or /examples /import /pcs /xml / col_atmosphere.xml).

⊖-¤ COL Atmosphe	re				• • ×
<u>File Navigate Opt</u>	tions <u>w</u> in	dow <u>H</u> elp			
Air Press 1 Air Press 2	mmHg mmHa	Monitoring Status	Enable	(Inhibit)	VTC2 hardwire
Air Press 3 Air Press 4	mmHg mmHg	Monitoring Status	Enable	Inhibit)	VTC 1 hardwire
ppO2 Sensor 1	mmHg	Monitoring Status	Enable	Inhibit	VTC1 hardwire
ppO2 Sensor 2	mmHg	Monitoring Status	Enable	Inhibit	VTC2 hardwire
ppCO2 Sensor 1	mmHg	Monitoring Status	Enable	Inhibit)	VTC 1 hardwire
ppCO2 Sensor 2	mmHg	Monitoring Status	Enable	lohibit	VTC2 hardwire
Airflow Sensor 1 Mas Airflow Sensor 2 Mas	sflov	m3 / hrMonitoring Statu: m3 / hrMonitoring Statu:		En able En able	が が が が い て C 1 hardwire の が が が い て C 2 hardwire
PCA Cabin Pressure Last Sample Time		mmHg			
MCA Sample Loc					
MCA Partial Pressure	s				
02	mmHg	%			
C02	mmHg	%			
N2	mmHg	%			
H20	mmHg	%			
CH4	mmHg	%			
H2	mmHg	%			

• Command must be confirmed. Commands that have to be confirmed are guarded commands and can be recognized by buttons which have diagonal stripes.

<u>F</u> ile <u>N</u> avigate <u>O</u> ptions <u>W</u> i	ndow <u>H</u> elp	
Air Press 1 mmHg Air Press 2 mmHa	Monitoring Status	Enable (Inhibit) VTC2 hardwire
Air Press 3 mmHg Air Press 4 mmHg	Monitoring Status	Enable (Inhibit) VTC1 hardwire
ppO2 Sensor 1 mmHg	Monitoring Status	Enable (mbible) VTC1 hardwire
ppO2 Sensor 2 mmHg	Monitoring Status	Enable Infibit VTC2 hardwire
ppCO2 Sensor 1 mmHg	Monitoring Status	Enable (Minibit) VTC1 hardwire
ppCO2 Sensor 2 mmHg	Monitoring Status	Enable (http://www.com/com/org
Airflow Sensor 1 Massflov	m3 / hrMonitoring Statu:	Enable (http://www.wire
Airflow Sensor 2 Massflov	m3 / hrMonitoring Statu:	Enable Jobibit VTC2 hardwire
PCA Cabin Pressure	mmHg	
Last Sample Time MCA Sample Loc		
MCA Partial Pressures		
O2 mmHg	%	
CO2 mmHg	%	
N2 mmHg	%	
H2O mmHg	%	
CH4 mmHg	%	
H2 MMHg	%	

Executor shows confirmation dialog and sends command to target system if user confirms.

🗙 🛏 Command Verification					
Please confirm transmission of hazardous, guarded command:					
EMDI02ES4606K()					
<u>O</u> K Cancel					

3. The command processing state (issued, accepted/rejected, executed/aborted, success/failure) is shown in the command response window.

4.4.6.2.2. 2-Step-Commanding

To issue command via 2-Step-Commanding:

- 1. Click **command button** (an example display for this is **COL Activation Part 1** which can be found under /examples /uss /fwdu /APM /FLTSYS /OPS /SYNOPTICS / ACTIVATION /ACT_PT_1.uss). This button remains pressed. All other command buttons are released. The execute button is changed to enabled state. If you made a mistake and don't want that command to be executed click another command button. Previously selected button is deselected and the new one is selected (radio-button behavior).
- 2. Click **Execute**. The command associated with the selected button is sent to target system. Selected button is deselected and execute button becomes disabled again.

COL Activation Part 1 (COL_Activation_Part1_MCD)				
<u>File Navigate Options Window H</u> elp				
PDU Outlet Activation	HRM Activation			
PDU1 CTCU1 Pwr Bus Pwr On Pwr Pwr Pwr On Pwr	Activate Pwr A Pwr B A Pwr B A Pwr A Current A Pwr B Current A Pwr B Current A Nom Core Stat			
PDU1 VDPU Pwr Bus Pwr 0n Pwr Pwr	Nom Ready Stat			
PDU1 Fan Pwr Bus Pwr On Pwr Pwr On Pwr Pwr On Pwr	Serial Path Tim Input Selected Selected Output Datarate WPA Final Activation (CHX Cntl Loop Activation)			
	Activate Cnt Loop Stat WPA1 CHX Temp WPA1 Plenum Delta Press			
COL Functional Overview	WMV3 MDV Pwr WPA1 Accum Liq Qty1 L WPA1 Accum Liq Qty2 L Close			
Execute				

4.4.6.3. See also

• Issuing Telecommand via Command List

4.4.7. Issuing Telecommand via Command List

4.4.7.1. Prerequisites

• Selected display contains command list.

4.4.7.2. Issuing Telecommand via Command List

You can issue telecommands by selecting a command from a list and pressing the execute button. The scrollable command lists allow you to select telecommands or UCL commands out of popup menus during run-time execution. As an example you can find a command list in the display **Set Cabin Temp** which can be found under /examples /uss /fwdu /APM /FLTSYS /OPS / SYNOPTICS /ECLSS /CABIN_TEMP.uss).

To issue telecommand via command list:

1. Select command from list.

Θ	₽	Set Cabir	ı Temp (ECL	.SS_Set_C	abin_Temp_	MCD)		• 🗆 🗙
E	ile	Navigat	e <u>O</u> ptions	$\underline{W} indow$	<u>H</u> elp			
1								
	Set	Cabin Te	mp Setpoint					
	18	degC				CTCU1	стси2	
	19	degC						
	20	degC		Cabin Te	emp Setpoint			degC
	22	degC		Avg Cab	in Temp			deaC
	23	degC	_	Ang cub				acyc
\vdash								
								Close
				Exe	cute			

- 2. Click **Execute**.
- 3. Command is processed as described in Issuing telecommand via command button section 2-Step-Commanding.

4.4.8. Finding Displays with Parameter References

4.4.8.1. Prerequisites

• Project root folder must be set and existing. Project root folder must contain displays.

4.4.8.2. Finding Display with Parameter References

You can find and optionally open displays where opsnames, SIDs, PUIs or pathnames bound to the selected element are also used. The search is performed over the set of displays contained in the project root folder and its subfolders.

4.4.8.2.1. Find Parameter with No Display Open

- 1. Choose Navigate > Find Parameter.....
- 2. In the popup window enter the parameter you like to search for in the textfield labeled **Searching for parameter**.
- 3. Click **Start**.

X-₩ Find Parameter	
Searching for parameter	
PDU1_CTCU1_Pwr_Bus	
0%	
Displays containing parameter:	
	Start
	Select <u>A</u> ll
	<u>O</u> pen
	Close
	Close

- 4. If that wasn't the parameter you intended to search for you can stop the search by clicking **Stop** and entering a new opsname, SID, PUI or pathname to search for into the textfield below the label **Searching for parameter**. Then click **Start**.
- 5. Select display from list.
- 6. Click Open.
- 7. Click Close.

Executor opens selected display.

4.4.8.2.2. Find Parameter from Open Display

- 1. Right-click on any element with parameter binding.
- 2. Choose Find Parameter in Other Displays from pop-up context menu.

- 3. A window pops up with a list of all displays containing the selected parameter.
- 4. The search is automatically started with that parameter. If that wasn't the parameter you intended to search for you can stop the search by clicking **Stop** and entering a new opsname, SID, PUI or pathname to search for into the textfield below the label "Searching for parameter". Then click **Start**.
- 5. Select display from list. Or click **Select All**.

X-¤ Find Parameter	
Searching for parameter	
PDU1_CTCU1_Pwr_Bus_On_Off_Stat_DMC	
Finished	
Displays containing parameter:	
COL Activation Part 1 (ACT_PT_1)	Start
PDU 1 28V Subsys (PDU1_28V_SS)	
PDU1 Outlet 29 (PDU1_OUT29) DMC Manifesting 2 EDDC Subara (MON_2)	Select All
DMS Monitoring 5 - EPDS-Subsys (MON_5)	<u>O</u> pen
	Close
	0030

6. Click Open.

7. Click Close.

Executor opens selected display.

4.4.9. Finding Text in Display

4.4.9.1. Prerequisites

• At least one display must be open and selected.

4.4.9.2. Finding Text in Display

You can find text in displays. This is done by using incremental search.

To find text in display:
- 1. Choose Navigate > Find Text As You Type.
- 2. In the statusbar the text "**Starting find as you type**" is displayed.
- 3. Enter text. Each time a new character is typed, it is appended to the previously entered text. All elements where the entered text appears (either as static text or as a parameter name bound to that element) are highlighted, which means that the text is surrounded by an orange box. Statusbar shows how many occurences have been found (in this case 1 occurence for typing "en").

O-₩ USS Display Exe	cutor [cgsadn	nin@mcs-ws-1]							• • ×
<u>File</u> Navigate view									
COL Synoptics H.									
COL Synoptics H	ome Page (CC	L_Home_Page_MCD)						סי נ	
								Version: Ops Products 3.0.0	
				-		-			
External Payload							Ovhd Fwa		ode 2
SOLAR	CMU 2	04 Storage	03 Storage		PR 02 ETC	ISPR 01	FS L Pwr		
EPF SOZ	CMU 3 MMC			Mair	Pwr Bus	Main Pwr Bu	5	Set	
N R				Aux	FWF BUS	Aux PWP Bus		Temp	
EuTEE C&W							Ovhd Aft		
EPF SO X XCM	U CLSW 2	ISPR A4 HRF 2	ISPR A3 E	IPM	SPR A2 BIOLAB	ISPR A1	ER 6		
ATU R VMN	2 MMU1	Main Pwr Bus	Main Pwr Bus	Mair	Pwr Bus	Main Pwr Bu	IS	VCA 1 ATU 1	19 Alexandre and a second seco
VMN	2 spare	Aux Pwr Bus	Aux Pwr Bus	Aux	Pwr Bus	Aux Pwr Bus		ECLSS	R
EPF VCR SDX VCR	1 2		SUP 2			SUP 1	Aft Deck	Cab in Temp1 CTCU1	\mathbb{Z}
N VCA	² HRM	D4 Storage	D3 5/5 CT		CTCU 1	D1 \$/\$	CHX 1/2	CTCU2	
R PPSB	S PLCU VDPU	storage	PE	DU 2	PDU 1	5,5	CWSA 1/2	degC TPS1 Air Press	
EPF			v	10.2	VICT		WFA 1/2	mmHg PPCS 1 Press	
SDN		SUP 4		s	UP 3		Fwd Deck	mmHg	andi
R	CLSW 1	ISPR F4 HRF 1	ISPR F3 M	IARES	SPR F2 MSG	ISPR F1	EDR	mmHg	-
31Jul06 11:21:38 INFD : Executor started.									
31Jul06 11:42:01 INFO :	Opening displ	ay /home/cgsadmin/prj,	/uss/main/examp [*]	les/uss/fwdu	I/APM/FLTSYS/OPS/	SYNOPTICS_R	DOT/COL_HOME.	uss	
Find "en", 1 occurences	5			ТМ	MCS ⇒	Y 4	Upd: 🕙 Po	erf: 😑 🔩 Not Connected	

4. Press **Esc** to finish. Highlighting is removed. Statusbar shows **Find stopped**.

4.4.10. Showing Line Graph for Parameter Value History

4.4.10.1. Prerequisites

• Move the mouse over parameter element.

4.4.10.2. Showing Line Graph for Parameter Value History

You can see a line graph with history data of a parameter shown in a data field.

To show line graph for parameter value history:

1. Right-click over parameter element (e.g. Cabin Temp1 in display Cabin Temperature Control

Unit 1, which can be found under /examples /uss /fwdu /APM /FLTSYS /OPS / SYNOPTICS /ECLSS /CTCUl.uss).

- 2. Select **Line Graph** from element context menu.
- 3. A non-modal window with line graph for selected parameter opens.



4. Click Close.

4.5. Help

4.5.1. Showing Display Help

4.5.1.1. Prerequisites

• Help file must exist. URL prefix must have been configured for executor.

4.5.1.2. Showing Display Help

You can view the HTML help of the display which has been provided by the display's author.

To display help:

- 1. Choose **Help > For Display: name of display** menu command. If no help file has been defined for the display, the menu item is disabled.
- 2. Executor shows HTML help for selected display in web browser.

4.5.2. Getting Executor Version Information

4.5.2.1. Prerequisites

• Executor must be running.

4.5.2.2. Getting Executor Version Information

To get the executor version information:

- Choose **Help > About...** .
- Executor shows version information in popup dialog.



4.6. Miscellaneous

4.6.1. Print Preview

4.6.1.1. Prerequisites

• Display must be selected.

4.6.1.2. Print Preview

To preview print:

- 1. Choose **File > Print Preview...**.
- 2. In the popup dialog change any printer settings if necessary.

X-₩ Page Setup	×
Media	
Size: A4 (ISO/DIN & JIS)	-
Sour <u>c</u> e: Automatically Select	
Orientation	Margins
\Lambda 🔾 <u>P</u> ortrait	left (mm) right (mm)
🔺 🖲 <u>L</u> andscape	25.47 25.4
📓 🔿 Reverse Portra <u>i</u> t	top (mm) bottom (mm)
Interse Landscape Interse Landscape	25.4 25.43
	OK Cancel

- 3. Click **Ok**.
- 4. In the print preview popup select percentage to change the zoom.

X → Print Preview Print Close 50 % ▼	
Li bi suni Pryhodi Still Chilling Novi Binange Star Binange Star	Version: 0 ps Prof act 3.0.0
R Garrier Source R Source R Source R Source S	1 004 d2 004 d2
COLLADATE or to mercipital to keys (an or to be mercipital to keys) and to keys (an or to be mercipital to keys)	SIP 3 Field Occo

- 5. Click **Print**.
- 6. Click Close.

Executor prints image of display.

4.6.2. Printing Display

4.6.2.1. Prerequisites

• Display must be selected.

4.6.2.2. Printing Display

USS allows you to print displays.

To print display:

- 1. Choose **File > Print...**.
- 2. Select printer and optionally configure print setup.

<u>G</u> eneral	Page <u>S</u> etup <u>Appearance</u>		
Print Sen	vice		
<u>N</u> ame:	Stern Properties		
Status:	Accepting jobs		
Type:			
Info:			Print To <u>F</u> ile
Print Ran	ge	Copies	
	Ali	Number	of copies: 1
			to
	○ Pag <u>e</u> s 1 To 1		
			Print Cancel

3. Click **Print**.

Executor prints image of display. It is not possible to print parts of the display. Only the whole display can be printed.

4.6.3. Creating Display Snapshot

4.6.3.1. Prerequisites

• Display must be selected.

4.6.3.2. Creating Display Snapshot

You can save snapshots of a running display as graphics file for later use. This feature is useful for presentations, documentations and reports which automatically are complemented with display screenshots.

To create display snapshot:

1. Choose **File > Save Snapshot**.

Executor creates and automatically saves image into configured directory (usually under / home/user/.uss-x.y.z). The file name consist of the display name plus an appended timestamp. Snapshot is saved as PNG.

4.6.4. Saving a Copy of Current Display

4.6.4.1. Prerequisites

• Display must be selected.

4.6.4.2. Saving a Copy of Current Display

You can save the current display to a file for further processing for example editing.

To save a copy of current display:

- 1. Choose **File > Save A Copy...**.
- 2. In the file chooser dialog select folder in which you want to save your copy.
- 3. Enter filename under which you wish to save the copy.

X-¤ Save A Cop	Ŋ	
Save <u>I</u> n: 📑 di	splay copies	
File <u>N</u> ame:	copy of COL_HOME display	
Files of <u>T</u> ype:	USS displays (*.uss)	-
		Save Cancel

4. Click Save.

Display is saved in USS XML format.

4.6.5. Configuring Status Display

4.6.5.1. Prerequisites

• USS must be installed.

4.6.5.2. Configuring Status Display

The MCS status display is displayed in the statusbar at the bottom of the executor window. It can be

turned off as follows.

To configure status display:

- 1. Open **uss.properties** file in **\$basedir/uss-x.y.z/etc/** with a text editor.
- 2. To not display the status display change the value of **uss.mcs.status.indicator** property to false.

Enable the MCS status indicator in the executor status area.
uss.mcs.status.indicator = false

The mcs status display will not be shown in USS executor area at the bottom of the window in the statusbar.

Upd: 🕚 Perf: 🕘 🔩 Not Connected

4.6.5.3. See also

• Configure System Settings

4.6.6. Configuring Data Quality Indicators

4.6.6.1. Prerequisites

• USS must be installed.

4.6.6.2. Configuring Data Quality Indicators

You can configure the visual appearance of data quality indicators (DQI).

To configure data quality indicators:

1. Edit **uss.properties** file in **\$basedir/uss-x.y.z/etc/** with a text editor and set the corresponding property to the name of a DQI configuration file.

```
2.
### Different Data Quality Indicator (DQI) styles are chosen dependent
### on which target system the display is designed for. Each pair of
### entries defines thea mapping file for one target system.
uss.view.dqistyle.file = ${basedir}/etc/pws_dqistyle.xml
uss.view.dqistyle.target1 = PWS
uss.view.dqistyle.file1 = ${basedir}/etc/pws_dqistyle.xml
uss.view.dqistyle.target2 = PCS
uss.view.dqistyle.file2 = ${basedir}/etc/pcs_dqistyle.xml
```

```
uss.view.dqistyle.target3 = MCS
uss.view.dqistyle.file3 = ${basedir}/etc/mcs_dqistyle.xml
```

Executor uses this file for rendering DQI's.

4.6.6.3. See also

• Configure System Settings

Chapter 5: Importing Foreign Display Formats

5.1. Introduction

USS provides limited support for importing three different non-USS display formats:

- PCS/PREP: These are NASA displays in XML format designed for execution on the PCS laptop.
- PWS/FWDU: These are ESA Columbus displays in SAMMI format designed for execution on the PWS laptop.
- GWDU: These are displays in Dataviews/Gipsy format designed for execution on ground facilities.

This chapter describes how displays in one of these formats can be converted to USS displays so that they can be edited and executed with the USS editor and executor.

General Guidelines

- If converting extracted displays from another system (i.e. GWDU) into USS format use new empty temporary directories for conversion output. Do not do any manual conversions under the uss-project directory.
- If Adding new .uss displays from external source (e.g. GWDU conversion output) to MDB, first copy files to uss-project directoy. Be careful to use the right directory names and file names (both must map to valid MDB path and enditem names).

5.2. Importing PCS/PREP Displays

This section describes how PCS/PREP displays are imported and converted to USS format.

TBD

5.3. Importing PWS/FWDU Displays

This section describes how PWS/FWDU displays are imported and converted to USS format.

The import of FWDU displays involves four steps:

- 1. Extracting the FWDU displays from MDB.
- 2. Generate XML SCOE files containing all referenced data if not yet available.
- 3. Converting *XBM* images to *PNG* format.
- 4. Converting the Sammi ASCII format to USS format.

General Guidelines:

- If converting extracted displays from FWDU format into USS format use new empty temporary directories for conversion output. Do not do any manual conversions under the uss-project directory.
- If Adding new .uss displays from external source (e.g. FWDU conversion output) to MDB, first copy files to uss-project directoy. Be careful to use the right directory names and file names (both must map to valid MDB path and enditem names).

5.3.1. Extracting FWDU Displays from MDB

The first step to extract FWDU displays is to read the FWDU ASCII definition of each display from the MDB.

Prerequisites are:

- MCS / CGS installation with MDB, and MDA at a minimum.
- CCU version containing the FWDU synoptic display(s) to be extracted and all end items referenced by the display(s).

To extract the displays from CGS/MDB proceed as follows:

uss-fwdu-extract.[sh|bat] [OPTION]... -c ccuVersion targetDir

• **OPTION**: Specify **-h** for getting a complete list of available options.

Default extract is to process all displays of the specified CCU. To extract only one display use the - e option.

Default MDB connection is as guest to APM_MASTER. To connect to another MDB instance use the according options.

- **ccuVersion**: CCU internal version number of CCU where displays shall be retrieved from.
- **targetDir**: Directory where to store the finalized FWDU display files, relative to USS installation directory or absolute path.

5.3.2. Generating SCOE XML files

All in the FWDU synoptic displays referenced data must be available for offline access. These data are organized in the so called XML SCOE files. To generate XML SCOE files issue the following command:

\$MCS_HOME/mcs_tools/bin/common/generate_scoexml.sh CCU ccu-version 0

• **ccu-version**: CCU internal version number. You will get this number using the IMDB CU version manager on the CCU version.

The generated files will be stored in \$MCS_HOME/mcs_tools/data/scoeXML/<ccu-version>_0_*.xml. Copy or move these files to directory <USS installation dir>/share/scoe

5.3.3. Converting XBM Images to PNG Format

The FWDU extract creates a set of XBM files that need to be converted to PNG format. This process requires the external tool mogrify from the <u>ImageMagick</u> package. This package is installed by default on most Linux distributions. Change to the directory which contains the *.xbm files and issue the following command.

find APM -iname "*.xbm" -exec mogrify -format png -transparent white -type TrueColor

5.3.4. Converting the FWDU ASCII definition to USS Format

The final step is to convert the directory tree containing the .fwdu files to .uss files.

uss-convert.[sh|bat] [OPTION]... -o target source

- **OPTION**: Specify **-h** for getting a complete list of available options.
- target: Directory where to store the FWDU display files converted to USS with extension .uss
- **source**: Directory containing FWDU display files with extension .fwdu.

5.4. Importing GWDU Displays

The import of GWDU displays involves the following steps:

- 1. Extracting the GWDU displays from MDB and converting from binary Dataviews format to XML report format.
- 2. Generate XML SCOE files containing all referenced data if not yet available.
- 3. Converting the XML report to USS format including creation of a symbol library if applicable.
- 4. Store USS displays in MDB as new end items.

These steps are available as an integrated process in CGS. For details please refer to the CGS User Manual, section 'USS Displays'.

5.4.1. GWDU to USS Conversion Details

This section describes in detail how GWDU display elements are mapped to USS elements.

5.4.1.1. Conversion of GWDU Display Objects

The table given below lists for each GWDU display object the target USS object. In case of special handling a comment explains the details.

GWDU Object	USS Object	Comment
Static Objects		
Line	Polyline	With two points
Arc	Arc	
Rectangle	Polyline	Closed polyline
Ellipse	Ellipse	
Circle	Ellipse	
Polyline	Polyline	
Text	Label	
Vector text	Label	
Scalable fonts text	Label	In case of setting width and height the best fit font size will be calculated. No scaling of fonts.
Subdrawing	Dynamic Symbol	The GWDU Symbols used for the subdrawing must be re-edited as SVG or PNG graphics and a mapping table from GWDU symbol to USS symbol needs to be provided. The symbols will be included in a user symbol library.
Symbol	Symbol	Static symbol
		The GWDU Symbols used must be re-edited as SVG or PNG graphics and a mapping table from GWDU symbol to USS symbol needs to be provided. The symbols will be included in a user symbol library.
Icon	Image	Will be transferred as reference to a PNG file.
Image	Image	Will be transferred as reference to a PNG file.
Inputs		

 Table 5.1. GWDU display object conversion to USS object

GWDU Object	USS Object	Comment
Button	Command button	Command buttons should not be used to open displays via HLCL because command buttons are not IDAGCS compatible for navigation. Use Picture select button instead.
Popup menu	Popup menu or Com- mand List	Command List is fixed, not popup
Picture select	Navigation button	
Text menu	Command list	
Dynamic objects		
Bar graph	Bar graph	Vertical, only one sample
Bar line graph	Bar graph	Vertical, only one sample
Packed bar graph	Bar graph	Vertical, only one sample
Packed bar line graph	Bar graph	Vertical, only one sample
Stacked packed bar line graph	Strip chart line graph	
Center bar graph	Bar graph	Vertical, only one sample
Horizontal bar graph	Bar graph	Horizontal, only one sample
Pigback bar graph	Bar graph	Vertical, only one sample
Pickback dist bar graph	Bar graph	Vertical, only one sample
Solid bar graph	Bar graph	Vertical, only one sample
Step graph	Line graph	With attribute 'step'
High low graph		
High low bar graph		
High low line graph	Line graph	

GWDU Object	USS Object	Comment
Line graph	Line graph	
Stacked line graph	Strip chart line graph	
Filled line graph	Line graph	
Filled line stacked graph	Strip chart line graph	
Filled line dist graph	Line graph	
Strip chart graph	Line graph	
Raster strip chart graph	Line graph	
Stacked strip chart graph	Strip chart line graph	
Vertical strip chart graph	Line graph	Vertical
Raster vertical strip chart graph	Line graph	vertical
Waterfall graph		
Raster waterfall graph		
Point chart graph		
Point line graph	Line graph	With value markers
Spectro graph		
Stacked spectro graph		
Smooth spectro graph		
Smooth stacked spectro graph		
Pie chart graph		

GWDU Object	USS Object	Comment
Radial graph		
Radial NE graph		
Realtime line graph	Line graph	With 'realtime' attribute
Realtime step graph	Line graph	With 'realtime' and 'step' attributes
Scatter graph		
Impulse graph		
Impulse to zero graph		
Web graph		
Multi-Y web graph		
Surface graph		
Vector graph		
Flowfield graph		
Contour graph		
Filled contour graph		
Blocks graph		
Packed blocks graph		
Indicator graph		
Controller graph		
Horizontal controller graph		
Fader graph	Bar meter	
Dials graph	Elliptic meter	

GWDU Object	USS Object	Comment
Dials with history graph	Elliptic meter	
Dial 360 graph	Elliptic meter	
Meter graph	Elliptic meter	
Knob graph	Elliptic meter	
Fan graph	Elliptic meter	
Analog clock graph	Elliptic meter	
Artificial horizon graph		
Bullseye graph		
Face graph		
Dynamic drawing graph		
Moving drawing graph		
Digits graph	Data field	
Text graph	Data field	
Message graph	Data field	
Legend graph		
Color graph		
Size graph		
Box graph		
Circle graph		
Triangle graph		

5.4.1.2. Conversion of GWDU Attributes

GWDU attributes are the formatting details of GWDU display objects.

The following table lists for all GWDU attributes the way of conversion into USS properties. In case of special handling a comment explains the details.

Table 5.2. GWDU attributes conversion to USS properties

GWDU Attribute	USS Property	Comment
Text font	Lucida sans, Lucida, Lucida typewriter	Will be translated in a 'best fit manner'
Text size	Font size or bounding box	Depending on source definition
Text format (bold, ital- ic, underline, color)	Text format (bold, ital- ic, underline, color)	
Text direction		Only horizontal
Text rotation	Steps of 90 degrees al- lowed	
Line type	Solid or dashed	All non solid types are converted to dashed
Line width	1 pt 4 pt line	
Line color	Line color	
Filling	Fill color and line color	Depending on usage of 'edge' in fill status
Context features of graphs		
Title	Title	Standard format
Samples	Number of samples to be shown	Sample based graph in opposite to time based graph
Format string	Format of data fields	C-like format string, to be implemented in USS

USS User Manual

GWDU Attribute	USS Property	Comment
		V1
Opaque		Opaque is default
Grid		
Color of bar or curve		Default colors
Legend	Default legend	On or off
Time/Value axis label	Domain/Range axis la- bel	Standard format
Ticks	Ticks	On or off
Tick label	Tick label	On or off, standard format
Dynamic behaviour of texts and shapes		
Dynamics of shapes	Color, size, position can be dynamic	
Dynamics of texts	Text is converted to data field	In case of '\$OPSNAME' usage dynamics are not converted
Dynamics of subdraw- ing	Dynamic Symbol	Symbol shown changes according to threshold

Chapter 6: Localizing Displays For Different Languages

6.1. Introduction

USS provides support for localizing displays into different languages. The support includes the translation of textual element attributes.

To localize displays USS reads localization files that lie in the directory next to the displays. Those localization files contain replacement mappings in the form **key=value**, where the key describes exactly the attribute within an element that needs to be translated and the value contains the translated text.

The localization files can be generated automatically by a tool called **uss-localizer-generator**. The translation itself must be done manually by a professional translator.

Localizations can exist for many different languages in parallel and are selected by the current Locale setting set in USS.

6.2. Translation workflow

This section describes the procedure workflow of generating display translations.

- 1. Generate Display with the Editor.
- 2. Generate Localization skeletons.
- 3. Manually translate localization files.
- 4. Open display in Executor. Display is automatically translated according to the localization files.

6.3. Generating skeletons with the Skeleton Generator

Following command reveals the options of the skeleton generator:

```
uss-localizer-generator.bat -h
usage: uss-localizer.[sh|bat] [OPTION]... input dir
Generates locale skeleton files for the displays in source-dir.
Localize Bundles are written in the display directory.
Only supports .uss files.
OPTION may be one or more of the following.
-c,--country set country for resource bundles
-f,--forceOverwrite force overwrite of existing reports
-h,--help print this text and exit
```

-l,--language -r,--recursive set language for resource bundles recursivly descend in subdirectories

The generated skeletons will have the same name as the displays with the language and country abbreviation added to the name as in following example. For Display

COL_HOME.uss the british English language file will be named

COL_HOME_en_GB The generated files will lie in the same directory as the display.

The values in the generated files will correspond to the values set in the original display files surrounded by special marker chars marking the values as untranslated.

6.4. Supported attributes

Element	Translatable Attributes
Display	title
Label	text, tooltip
Button	pressedText, releasedText, tooltip
CommandList	itemNames, tooltip
ComboBox	keyNames, tooltip
Compound	all translateable properties of subelements, tool- tip
Graph	title, defaultDomainAxisLabel, defaultRangeAx- isLabel, tooltip
LineGraph	like Graph and additionally labels for all mul- tiple DomainAxis and RangeAxis
StripGraph	Translatable properties of Graph for the graph as a whole and each included subgraph

Table 6.1. Supported attributes

6.5. Format of Entry Keys

The keys of the localization file uniquely determine the attribute that needs to be translated.

Keys for Display global attributes (currently only display title) have following format:

Display.attributeName=

Normal Attribute Keys have following format:

ElementType.elementName.attributename=

Containerelements like Compound and StripGraph have following format to address subcomponents:

ContainerType.containerName.SubComponentType.subComponentName=

The depth of nesting is not limited for the localization files.

Chapter 7: Reference

7.1. Menue references for the executor

7.1.1. File Menue

The actions on files are grouped into the file menue.

- **Open...** (**Ctrl-O**) Opens a display of any format, that is USS displays, FWDU displays, GWDU displays or PREP and SATMON displays. (which are both in *.xml-format)
 - See also: Loading display from file system
- Save A Copy... Saves a copy of the current display in one of the following formats: USS (*.uss), FWDU (*.fwdu), GWDU (*.gwdu) or PREP and SATMON displays (which are both saved as *.xml-format).
 - See also: Saving a copy of current display
- Close (Ctrl-W) Closes the current display.
 - See also: Closing display
- **Close Other** Closes all displays but the currently selected one (if there is more than one display open).
 - See also: Closing other displays
- Close All Closes all open displays.
 - See also: Closing all displays
- **Reload (F5)** Reloads the current display.
 - See also: Reloading display from file system
- Load Layout... (Ctrl-L) Loads a previously saved layout which is any number of displays.
 - See also: Loading window layout
- Save Layout As... (Ctrl-S) Saves all open displays as a layout.
 - See also: Saving window layout
- Create HTML Report... Creates a HTML report of the current display which can be viewed in a browser.
- Save Snapshot (Ctrl+Shift+P) Save a snapshot of the current display into the user's home dir.
 - See also: Creating display snapshot

- **Print...** (**Ctrl+P**) Opens a print dialog to print the current display.
 - See also: Printing display
- Print Preview... Opens a dialog to setup the page, then opens a print preview dialog.
 - See also: Print preview
- Properties (Alt-Enter) Opens the properties dialog of the current display.
 - See also: Showing display properties
- 1 ... 4 The most recently opened displays.
- **Exit** (Alt-X) Exits the executor.
 - See also: Exiting the executor

7.1.2. Navigate Menue

The navigate menue groups actions for display navigation.

- Back (Alt-Left) Navigates to the next display to the left (if there is more than one display open).
- Forward (Alt-Right) Navigate to the next open display to the right (if there is more than one display open).
- Home (F12) Opens the home display.
 - See also: Navigating to home display
- Find Text As You Type (Ctrl-F) Searches for entered text in the current display. If occurences are found they are highlighted by a surrounding orange box.
 - See also: Finding text in display
- Find Parameter... (Ctrl+Shift-F) Searches for a parameter (which can be a pathname, SID, PUI or opsname) in displays.
 - See also: Finding display with parameter references

7.1.3. View Menue

The view menue groups actions for the displaying or not displaying of GUI elements.

- **Toolbar** Toggles between Toolbar is displayed and not displayed.
 - See also: Showing/Hiding the toolbar
- Show Hierarchy (F11) Toggles between Hierarchy is shown or not shown.
 - See also: Navigating display hierarchy

7.1.4. Options Menue

The setting of preferences, the connecting to or from MCS can be done in the options menue.

- **Preferences...** Opens a dialog that allows the setting of preferences changing the behaviour of the executor e.g. tooltip behaviour, tab appearance etc.
 - See also: Configuring user settings
- **MCS Connection...** Opens a dialog in which the settings for the MCS Connection can be configured. The connection can be established or disconnected.
 - See also:
 - Connecting to system to be monitored and controlled
 - Disconnecting system to be monitored and controlled

7.1.5. Window Menue

Actions that manipulate the appearance of the windows are grouped into the window menue.

- Cascade Displays all open displays cascaded.
- Tile Displays all open displays as tiles.
- Minimize All Minimizes all open displays.
- Maximize All Maximizes all open displays.
- **Reset to default size** The current display is displayed in its default size, which has been configured by the display author.
 - See also: Resetting window to default size
- **Tabbed Mode** Toggles between displays being displayed in tabbed mode or not.
 - See also: Toggling tabbed mode
- Undock Undocks the current display into a standalone application.
 - See also: Undocking windows
- Dock All Docks all undocked displays back into the executor.
 - See also: Docking all windows

7.1.6. Help Menue

Everything that gives information about the use of uss is grouped into the help menue.

• Help Contents Opens the index of the usermanual in HTML.

- For Display: name of display Shows the help for the current display.
 - See also: Showing display help
- Search... Opens a dialog to search the usermanual for a given phrase.
- Show All Hints Pops a dialog up which asks if all hints should be displayed again.
- Data Quality Indicators for Display Displays the DQI (Data Quality Indicators) of the current display in an opened browser window.
- About... Opens a dialog displaying information about USS.
 - See also: Getting the executor version information

7.2. XML Display File Format Schema

```
# Relax NG schema (http://www.relaxng.org/) for USS display files in XML format.
# Copyright 2006 EADS SPACE Transportation
# $Id: //uss/2.6/etc/uss.rnc#1 $
# This schema defines USS format version 4 (see element FormatVersion below)
# which is compatible with USS-2.6.0 or later.
default namespace = ""
### Start of grammar. The remaining patterns are alphabetically ordered.
start =
  element USSObject {
    element Generator { text },
    element FormatVersion { xsd:positiveInteger },
     element Display { Display }
Arc =
  element StartAngle { xsd:integer },
  element ArcAngle { xsd:integer },
  Shape
AxisProperties =
  element Owner {
                     _GraphOrRef },
  element Label {
                     text }?
AxisRange =
  element Lower { xsd:double
element Upper { xsd:double
BarGraph =
  element DomainAxisLabel { text }?,
element DefaultRangeAxis { CategoryAxisProperties },
  Graph
Button =
  element IsToggle { xsd:boolean },
  element IsPressed { xsd:boolean },
element IsEnabled { xsd:boolean },
element CornerEnabled { xsd:boolean },
element Shape { "RECTANGLE" | "OVAL" | "FLAT" },
  element PressCommand { _CommandOrRef }?
  element ReleaseCommand { _CommandOrRef }?,
```

```
element PressedCompound { Compound }?,
element ReleasedCompound { Compound }?,
  element Rotation { _RotationEnum },
element FillStyle { FillStyle },
element CornerFillStyle { FillStyle },
  Element
CAGShape =
  element Shapes {
     attribute class { "linked-list" },
       element Arc { Arc }
element CAGShape { CAGShape }
       element Ellipse { Ellipse }
element Polygon { Polygon }
       element Rectangle { Rectangle }
  }.
  element Operation { "UNION" | "SUBTRACT" | "INTERSECT" | "EXCLUSIVE_OR" },
  Shape
CategoryAxisProperties =
  element AxisRange { AxisRange }?,
element AutoRange { xsd:boolean }
  element AutoRangeUpper { xsd:double }?,
element AutoRangeLower { xsd:double }?,
  element StickyZero { xsd:boolean },
  AxisProperties
CheckValve =
  Valve
CloseDisplayCommand =
  Command
Color =
  element red { xsd:nonNegativeInteger },
  element green { xsd:nonNegativeInteger },
  element blue { xsd:nonNegativeInteger },
element alpha { xsd:nonNegativeInteger }
ComboBox =
  element VisibleRowCount { xsd:integer },
  ValidInputMap,
  element TextStyle { TextStyle },
  Element
Command =
  element Tooltip { text }?
CommandButton =
  element IsGuarded { xsd:boolean },
  Button
CommandList =
  element ShowButtons { xsd:boolean },
  element BackgroundColor { Color },
  element SelectionColor { Color },
  element TextStyle { TextStyle },
element ShowAsComboBox { xsd:boolean },
  element List {
     element CommandList.Item {
       element Label { text },
       element Command { _CommandOrRef }
     }+
  },
```

```
Element
Compound =
  element Elements { _ElementChoice* },
  Element
Computation =
  element Expression { text },
  element Arguments {
    (
       element ExternalDataSource { ExternalDataSource | _reference }
      element Computation { Computation | _reference }
    ) *
  },
  element StatusPropagation { xsd:boolean },
  DataSource
Criteria =
  element Key {
    (attribute class { text }?, _reference)
      element ExternalDataSource { ExternalDataSource | _reference }
      element Computation { Computation | _reference }
      element DataSourcePair { DataSourcePair | _reference }
  element Name { text }
DataSource =
  element Names {
    attribute class { "linked-hash-map" },
    element entry {
      element string { text }
element string { text }
    }+
  },
  element Type {
    attribute class { text }?,
    element Literals {
   attribute class { text },
   element string { text }+
    }?,
    element Name { text }
  },
  element Unit { text }?,
  element UsingRaw { xsd:boolean }
DataSourcePair =
  (
    element DomainDataSource { _DataSourceOrRef },
    element RangeDataSource { _DataSourceOrRef }?
  )
element DomainDataSource { _DataSourceOrRef }?,
    element RangeDataSource { __DataSourceOrRef }
  )
Display =
  element Title { text }?,
element Width { xsd:integer },
element Height { xsd:integer },
  element BackgroundColor { Color }?,
  element BackgroundSymbolName { text }?,
```

```
element BackgroundSymbolLibraryName { text }?,
  element ExecuteButton { xsd:boolean },
  element TargetSystem { text }?,
element DatabaseAlias { text }?,
element HelpURL { text }?,
element Description {
     element Format { "PLAIN" | "HTML" },
     element Text { text }
   }?,
  element ChangeLog {
     element ChangeLogEntries
        element ChangeLogEntry
          element Revision { text },
          element Author { text },
element Date { xsd:integer }, # seconds since the epoch
          element Comment { text }
        }*
     }
  },
  element Source {
     element Context { text }?,
     element Properties
        element property
          attribute name { text }
          attribute value { text }
        }*
     }
  }?,
  element Elements { _ElementChoice* }
DrawStyle =
  element Pattern { "NONE" | "SOLID" | "DOTTED" | "DASHED" },
  element Color { Color }?,'
element Width { xsd:float }
Element =
  element X { xsd:integer },
element Y { xsd:integer },
  element Width { xsd:integer },
element Height { xsd:integer },
element Name { text },
element Depth { xsd:integer },
  element Tooltip { text }?,
element Comment { text }?,
  element DataBindings {
     attribute class { "linked-hash-set" },
     element DataBinding {
   element DataSource { _DataSourceOrRef },
        element DynamicProperty
             "X" | "Y" | "WIDTH"
                                          "HEIGHT"
             "VALUE" | "DRAW_COLOR" | "FILL_COLOR" | "FLUID" | "NAVIGATION_TARGET" | "(
        }
     }*
  }
Ellipse =
  Shape
EllipticTickMeter =
  element StartAngle { xsd:decimal },
element SweepAngle { xsd:decimal },
  element DrawAsCircle { xsd:boolean },
  TickMeter
ExitCommand =
  Command
```

```
ExternalDataSource =
  DataSource
ExternalImage =
  element Pathname { text },
  Image
Field =
  element Rows { xsd:integer },
  element Columns { xsd:integer },
element Format { text }?,
element Decimals { xsd:integer },
  element Unit { text }?,
  element ShowUnit { xsd:boolean },
  element ShowIndicators { xsd:boolean },
  element AutoWrap { xsd:boolean },
element TextStyle { TextStyle },
element UnitTextStyle { TextStyle },
  element Rotation { _RotationEnum },
  element OverflowBehavior { "OVERWRITE" | "EXPAND" | "SHOW_HASHES" },
  Element
FileChooser =
  element StartDirectory { text }?,
  element FilterList {
   attribute class { "linked-list" },
     element FileChooser.FileFilter {
        element Extension { text },
        element Description { text }
     }*
   },
  element UseAbsolutePath { xsd:boolean },
  InputField
FillStyle =
  element Pattern { "NONE" | "SOLID" },
   element Color { Color }
Fluid =
   element Name {
      "CUSTOM_FLUÌD" | "AIR" | "AMMONIA" | "BRINE"
     "CO2" | "DISTILLATE" | "EMPTY" | "FREON" | "FUEL"
"HELIUM" | "HYDROGEN" | "MIXED_GAS_AND_LIQUID"
     "NITROGEN" | "NON_TOXIC_COOLANT" | "OXIDIZER"
     "OXYGEN" | "TOXIC_COOLANT" | "URINE" | "VACUUM" | "WATER"
  element Color { Color }
Graph =
   element GraphDataset { GraphDataset }?,
  element GraphDatabet | GraphDatabet | element of aphDatabet | element , element Title { text }?,
element Orientation { "HORIZONTAL" | "VERTICAL" },
element LegendEnabled { xsd:boolean },
element LegendSections { xsd:positiveInteger },
  element LegendFieldColumns { xsd:positiveInteger },
  element LegendFieldDecimals { xsd:nonNegativeInteger },
  element LegendFieldTextStyle { TextStyle }?,
element LegendLabelTextStyle { TextStyle }?,
element LegendUnitTextStyle { TextStyle }?,
element CriteriaDrawStyles {
     element DrawStyle { DrawStyle }+
   }?,
  element GraphBackgroundColor { Color }?,
element PlotBackgroundColor { Color }?,
  element DomainGridlineDrawStyle { DrawStyle }?,
```

```
element RangeGridlineDrawStyle { DrawStyle }?,
   Element
GraphDataset =
   element Graph { _GraphOrRef }?,
   element CriteriaMap {
      attribute class { "linked-hash-map" },
      element entry {
            element ExternalDataSource { ExternalDataSource | _reference }
            element Computation { Computation | _reference }
            element DataSourcePair { DataSourcePair | _reference }
         element Criteria { Criteria }
      }*
   }
Image =
   element Rotate { xsd:decimal },
   element AutoScale { xsd:boolean },
   element KeepAspectRatio { xsd:boolean },
   Element
InputField =
   element Columns { xsd:integer },
   element TextStyle { TextStyle },
   element SimpleTeleCommandParameter { SimpleTeleCommandParameter | _reference }?,
   Element
Label =
   element Text { text },
element TextStyle { TextStyle },
  element lextStyle { lextStyle {,
element AutoSize { xsd:boolean },
element Rotation { _RotationEnum },
element LabelFor { _ElementOrRef }?,
element AutoText {
   element Mode { "OFF" | "CONTEXT" | "BASENAME" },
      element Context { text }?,
element Length { xsd:integer },
      element Clipping { "OFF" | "LEFT" | "RIGHT" },
      element ClipIndicator { text }?
   Element
# Limit values must be parseable as Java Number objects
Limits =
  element LowCautionLimit { attribute class { text }, text }?,
element HighCautionLimit { attribute class { text }, text }?,
element LowWarningLimit { attribute class { text }, text }?,
element HighWarningLimit { attribute class { text }, text }?,
  element LowOffScaleWarningLimit { attribute class { text }, text }?,
element HighOffScaleWarningLimit { attribute class { text }, text }?,
element DeltaCautionLimit { attribute class { text }, text }?,
element DeltaWarningLimit { attribute class { text }, text }?,
   element ExpectedValue { text }?
LinearTickMeter =
   TickMeter
LineGraph =
   element ExpirationPeriod { xsd:nonNegativeInteger }
   element ExpirationSamples { xsd:nonNegativeInteger },
element ValueMarkerEnabled { xsd:boolean },
  element StepCurveEnabled { xsd:boolean },
element LimitAreasFilled { xsd:boolean },
element DomainAxisLimits { Limits },
```

```
element RangeAxisLimits { Limits },
  element DefaultDomainAxis { ValueAxisProperties },
element DefaultRangeAxis { ValueAxisProperties },
  element DomainAxesMap { _AxesMap }?,
element RangeAxesMap { _AxesMap }?,
  Graph
Meter =
  element Minimum { xsd:double },
element Maximum { xsd:double },
  element Maximum (
element Orientation { "HORIZONI
BorderColor { Color }?,
                              "HORIZONTAL" | "VERTICAL" },
  element FillColorIndicatingStatus { xsd:boolean },
  element FillStyle { FillStyle },
  Element
NavigationButton =
  element DefaultNavigationTarget { text }?,
  Button
NestedTeleCommandParameter =
  element Parameters {
    attribute class {
                            "linked-list" },
       element SimpleTeleCommandParameter { _reference }
       element SimpleTeleCommandParameter { SimpleTeleCommandParameter }
       element NestedTeleCommandParameter { NestedTeleCommandParameter }
     ) *
  TeleCommandParameter
OpenDisplayCommand =
  element DisplayBasename { text },
element OpenInNewWindow { xsd:boolean },
  element Coordinates {
    element X { xsd:integer },
element Y { xsd:integer },
element Width { xsd:integer },
element Height { xsd:integer }
  }?,
  Command
Pipe =
  element Show3DEffect { xsd:boolean },
  element PipeConnectors {
     attribute class { "linked-hash-set" },
     element PipeConnector { PipeConnector | _reference }*
   },
  element Diameter { xsd:decimal },
  element Fluid { Fluid },
  Element
PipeConnector =
  PipeSegments,
  element Point { Point }
PipeSeqment =
  element PipeSegment {
     element Source {
        _reference
     },
     element Destination { PipeConnector }
```

```
PipeSeqments =
  element PipeSegments {
    attribute class { "linked-hash-set" },
(PipeSegment | element PipeSegment { _reference})*
PlaceHolder =
  Element
Point =
  element x { xsd:integer
element y { xsd:integer
Polygon =
  element Points {
    element Point { Point }+
  Shape
Polyline =
  element Points {
    element Point { Point }+
  element DrawStyle { DrawStyle },
element ArrowStart { xsd:boolean },
element ArrowEnd { xsd:boolean },
  Element
Rectangle =
  Shape
Shape =
  element FillStyle { FillStyle },
element DrawStyle { DrawStyle },
  Element
SimpleTeleCommandParameter =
  TeleCommandParameter
StringTeleCommand =
  TeleCommand
StripGraph =
  element SubgraphMap {
    attribute class { "linked-hash-map" },
     element entry {
       element LineGraph { LineGraph },
       element int { xsd:positiveInteger }
    }*
  },
  LineGraph
StructuredTeleCommand =
  element Parameters {
   attribute class { "linked-list" },
       element SimpleTeleCommandParameter { _reference }
       element SimpleTeleCommandParameter { SimpleTeleCommandParameter }
       element NestedTeleCommandParameter { NestedTeleCommandParameter }
     ) *
  },
  TeleCommand
```

```
Symbol =
```

```
element LibraryName { text },
element SymbolName { text },
  Image
TankMeter =
  element Fluid { Fluid },
  Meter
TeleCommand =
  element Name { text }?,
element Kind { "FLAP" | "SWOP" | "HLCL" | "PCS" | "USS" },
  Command
TeleCommandParameter =
  element Owner { StructuredTeleCommand | _reference },
element Name { text },
element Constraint { attribute class { text }?, _anyElement* }?,
   element InputOutputMapping {
      attribute class { "linked-hash-map" },
      element entry {
         element string { text },
element string { text }
      }*
   }?,
   element Value { text }?
TextStyle =
  element Fontname { text },
element Fontsize { xsd:nonNegativeInteger },
element IsBold { xsd:boolean },
element IsItalic { xsd:boolean },
   element IsUnderlined { xsd:boolean },
   element Color { Color },
  element HorizontalAlignment { "LEFT" | "CENTER" | "RIGHT" },
element VerticalAlignment { "TOP" | "CENTER" | "BOTTOM" }
Thermometer =
   TickMeter
TickMeter =
   element TickBase { xsd:double }?,
   element Color { Color },
  element TickMajorFrequency { xsd:integer },
   element TickUnit { xsd:decimal },
   element TickIndicator {
     attribute class { text },
element BackgroundColor { Color }?,
element SliderStyle { "TRIANGLE" | "BAR" }?,
element NeedleColor { Color }?,
element NeedleStyle { "LINE" | "KITE" | "BAR" }?,
      element Thickness { xsd:integer }
   },
  element LabelStyle { "NO_LABELS" | "LEFT_OR_TOP" | "RIGHT_OR_BOTTOM" | "ALTERNATE
element FieldStyle { "DISABLED" | "CENTER" | "LEFT" | "RIGHT" },
  element Label { text }?,
element LabelTextStyle { TextStyle },
   element IndicatorTextStyle { TextStyle },
  Meter
ValidInputMap =
   element ValidInputMap {
      element entry {
         element string { text },
element string { text }
      }*
   }
```

```
ValueAxisProperties =
  element AxisRode { "VALUE_BASED_LINEAR" | "VALUE_BASED_LOGARITHMIC" | "TIME_BASED_
element AxisRange { AxisRange }?,
element AutoRange { xsd:boolean },
element AutoMove { xsd:boolean },
  element StickyZero { xsd:boolean },
  element TickLabelsRotated { xsd:boolean },
  AxisProperties
Valve =
  element Fluid { Fluid },
  element Modifier { "GENERIC" | "AUTO_MOTOR" | "RELIEF" | "MANUAL_MOTOR" | "MANUAL_
element Rotation { _RotationEnum },
  element ThreeWayValve { xsd:boolean },
  Element
### Shortcuts for frequent patterns
# FIXME: this is temporary pattern accepting any XML structure until a
# full definition is provided
_anyElement =
  element * {
    (attribute * { text }
        text
        _anyElement)*
  }
reference =
  attribute reference { text }
_AxesMap =
  attribute class { "linked-hash-map" },
  element entry {
    (element DataSourcePair { DataSourcePair | _reference }
     element null { empty }),
    element ValueAxisProperties { ValueAxisProperties }
  }+
_CommandOrRef =
  CloseDisplayCommand
  (attribute class { "CloseDisplayCommand" }, (_reference | CloseDisplayCommand))
  ExitCommand
  (attribute class { "ExitCommand" }, (_reference | ExitCommand))
  OpenDisplayCommand
  (attribute class { "OpenDisplayCommand" }, (_reference | OpenDisplayCommand))
  StringTeleCommand
  (attribute class { "StringTeleCommand" }, (_reference | StringTeleCommand))
  StructuredTeleCommand
 (attribute class { "StructuredTeleCommand" }, (_reference | StructuredTeleCommand
_DataSourceOrRef =
  ExternalDataSource
  (attribute class { "ExternalDataSource" }, (_reference | ExternalDataSource))
  Computation
 (attribute class { "Computation" }, (_reference | Computation))
_ElementChoice =
    element Arc { Arc | _reference }
element BarGraph { BarGraph | _reference }
element CAGShape { CAGShape | _reference }
    element CheckValve { CheckValve | _reference }
element ComboBox { ComboBox | _reference }
    element CommandButton { CommandButton | _reference }
```

```
element CommandList { CommandList | _reference }
      element CommandList { CommandList | _reference }
element Compound { Compound | _reference }
element EllipticTickMeter { EllipticTickMeter | _reference }
element ExternalImage { ExternalImage | _reference }
element Field { Field | _reference }
      element Field { Field | __reference }
element FileChooser { FileChooser | __reference }
element InputField { InputField | __reference }
element Label { Label | __reference }
      element LineGraph { LineGraph | _reference }
      element LinearTickMeter { LinearTickMeter | _reference }
element NavigationButton { NavigationButton | _reference }
      element Pipe { Pipe | _reference }
element PlaceHolder { PlaceHolder | _reference }
      element Polygon { Polygon | _reference }
element Polyline { Polyline | _reference }
element Rectangle { Rectangle | _reference }
element StripGraph { StripGraph | _reference }
      element Symbol { Symbol | _reference }
      element TankMeter { TankMeter | _reference }
element Thermometer { Thermometer | _reference }
element Valve { Valve | _reference }
_ElementOrRef =
   attribute class { text },
      _reference
          Arc
          BarGraph
          CAGShape
          CheckValve
          ComboBox
          CommandButton
          CommandList
          Compound
          Ellipse
          EllipticTickMeter
          ExternalImage
          Field
          FileChooser
          InputField
          Label
          LineGraph
          LinearTickMeter
          NavigationButton
          Pipe
          PlaceHolder
          Polygon
          Polyline
          Rectangle
          StripGraph
          Symbol
          TankMeter
          Thermometer
          Valve
   )
_GraphOrRef =
   attribute class { text },
   (_reference
          BarGraph
          LineGraph
          StripGraph
```
```
)
_RotationEnum =
"DEG0" | "DEG90" | "DEG180" | "DEG270"
```

AppendixA:ExampleUSSConfiguration in MCS Environment

This appendix describes an examplary setting for the MCS Facility. The current setting might change without notice.

A.1. USS Editor Parameter

For using the USS Editor on MCS use a configuration like the one described below:

1. Choose **Edit** > **Preferences** > **Project** and set the following:

```
Root folder
san1/mcs/shared/home/cgsadmin/uss-project
```

2. Choose **Database** and set the following:

Database User ops\$cgsadmin

Database sid oracle

Database port 1521

Database password admin_1

Database hostname mcs-dbs

3. Choose **MDB-General** and set the following:

Use CDU

preferred option is off (if selected MDB-CDU Preferences will be used, else MDB-CCU Preferences will be used)

System (Tree) version 12

System mission MASTER

System element configuration APM

4. Choose **MDB-CDU** and set the following:

CU version

1
CU test Version 13
CU revision 0
CU path \APM\COL_CC\MCS_DEV\COL_GND_SYNOPT
CU issue 1
CU instance
MCS_AIV1
CU domain
CGS
Remark: MDB identification sequence is: version / issue / revision
Choose MDB-CCU and set the following:

```
CU version
7
CU revision
1
CU path
\APM
CU name
MCS_AIV
CU issue
1
```

5.

Remark: MDB identification sequence is: version / issue / revision

6. Choose **MDB-SCOE** and set the following:

SID 0

```
File path
```

/san1/mcs/shared/mcs_home/uss/share/scoe/316989981_0_info.xml

```
CU internal version
```

316989981

Note

CCU/CDU preference setting should not be in conflict with SCOE file preference selection!

A.2. USS Executor Parameter

Set configuration like the following to use the USS Executor on MCS equipment:

1. Choose **Option** > **Preferences** > **Project** and set the following:

Projects folder

san1/mcs/shared/home/cgsadmin/uss-project

Home Display

should be selected within the Project folder. The Projects folder setting is needed first to set the home display

2. Choose **Option** > **MCS Connection** and set the following:

Service

```
san1/mcs/shared/home/cgsadmin/uss-project
```

Host

localhost|mcs-ctm (configuration dependent)

Port

7060

Note

Within MCS, the CIS connection parameter should not contradict the configuration settings for MCS tools.

Glossary

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Α

Active Symbol	Symbol changing state or color reacting on an external stimuli (See IDAGS)
AD	Applicable Document
ADP	Acceptance Data Package
AIR	Accident/Incident Report
Animated Symbol	symbol continously, dynamically changing ist appearance without external stimuli (See IDAGS)
AP	Agile Programming
AP	Automated Procedure
API	Application Interface
APID	CCSDS APID identification of source and destination (See CCSDS)
APM	Attached Pressurized Module
AR	Acceptance Review (Formal acceptance of the whole system or parts of it)
В	
BDUF	Big Design Up Front
C	
CC	Control Center

CDR	Critical Design Review (Design Freeze, Not foreseen in AP)
CGS	Columbus Ground Software
COA	Certificate of Acceptance
COC	Certificate of Compliance
COL	COLUMBUS Laboratory
COL-CC	Columbus Control Centre
Command	An order to initiate a change via the transmission of data (See ID-AGS)
Command Button	control initiating a TC command to be executed
Command Button	Displays consist of different items. One item can be a command. A command is displayed as a round button. A guarded command as a round button marked with diagonal stripes. A display with lots of commands for example is the COL Activation Part 1 display under /examples /uss /fwdu /APM /FLTSYS /OPS /SYNOPTICS /ACTIVATION /ACT_PT_1.uss.
Command List	Displays consist of different items. One item can be a command list. A sample command list can be found in the home display COL Syn- optics Home Page (under APM\FLTSYS\OPS\SYNOPTICS_ROOT\COL_HOME) by clicking on the Set Cabin Temp square button.
Compound Symbol	Any collection of primitives which are used together to denote a component, system, or function. Compound symbols are a special subset of icons that can be edited. (See IDAGS)
Control	Display elements that are designed to cause a result when selected: command buttons, navigation buttons, and input controls. (See ID-AGS)
CPL	Common Procedure Language (Electronic test procedures with manual and automatic steps)
D	

DDFDesign Definition File (Design)DecorationStandard features of a window to allow closing, resizing, iconifica- tion, and movement. (See IDAGS)Default sizeDuring authoring displays are giving a default size. That is their nor- mal, original size at which they look the best. So resetting the size of a display back to default size displays it again 1:1 withouth any zoom.Displaygrouped set of data and information contained within a window (See IDAGS)Display Elementgroup of pixels assembled together to form an object, e.g., labels, symbols (See IDAGS)DJFDesign Justification File (Verification and Validation Plan, Test data)DMSData Management SystemDNDiscrepancy NoteDocBookDocBook provides a system for writing structured documents using XML. It is particularly well-suited to books and papers about com- puter software, though it is by no means limited to them. (www.dochook.org)DQMData Quality IndicatorDRDData Quality IndicatorDRDData Quality MonitorDRDEACEACESA Austronaut CentreECSSEuropean Cooperation for Space Standardization (www.cess.ml)Enditem BoxEuropean Cooperation for Space Standardization (www.cess.ml)		Data Service Sub-system
DecorationStandard features of a window to allow closing, resizing, iconification, and movement. (See IDAGS)Default sizeDuring authoring displays are giving a default size. That is their normal, original size at which they look the best. So resetting the size of a display back to default size displays it again 1:1 withouth any zoom.Displaygrouped set of data and information contained within a window (See IDAGS)Display Elementgroup of pixels assembled together to form an object, e.g., labels, symbols (See IDAGS)DJFDesign Justification File (Verification and Validation Plan, Test data)DMSData Management SystemDNDiscrepancy NoteDocBookDocBook provides a system for writing structured documents using XML. It is particularly well-suited to books and papers about computer software, though it is by no means limited to them. (www.docbook.org)DQIData Quality IndicatorDRDDocument Requirement DescriptionEESA Austronaut CentreECSSEuropean Cooperation for Space Standardization (www.ecss.nl)Enditem BoxEuropean Cooperation for Space Standardization (www.ecss.nl)	DDF	Design Definition File (Design)
Default sizeDuring authoring displays are giving a default size. That is their normal, original size at which they look the best. So resetting the size of a display back to default size displays it again 1:1 withouth any zoom.Displaygrouped set of data and information contained within a window (See IDAGS)Display Elementgroup of pixels assembled together to form an object, e.g., labels, symbols (See IDAGS)DJFDesign Justification File (Verification and Validation Plan, Test data)DMSData Management SystemDNDiscrepancy NoteDocBookDocBook provides a system for writing structured documents using XML. It is particularly well-suited to books and papers about computer software, though it is by no means limited to them. (www.docbook.org)DQIData Quality IndicatorDQMData Quality MonitorDRDDocument Requirement DescriptionEACESA Austronaut CentreECSSEuropean Cooperation for Space Standardization (www.ecss.nl)Enditem BoxEuropean Cooperation for Space Standardization (www.ecss.nl)	Decoration	Standard features of a window to allow closing, resizing, iconifica- tion, and movement. (See IDAGS)
Display grouped set of data and information contained within a window (See IDAGS) Display Element group of pixels assembled together to form an object, e.g., labels, symbols (See IDAGS) DJF Design Justification File (Verification and Validation Plan, Test data) DMS Data Management System DN Discrepancy Note DocBook DocBook provides a system for writing structured documents using XML. It is particularly well-suited to books and papers about computer software, though it is by no means limited to them. (www.docbook.org) DQI Data Quality Indicator DQM Data Quality Monitor DRD Document Requirement Description E ESA Austronaut Centre ECSS European Cooperation for Space Standardization (www.ecss.nl) Enditem Box Discrepancy for Space Standardization (www.ecss.nl)	Default size	During authoring displays are giving a default size. That is their nor- mal, original size at which they look the best. So resetting the size of a display back to default size displays it again 1:1 withouth any zoom.
Display Elementgroup of pixels assembled together to form an object, e.g., labels, symbols (See IDAGS)DJFDesign Justification File (Verification and Validation Plan, Test data)DMSData Management SystemDNDiscrepancy NoteDocBookDocBook provides a system for writing structured documents using XML. It is particularly well-suited to books and papers about computer software, though it is by no means limited to them. (www.docbook.org)DQIData Quality IndicatorDQMData Quality MonitorDRDDocument Requirement DescriptionEESA Austronaut CentreECSSEuropean Cooperation for Space Standardization (www.ecss.nl)Entitem BoxEntitem Box	Display	grouped set of data and information contained within a window (See IDAGS)
DJF Design Justification File (Verification and Validation Plan, Test data) DMS Data Management System DN Discrepancy Note DocBook DocBook provides a system for writing structured documents using XML. It is particularly well-suited to books and papers about computer software, though it is by no means limited to them. CMW Data Quality Indicator DQM Data Quality Monitor DRD Document Requirement Description EAC ESA Austronaut Centre ECSS European Cooperation for Space Standardization (www.ecss.nl) Enditem Box	Display Element	group of pixels assembled together to form an object, e.g., labels, symbols (See IDAGS)
DMS Data Management System DN Discrepancy Note DocBook DocBook provides a system for writing structured documents using XML. It is particularly well-suited to books and papers about com- puter software, though it is by no means limited to them. (www.docbook.org) DQI Data Quality Indicator DQM Data Quality Monitor DRD Document Requirement Description E ESA Austronaut Centre E ESA Austronaut Centre E Evopean Cooperation for Space Standardization (www.ecss.nl) Entitem Box Evopean Cooperation for Space Standardization (www.ecss.nl)	DJF	Design Justification File (Verification and Validation Plan, Test data)
DN Discrepancy Note DocBook DocBook provides a system for writing structured documents using XML. It is particularly well-suited to books and papers about computer software, though it is by no means limited to them. (www.docbook.org) DQI Data Quality Indicator DQM Data Quality Monitor DRD Document Requirement Description E ESA Austronaut Centre ECSS European Cooperation for Space Standardization (www.ecss.nl) Enditem Box European Cooperation for Space Standardization (www.ecss.nl)	DMS	Data Management System
DocBookDocBook provides a system for writing structured documents using XML. It is particularly well-suited to books and papers about computer software, though it is by no means limited to them. (www.docbook.org)DQIData Quality IndicatorDQMData Quality MonitorDRDDocument Requirement DescriptionEESA Austronaut CentreECSSEuropean Cooperation for Space Standardization (www.ecss.nl)Enditem Box	DN	Discrepancy Note
PQI Data Quality Indicator PQM Data Quality Monitor DRD Document Requirement Description E E FAC ESA Austronaut Centre ECSS European Cooperation for Space Standardization (www.ecss.nl) Entitem Box European Cooperation for Space Standardization (www.ecss.nl)	DocBook	DocBook provides a system for writing structured documents using XML. It is particularly well-suited to books and papers about computer software, though it is by no means limited to them. (<u>www.docbook.org</u>)
DQM Data Quality Monitor DRD Document Requirement Description E CAC SAAustronaut Centre ECSS Description (www.ecss.nl) European Cooperation for Space Standardization (www.ecss.nl)	DQI	Data Quality Indicator
DRD Document Requirement Description E EAC BAA Austronaut Centre ECSS European Cooperation for Space Standardization (www.ecss.nl) Enditem Box	DQM	Data Quality Monitor
EAC ESA Austronaut Centre EcSS European Cooperation for Space Standardization (www.ecss.nl) Enditem Box	DRD	Document Requirement Description
EAC ESA Austronaut Centre ECSS European Cooperation for Space Standardization (www.ecss.nl) Enditem Box	E	
ECSS European Cooperation for Space Standardization (<u>www.ecss.nl</u>) Enditem Box	EAC	ESA Austronaut Centre
Enditem Box	ECSS	European Cooperation for Space Standardization (<u>www.ecss.nl</u>)
	Enditem Box	

	See Parameter Text Box
Engineering Task	Can be everything e.g. part of a use case, user story, write chapter in a document, write test cases, develop a model. Task in iteration plan.
F	
FDB	Flight Data Base
FE	Flight Equipment
FEE	Front End Equipment
FEECP	Front End Equipment Communication Protocol
FMECA	Failure Mode Effect and Criticality Analysis
FRC	Facility Responsible Centre
FSC	Facility Support Centre
FTP	File Transfer Protocol
FWDU	Flight Window Definition Utility (See CGS)
G	
Graph	Graphic image that shows the functional relationship of some quant- ities (See IDAGS)
Graphic Symbol	denote the function, structure, and operation of different systems and components. Includes icons, compounds symbols, and primitives (See IDAGS)
Graphics	same as graphic symbol (See IDAGS)
GSE	Ground Support Equipment
GSS	Ground Segment Simulator

GS-SRD	Ground Segment System Requirement Document
GUI	Graphical User Interface
GWDU	Ground Window Definition Utility (See CGS)
н	
HCI	Human Computer Interface
Home Page	provides a starting point and top-level information to begin opera- tions and provides access to other displays (See IDAGS)
HSIA	Hardware Software Interaction Analysis
I	
I/F	Interface
ICD	Interface Control Document
Icon	A small graphic symbol that uses a simplified picture to denote a system, component, state, or function. Examples: pumps, filters, and entire systems. (See IDAGS)
IDAGS	International Space Station Display and Graphics Standards
IGS	Interconnecting Ground System
ISS	International Space Station
Iteration Plan	Defines all engineering tasks for a specific iteration with their associ- ated developer, initial estimate in ideal and real hours, real estimation to complete and priority within this iteration.
J	
Java	Programming language in the C/C++ family

	200	
Navigation		
N/A	Not Applicable	
Ν		
MTL	Master Time Line	
MRB	Material Review Board	
Mode	Used to denote the current operational stat or device. (See IDAGS)	e of a system, subsystem,
MMI	Man Machine Interface	
MIP	Mandatory Inspection Point	
MIN	Minutes	
Menu	a list of choices normally presented in a gra	phic form (See IDAGS)
MDB	Mission Data Base	,
MCS	Monitor and Control System (sub-system C	OL-CC)
Μ		
Load	TODO	
Layout	Layout means everything that changes the a and its loaded displays. Which are the wind open and loaded displays, status of tabbed hierarchy etc.	appearance of the executor ow size, window position, mode, tab position, show
L		
KIP	Key Inspection Point	
κ		

	act of moving between displays (See IDAGS)
Navigation Button	control for navigating to another display
NCR	Non Conformance Report
Nickname	Opsname and nickname are used as synonym
0	
ODB	Onboard Data Base
OPM	Operations Manual
Opsname	Opsname and nickname are used as synonym
Р	
P/L	Payload
PA	Product Assurance
PA/S	Product Assurance and Safety
PAP	Product Assurance Plan
Parameter Text Box	A Display element for parameter output. Includes label, value, unit, quality indicator (See SRS)
PCE	Proximity Communication Equipment
PCS	Portable Computer System (NASA terminology)
PDR	Preliminary Design Review (Review of the system architecture and requirements freeze)
PDF	Invented by Adobe, Portable Document Format (PDF) is the pub- lished specification used around the world for more secure and reli- able electronic document distribution and exchange. (www.adobe.com)

PFM	Proto Flight Module
Plot	TODO
PMP	Parts Materials and Processes
PNG	Portable Network Graphics
PREP	PCS Reconfiguration Evolution Project (NASA terminology)
Primitive	The simplest form of graphic available, e.g., circles, rectangles, lines, and pipes (See IDAGS)
Q	
QA	Quality Assurance
Quick Pick List	A pull down menu used for sending commands that allows the user to select the desired value from a predefined list instead of entering it manually. (See IDAGS)
R	
RAM	Reliability, Availability, Maintainability
RB	Requirements Baseline (See User Requirements Document)
RDB	Result Data Base (archive of raw and processed data, and the event log)
Release Plan	Also called commitment schedule, cycle plan (Highsmith99) or back- log (SCRUM). Defines the overall development release milestones. Assigned are the use cases which shall be developed for the specific milestones. Will be maintained over the time. Can also include use cases which are not scheduled for a release. Effort estimates are very rough in developer weeks. (See Development Plan)
RID	Review Item Disposition
S	

S/S	Subsystem
S/W	Software
SA	Safety Analysis
SAS	Special Application Software (interface via CGS API to CGS kernel)
SCA	Software Criticality Analysis
SEEA	Software Error Effect Analysis
SMD	Software Maintenance Disposition
SOW	Statement of Work
SPA	Software Problem Analysis
SPR	System Problem Report / Software Problem Report
SRR	System Requirements Review (See Review of user requirements and overall development planning)
SSMB	Space Station Manned Base
SSO	Safety Significant Operation
Stale	When used as a status character, parameter is in the data stream but connection with the data stream has been lost. (See IDAGS)
State	The physical configuration (On/Off, Open/Close, etc.) at the subsystem level or below. (See IDAGS)
Status	A qualitative assessment of the overall condition or health of the system at any level. (See IDAGS)
SW	Software
SWPA	Software Product Assurance
Symbol	

	see graphic symbol (See IDAGS)
т	
TBD	To Be Determined / Defined / Done
TC	Telecommand
TES	Test Evaluation Software (software performing real-time data acquis- ition, calibration, monitoring, automatic and manual procedure exe- cution, command build, command verification)
TEV	Test Evaluation Software (software to evaluate archived raw and processed data)
TIFF	Tagged Image File Format
TM	Telemetry
Tooltip	Small informational pop up window that appears when the cursor is placed over a display object. (See IDAGS)
TQVS	Training, Qualification and Validation Subsystem
TS	Technical Specification (See Spec)
U	
UCL	User Control Language
UCLc	User Control Language compiler
UHB	User Home Base
UML	Unified Modeling Language (<u>www.omg.org</u>)
UP	Unified Process
UR	Usability Review (Present the system to the end users can also be performed instead of CDR or partial AR)

URL prefix	The URL prefix is the location (e.g. server) where the help files lie. It is needed because all help links in the display are relative.
USS	Unified Synoptic System
V	
View	TODO:
W	
Window	A portion of a screen that includes the display and its decoration. (See IDAGS)
WWW	World Wide Web
X	
XBM	X-Bitmap (XBM) is an image file format.
XML	The Extensible Markup Language (XML) is a W3C-recommended general-purpose markup language for creating special-purpose markup languages. It is a simplified subset of SGML, capable of describing many different kinds of data.
ХР	eXtreme Programming (<u>www.extremeprogramming.org</u>)

References

Reference Documents

- [OpNom05] ESA. SSP-50254. Rev. K. May 2005. *International Space Station Program*. Operations Nomenclature.
- [OpNomESA04] ESA. SSP-50254. Issue 1, Rev 1. March 2004. SSP 50254 Annex B1- Columbus. ESA Specific Operations Nomenclature.

Other References

[JFormula] JAPISoft. JFormula home and specification. http://www.japisoft.com/formula/.

Alphabetical index

A

attributes Supported attributes, 265

С

Check Checking acquisition state, 218 Close Closing all displays, 229 Closing display, 228 Closing other displays, 229 Configure Configuring data quality indicators, 252 Configuring location of SCOE files, 3 Configuring status display, 251 Configuring System Settings, 2 Configuring user settings, 213 Connect Connecting to system to be monitored and controlled, 215 Copy Copying command to clipboard, 236 Copying parameter name to clipboard, 237 Create Creating display snapshot, 250

D

Disconnect Disconnecting system to be monitored and controlled, 216 Display Definition, 287 Dock Docking windows, 231

F

Find Finding displays with parameter references, 242 Finding text in display, 244

G

Get Getting the executor version information, 247 GWDU GWDU to USS Conversion, 256 Importing GWDU displays, 256

I

Install Installing the Product, 1 Issue Issuing telecommand via command button, 237 Issuing telecommand via command list, 241

K

Keys Format of Entry Keys, 265

L Load

Loading display from file system, 223 Loading window layout, 222 localize Translation workflow, 264

Μ

MCS MCS Configuration, 282 MCS Editor Configuration, 282, 284

Ν

Navigate Navigating display hierarchy, 226 Navigating to home display, 227

Ρ

PCS Importing PCS/PREP displays, 254 Preparation Preparations , 145 Print Print preview, 247 Printing display, 249 PWS Importing PWS/FWDU displays, 254

R

Reference Menue references for the executor, 267 Reload Reloading display from file system, 224 Reset Resetting display window to default size, 225 Resize Resizing display window, 225

S

Save Saving a copy of current display, 250 Saving window layout, 221 Schema XML Schema, 270 Show

Showing display help, 246 Showing display properties, 235 Showing element properties, 233 Showing line graph for parameter value history, 245 Showing tooltip for element, 232 skeleton Generating skeletons with the Skeleton Generator, 264 Start Starting the Executor, 4 Switch Switching target for commands, 217

Т

Toggle Toggling tabbed mode, 230

U

Undock Undocking windows, 230

V

View

Showing/Hiding the Toolbar, 228