

Technical Specifications (In-Cash Procurement)

Technical specification for CAD Schematics Applications Support and Administration

This Technical Specification document specifies scope, associated Work-Units and the related deliverables for the support and maintenance of the CAD Schematics Platform. This platform is used by several hundred designers and engineers at IO, 7 DAs, IO-contractors and DA suppliers.

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1 Preamble

This Technical Specification is to be read in combination with the General Management Specification for Service and Supply (GM3S) – [Ref 1] that constitutes a full part of the technical requirements.

In case of conflict, the content of the Technical Specification supersedes the content of Ref [1].

2 Purpose

This technical specification establishes the execution of several deliverables for the Administration, Improvement and User Support of the Current Schematics CAD Plant tools. It also defines the needs of the Engineering Services Department’s Design Office (ESD/DO) in support to Drawings Management, including the administration of the dedicated Diagrams/Drawings Management tool (SMDD), the support to the SMDD users and related documentation and trainings, and the further integration of the SMDD tool with the software platform supporting the ITER configuration management strategy.

The Contractor shall demonstrate expertise and state of the art knowledge for contributing to plant erection projects for “Installation Nucléaire de Base - INB” (or similar) and shall prove expertise in the field of consultation and deliverable production.

Legal responsibility, ownership and intellectual property of all deliverables shall belong to the ITER Project (IO).

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
DA	Domestic Agency
DB	Data Base
DO	Design Office
EDB	Engineering Data Base
ESD	Engineering Services Department
FS	Functional Specification
GM3S	General Management Specification for Service and Supply
IDM	ITER Document Management System
IO	ITER Organization
IT	Information Technology
KPI	Key Performance indicator(s)
KOM	Kick-Off-Meeting
MQP	Management Quality Program
PBS	Plant Breakdown Structure
PFD	Process Flow Diagram

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PIA	Protection Important Activity
PIC	Protection Important Component
P&ID	Piping and Instrumentation Diagram
PLM	Product Life-Cycle Management
PRO	Procurement Responsible Officer
QA	Quality Assurance
QC	Quality Control
SIC	Safety Important Component
SPM	SmartPlant Materials
SRA	Safety Related Activities
SSD	SEE System Design
SXP	See Electrical Expert
TO	Task Order
TRO	Technical Responsible Officer
RE	Responsible Engineer
RO	Responsible Officer
WU	Work Unit

For a complete list of the ITER, abbreviations see: [ITER Abbreviations \(ITER_D_2MU6W5\)](#).

- Shall: Mandatory requirement
- Should/May/Will: Recommendation or action that is advised but not required. “Will” is used for all actions to be performed by IO and/or the others.

3.2 Definitions

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

Functional Reference, FR: The unique code identifying an ITER Component within the ITER PBS. FR is one of the 3 types of key Item-ID-Codes of the 3-Ball Model, identifying an item “As-In the ITER System.”

Design Office (DO): A unit within the IO with the overall responsibility to manage the CAD resources, CAD Production, CAD Infrastructure and Support Task Orders of this framework 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 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.

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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 (IO-TRO): Any IO staff responsible to the technical definition and provision of input for any given Task Order. He/she is responsible to technically validate the deliverable outputs provided by the Contractor under an associated Task Order 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 complete as a task, the ticket is the formalization of the client's request.

4 Applicable Documents & Codes and standards

4.1 Applicable Documents

This 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.

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	1.4
2	ITER Numbering System for Components and Parts	28QDBS	5.0
3	Work Instruction for Management of TTT Code	7XUURX	1.2
4	Function Category Designators (TTT code) used in the ITER numbering system for components (PPPPPP-TTT-NNNN)	43WDW9	NA
5	ITER_D_5ZP9XL - IGP Administration Module Reference Documentation	22K4QX	8.5
6	ITER_D_WM326X - AVEVA DIAGRAM, E3D and ENGINEERING Attribute List	WM326X	1.5
7	ITER_D_2VFFSC - AVEVA Diagrams Software Configuration	2VFFSC	1.0

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8	ITER_D_28QDBS - ITER Numbering System for Components and Parts	28QDBS	5.0
9	ITER_D_8QA5L2 - SXP Requirements	8QA5L2	1.1
10	ITER_D_4T8MQ5 - CAD Manual for See Electrical V4R3	4T8MQ5	1.0
11	ITER_D_35CY6V - CAD Manual 14 - Diagram Guidelines	35CY6V	2.0
12	Procedure for the CAD management plan	2DWU2M	2.2
13	ITER_D_X3QQXG - ITER Software Toolmap.	X3QQWG	1.0
14	ITER_D_UYRHSG - How to create a JIRA CAD Ticket - for administration	UYRHSG	2.0

4.2 Applicable Codes and Standards

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

5 Scope of Work

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

This specification covers all activities related to the SSD, SEE Electrical Expert, AVEVA Diagrams, AVEVA Engineering and SMDD Platform CAD support and infrastructure activities.

It includes the following tasks:

- CAD and Engineering User support (Plant)
- Administration / Development / Maintenance
- Training Certification and P&O
- CAD and ENG Methodology, Quality Assurance and Quality Documentation

The scope is mainly limited to tasks in relation with SSD, SEE Electrical Expert, AVEVA Diagrams and AVEVA Engineering platform and auxiliary Software:

- SSD PLM Connector
- AVEVA PLM Connector
- AVEVA Integration Services (AIS)
- AVEVA Gateway

The Contractor shall also consider the specificities of data coming from others CAD software and integrated into the CAD tools mentioned above.

Please refer to the document below for more information on the Engineering tool map.

- [ITER_D_X3QQXG - ITER Software Toolmap.](#)

However, due to the interconnected ITER tool landscape, the contractor will have to contribute to tasks directly or indirectly related to others software such as ICP, SmartPlant, CATIA/ENOVIA, Navisworks...

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In such case, ITER TRO and contractor will formally agree on the volume, and type of tasks, as described in the following chapters. These potential activities will be managed under the same conditions (Working Unit, inputs, deliverables...) than the tasks related to the SSD, SXP, AVEVA Diagrams, AVEVA Engineering, SMDD platform.

All tasks mentioned in this section 5 “Scope of Work” will be split into Work Units (WU). The contractor shall deliver the services required under supervision of DO, with approval of the delivered work as defined in the Contract documents.

For technical and operational reasons some activities shall be performed on the IO Site as defined in section 5.4.1

5.1 Scope of work #1: User Support

5.1.1 Description

The contractor shall provide user support on the following applications SEE System Design, AVEVA Diagrams, AVEVA Engineering, SEE Electrical Expert and SMDD, following requests made on the ITER JIRA System (IOCAD Ticket System). Please see below some examples of tasks:

- Ensure that the issues reported by users in the ITER Jira IOCAD Ticketing system are resolved in a timely manner and commented.
- Monitor the tickets and report to IO- TRO in case of any blocking situation.
- Shall be able to maintain the attributes defined by the project and ensure their correct implementation in the different CAD Tools database.
- Provide reports on the Quality of the data defined in the applications.
- Support to SMDD users on submissions, through all possible routes (from File-based, from Enovia, from SSD, from AVEVA, from SEE Electrical Expert through Bulk-Upload or not, etc...)
- Coordination and execution of the Quality control of SMDD submissions provided by the users.
- Quality checking of the incoming data and linked data (e.g. QC of diagrams and their components declaration before submission of the isometrics in SMDD), Launching and follow-up of corrective actions.

All communication with the Ticket submitter shall be documented through ticket comments.

If the problem description by the submitter is not clear enough, clarification has to be requested as soon as possible.

Source (if known) and the resolution shall be clearly described in the ticket comment or in any attached document.

According to the definition of priority levels, tickets classified as critical prevent the users to continue the work.

The Contractor shall ensure that critical tickets are handled with first priority and without any delay.

After the submitter has confirmed the resolution or answer to the question, the ticket shall be closed.

A How To, a technical specification for customization (IDM) or a service request (in the editor support tool) to the software editor might be required depending on the category.

Below the types of ticket categories to be addressed:

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1. **WU C1 XS - CATEGORY 1** 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.
2. **WU C1 S - CATEGORY 2** 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, a 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.
3. **WU C1 M - CATEGORY 3** 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.
4. **WU C1 L - CATEGORY 4** 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.
5. **WU C1 XL - CATEGORY 5** defines an issue which was not raised previously, and the investigation or test 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 and a service request with the software editor or a specific development.

5.2 Scope of work #2: Platform Enhancements, Development and Adaptation to ITER needs.

5.2.1 Description

The contractor shall participate in the enhancement, development, and adaptation of the CAD applications and SMDD, through some of the activities defined below:

- Implement further developments to update Schematic Tools deployment as per latest project needs: install new software version, connect CAD tools to other software (EDB, PLM, Commissioning, ITER Engineering Platforms, etc..), and implement agreed standards and process (IEC, ISO, MQP, etc..).
- Reception, Testing and validation of the delivered developments either from the Tool editor or the ITER IT.
- Maintenance of all the ITER Environment of CAD Tools (Production, Operations, Training, Validation, etc..).
- Participate actively in the maintenance and the improvement of the in-house SEE System Design PLM middleware tool, Aveva PLM Middleware and SMDD connected to the ITER Engineering Platforms.

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- Definition of the data flows and system functionalities supporting this interaction (Functional specs).
- Writing of Technical specifications for automating the workflows defined in the point above.
- Follow-up of the developments specified in the bullet above (excluding IT and code developments themselves which will be taken over by other IO entities such as IO IT, other Contractors dedicated to code development).
- The specification of functionalities to be developed with IO/IT or publisher(s) testing and its deployment in production mainly for data publication and sharing.

5.3 Scope of work #3: User and/or Administrator documentation

5.3.1 Description

The contractor shall provide all documentation related to design process methodologies, How To, CAD Manual Updates, etc.

- Involvement in definition of methods and guidelines for specific user cases which deserve explanatory and adapted documentation: e.g. from other identified MultiCAD Cases, System-to-system pilots, etc.
- Update existing documentation related to the listed software or create new documents to ensure that good practices are recorded and shared with all users (samples: How To, CAD Manual, Tips and Tricks, Newsletters).
- Provide documentation of all the implementations performed on the CAD Tools & SMDD.
- Improving the training and associated materials, per software evolutions, project needs and user feedback.
- Definition of the data flows and systems functionalities supporting this interaction: Business requirements and Functional specs.
- Writing, in interface with the Configuration Management team, technical specifications for automating the workflows defined in the point above.

5.4 Scope of work #4: Training

5.4.1 Description

The contractor shall be able to provide Trainings, introduction to the ITER Environment implemented in some CAD Tools, organise Workshops, etc...

- Practical certification.
- Organization (invitations, scheduling, room/hardware reservation when required)
- Administration (maintaining records of trainees and certifications, gathering user feedback/evaluations).
- Follow-up (arrange for software installations, database permissions etc., as required for users to start work with the tools, before/after training).

The above scope of work is covered with the Work Units (WU) T1 & T4:

WU T1:

The task is to run a training, awareness, and/or certification to CAD users. It also covers the check of certification result performed by DO-DA. It can include the training/ awareness preparation, review of exercises, update of certification table and others administration files, send of certificate to users.

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WU T4:

The task is to provide some proximity support to the IO. Direct support to IO and IO Contractors designers/engineers on basic issues and questions not requiring investigations. 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 starting date of the tasks 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 8.30 a.m. – 5.30 p.m. CET and related to the Proximity support services WU only.

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 and 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 IO-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.

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7 List of deliverables and due dates

This task will be implemented using Work-Units.

Launching of WU may be formalized by mail, or during progress meeting and several can be launched at the same time. JIRA ticket system may be implemented to manage some of the type of WU.

The Estimated Work-Units duration given below are only indicative.

Single Task may necessitate a combination of WUs to be delivered.

The contractor shall demonstrate:

- An in-depth good knowledge of IO SMDD software, or comparable Drawings and Diagrams management software/application (To be described in the offer).
- An in-depth knowledge of the administration of CAD Software and CAD Data management tools: AVEVA Diagrams, AVEVA Engineering, SSD, SEE Electrical Expert (To be described in the offer).
- An in-depth knowledge and understanding of the business requirements for Diagrams and Drawings Management, their inclusion in a Configuration Management process and Project Lifecycle Management approach,
- A proven experience in Technical Writing of Business requirements, Functional and technical specifications of data management systems/features developments, and in the technical follow-up, reception tests and qualification of such developments.

The Estimated effort for completion of the ticket or Work Unit is encoded as following:

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

WU	WU Title	Estimated Time of Completion WU (hours)	Quantities* (Estimate per year)	Deliverable Description
C1-L	IOCAD Ticket User support Extra Large	16	51	Ticket resolved with relevant information filled and status correctly updated
C1-M	IOCAD Ticket User support Large	8	30	Ticket resolved with relevant information filled and status correctly updated
C1-S	IOCAD Ticket User support Medium	4	166	Ticket resolved with relevant information filled and status correctly updated

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C1-XL	IOCAD Ticket User support Extra Large	40	4	Ticket resolved with relevant information filled and status correctly updated
C1-XS	IOCAD Ticket User support Extra Small	1	360	Ticket resolved with relevant information filled and status correctly updated
C2-L	IOCAD Ticket User support Extra Large (Consulting, Engineering Expertise)	16	35	Ticket resolved with relevant information filled and status correctly updated
C2-M	IOCAD Ticket User support Extra Large (Consulting, Engineering Expertise)	8	40	Ticket resolved with relevant information filled and status correctly updated
C2-S	IOCAD Ticket User support Medium (Consulting, Engineering Expertise)	4	16	Ticket resolved with relevant information filled and status correctly updated
C2-XS	IOCAD Ticket User support Extra Small (Consulting, Engineering Expertise)	1	200	Ticket resolved with relevant information filled and status correctly updated
C3-S	IOCAD Ticket User Support Access Rights	4	12	Ticket resolved with relevant information filled and status correctly updated
C5-L	IOCAD Ticket User support Extra Large (Development)	16	22	Ticket resolved with relevant information filled and status correctly updated
C5-M	IOCAD Ticket User support Medium (Development)	8	12	Ticket resolved with relevant information filled and status correctly updated
C5-XL	IOCAD Ticket User support Extra Large (Development)	40	5	Ticket resolved with relevant information filled and status correctly updated
D1-L	CAD user documentation (How To, CAD Manual, Methodology...) Large	16	23	.pdf, docx
D2-XL	Consulting, Engineering Expertise Extra Large	40	5	.pdf, docx
D3-L	Reporting of activities Large	16	21	.pdf, docx
D3-M	Reporting of activities Medium	8	20	.pdf, docx
D3-S	Reporting of activities Small	4	32	-Report as per template agreed at KOM
D4-L	IT specification Large	16	22	.pdf, docx

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D4-M	IT specification Medium	8	12	recapitulative table of the requirements in excel format attached to the published document
D4-S	IT specification Small	4	12	Document in native format (Word) expressing the functional requirements ordered logically and associated to identifiers.
D4-XL	IT specification Extra Large	40	11	docx
D5-XL	Test report Extra Large	40	9	docx
T1-S	Training	4	10	docx, xlsx
T1-XL	Training Extra Large	40	5	docx, xlsx
T4-XL	Training Extra Large	40	6	docx, xlsx

The quantities stated are estimates only and can be revised in agreement between contractor and IO-TRO to ensure full flexibility of support ensuring overall duration is not exceeded.

* The above estimated quantities are given per year.

7.1 Work Unit Execution Delay

Tickets come in 5 Priority levels and the associated delay of resolution shall be fulfilled once it is assigned to contractor and as soon as all required inputs are given by ticket requester:

Ticket Priority	Max. Delay in Days
Blocker	0.25
Critical	0.5
High	3
Medium	10
Low	20

The delays above are given in working days, they could be revised for exceptional reasons (very large requests put as critical, resources planning) after validation and planning review with the IO representative. Delay does not include time needed by requester to validate ticket closure following resolution provided.

8 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.

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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](#))

8.1 Nuclear class Safety

N/A

8.2 Seismic class

N/A

9 Specific General Management requirements

“Requirement for [Ref 1] GM3S section 6 applies in full”

9.1 Contract Gates

N/A

9.2 Work Monitoring

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

For critical and blocker ticket, contractor shall inform the TRO of the resolution progress daily.

9.3 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.

9.4 CAD design requirements

This contract does not imply CAD activities”.

9.5 [ANY OTHER SPECIFICITIES]

N/A

10 Appendices