Manufacturing record - unitary

CODAC Core System Version 7.2 Release Notes

This note is a supplementary document for CODAC Core System (CCS) to provide users with information on the changes introduced with the release of the CCS 7.2 version.

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CODAC CORE SYSTEM VERSION 7.2 RELEASE NOTES

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This note is a supplementary document for the CODAC Core System (CCS) to provide users with information on the changes introduced with the release of the CCS 7.2.0 version.

Additions for CCS 7.2.0 are kept in separate, clearly marked paragraphs; new version numbers in tables are underlined or in **bold** typeface.

See **warnings** in these notes for changes that may have a significant impact on existing I&C applications. Those that are present since previous versions are indicated with a **reminder**.

This document is complemented with on-line information that is available at the **CODAC Core System Community Pages** that provides the CCS users with the up-to-date status of:

- The **documentation**
- The **changes** introduced in each components (improvements and bug fixes)
- The **known issues** in the 7.2.0 version
- The **roadmap**
- The **training** material, which will be updated for hands-on workshops.

Warning	I&C projects developed with previous versions of CCS shall be migrated following the instructions available in the CODAC Core System Migration Guide (7JCFUD).

Main changes in CCS 7.2.0:

1. The Control System Studio suite has been upgraded to version 4.9.1.

2. SDD toolkit has been upgraded to version 6.7.0 with Enterprise Architect integration and fixes in PLC and system monitoring generation.

3. Starting with this release, ITER Real-Time Framework (RTF) software is part of CODAC Core System. Release 2.4.0 of the RTF has been added to CODAC Core System Fast Controller related roles.

4. Starting with this release, NDSv3 Driver Development Framework (NDSv3) software is part of CODAC Core System. So far, the `nds-core` and `nds-epics` modules have been added to the Fast Controller related roles. More NDSv3 modules will follow for 7.2.1.

5. The MRG-R kernel (real-time option) has been updated to allow installation and use of the NI drivers for PXI and PXIe devices.
   Those NI drivers are now installable through the CCS Satellite distribution service.

A new version of the Plant Control Design Handbook (27LH2V v7.1) core document is available.

Changes include addressing of obsolescence management and adding all clarifications since the last version of the PCDH (2013).

COMPONENTS UPDATE

	Components	6.2	6.3	7.0	7.1	7.2.0
Operating System	RHEL	7.4	7.4	**8.5**	8.5	8.5
EPICS	EPICS Base	**7.0.3.1**	**7.0.4.1**	**7.0.6.1**	**7.0.7**	**7.0.8**
	EPICS Base Java		**7.0.6**	**7.0.7**	**7.0.8**	**7.0.9**
Shared Units	Java	**11.0.3**	11.0.3	<u>11.0.13</u>	11.0.13	11.0.13
	Eclipse	**4.11.0**	**4.16.0**	**4.20.0**	**4.24.0**	4.24.0
	PostgreSQL	10.5	10.5	**12.9**	12.9	12.9
	Tomcat	8.5.13	8.5.13	**9.0.46**	9.0.46	9.0.46
	Firefox	52.3.0	52.3.0	**91.4.0**	91.4.0	91.4.0
Control System Studio	CS-Studio	<u>4.6.310</u>	**4.7.802**	**4.8.0**	<u>4.8.2</u>	**4.9.1**
Self Description Data	SDD tools	**6.2.1**	**6.3.1**	**6.4.0**	**6.6.0**	**6.7.0**
Maven Tools	Maven tools	**6.2.0**	<u>6.2.1</u>	6.2.1	<u>6.2.3</u>	**6.3.0**
Health Monitoring	Health Mon	2.0.1	2.0.1	2.0.1	2.0.1	2.0.1
PLC Driver	S7PLC ASYN	<u>1.6.1</u>	<u>1.6.2</u>	1.6.2	<u>1.6.3</u>	**1.7.0**
	SPSS (300/1500)	**3.6**/1.1	3.6/1.1	3.6/1.1	3.6/1.1	3.6/1.1
TCN Support	TCN API	3.3.2	3.3.2	3.3.2	3.3.2	3.3.2
	TCNd	5.2.3	5.2.3	5.2.3	5.2.3	5.2.3
	Unified PTPd	1.2.1	1.2.1	1.2.1	1.2.1	1.2.1
SDN Support	SDN Core	1.3.2	1.3.2	1.3.2	<u>1.3.3</u>	1.3.3
	SDN API[1]	2.2.0	1.2.1	2.2.0	2.2.0	2.2.0
	SDN Archiver	<u>1.2.1</u>		1.2.1	1.2.1	<u>1.2.3</u>
DAN Support	DAN API	<u>3.2.3</u>	<u>3.2.4</u>	3.2.4	<u>3.2.5</u>	3.2.5
Logging Library	LOG API	1.3.7	1.3.7	1.3.7	1.3.7	1.3.7
RTF	Real-Time Framework					**2.4.0**
NDSv3	Nominal Device Support v3					**3.2.5**
NI Sync	NI SYNC	2.2.1	2.2.1	**2.3.0**	2.3.0	2.3.0
	NI SYNC EPICS	2.1.2	2.1.2	2.1.2	2.1.2	2.1.2
PXI-6259	PXI-6259	2.5.3	2.5.3	**2.6.1**	2.6.1	2.6.1
	PXI-6259 EPICS	<u>2.6.2</u>	<u>2.6.3</u>	2.6.3	<u>2.6.4</u>	<u>2.6.5</u>
PXI-6528	PXI-6528	<u>1.3.2</u>	1.3.2	**1.4.0**	1.4.0	1.4.0
	PXI-6528 EPICS	1.3.4	1.3.4	1.3.4	1.3.4	1.3.4
PXIe-6368 / PXIe-6363	PXIe-6368	<u>3.0.1</u>	3.0.1	**3.1.0**	3.1.0	<u>3.1.1</u>
	PXIe-6368 EPICS	1.6.1	<u>1.6.2</u>	1.6.2	1.6.2	1.6.2
NI RIO	NI RIO	2.1.1	2.1.1	**3.1.0**	3.1.0	**3.2.0**
	IRIO EPICS	1.1.2	1.1.2	1.1.2	1.1.2	1.1.2
OPC UA	OPC UA Support	<u>0.5.2</u>	**0.9.2**	0.9.2	0.9.2	0.9.2
	OPC UA Library	1.5.5	1.5.5	1.7.4	1.7.4	1.7.4

Legend   **Bold**: new version (major/minor) – <u>Underlined</u>: new version (bugfix)

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[1] Although still used by the SDD generated programs, the templated SDN API will eventually become deprecated in favour of the SDN Core library. For all new developments, it is recommended to use the SDN Core library.

1   Operating System

The RHEL version is RHEL 8.5.

The Linux kernel version is 4.18.0-348:

- 4.18.0-348.7.1 for the default installation
- 4.18.0-348.**23.1.rt7.153** for the RT enhanced installation (MRG-R).

The RT enhanced kernel was updated to allow installation of the NI PXI/PXIe Linux drivers, needed for the new PXI backplane configuration tool,

2   Installation Tools

Main enhancements:

| 15715 | Installation Tools | CIT support for installation of older maintenance releases |

Main bug fixes:

| 15786 | Installation Tools | Installation toolkit fails to register systems for organizations with mismatching name and label |
| 15361 | Installation Tools | CIT attempts to update other installed CCS versions when installing a new minor version |

3   CODAC Packaging and OS Integration

Main enhancements:

15703	Packaging	Support for RT kernel version 4.18.0-348.23.1.rt7.153.el8_5
15710	Packaging	Packaging of qt5-qtcharts
15925	Packaging	Support for DAN-ODG network interface configuration
15766	Packaging	ActiveMQ 5.18.3 upgrade
15773	Packaging	Removed CCS built-in packaging of Qt5 in favour of RHEL provided version
15495	Packaging	Packaging of saxon 11.5

4   EPICS

CODAC Core System uses a current release of EPICS 7.

Details for all the community maintained EPICS components included in the CCS 7 distribution are available in the EPICS Community Modules Roadmap for CCS 7.x (6C4XTJ).

The **p4p** module was added in CCSv7.2 to provide the new generation of the pvAccess Gateway application.

The versions included in this release are the following:

Module	Version
EPICS 7 C++	**7.0.8**
EPICS 7 Java	**7.0.9**
PVXS	**1.3.1**
areaDetector[2]	Core: **3.12.1** SimDetector: 2.10

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[2] The RPMs are not installed as part of a CCS system profile. They shall be installed as required, see the CCS 7.x EPICS Roadmap for details.

Module	Version
ASYN	4.44.2ccs1
autosave	5.11
busy²	1.7.3
CA Gateway²	2.1.3
calc	3.7.5
caSnooper	2.1.2.3
JCA	2.4.8
Multi-Core Utilities	1.2.2
Modbus²	3.2
p4p	4.1.12
PCAS	4.13.3
pvaPy	5.3.0
pyDevSup	1.2
PyEpics	3.5.1
SNL-sequencer	2.2.9
std	3.6.4
StreamDevice	2.8.24
VisualDCT	2.8.2

Known issues:

EPICS 7.0.8 has an open (unfixed) bug concerning the behavior of the compress record in its M-to-N decimation modes. Please contact CODAC Support if you run into problems.

5 Shared Units

No changes.

6 Control System Studio (CS-Studio)

In CODAC Core System 7.2, CS-Studio 4.9.1 ITER Edition has been released.

This version is based on unchanged framework modules, with the exception of EPICS JCA (updated to 2.4.8).

(If you have an IDM account: The most important enhancements and bug fixes for the user are described in more detail in the documents CS-Studio Operator Training - 7.1.1 updates (978TQP) and CS-Studio Operator Training - 7.2.0 updates (ADLV7X).)

Main enhancements:

15702	CSS BEAST	Alarm within mimics >> New Alarm Actions menu option with comment
15713	CSS BEAST	Alarm Message History >> Status Monitoring
15722	CSS BEAST	Alarm Server >> Status Monitoring
15744	CSS BEAST	Alarm Notifier>> Status Monitoring
15761	CSS BEAST	Alarm Configuration >> Last configuration time for an alarm node shall maximize all sub-items
15765	CSS BEAST	Alarm Message History >> Database Status Table
15780	CSS BEAST	Alarm Server >> Database Status Table
15781	CSS BEAST	Alarm Notifier >> Database Status Table
15805	CSS BEAST	Alarm Contextual Menu >> New option Export...
15828	CSS BEAST	Alarm Configuration >> alarm model reader batch size new preference
15837	CSS BEAST	Alarm Server >> alarm information persistence

15848	CSS BEAST	Alarms List >> Filtering on alarm priority level
15383	CSS BEAUTY	Data Plot >> Add a specific threshold
15469	CSS BEAUTY	Data Plot >> Add Annotation on a threshold line
15756	CSS BEAUTY	Data Plot >> Save and Save As plot contextual menu options
15621	CSS BEAUTY	Data Plot >> Edition of a graphical gradient line
15835	CSS BEAUTY	Data Plot >> Optimized data computed severity and status
15855	CSS BEAUTY	Archive engine >> archive alarm status change even if the PV value does not change
15451	CSS BEAUTY	Data Plot >> Samples for more than the retention policy
14587	CSS BOY	WebOPI >> Decrease network latency with WebSocket
15859	CSS BOY	OPI >> Add an additional PV to an opened plot
15863	CSS BOY	OPI >> start CS-Studio and navigate directly to a given LEVEL
15198	CSS ELog	Entry template >> New option to parse input PV fields
15403	CSS ELog	Java and Python API extensions
15751	CSS ELog	Rich text editor hyperlink support
15752	CSS ELog	Rich text editor contextual menu
15783	CSS ELog	Distributed configuration setup
15450	CSS General	Update JCA to version 2.4.8

Main bug fixes:

15919	CSS BEAST	Alarm configuration >> default configuration initialisation issue
10762	CSS BEAST	No trigger of automated actions when the alarm severity is UNDEFINED
15607	CSS BEAUTY	Data Plot >> Properties >> Traces >> Sample value and timestamp refresh issue
15753	CSS BEAUTY	Data Plot >> Crosshair issue on non-visible trace
15881	CSS BEAUTY	WebOPI >> Plot hangs trying to enlarge the time frame
13579	CSS BOY	WebOPI >> remove the toolbar: zoom, top OPIS and new plot
15284	CSS BOY	WebOPI >> dashed line styles not displayed
15418	CSS BOY	OPI Editor >> Attach Scripts issue
15856	CSS BOY	OPI >> CS-Studio open file issue when provided with the launcher.openFile option
15250	CSS ELog	Entry title shall ignore HTML tags
15251	CSS ELog	Entry title shall ignore punctuation marks
15757	CSS ELog	OPI >> Top OPIs preference issue

7   Self-Description Data Tools

In CODAC Core System 7.2, the version of SDD Tools is **6.7**. No significant changes were made to SDD Tools in this release.

Main enhancements:

15184	SDD Editor	provide an IOC flag for cubicle monitoring
15024	SDD General	Drop the non-performance mode in SDD
14285	SDD General	Add SDD support for "asyn" record type
15146	SDD Sync	Include Enterprise Architect projects support in SDD tools

Main bug fixes:

15758	SDD Editor	PLC DBs not generated when "Generate one IOC per PLC" is selected
15653	SDD Editor	Export variables from I&C project level raises an error

15878	SDD Editor	After removing SYSM Variables & IOCs it is not possible to generate them again
15664	SDD Editor	usual PLC IOC not created when there is existing redundant interlock IPLC IOC already in the project
15657	SDD General	Excel export - Error when opening xlsx containing many 'locked' cells in MS Excel
15003	SDD Parser	Variables are not retrofitted in the correct function if they are above CBS2 and not in correct db file
15874	SDD Translator	Variables linked to a manually created IOC not being generated in a project with more than one PLC
14846	SDD Translator	SDD Project with CBS=*CUB* and with cubicle cannot be generated (NullPointerException)
15020	SDD Translator	Missing variables when Generating Multiproject Configuration Files in non performance mode

Notable remaining issues (if you run into one of these, please contact CODAC support):

10764	SDD Database	problem loading old project with signals
11507	SDD Editor	Importing from another project vis XLS files fails
13557	SDD Sync	POS.h and COSPSOS_BUIL_F000.st file are not getting created while loading via sync-direct
14277	SDD Editor	SDD-editor doesn't generate the files and records correctly for PXI6259

SDD reference data versions (no updates in this release):

- PBS snapshot version 20230130;
- CBS snapshot version 20230131;
- GBS snapshot version 20190204;
- TTT snapshot version 20230130;
- AAAA snapshot version 20230130;
- SS snapshot version 20140129;
- Units of measure snapshot version 20180130;
- Equipment catalog snapshot version 20190205, including:
    - ITER slow controller catalog 333J63 v4.1 (11 Aug 2017);
    - ITER fast controller catalog 345X28 v2.7 (19 Dec 2018).

8 Maven Tools

Main enhancements:

14819	Maven commands	Set SHRLIB_VERSION (SONAME of libraries) to POM version
15745	Maven commands	Make CODAC C/C++ template skeleton SWIL-1 compliant
14144	Maven Editor	Switch SVN support from SVNKit to JavaHL

9 Health Monitoring

No changes for 7.2.0.

10 PLC Driver

SPSS versions:

- SPSS v3.6 for S7-300/400
- SPSS v3.5 for S7-400H
- SPSS v1.1 for S7-1500

Bug fixes:

15907   S7 EPICS Driver   For S7-400, connection-down is not detected on simplecommand circuit

11 TCN/PTP Support

No changes.

12 SDN Support

No changes.

13 DAN/UDA Support

Main bug fixes:

14422   UDA Clients   uda client is returning data even though the query is not valid

14 Logging Library

No changes.

15 NI Sync

No changes.

16 PXI-6259

No changes

17 PXI-6528

No changes.

18 PXIe-6368 / PXIe-6363 (X-Series)

No changes.

19 NI RIO

No changes.

20 OPC UA

No changes.

21 Real-Time Framework (RTF)

Version 2.4.0 of the ITER Real-Time Framework (RTF) has been added to CODAC Core System (fast controller related roles).

22 Nominal Device Support (NDSv3)

The NDSv3 modules nds-core and nds-epics have been added to the fast controller related roles. More modules are scheduled to be added for the maintenance release 7.2.1.

23 Other Components

A new PXI chassis configuration tool has been added allowing configuration of trigger lines on the PXI backplane across segment boundaries.

DOCUMENTATION UPDATES

Document	ID	6.2	6.3	7.0	7.1	7.2.0
CODAC Core System v7.2 Release Notes	9UQ2CL					**v1.1**
CODAC Core System Overview	34SDZ5	v6.2	**v6.3**	**v7.0**	**v7.1**	**v7.3**
CODAC Core System User Manual	43PSH9	**v3.12**	**v3.13**	**v3.14**	**v3.15**	**v3.16**
INSTALLATION & SUPPORT						
CODAC Core System Installation Manual	33JNKW	**v6.1**	**v6.5**	**v7.0**	**v7.1**	**v7.2**
CODAC Core System Migration Manual	7JCFUD	**v5.9**	**v5.10**	**v5.11**	**v5.12**	**v5.13**
DEVELOPMENT & TESTING						
CODAC Core System App Development Manual	33T8LW	**v5.7**	**v5.8**	v5.8	**v5.9**	**v5.11**
SDD Editor User Manual	32Z4W2	**v9.0**	**v9.1**	**v10.0**	**v10.3**	**v10.4**
How to include a new I/O module in SDD	A4WQDZ	v2.0	v2.0	v2.0	v2.0	v2.0
Maven Editor User Guide	7MT2YC	**v5.10**	**v5.11**	v5.11	v5.11	v5.11
System Health Monitoring Variables	35XFCY	v2.0	v2.0	v2.0	v2.0	**v2.1**
Logging Library User Manual	QEK784	v1.5	v1.5	v1.5	v1.5	v1.5
CONTROL SYSTEM STUDIO						
CODAC Core System CS-Studio User Guide	QVBYD8	**v1.5**	**v1.6**	v1.6	**v1.7**	**v1.8**
OPI Standardisation - CSS BOY Edition and Runtime	7367JQ	**v1.11**	v1.11	**v1.12**	**v1.13**	**v1.14**
OPI Standardisation - CSS BOY Industrial Symbol Library	A69URK	v2.2	v2.2	**v2.3**	**v2.4**	v2.4
SLOW CONTROLLERS (PLC) and OPC UA						
SPSS User Manual	G4UMX5	v2.6	v2.6	v2.6	v2.6	v2.6
s7PLCAsyn EPICS Driver User's Manual	PJAHXJ	v1.10	v1.10	v1.10	v1.10	v1.10
PLC Sample Guide	2N8C3M	v4.2	v4.2	v4.2	v4.2	v4.2
OPC UA Integration User Manual	32N6MJ	**v1.1**	**v1.3**	v1.3	v1.3	v1.3
FAST CONTROLLERS – I/O						
NI Sync Linux Device Driver User's Guide	2PLQ4P	**v2.8**	v2.8	v2.8	**v2.9**	v2.9
NI Sync EPICS Driver User's Guide	33Q5TX	v2.14	v2.14	v2.14	v2.14	v2.14
NI PXI-6259 Linux Driver User's Guide	32GTJY	v1.19	v1.19	v1.19	v1.19	**v1.20**
NI PXI-6259 EPICS Driver User's Guide	3DEY52	v2.12	v2.12	v2.12	v2.12	v2.12
NI PXI-6528 Linux Driver User's Guide	3ZHXQ9	v1.8	v1.8	v1.8	v1.8	v1.8
NI PXI-6528 EPICS Driver User's Guide	433VEW	v1.13	v1.13	v1.13	v1.13	v1.13
NI X-Series Linux Device Driver User's Guide	3LTMR6	v2.0	v2.0	v2.0	v2.0	**v2.2**
NI X-Series EPICS Driver User's Guide	3P4N3R	v1.9	v1.9	v1.9	v1.9	v1.9
NI-RIO Linux Device Driver User Manual	LW3UFH	**v2.14**	v2.14	**v2.15**	v2.15	v2.15
NI-RIO EPICS Device Driver User Manual	RAJ9P8	v1.7	v1.7	v1.7	v1.7	v1.7
IRIO Library User's manual	RATM8Z	v1.3	v1.3	v1.3	v1.3	v1.3
IRIO Design Rules for LabVIEW for FPGA	QQMYTY	v1.4	v1.4	v1.4	v1.4	v1.4
CODAC PXI Config Users Guide	7ZQ27R					**v1.1**
NDSv3 Core Library User Manual	S37HD2					**v1.6**
NDSv3 EPICS Device Support User Manual	S977XP					**v1.6**

FAST CONTROLLERS – HPN						
TCN API - Software User Manual	N4XTGG	v1.16	v1.16	v1.16	v1.16	v1.16
PTPd User Manual	U2TTSZ	**v1.5**	v1.5	v1.5	v1.5	v1.5
TCNd User Manual	MUYNT6	**v2.7**	v2.7	v2.7	v2.7	v2.7
SDN Software User Manual	B7SKFU	v2.13	v2.13	v2.13	v2.13	v2.13
SDN Archiver User Manual	SD29MG	**v1.7**	v1.7	v1.7	v1.7	v1.7
DAN User Manual	Q6GULS	**v3.6**	**v3.9**	v3.9	**v3.10**	**v3.11**
OPERATIONAL APPLICATIONS						
CODAC Applications User Manual	RUZCJ9	v2.1	**v2.2**	v2.2	v2.2	v2.2
SDN Tools User Manual	RGSWHS	v1.5	v1.5	**v1.6**	v1.6	v1.6
SDN Monitor User Manual	S94S4T	v1.2	v1.2	v1.2	v1.2	v1.2
RTF User Manual	2N2ZH8		v1.2	v1.2	**v2.0**	**v2.1**
RTF Development Manual	2Q7QFZ		v1.2	v1.2	**v2.0**	**v2.1**
UDA User Manual	TPLTKG	v2.0	**v2.1**	**v2.2**	v2.2	v2.2
Data Visualization Tool User Manual	4N9E8W		**v1.3**	v1.3	v1.3	**v1.4**