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EXTERNAL REFERENCE / VERSION

Technical Specifications (In-Cash Procurement)

CFE - Technical Specifications for CS-Studio Development and Maintenance Services

The scope of work is the maintenance and development of the CS-Studio tools that are part of the CODAC Core System (CCS) distribution. In accordance with CODAC Core System life cycle, the scope of these specifications is to supply the software engineering support services required for CCS 18A release (CCS 6.0 Feb 2018 software release).

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1 Purpose

CS-Studio is an Eclipse-plugins-based collection of software tools and products to monitor and operate large scale control systems, such as the ones in the fusion community. It is the result of the collaboration between different scientific projects, laboratories and universities and ITER is an active contributor on different aspects:

- Operator interface (OPI) set of tools: : tools for developing and executing on 4K screens the graphical interface used by the operator to interact with the plant systems. The main component BOY 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

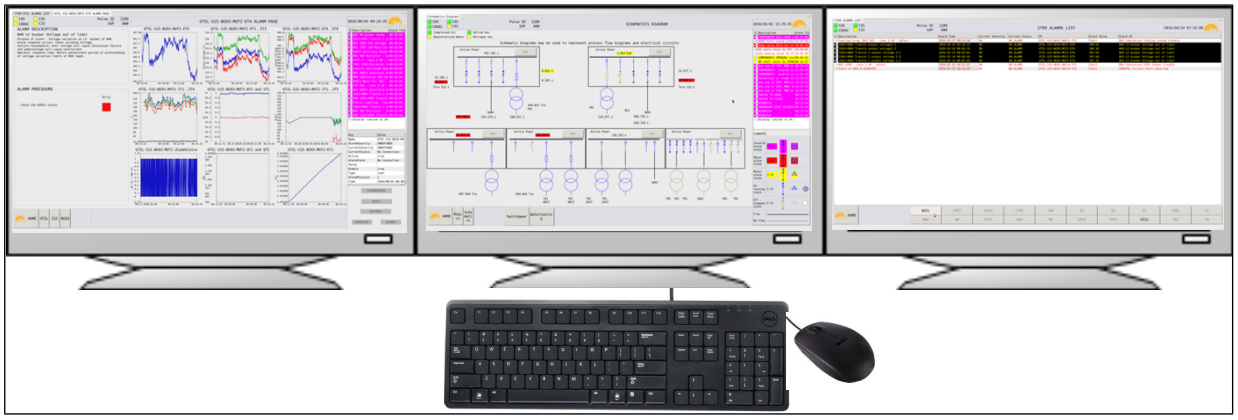


Figure 1-1 Operator Interface on multiple screens

- The alarm handling system: servers, databases and operator tools for the monitoring, recording and handling (automatic actions and operator's ones) of abnormal situations reported by the plant system. The main component BEAST 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
- The EPICS live data archiving system: servers, databases, data storage and data access for continuously monitoring and archiving the plant system EPICS process variables. The main component BEAUTY 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
- The Eclipse RAP version of the previous components – WebOPI, WebDataBrowser and WebAlarm,
- The electronic logbook (ELOG): servers, databases, API, web services and interfaces that register 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
- The support for sequence of commands defined with state machines, scripts or "scans"
- Web reporting tools to allow assessing the health of alarm and archive systems in real time and produce reports.

CS-Studio set of tools is one of the most technically challenging components of CODAC Core System. Through a strategy of continuous improvement and teamwork, the Control System Studio Collaboration is dedicated to supplying control system tools for machine and

experiment operator interfaces, automation and service integration to enable our users to achieve their scientific objectives. This commitment of this shared development is based on:

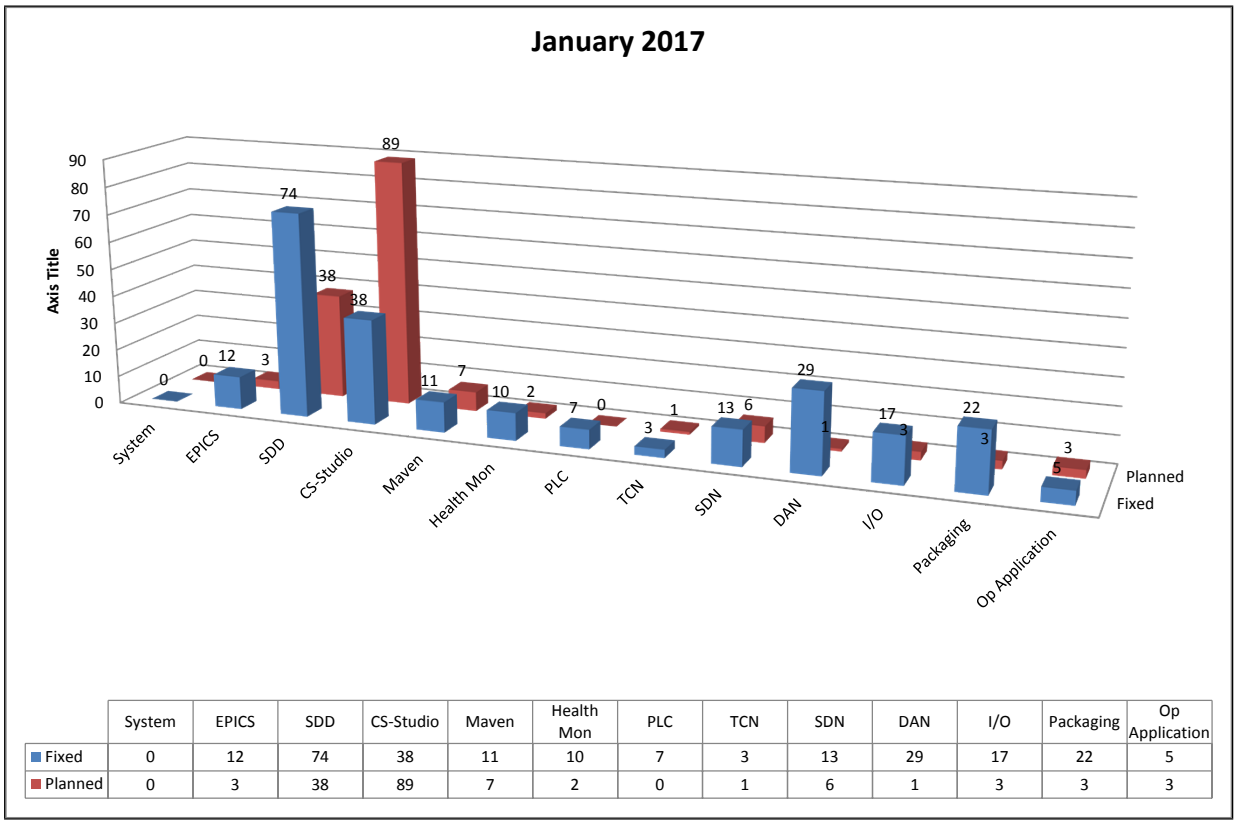
- Understanding and meeting the requirements of CS-Studio users,
- Continuously improving all processes related to the Control System Studio product – monthly release integration integration, build, test, deployment,
- Effectively utilising the creative talents in the collaboration,
- And meeting statutory, regulatory, and other requirements.

CS-Studio products and plugins are adapted for ITER and integrated in CODAC Core System (CCS):

- CODAC Core System life cycle integration,
- SVN synchronisation with github,
- Software packages (RPM packages) based products,
- Validation on CODAC infrastructure – Linux, PostgreSQL, Tomcat and Eclipse versions, 4K screens configuration.

The objective of the services required under these specifications is to support CODAC section in providing the CS-Studio tools necessary for phase 1 of the plant system integration plan - auxiliary buildings, before Tokamak Complex & B71.

This implies fixing issues and developing enhancements in coordination with CS-Studio community of developers. The following figure illustrates the challenge of supporting this activity.



	System	EPICS	SDD	CS-Studio	Maven	Health Mon	PLC	TCN	SDN	DAN	I/O	Packaging	Op Application
Fixed	0	12	74	38	11	10	7	3	13	29	17	22	5
Planned	0	3	38	89	7	2	0	1	6	1	3	3	3

Figure 1-2 Issues/Enhancements tracking system status

2 Scope

The scope of work is the maintenance and development of the CS-Studio tools that are part of the CODAC Core System (CCS) distribution. In accordance with CODAC Core System life cycle, the scope of these specifications is to supply the software engineering support services required for CCS 18A release (CCS 6.0 Feb 2018 software release) which includes:

- Back-office User support:
  - Identification and documentation of User-supplied software change requests or defects. *Note: user is not limited to ITER but can also be part of CS-Studio community when ITER is in charge of the impacted component/plugin*
  - Analysis and definition of perfective or corrective actions pertaining to the software requirements,
  - Implementation, tests and/or documentation
- Regular and adaptive maintenance:
  - Monthly release integration from the CS-Studio community into CODAC Core System,
  - Build – local tycho build and CCS integrated Jenkins build,
  - GIT and SVN source repository management,
  - Release preparation from beta 1 to final release,
  - Adaptation to new version of Java, Eclipse, Tomcat, ActiveMQ and PostgreSQL,
  - Performance analysis,
  - Software source code and documentation auditing,
  - Software quality control, with emphasis on maintainability, usability and robustness
- Software and documentation maintenance, as necessary per outcome of the activities carried in the other sub-tasks above.

The goal being that the CODAC Core System Software component(s) subject to the scope of this contract reach a level of maturity and quality compatible with entering in regular maintenance after the release of CODAC Core System 2018-A.

The CS-Studio software components subject to the scope of this TO are:

- BOY – Operator Interface tool,
- BEAST – Alarm and Log system,
- BEAUTY – Archiving system,
- ELOG – Electronic logbook,
- SCAN – Scan system
- CSS General – CS-Studio utilities and debugging tools and utilities, RAP products and Web reporting tools.

3 Definitions

The following acronyms are used in this document:

CODAC	Control, Data Access and Communications
CCS	CODAC Core System
CSS	CS-Studio
EPICS	Experimental Physics and Industrial Control System
N/A	Not Applicable
PON	Plant Operation Network
SRS	Software Requirement Specification
STP	Software Test Plan
STR	Software Test Report
SUM	Software User Manual
SVN	Software source code repository
TRO	Technical Responsible Officer

For a complete list of ITER abbreviations see: ITER Abbreviations (ITER_D_2MU6W5).

4 References

[RD1] Core Systems Roadmap (2LTB5T v6.1)

[RD2] SEQA-45 - Software Engineering and Quality Assurance for CODAC (2NRS2K)

[RD3] CODAC Core System - Releases and bugs process (HDTHJF)

[RD4] DT - Document Templates (6RZESV)

[RD5] CS-Studio Updated Roadmap (FNE5J7)

[RD6] CS-Studio Test Plans (G7PEJT)

[RD7] Developer guide for CS Studio with Git (6NZJKG)

5 Estimated Duration

The duration of the software engineering support services will be for **one year**. The contract is scheduled to be launched **beginning of March 2017**.

This is a deliverable based contract.

The contract activities shall start at the kick-off meeting of this contract (T0).

6 Work Description

The deliverables of the work become part of the CODAC Core System. Therefore the schedule of activities is closely linked to official releases of CODAC Core System in 2017 and 2018.

The schedule is defined in the CODAC Core System roadmap [RD1] and is repeated below.

6.1 CCS-18A Schedule

The planned version for CCS-18A is CCS 6.0 – February 2018 according to the following schedule:

18A FF	**30-Jun-17**	**18A Features freeze. Specifications and work-plans approved.**
18A B1CF	30-Sep-17	18A Beta 1 code freeze (inc. documentation and test plans)
18A B1	07-Oct-17	18A Beta 1 released (preliminary version, no users.)
18A B2CF	31-Oct-17	18A Beta 2 code freeze (inc. documentation and test plans)
18A B2	09-Nov-17	18A Beta 2 released, for IO tasks only.
18A B3CF	30-Nov-17	18A Beta 3 code freeze (inc. documentation and test plans)
18A B3	08-Dec-17	18A Beta 3 released for IO tasks and beta testers
18A DOC	08-Dec-17	18A User documentation ready for review by users and testers.
18A CF	**31-Dec-17**	**18A Code freeze**
18A TST	18-Dec-17	18A Tests ready, all test plans approved
18A B4	09-Jan-18	18A Beta 4 released – Release candidate 1 for 18A
18A DOCOK	31-Jan-18	18A User documentation approved
18A TSTOK	08-Feb-18	18A Tests reports approved
18A OK	**15-Feb-18**	**18A Released**
18A TRNOK	31-Mar-18	18A Training updated. Presentations and exercises approved.

6.2 Known enhancements/issues for CCS-18A

The work description found in the present Technical Specifications is open to revision during the contract. Any change, if required, will be discussed during progress meetings to agree on the associated workload.

The following enhancements/issues have already been reported, specified in Bugzilla and are planned to be fixed for CSS-18A. It is required that the major changes are implemented for 18A B1CF - Beta 1 code freeze in order to give enough time to validate the change and its impact on other components.

Any submitted changes are reviewed by ITER and CS-Studio community for a shared component/plugin.

ID	Type	Component	Short Description	Publish
5928	enhancement	CSS BEAST	Alarm Flood Management for Automated Actions	No
8496	enhancement	CSS BEAST	Double-click on an alarm in the alarm table shall open the related alarm page	No
8507	enhancement	CSS BEAST	Integration of the new Alarm Log Service based on Elasticsearch/Nosql backend	No
8575	enhancement	CSS BEAST	Access to the event log from an alarm	Yes
9399	enhancement	CSS BEAST	Alarm maintenance mode for a given period of time	Yes
9084	enhancement	CSS BEAUTY	Web Databrowser auto-complete shall search in the archive rdb for PV names	Yes
5415	enhancement	CSS BEAUTY	Archived data retention policy	Yes
7705	enhancement	CSS BEAUTY	PON archive data retrieval service	No
8438	enhancement	CSS BEAUTY	Extension of archive configuration xml syntax to support retention policy definition	Yes
9411	enhancement	CSS BEAUTY	Optimisation of archive configuration import	No
8427	enhancement	CSS BOY	Updated Symbol Library version specified by Operation and the Plant Systems	Yes
8429	enhancement	CSS BOY	Integration of the new Symbol Library	Yes
8430	enhancement	CSS BOY	Update of CS-Studio BOY Symbol Library documentation	Yes
8662	enhancement	CSS BOY	BOY script util support of Xinclude by loadXMLFile	No
9081	enhancement	CSS BOY	Try to fix broken connection	Yes
9266	enhancement	CSS BOY	BOY: Always use default editor for "Open File" action on an opi file	Yes
6836	enhancement	CSS BOY	OPI compliance dashboard	Yes
7327	enhancement	CSS BOY	Integration of the new Alarm Log Service datasource in BOY	Yes
7847	enhancement	CSS BOY	New BOY generic table widget that can access any data sources	No
8455	enhancement	CSS BOY	Log all operator inputs on mimics in the "system event log"	Yes
8502	enhancement	CSS BOY	Integration of multiple alarm beast datasources	No
8889	enhancement	CSS BOY	include css-opi-updater in mvn migrate	Yes
9401	enhancement	CSS BOY	BOY folders reorganisation	Yes
9403	enhancement	CSS ELog	Logbook entry XML display	Yes
9412	enhancement	CSS ELog	Logbook default configuration setup for Python API	Yes
8471	enhancement	CSS General	Integration of cs-studio monthly release into CODAC Core System	No

ID	Type	Component	Short Description	Publish
8573	enhancement	CSS General	Support of CBS4 and CBS5 in CS-Studio	No
9248	enhancement	CSS General	SWIL-2 - org.csstudio.iter product	No
9255	enhancement	CSS General	SWIL-2 - org.csstudio.iter product >> org.csstudio.autocomplete.archive plugin	No
5354	enhancement	CSS General	Integration of JAVA 8 time in cs-studio bundles	No
6657	enhancement	CSS General	Cs-Studio RDB schema migration standardisation	No
6977	enhancement	CSS General	CS-Studio RDB incremental restore	Yes
7845	enhancement	CSS General	New Alarm Log Service based on Nosql backend	No
8497	enhancement	CSS General	CS-Studio RDB save/restore utility privileges	No
8498	enhancement	CSS General	CS-Studio RDB save/restore utility shall cope with database schema evolution	No
9332	enhancement	CSS General	css-dbmanager save/restore issue with logbook entry attachments	Yes
9410	enhancement	CSS General	DIIRT >> Services >> JDBC - no suitable driver found for jdbc://postgresql...	No
9432	enhancement	CSS General	CS-Studio Services Log Files >> Log Rotate Configuration should be updated	No
8011	Bug	CSS BOY	Animated SVG are not in sync	Yes
9285	Bug	CSS General	CS-Studio display performance issue via ssh/X11	No
8911	Bug	CSS BEAST	Web Alarm Table selected alarms issue	Yes
8923	Bug	CSS BEAST	Alarm notifier >> alarm configuration loaded twice	No
8983	Bug	CSS BEAST	Web Alarm Tree - OK alarms foreground color becomes and remains white when selected	Yes
8779	Bug	CSS BEAUTY	WebDatabrowser - some buttons in the toolbar do not work	Yes
8981	Bug	CSS BOY	Web Databrowser auto-complete issue on adding PV names to the plot	Yes
9030	Bug	CSS BOY	use only one "frame" OPI	Yes
9157	Bug	CSS BOY	Reduced height of alarm message	No
9306	Bug	CSS BOY	WebOPI >> HTTP Status 500 - org.eclipse.core.runtime.CoreException: Plug-in org.csstudio.opibuilder was unable to load class org.csstudio.webopi.RedirectServlet.	No
8206	Bug	CSS BOY	Symbol Library automatically generated OPI files shall comply to HMI Design rules	No
9342	Bug	CSS BOY	Fluid symbol warning in full-hd mode	Yes
9380	Bug	CSS BOY	SVG symbol foreground alarm sensitive - line color reflects the priority, but does not flash to indicate that the operator has to acknowledge the alarm	No

ID	Type	Component	Short Description	Publish
9393	Bug	CSS BOY	Browsing the embedded Design Guide OPI resources fails during tests	No
9394	Bug	CSS BOY	Combo widget background alarm sensitive issue	Yes
9396	Bug	CSS BOY	OPI validation of connectors between widgets within linking containers generates warnings	No
9404	Bug	CSS BOY	CS-Studio java.lang.OutOfMemoryError: Java heap space	No
9408	Bug	CSS BOY	BOY Service button dialog does not scale properly on a 4k resolution	No
9414	Bug	CSS BOY	Memory leak from Multistate Symbol Widget	Yes
9420	Bug	CSS BOY	WebOPI >> HTTP Status 500 - Servlet.init() for servlet equinoxbridgeservlet threw exception	Yes
8915	Bug	CSS ELog	Python demo script to Create Log Entry and Browse Logbooks shall use the new port number	Yes
8916	Bug	CSS ELog	Create Log Entry >> Details bar is too small on 4k configuration	Yes
7063	Bug	CSS General	CS-Studio image buttons/icons scaling issue	No
8755	Bug	CSS General	org.csstudio.diirt.util.preferences/diirt.home obsolete preference?	No
8778	Bug	CSS General	css -version and css -help outputs too many messages	No
9149	Bug	CSS General	WebAlarm and WebDataBrowser shall use the password secure storage	No
9270	Bug	CSS General	CS-Studio release preparation	No
8450	Bug	CSS General	CSS archive reporting web application hardcodes invalid URL	No
9405	Bug	CSS General	XY Graph widget update issue	No
9298	Bug	CSS Scan System	ScanClient API change causing jython scan examples to fail	No
9419	Bug	CSS Scan System	Integration of Python/Jython Scan Server Client	Yes

7 Responsibilities

Contractor's Obligations

The Contracted engineers will be fully dedicated to performing the Services.

The contracted engineers are expected to work 25% of the time at the ITER Site, France, to gather, refine and analyse the requirements, review the design and perform integration tests.

It is the Contractor responsibility to provide good network connectivity, access to ITER and CS-Studio selected communication and infrastructure tools and all required equipment and software at its premises for offsite development – this includes a 4K Operator Terminal configuration.

The contract does not allow reassignment of the contracted engineer for the duration of the task without the prior approval of the ITER Organization (IO).

The contracted engineers will be bound by the rules and regulations governing IO safety and security.

In case of a non-EU citizen, it is required for the Contracted engineers to obtain his/her French working visa prior their arrival in France.

Obligations of IO

IO shall make available to Contractor's Personnel dedicated and located on IO site at Cadarache:

- Procedures, information and data and any other information for the Contractor to perform its functions under this Scope of Work
- User facilities on equipment (including communication lines and computers) with adequate capacity necessary for a proper execution of the Services by the Contractor; Computers, software and all data produced during the contract shall remain property of the ITER Organisation
- A safe work area which meets the requirements which are generally made for such an area for the satisfactory execution of the Services.

8 List of deliverables and due dates

Final report shall track all maintenance and enhancements done on CS-Studio components and monitor the performance indicators for 6.0 release.

	Date	Detail	Type
D1	30-Jun-17	6.0 Features freeze. Specifications of the major enhancements and fixes approved. Plan for the release approved	Report
D2	30-Sep-17	6.0 Beta 1 code freeze (inc. documentation and test plans)	Source
D3	31-Oct-17	6.0 Beta 2 code freeze (inc. documentation and test plans)	Source
D4	30-Nov-17	6.0 Beta 3 code freeze (inc. documentation and test plans)	Source
D5	31-Dec-17	6.0 Code freeze	Source
D6	15-Feb-18	Tests reports and documentation approved	Report
D7	28-Feb-18	Final report	Report

9 Acceptance Criteria

9.1 Software Change Acceptance criteria

Acceptance criteria shall be written and reviewed before implementation begins in order to capture the conditions that an enhancement or a fix shall satisfy, rather than the development reality. The criteria should be independent of the implementation, and discuss WHAT is expected, and not HOW the functionality will be implemented.

Acceptance criteria should be expressed clearly, in a short and simple format such as the given/when/then table or a verification checklist:

Given	When	Then
Some precondition	Event triggered / action done	Result expected

Fault scenario shall be part of the acceptance criteria.

The document shall be stored in the ITER Organization's document management system, IDM, by the Contractor for review and acceptance. It shall refer to a Bugzilla issue /enhancement, be named according to the ticket summary, specify the target milestone and list the deliverables (software source in terms of product and plugin, documentation - Software Test Plan (STP), Software Test Reports (STR), Software User Manual (SUM) and Software Architecture and Design Description (SADD)).

The project software integrity level L2 (medium) shall be part of the acceptance criteria and the Sonar enabled rules for CS-STUDIO shall be at least the CRITICAL and MAJOR level rules. Attention must be paid when the change affects shared plugins with the community and not owned by ITER in order to mainly limit the focus on the contributed source code.

CS-STUDIO projects should strive for 100% code coverage as a good practice. At least, the most essential core modules and all public API methods should be covered by tests. The code coverage shall be part of the acceptance criteria.

The acceptance criteria document shall also include an acceptance log to track the PASS/FAIL status of each criterion.

Once reviewed and approved, the acceptance criteria shall be translated into automated test cases to run as part of the continuous integration build. Tests should be in a separate plugin with the name .test appended.

When automated test cases can validate only partially the change and when integration and acceptance tests are required, an update of the test plan (STP) and test input data is expected.

Once the change is ready – tested and built locally, the acceptance log is filled out, the document submitted for review, the code committed on git, reviewed by ITER and CS-Studio community in case of a shared component/plugin and synchronised with SVN, the Bugzilla ticket marked as RESOLVED by the Contractor for approval.

In case of disapproval, the IO and/or CS-Studio community shall provide a justification to the contractor and necessary measures for improvement shall be taken by the contractor without delay.

Finally, the change is deployed automatically on full-development environment – trunk machines. In some cases, it could be required to deploy manually the change on specific environment such as the operator terminal and test it.

9.2 Delivery Date criteria

On-time delivery of deliverables according to the dates defined in in the acceptance criteria document.

9.3 Document Review criteria

Reports and documents as deliverables shall be stored in IDM by the Contractor for acceptance. The acceptance of the document by the Approver is an acceptance criterion. After acceptance, the document becomes IO property and will be uploaded by the IO owner at the appropriate location.

9.4 Software Delivery criteria

Software source code shall be delivered in ITER git repository (https://git.iter.org/projects/CCS) and synchronised with the ITER Organizations software repository (SVN) by the Contractor for acceptance.

The changes need also to be pushed via a pull request on GitHub Remote Repository in order to ask the community to merge after review and approval ITER development effort on community repository.

The commits shall not break the community and ITER build systems.

The absence of incident related to the change is an indicator of the success of the change. In case of a negative impact on CS-Studio or external components such as SDD or the build system, the related issue shall be tracked in Bugzilla, fixed quickly (within the day) and marked

as RESOLVED DUPLICATE of the root change. Solving such issue is not part of the maintenance activity.

The contract Responsible Officer is the Approver of the delivered software source code.

The acceptance is based on a successful acceptance log. The acceptance of the software source code by the Approver is an acceptance criterion.

9.5 Performance Indicators

Project and software quality service levels for CS-Studio are the following:

Criteria	Target value	Acceptance
Problem identification	8 hours	95%
Success rate of acceptance criteria	100%	95%
Project milestone	No later than 1 week according to plan	95%
Documentation update	No later than 1 week after completion	95%
Problems generated by a change	0	2
Negative impact of a change resolution	8 hours	95%

10 Specific requirements and conditions

The contractor shall propose two software senior engineers (at least 10 years of experience) with the following competences:

- Development of supervisory control and data acquisition tools to monitor and operate large scale control systems, such as the ones in the fusion community
- Ability to work in collaboration with laboratories and universities on open source solutions
- Software engineering:
    - CS-Studio set of tools
    - EPICS control system
    - Eclipse RCP and RAP
    - Java, Javascript, Python
    - Postgresql, NOSQL
    - Tomcat
    - Elasticsearch, Logstah and Kibana
- Good planning and organisational skills
- Ability to deliver in time what is required
- Ability to work effectively in a multi-cultural environment in English language
- Good writing and communication skills

11 Work Monitoring / Meeting Schedule

The work will be performed at the ITER site and offsite to execute the deliverables foreseen in this contract. Meetings will be arranged with the IO Responsible Officer, and any other required specialist, on a need basis. They are aimed at providing the required input data and monitoring the progress of work.

12 Delivery time breakdown

As defined in section 8 of this document.

13 Quality Assurance (QA) requirements

The organisation conducting these activities should have an ITER approved QA Program or an ISO 9001 accredited quality system.

The general requirements are detailed in ITER Procurement Quality Requirements (ITER_D_22MFG4).

Prior to commencement of the task, a Quality Plan must be submitted for IO approval giving evidence of the above and describing the organisation for this task; the skill of workers involved in the study; any anticipated sub-contractors; and giving details of who will be the independent checker of the activities (see Procurement Requirements for Producing a Quality Plan (ITER_D_22MFMW)).

Documentation developed as the result of this task shall be retained by the performer of the task or the DA organization for a minimum of 5 years and then may be discarded at the direction of the IO. The use of computer software to perform a safety basis task activity such as analysis and/or modelling, etc. shall be reviewed and approved by the IO prior to its use, in accordance with Quality Assurance for ITER Safety Codes (ITER_D_258LKL).

14 CAD Design Requirements (if applicable)

For the contracts where CAD design tasks are involved, the following shall apply:

The Supplier shall provide a Design Plan to be approved by the IO. Such plan shall identify all design activities and design deliverables to be provided by the Contractor as part of the contract.

The Supplier shall ensure that all designs, CAD data and drawings delivered to IO comply with the Procedure for the Usage of the ITER CAD Manual (2F6FTX), and with the Procedure for the Management of CAD Work & CAD Data (Models and Drawings 2DWU2M).

The reference scheme is for the Supplier to work in a fully synchronous manner on the ITER CAD platform (see detailed information about synchronous collaboration in the ITER GNJX6A - Specification for CAD data production in ITER Contracts.). This implies the usage of the CAD software versions as indicated in CAD Manual 07 - CAD Fact Sheet (249WUL) and the connection to one of the ITER project CAD data-bases. Any deviation against this requirement shall be defined in a Design Collaboration Implementation Form (DCIF) prepared and approved by DO and included in the call-for-tender package. Any cost or labour resulting from a deviation or non-conformance of the Supplier with regards to the CAD collaboration requirement shall be incurred by the Supplier.

15 Safety requirements

ITER is a Nuclear Facility identified in France by the number-INB-174 ("Installation Nucléaire de Base").

For Protection Important Components and in particular Safety Important Class components (SIC), the French Nuclear Regulation must be observed, in application of the Article 14 of the ITER Agreement.

In such case the Suppliers and Subcontractors must be informed that:

- The Order 7th February 2012 applies to all the components important for the protection (PIC) and the activities important for the protection (PIA).
- The compliance with the INB-order must be demonstrated in the chain of external contractors.
- In application of article II.2.5.4 of the Order 7th February 2012, contracted activities for supervision purposes are also subject to a supervision done by the Nuclear Operator.

For the Protection Important Components, structures and systems of the nuclear facility, and Protection Important Activities the contractor shall ensure that a specific management system is implemented for his own activities and for the activities done by any Supplier and Subcontractor following the requirements of the Order 7th February 2012 [20].