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Technical Specifications (In-Cash Procurement)

Technical specification for Multi-CAD platform development

The present technical specification concerns the execution of several deliverables in relation with Multi-CAD platform development aiming at:Ensuring efficient CAD and Engineering Meta data exchanges between the IO authoring CAD toolsAllowing CAD designers to work in a Multi-CAD environment (concurrent design...)Allowing several stakeholders to access and view in a Multi-CAD environment (CAD data viewing) by implementing Navisworks

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1 Preamble

Due to its engineering multidisciplinary, the ITER project is using several 2D and 3D CAD software for the engineering design and construction planning of the project. One of the missions of the IO DO is to ensure a CAD data and engineering data consistency between the CAD tools (CAD context) and other project software.

2 Purpose

The present technical specification concerns the execution of several deliverables in relation with Multi-CAD platform development aiming at:

- Ensuring efficient CAD and Engineering Meta data exchanges between the IO authoring CAD tools
- Allowing CAD designers to work in a Multi-CAD environment (concurrent design...)
- Allowing several stakeholders to access and view in a Multi-CAD environment (CAD data viewing) by implementing Navisworks

3 Acronyms & Definitions

3.1 Acronyms

The following acronyms are the main one relevant to this document.

Abbreviation	Description
CAD	Computer Aided Design
CRO	Contract Responsible Officer
CV5	CATIA V5
DO	Design Office
E3D	AVEVA E3D
GM3S	General Management Specification for Service and Supply
ICP	ITER Collaborative Platform
IO	ITER Organization
PRO	Procurement Responsible Officer
SSD	See System Design
TRO	Technical Responsible Officer

3.2 Definitions

Contractor: shall mean an economic operator who have signed the Contract in which this document is referenced.

Domestic Agencies (DA): Stakeholders of the ITER project, including: European Union, India, Japan, the People's Republic of China, the Republic of Korea, the Russian Federation and the United States of America.

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Design Office (DO): A unit within the IO with the overall responsibility to manage the CAD resources, CAD Production, CAD Infrastructure and Support Contracts to enable the project to perform its Engineering and CAD activities. It also has the mission to control CAD quality and efficiency of the design activities.

Design Office infrastructure: All processes, procedures, hardware and software that are required to enable the Design Office to perform its duties, including CAD activities at IO, Contractor's premises and at the DA/Suppliers.

ITER Organization (IO): An international Organization and team located in Cadarache and responsible, in close partnership with the Domestic Agencies, for the construction, commissioning, operations and maintenance of the ITER facility. The IO is in particular responsible for the requirements definition, the design, the performance, the configuration management, the project schedule, the monitoring of the construction, the assembly the commissioning, and the operations of ITER. The IO is also responsible for establishing appropriate CAD infrastructure platform and design collaboration schemes between the IO, the Domestic Agencies and suppliers.

Contract Responsible Officer (IO-CRO): shall mean the IO staff person accountable for the full-cycle contract performance including initiating the procurement request according to the procurement plan(s), preparing the technical documentation, in collaboration with the Procurement Officer, supporting the tendering process, ensuring the overall quality of the input data prepared for the tender and for the contract, and being the IO's single point of accountability for the overall performance of the contract once placed.

Technical Responsible Officer (TRO): Any IO staff responsible to the technical definition and provision of input for any given Contract. He/she is responsible to technically validate the deliverable outputs provided by the Contractor under an associated Contract under his/her responsibility.

Work Unit: It is a single repetitive and identical task that is used in order to define certain repetitive activities. The Technical Specifications can formulate several Work Unit Types and the Contractor shall assign a fixed cost to each type. The Work Units per se shall not be considered deliverables. One Work Unit or Several Work Units can be delivered as part of a Ticket or request to be completed as a task, the ticket is the formalization of the client's request.

4 Applicable Documents & Codes and standards

4.1 Applicable Documents

It is the responsibility of the Contractor to identify and request for any documents that would not have been transmitted by IO, including the below list of reference documents.

This Technical Specification takes precedence over the referenced documents. In case of conflicting information, this is the responsibility of the contractor to seek clarification from IO.

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Upon notification of any revision of the applicable document transmitted officially to the contractor, the contractor shall advise within 4 weeks of any impact on the execution of the contract. Without any response after this period, no impact will be considered.

Ref	Title	IDM Doc ID	Version
1	General Management Specification for Service and Supply (GM3S)	82MXQK	0.0
2	ITER_D_X3QQXG - ITER Software Toolmap	X3QQXG	2.0
3	ITER_D_2F6FTX - Procedure for the Usage of the ITER CAD Manual	2F6FTX	1.1
4	ITER_D_86WWK9 - HOW-TO access to NAVISWORKS Freedom at IO	86WWK9	1.1
5	ITER_D_28QDBS - ITER Numbering System for Components and Parts	28QDBS	5.0
6	ITER_D_249WV4 - CAD Manual 08 - Collaboration Processes	249WV4	2.5
7	ITER_D_8ZSNLV - HOW TO use the 2D-3D checker in CATIA	8ZSNLV	1.0
8	ITER_D_8A4Y4F - HOW TO Import E3D model in ENOVIA with appropriate granularity	8A4Y4F	3.0

4.2 Applicable Codes and Standards

It is the responsibility of the contractor to procure the relevant Codes and Standards applicable to that scope of work.

5 Scope of Work

This section defines the specific scope of work for the service, in addition to the contract execution requirement as defined in Ref [1].

As mentioned in previous sections, the ITER Project is using several CAD software (both 2D and 3D) to publish CAD engineering deliverables. Consequently, the IO DO needs to maintain a Multi-CAD platform allowing exchange of CAD and Engineering data between CAD applications and other project software.

Two main aspects need to be addressed by this Multi-CAD platform:

- Concurrent design: allow CAD designer to work in Multi-CAD environment, i.e. allow them to access to some data that are not coming from the same CAD software. To address this need, it is expected to develop some tools enabling such exchange. Usage of neutral CAD formats is privileged, but in some cases, some models need to be rebuilt in native format, especially for interfaces.
- Viewing: Navisworks is a CAD viewer able to absorb a wide range of CAD formats. Its main features that are clashes detection, fast model opening and capability to enrich 3d model with attributes coming from external source. It is expected to integrate Navisworks in our CAD infrastructure.

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5.1 Scope of work #1: User Support

The Contractor will provide support to users of the Multi-CAD platform, answering directly to users. Several categories of task are foreseen and will be managed through CAD ticket system. IO TRO will define the category. The user support will be mainly dedicated for the CAD conversion team or Navisworks users.

The Estimated effort for completion of the ticket or work Unit is encoded as follows:

Size	Estimated effort (`hour)
XS	1
S	4
M	8
L	16
XL	40

Four categories of **CAD tickets** are defined:

- **WU C1-XS:** defines an issue or a question which is recurring from time to time and the solution is known or the solution can be found without intensive investigation or test. The communication with the submitter and the documentation of the resolution can be done quickly..

- **WU C1-S:** defines an issue or a question, which was not raised previously, and/or the investigation or test requires some time because large amount of data is involved, remote connection is required, or several possible solutions have to be tested. A lot of communication with the submitter is required and the documentation of the resolution might lead to a dedicated document.

- **WU C1-M:** defines an issue, which was not raised previously, and the investigation or test may require long time because large amount of data is involved, remote connection or several possible solutions have to be tested because of the complexity. A lot of communication with the submitter is required and the documentation of the resolution leads to a dedicated document.

- **WU C1-L:** defines an issue, which was not raised previously, and the investigation or test may require long time because large amount of data is involved, remote connection or several possible solutions have to be tested because of the complexity. A lot of communication with the submitter is required and the documentation of the resolution leads to a dedicated document. Involvement of IO-IT or others end-users/ CAD support members is required to identify the root cause and to find a solution.

- **WU C1-XL:** defines an issue which was not raised previously, and the investigation or test require long time because a large amount of data is involved, remote connection or several possible solutions have to be tested because of the complexity. A lot of

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communication with the submitter is required and the documentation of the resolution leads to a dedicated document and a service request with the software editor or a specific development.

5.2 Scope of work #2: Multi-CAD platform enhancements, development and adaptation to project needs

The Contractor will provide support aiming at enhancing multi-CAD platform. This task consists in developing/maintaining the CAD infrastructure (tools, macros VBS, testing, associated guidelines…) related to CAD and Engineering Meta data exchanges between the tools. This scope of work is more related to allow concurrent design for CAD designers.

Several types of deliverables are expected:

- **WU C4-L – EDITOR SERVICE REQUEST:** Documentation describing a need for an enhancement or adaptation of the existing Multi-CAD platform. The specification leads to software editor task managed on its own system.
- **WU C5-S – DEVELOPMENT:** Simple development of macros (mainly in VBA) or batches aiming at exchanging CAD and metadata between CAD software. As, our CMM is managed through EV5, these developments will be mainly focused on CATIA. It is usually a small improvement of an existing macro
- **WU C5-M – DEVELOPMENT:** Medium development of macros (mainly in VBA) or batches aiming at exchanging CAD and metadata between CAD software. As, our CMM is managed through EV5, these developments will be mainly focused on CATIA.
- **WU C5-L – DEVELOPMENT:** Complex development of macros (mainly in VBA) or batches aiming at exchanging CAD and metadata between CAD software. As, our CMM is managed through EV5, these developments will be mainly focused on CATIA.
- **WU D4-XL– IT SPECIFICATION:** Documentation describing functional need for enhancement or adaptation of the existing CAD platform to new user requirements. The specification leads normally to IT task managed with Jira system.
- **WU D5-M - TEST REPORT:** shall confirm the solution provided or document remaining issues. A table recapping list of steps performed during the protocol test is expected.

5.3 Scope of work #3: CAD user and/or administrator documentation

CAD Software, conversion tools, CAD formats… are permanently evolving and therefore are impacting the Multi-CAD platform. All documentation describing methodologies and processes of conversion, HOW TOs need to be maintained with latest release.

- **WU D1-S – MULTI-CAD INFRASTRUCTURE Documentation:** Publication of an article in a CAD Newsletter
- **WU D1-M – MULTI-CAD INFRASTRUCTURE Documentation:** Update of documents aiming at:
    - describing Multi-CAD architecture between all CAD software used at IO with related process
    - describing a methodology to be followed by CAD users
- **WU D1-L – MULTI-CAD INFRASTRUCTURE Documentation:** Creation of documents aiming at:
    - describing Multi-CAD architecture between all CAD software used at IO with related process.
    - describing a methodology to be followed by CAD users.

- updating of CAD Manual

- **WU Q2-L – MULTI-CAD INFRASTRUCTURE Process Monitoring:** Creation of reports aiming at tracking and/or reporting activities related to Multi-CAD platform such as tools usage, evolution of number of incidents, evolution of number of CAD documents (Diagrams, Ev5 Work Packages, E3D RVM…) extraction failures…

5.4 Scope of work #3: Training

- **WU T1-M – Training activities:**

Animation of workshop or training mainly on Navisworks. Purpose of this task will be to present the functionalities depending on usage of public (CAD designer, engineer…)

- **WU T1-L – Training activities:**

Creation of training material for Navisworks according to the PowerPoint Training Templates. Videos will also be required. Different levels of training will have to be deployed: from basic introduction to advanced functionalities.

- **WU T4-S - Proximity support activities:**

The daily experience shows that designers and engineers are reluctant to make a ticket if they have question/issue which can be answered or solved in max. 15 min. Therefore the proximity support activity is added to collect such kind of activity per month. A tracking list shall be delivered to document this activity.

Most of the time, for such kind of simple tasks, end-users will not open an IOCAD. They will contact the support team directly on ITER premises or by phone/Teams.

This proximity support will be recorded in a report collecting such kind of tasks per month. However, this proximity support shall not represent more than 25% of the total support activity prior TRO formal acceptance

5.5 Service Duration

The estimated start date of the services shall be after Contract signature by both Parties. Implementation of the activities shall only start after the Kick off Meeting (T0). The expected duration of tasks is T0 + 36 months.

T0 shall be within 4 weeks from the entry into force of the Contract.

6 Location for Scope of Work Execution

The services shall be rendered at the Contractor's premises (where the offices are at distance no longer than 1,500 Km from the IO Site).

The Contractor may be granted some space at the IO Premises, to facilitate the interaction of the services.

The contractor shall have at least one person on site during ITER working hours.

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The Contractor may propose partially an Off-shore scheme (More than 1,500 Km). In such case, the Contractor shall commit that the services are rendered and aligned with the timeframes and availability of the ITER Organization (8.30 a.m. – 5.30 p.m. CET / CEST resp.), this is done to guarantee the access to the Level 2 user support and to communicate with the DO Support Team.

NOTE: The On-Site location may be provisional and shall not be considered as an official and permanent allocation of the Contractor's staff. Presence on-site will be discussed after award and formalized during the Kick off Meeting of the Services.

In some circumstances, topics might be advantageously jointly worked on by the contractor and IO TRO or other interfaces more efficiently through in-person meeting or sessions. Should this case arise, the TRO or the contractor are both eligible to ask for these in-person sessions on IO site.

It is at the sole discretion of the IO to indicate the preferred locations for the implementation of the scope based on the locations mentioned above.

For contractor's staff located on/off site, the contract shall maintain records of activities performed and formally inform the CRO and TRO about:

- Solution foreseen to ensure work continuity and timely deliverables in the event of sick leave, staff resignation, planned training and holidays of the Contractor's personnel.

7 IO Documents

N/A

8 List of deliverables and due dates

The Supplier shall provide IO with the documents and data required in the application of this technical specification, the GM3S Ref [1] and any other requirement derived from the application of the Contract.

A minimum, but not limited to, list of documents is available hereafter with associated due dates:

Work Unit	Estimated average unitary Time (hours)	Estimated Quantities	Deliverable Description	Format
C1-XS	1	90	Ticket comment	JIRA ticket
C1-S	4	90	Ticket comment	JIRA ticket
C1-M	8	90	Ticket comment	JIRA ticket
C1-L	16	100	Ticket comment	JIRA ticket
C1-XL	40	72	Ticket comment	JIRA ticket
C4-L	16	5	Service request	service request in editor tool
C5-S	4	150	-Code -JIRA ticket	-VBA, CATScript, CAA… -JIRA ticket

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C5-M	8	200	-Code -JIRA ticket	-VBA, CATScript, CAA… -JIRA ticket
C5-L	16	180	-Code -JIRA ticket	-VBA, CATScript, CAA… -JIRA ticket
D1-S	4	36	Doc such as How to, training material,	PPT, Video, CAD data
D1-M	8	24	Doc such as How to, training material,	PPT, Video, CAD data
D1-L	16	36	Doc such as How to, training material,	PPT, Video, CAD data
D4-XL	40	36	Specification	Office Document
D5-M	8	146	Test report	Office Document
Q2-L	16	6	Report	Excel or Power Bi
T1-M	8	36	Record and transcript of the session, list of attendees	Office Document
T1-L	16	36	Document, Video, Confluence Page	Office Document, Video
T4-S	4	21	Report	Ticket system or Office document

(*) T0 = Date of the Kick-off Meeting, to take place within 4 weeks from the entry into force of the Contract.

Supplier is requested to prepare their document schedule based on the above and using the template available in the GM3S Ref [1] appendix II.

9 Quality Assurance requirements

The Quality class under this contract is Design control – Class 2 and [Ref 1] GM3S section 8 applies in line with the defined Quality Class.

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 ITER_D_258LKL - Working Instruction for the Qualification of ITER safety codes

10 Safety requirements

N/A

10.1 Nuclear class Safety

N/A

10.2 Seismic class

N/A

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11 Specific General Management requirements

Requirement for [Ref 1] GM3S section 6 applies completed/amended with the below specific requirements:

11.1 Contract Gates

N/A

11.2 Work Monitoring

Monitoring of ticket resolution is done via ticket system during a weekly meeting.

11.3 Meeting Schedule

TRO will create a weekly meeting to review all on-going activities. During this meeting, the Contractor shall share a dashboard highlighting the performance of the CAD support, the progress on the other tasks and share the blocking points.

11.4 CAD design requirements

This contract requires for CAD activities, [Ref 1] GM3S section 6.2.2.2 applies