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User Manual

CODAC Core System Version 6.1 CS-Studio Release Notes

In CODAC Core System 6.1, CS-Studio 4.6.1 with some ITER specific add-ons has been released.

The purpose of the Release Notes document is to communicate major new features and changes in this release of the CS-Studio as integrated in CODAC Core System 6.1. It also documents known problems and workarounds.

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Table of Contents

1 Introduction

1.1 CODAC Core System Context

In CODAC Core System 6.1, CS-Studio 4.6.1 with some ITER specific add-ons has been released.

1.2 Purpose

The purpose of the Release Notes document is to communicate major new features and changes in this release of the CS-Studio as integrated in CODAC Core System 6.1. It also documents known problems and workarounds.

1.3 Scope

This document describes CS-Studio 4.6.1 for ITER which includes:

- Operator Interface (OPI) – BOY - that connects to the control system, animates graphical widgets according to EPICS process Variable (PV) value, alarm status/severity and connection/RW status, shows PV's range and alarm limits definition and allows the operator to interact with the process by providing input data and sending commands,
- Alarm System – BEAST - that monitors alarm triggers in the control system and provides essential support to the operator by warning him of situations that need his attention, showing guidance, allowing him to open dedicated displays, execute commands and acknowledge raised alarms,
- PON Archive System – BEAUTY - that monitors archived EPICS PVs in the control system and provides a graphical user interface for displaying live and historic data in a plot, making some computation, adding annotations and exporting samples into different file formats such as Excel spread sheet or Matlab,
- Electronic Logbook – OLOG - that registers events entered manually or generated automatically during operation to keep track of problems, human decisions or actions which were taken during the course of the activity and which may have had an impact on the outcome of the activity.
- Sequence of EPICS commands automation – SCAN.

1.4 Related documents

[RD1] CODAC Core System CS-Studio User Guide (QVBYD8)

[RD2] CSS all in one (BFGP5Q)

2 New Features

2.1 New CSS Project Shortcuts

The default `CSS` project now includes direct shortcuts to Demo and Design_Guide OPIs. Open and run `Demo.opi` or `Design_Guide.opi`, and you will learn more about ITER HMI Style Guide:

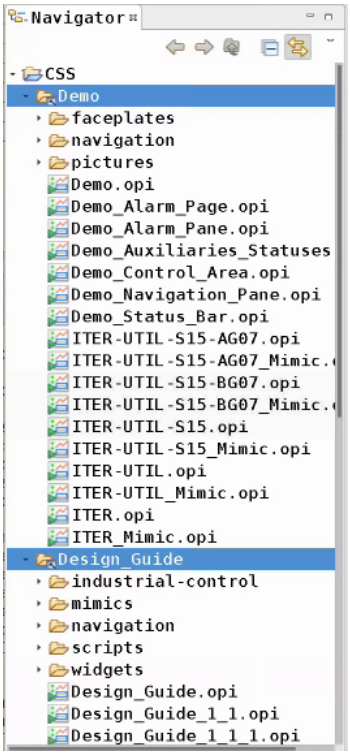

Figure 2-1 Demo and Design_Guide shortcuts

2.2 Message History integrated in the Operator Interface

The message history is accessible both on the alarm pane and in the alarms list – it is filtered according to the navigation and the default time filter is `-1 hour`:

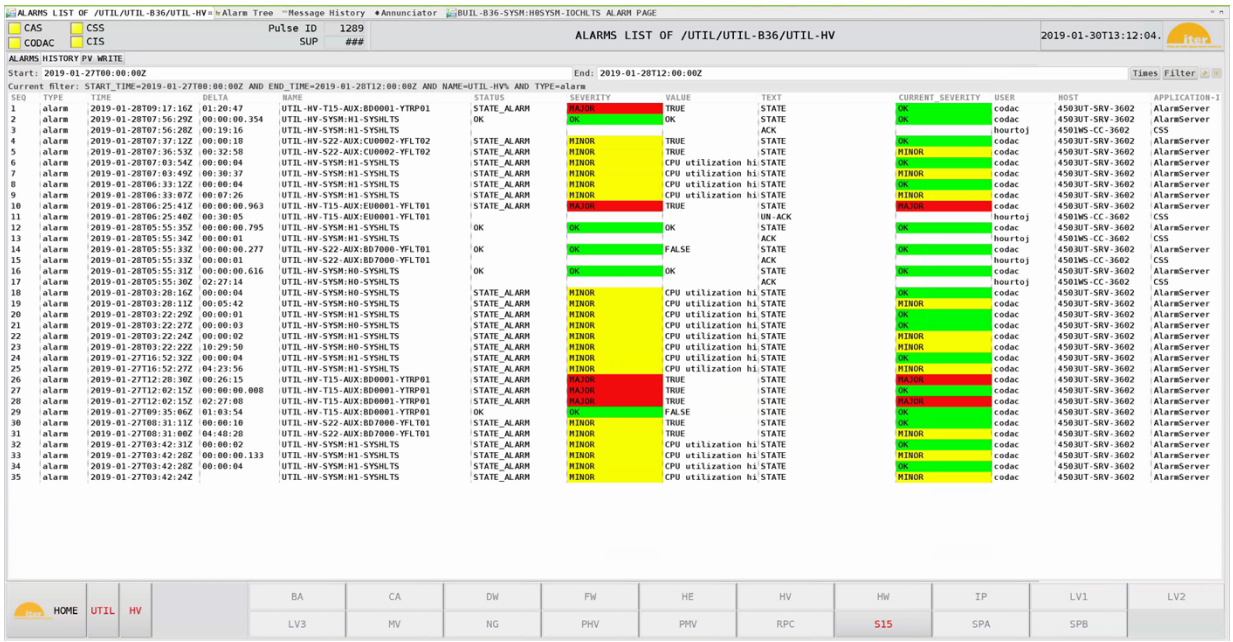

Figure 2-2 UTIL-HV message history accessible from the alarms list

2.3 PV Write History

All operator actions are tracked in the PV Write history displayed both on the alarm pane and in the alarms list – they are filtered according to the navigation and the default time filter is `-1 hour`:

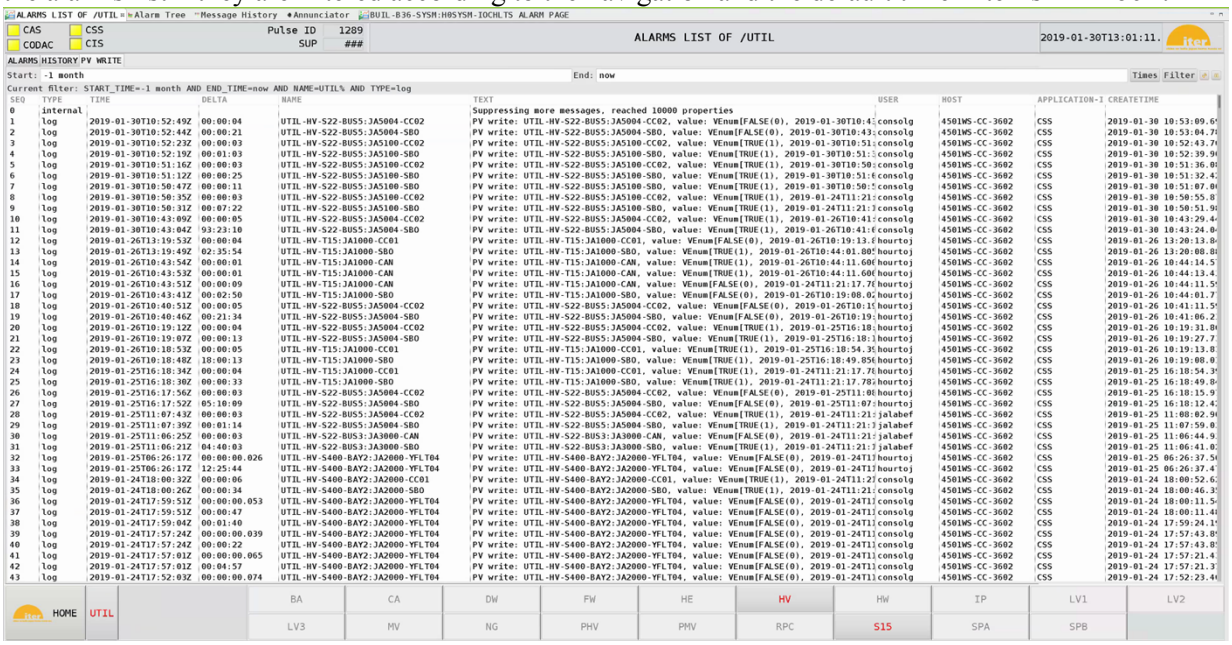

Figure 2-3 UTIL PV Write log accessible from the alarms list

2.4 ITER Composite Alarm Root

ITER composite alarm root aggregates the alarms of the different `CBS1`, both on the top-level alarm pane and in the alarms list:

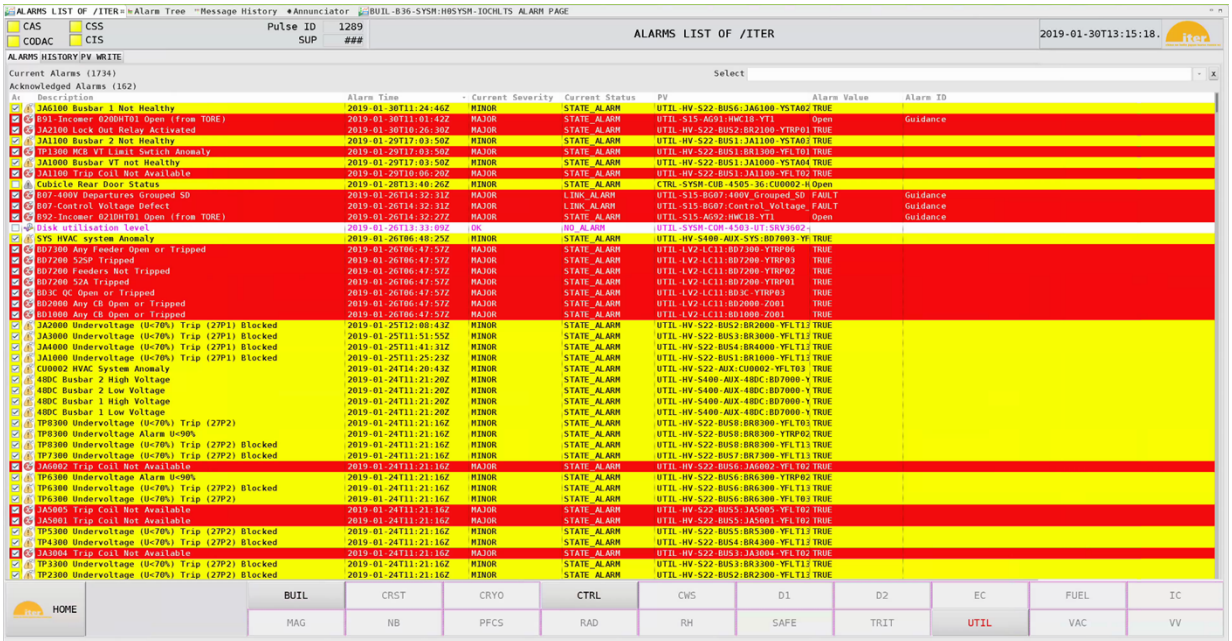

Figure 2-4 ITER alarms list – aggregation of BUIL, CTRL and UTIL

2.5 Improvement of the PV connection delay when running OPI

The widgets will be displayed as Disconnected only after a configurable delay called `PVManager Timeout` which is by default `100ms`.

2.6 Optimisation of the archive configuration import

A new index on the channel name has been introduced. The archive configuration import of ~70000 channels take now 3.5 sec instead of 8 minutes previously.

2.7 Starting and stopping services generate log messages

Starting and stopping css-services are events that are now tracked in the log database.
Importing an alarm configuration will be notified to all clients like the alarm GUI, the alarm server and notifier, in order for them to reload their configuration.

2.8 css-dbmanager tool uses the generic codac-dev user

Only one database user account for archive, alarm, log and logbook databases needs to be known for the operations such as init, save and restore.

2.9 Symbols Library Update

New MBBI electrical symbols have been created:

```
0 = traveling → open symbol flashing
1 = open
2 = close
```

Example of the MBBI DISCONNECTING SWITCH:

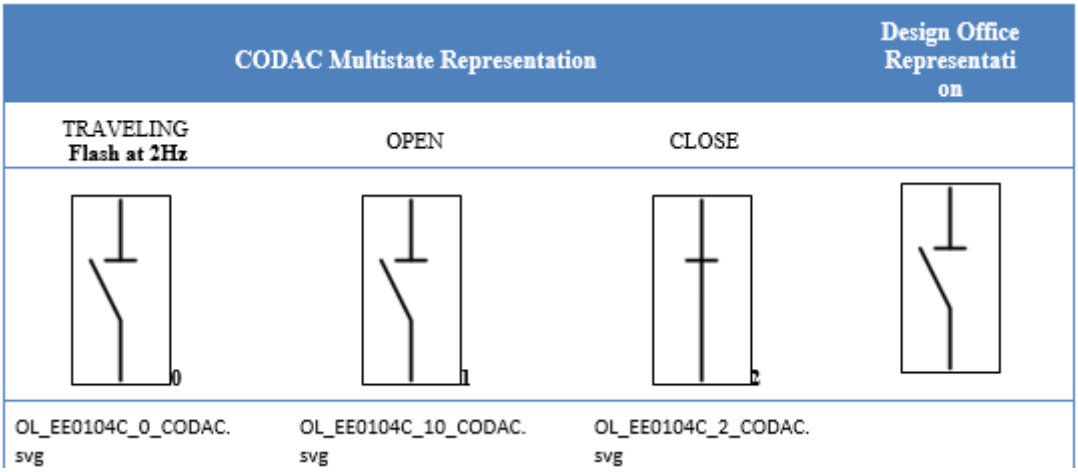

Figure 2-5 MBBI electrical symbols

3 Main bug fixes

3.1 ISO time format issues fixed on the alarm table and messages history

The alarm and event times were not in ISO time format. It has been fixed.

3.2 Archived sample timestamps were rounded up

The time stamp resolution in PostgreSQL is 1 microsecond. Over that, PostgreSQL rounds up to the nearest seconds the timestamp. This issue has been fixed.

3.3 Subclipse usage reporting popup at startup

This annoying popup has been suppressed.

3.4 Connectors issues

Some issues have been fixed regarding BOY connectors.

4 Known Bugs and Limitations

4.1 The flash timing of symbols is not synchronised for all flashing states

This issue will be solved for the next release.

4.2 The archive engine runs out of memory

The archive engine allocates one ring buffer for each PV -

```
memory buffer for each PV size in number of samples =
                  buffer_reserve × write_period / estimated_time_period
with buffer_reserve=2 and write_period=30 seconds
```

At startup time, it can runs out of memory as the default JAVA settings are:

```
-Xms64m
-Xmx256m
With:
                  -Xms              set initial Java heap size
                  -Xmx              set maximum Java heap size
```

which means that the maximum memory for JAVA is 256 MB.

The solution is to alter the default JVM launch configuration and increase the parameters in the startup scripts to:

```
-Xms128m
-Xmx512m
```

The default settings are defined in:

```
/opt/codac/css/archive-engine/archive-engine.ini
```

`root` privileges or `sudo` rights are required to make the change.