外部委託業者の募集

References: IO/25/OT/70001296/LLU

"Data Handling Extensions and Maintenance"

（データハンドリング拡張とメインテナンス）

IO 締め切り 2025 年 5 月 26 (月)

〇はじめに

本事前情報通知（PIN）は、作業契約の入札授与および実行につながる公開入札調達プロセスの最初のステップです。

本文書の目的は作業範囲と入札プロセスに関する技術的な内容の基本的な要約を提供することです。

〇背景

ITER は平和利用の核融合発電の科学的および技術的な実現可能性の実証を目的とした、国際共同研究開発プロジェクトです。ITER 機構の 7 つのメンバーは、;欧州連合（EURATOM が代表）、日本、中華人民共和国、インド、大韓民国、ロシア連邦、および米国です。

ITER の敷地はフランス南東部のブーシュデュローヌ地区にあり、ITER 本社（HQ）もあるフランス CEA サン・ポール・レ・デュランス に近いところに位置しています。詳細については、ITER のウェブサイト http://www.iter.org を参照して下さい。

〇作業範囲

技術仕様書の付属書 1 を参照下さい。

〇調達プロセスと目的

目的は、競争入札プロセスを通じて供給契約を落札することです。

この入札のために選択された調達手続きは公開入札手続きと呼ばれます。

オープン入札手順は、次の 4 つの主要なステップで構成されています。

- ステップ 1-事前情報通知（PIN）

  事前情報通知は公開入札プロセスの第一段階です。IO は、関心のある候補企業に対し、以下の概略日程に示された期日までに担当調達担当官に添付の関心表明フォームで以下の情報を提出し、競争プロセスへの関心を示すよう正式に要請します。

  特に注意:

  関心のある候補企業は、IO Ariba の電子調達ツール 「IPROC」 に登録してください（まだ登録していない場合）。手順については、

  https://www.iter.org/fr/proc/overview

  を参照してください。

Ariba (IPROC) に登録する際には、お取引先様に最低１名の担当者の登録をお願いします。この連絡担当者は、提案依頼書の発行通知を受け取り、必要と思われる場合は入札書類を同僚に転送することができます。

- ステップ 2-入札への招待

  PIN の発行から 10 作業日経過後、提案依頼書（RFP）を 「IPROC」 に掲載します。この段階では、担当の調達担当者に関心を示し、かつ IPROC に登録している関心のある候補企業は、RFP が公表された旨の通知を受けることができます。その後、RFP に詳述されている入札説明書に従って提案書を作成し、提出します。

  このツールに登録されている企業のみが入札に招待されます。

- ステップ 3-入札評価プロセス

  入札者の提案は、IO の公平な評価委員会によって評価されます。入札者は、技術的範囲に沿って、かつ、RFP に記載された特定の基準に従って作業を実施するために、技術的遵守を証明する詳細を提供しなければなりません。

- ステップ 4-落札

  認定は、公開されている RFP に記載されている、コストに見合った最適な価格または技術的に準拠した最低価格に基づいて行われます。

〇概略日程

概略日程は以下の通りです：

マイルストーン	暫定日程
事前指示書（PIN）の発行	2025 年 5 月中旬
関心表明フォームの提出	2025 年 5 月 PIN 発行の 10 暦日以内　5/26
iPROC での入札への招待の発行	2025 年 6 月初旬
入札提出	2025 年 7 月末
契約評価と授与	2024 年 9 月中旬

〇契約期間と実行

ITER機構は2025年のQ4ごろ供給契約を授与する予定です。予想される契約期間は４年の固定期間に加えて、1つのオプション期間2年です。

〇経験

候補者は以下の経験と能力を有している必要があります。

1. Linux 環境における開発とチューニングにおいて、強力な経験を実証できること（NIC から

ソフトウェアアプリケーションまでの全チェーンを含む)。
2. データ可視化のために、PySide6/PyQtGraph を用いたグラフィカルなインタラクティブインターフェースの開発において、強力な経験を実証できること。
3. データ管理のキュレーション（管理対象データはペタバイト（PB）規模まで）において、強力な経験を実証できること。
4. データ管理パイプライン（バッチ処理および準リアルタイムレポートを含む）において、強力な経験を実証できること。

〇候補

参加は、個人またはグループ/コンソーシアムに参加するすべての法人に開放されます。法人とは、法的権利及び義務を有し、ITER 加盟国内に設立された個人、企業又は機構をいいます。ITER 加盟国は欧州連合(EURATOM メンバー)、日本、中華人民共和国、インド共和国、大韓民国、ロシア連邦、アメリカ合衆国です。

法人は、単独で、またはコンソーシアムパートナーとして、同じ契約の複数の申請または入札に参加することはできません。共同事業体は、恒久的な、法的に確立されたグループ又は特定の入札手続のために非公式に構成されたグループとすることができます。

コンソーシアムのすべての構成員(すなわち、リーダーと他のすべてのメンバー)は、ITER 機構に対して連帯して責任を負います。

コンソーシアムとして許可されるために、その点で含まれる法人はコンソーシアムの各メンバーをまとめる権限をもつリーダーをもたなければなりません。このリーダーはコンソーシアムの各目メンバーのために責任を負わなければなりません。

指名されたコンソーシアムのリーダーは、入札段階で、コンソーシアムのメンバーの構成を説明する予定です。その後、候補者の構成は、いかなる変更も ITER 機構に通知することなく変更してはなりません。かかる認可の証拠は、すべてのコンソーシアムメンバーの法的に授権された署名者が署名した委任状の形式で、しかるべき時期に IO に提出しなければなりません。

どのコンソーシアムメンバーも IPROC に登録する必要があります。

既に技術仕様書 ref 番号 ITER_D_9GUSMN に記載の絶対バルブに関するフィージビリティを実施している全ての法人は本オープン入札プロセスに参加する資格はございません。

【※　詳しくは添付の英語版技術仕様書「Service Framework Contract for Data Handling Extensions and Maintenance」をご参照ください。】

ITER 公式ウェブ　http://www.iter.org/org/team/adm/proc/overview からもアクセスが可能です。

「核融合エネルギー研究開発部門」の HP： http://www.fusion.qst.go.jp/ITER/index.html
では ITER 機構からの各募集（IO 職員募集、IO 外部委託、IO エキスパート募集）を逐次更新しています。ぜひご確認ください。

イーター国際核融合エネルギー機構からの外部委託
に関心ある企業及び研究機関の募集について

＜ITER 機構から参加極へのレター＞

以下に、外部委託の概要と要求事項が示されています。参加極には、提案された業務に要求される能力を有し、入札すべきと考える企業及び研究機関の連絡先の情報を ITER 機構へ伝えることが求められています。このため、本研究・業務に関心を持たれる企業及び研究機関におかれましては、応募書類の提出要領にしたがって連絡先情報をご提出下さい。

Route de Vinon-sur-Verdon - CS 90 046 - 13067 St Paul Lez Durance Cedex - France

PRIOR INFORMATION NOTICE (PIN)

IO/25/OT/70001296/LLU

Service Framework Contract for

Data Handling Extensions and Maintenance

Abstract.

The purpose of this summary is to provide prior notification of the IO′s intention to launch a competitive Open Tender process in the coming weeks. This summary provides some basic information about the ITER Organisation (the "IO"), the technical scope for this tender, and details of the tender process.

1 Introduction

This Prior Information Notice (PIN) is the first step of an Open Tender Procurement Process leading to the award and execution of a Service Contract.

The purpose of this document is to provide a basic summary of the technical content in terms of the scope of work, and the tendering process.

The Domestic Agencies are invited to publish this information in advance of the forth-coming tender giving companies, institutions or other entities that are capable of providing these services the prior notice of the tender details.

2 Background

The ITER project is an international research and development project jointly funded by its seven Members being, the European Union (represented by EURATOM), Japan, the People's Republic of China, India, the Republic of Korea, the Russian Federation and the USA. ITER is being constructed in Europe at St. Paul–Lez-Durance in southern France, which is also the location of the headquarters (HQ) of the ITER Organization (IO).

For a complete description of the ITER Project, covering both organizational and technical aspects of the Project, visit www.iter.org.

3 Scope of the Package

Please refer to Annex 1 of Technical Specification

4 Procurement Objective & Process

The objective is to award a Service Contract through a competitive bidding process.

The Procurement Procedure selected for this tender is called the **Open Tender** procedure.

The Open Tender procedure is comprised of the following four main steps:

- Step 1- Prior Information Notice (PIN) - publication on IO web procurement page

  The Prior Information Notice is the first stage of the process. The IO formally invites interested candidate companies to indicate their interest in the competitive process, within **10 calendar days**, by returning to the Procurement officer:
  - Name of candidate company
  - Country of registration
  - Point of contact name, email, title, and phone number.

  Interested tenderers are kindly requested to return the expression of interest form (Annex II) by e-mail by the date indicated in the procurement time table below.

  Special attention:

  Interested candidate companies are kindly requested to promptly register in the IO Ariba e-procurement tool called "IPROC", if not so done yet. The process on how to do is described at the following link: https://www.iter.org/fr/proc/overview.

  When registering in Ariba (IPROC), suppliers are kindly requested to register at least one contact person. This contact person will be receiving the notification of publication of the Request for Proposal and will then be able to forward the tender documents to colleagues if deemed necessary. **Therefore, the person identified in the Expression of Interest must be registered in IPROC.**

- Step 2 - Invitation to Tender

  After the full registration of interested candidate companies, the Request for Proposals (RFP) will be published in "IPROC". This stage allows interested candidate companies

who have indicated their interest to the Procurement Officer in charge AND who have registered in IPROC to receive the notification that the RFP is published. They will then prepare and submit their proposals in accordance with the tender instructions detailed in the RFP.

Only companies registered in this tool will be invited to the tender and registered company can only submit a proposal in their name.

- Step 3 – Tender Evaluation Process

  Tenderers proposals will be evaluated by an impartial evaluation committee of the IO. Tenderers must provide details demonstrating their technical compliance to perform the work in line with the technical scope and in accordance with the particular criteria listed in the RFP.

- Step 4 – Contract Award

  The award will be done on the basis of best value for money or lowest price technically compliant offer as described in the published RFP.

5 Procurement Timetable

The tentative timetable is as follows:

Milestone	Date
Publication of the Prior Information Notice (PIN)	Mid of May 2025
Submission of expression of interest form	Within 10 calendar days of publication of PIN
Tender Launching	Early Jun 2025
Tender Submission	End of July 2025
Tender Evaluation & Contract Award	Mid of September 2025

6 Experience Requirements

The candidates shall have the following experiences and competences:

1) Demonstrate a strong experience in developing and tuning in Linux environments (including all the chain from the NIC to the software application)
2) Demonstrate a strong experience in developing graphical interactive interface with PySide6/PyQtGraph for data visualization.
3) Demonstrate a strong experience in data management curation (up to PB of data to be managed)
4) Demonstrate a strong experience in data management pipelines (incl. batch processing and quasi real-time reporting)

7 Quality Assurance Requirements

Prior to commencement of any work under this Contract, a “Quality Plan” shall be produced by the Contractor and submitted to the IO for approval, describing how they will implement the ITER Procurement Quality Requirements.

8 Contract Duration and Execution

The ITER Organization will award the Contract in Q4 2025. The estimated contract duration is with an initial firm period of 4 (four) years and an optional extension of 2 (two) years.

9 Candidature

Participation is open to all legal entities participating either individually or in a grouping/consortium. A legal entity is an individual, company, or organization that has legal rights and obligations and is established within an ITER Member State.

Legal entities cannot participate individually or as a consortium partner in more than one application or tender of the same contract. A consortium may be a permanent, legally established grouping, or a grouping which has been constituted informally for a specific tender procedure. All members of a consortium (i.e. the leader and all other members) are jointly and severally liable to the ITER Organization.

In order for a consortium to be acceptable, the individual legal entities included therein shall have nominated a leader with authority to bind each member of the consortium, and this leader shall be authorised to incur liabilities and receive instructions for and on behalf of each member of the consortium.

It is expected that the designated consortium leader will explain the composition of the consortium members in a covering letter at the tendering stage (the Invitation to Tender). Following this, the Candidate's composition must not be modified without notifying the ITER Organization of any changes. Evidence of any such authorisation shall be submitted to the IO in due course in the form of a power of attorney signed by legally authorised signatories of all the consortium members.

10 Sub-contracting Rules

All sub-contractors who will be taken on by the Contractor shall be declared with the tender submission. Each sub-contractor will be required to complete and sign forms including technical and administrative information which shall be submitted to the IO by the tenderer as part of its tender.

The IO reserves the right to approve (or disapprove) any sub-contractor which was not notified in the tender and request a copy of the sub-contracting agreement between the tenderer and its subcontractor(s).Sub-contracting is allowed but is limited to 30% of the total Contract value. Rules on subcontracting in details will be indicated in the RFP itself.

IDM UID
BK85GL

VERSION CREATED ON / VERSION / STATUS
11 Apr 2025 / 1.0 / Approved

EXTERNAL REFERENCE / VERSION

Technical Specifications (In-Cash Procurement)

Data Handling Extensions and maintenance framework contracts

this is the technical specifications for the data handling extensions and maintenance framework : it describes the various components of the data handling system.

SERVICE

Table of Contents

SERVICE

SERVICE

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

The document defines the technical services needed for the maintenance and extensions of the data handling ecosystem and the data visualization tools. The main components of the data handling ecosystem consist of the data archivers, data access and data processors.

This Contract is a framework contract, where each task order is a freestanding engineering activity subject to its own technical specification and statement of work, and with its own budget.

3 Acronyms & Definitions

3.1 Acronyms

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

Abbreviation	Description
CRO	Contract Responsible Officer
GM3S	General Management Specification for Service and Supply
IO	ITER Organization
PRO	Procurement Responsible Officer
DAN	Data Archiving Network
HDF5	Hierarchical Data Format v 5
HDF5-SWMR	HDF5 Single Writer Multiple Reader
REST	REpresentational State Transfer
PON	Plant Operation Network
SDN	Synchronous Data Network
UDP	User Datagram Protocol
IMAS	Integrated Modelling Analysis Software

3.2 Definitions

For a complete list of CODAC definitions, see ITER CODAC Glossary, Ref [2].

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

SERVICE

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 CODAC Glossary	34QECT	2.0
3	Plant Control Design Handbook (PCDH)	27LH2V	7.1
4	Software Engineering and Quality Assurance for CODAC	2NRS2K	3.2
5	DAN User manual	Q6GULS	3.12
6	Data archiver	Spring 2021 EPICS Collaboration Meeting · Online (6-July 9, 2021): Archiving and accessing PVA data at ITER · CLS Indico	
7	UDA user manual	TPLTKG	2.3
8	UDA code base	ukaea/UDA: Universal Data Access library to provide data over the network in a unified data object.	

	SERVICE		
9	MINT, an ITER tool for interactive vitalization of data	MINT, an ITER Tool for Interactive Visualization of Data	
10	MINT user manual	4N9E8W	1.7
11	CODAC DDD	6M58M9	3.1
12	Data Handling SRS	257MW7	1.4
13	Data Handling SADD	2AWJNL	1.5
14	Latest development in IMAS	CDU5JE	1.0

4.2 Applicable Codes and Standards

See Ref[3] and Ref[4].

5 Contract Duration

The framework contract duration is four (4) years firm and optional period of two (2) years.

6 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].

The scope of work covers the technical services to be provided to IO along the complete lifecycle of the data handling ecosystem.

Some ITER systems have started their commissioning for years now and we have archived so far, a certain amount of data (roughly 20 TB of experimental data). This data needs to be kept for the ITER lifetime.

The service scope covers the data archiving system, the data access system, the data processors and the data visualization tools. It is important to note that most of these components are in production now: ***it implies an extremely complete regression test suits when adding new features***.

The code source of any of the below components (when not public) can be requested if it helps.

The global I&C architecture is given Figure 1. At ITER, we are using EPICS to control and monitor our plant systems. Ref [11] gives an overview of the CODAC systems

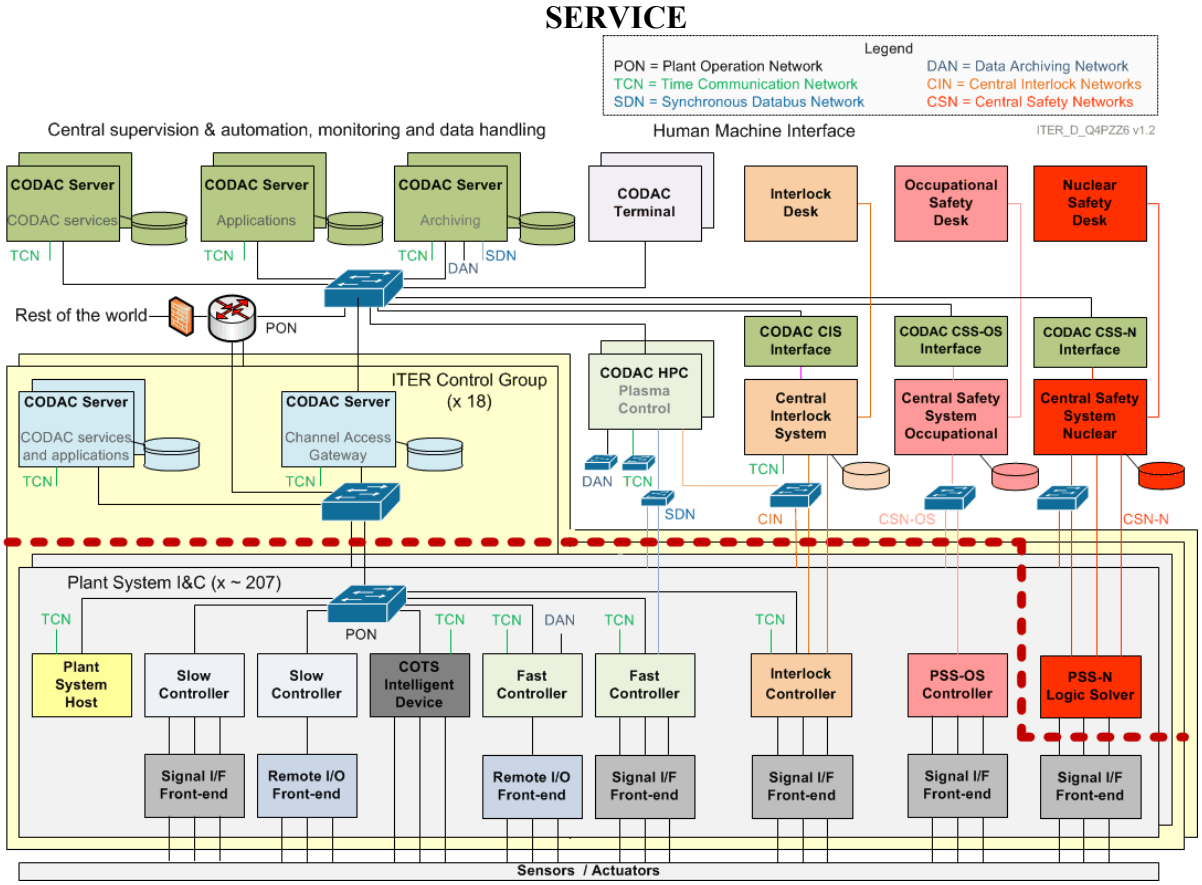

Figure 1. I&C logical architecture

It is important to highlight that there are two types of systems:

- Continuous systems like electrical, cooling water which publish data 24h/7 which need to be archived.
- Pulsed systems like heating systems, diagnostics systems which produce very high throughputs (up to GB/sec/stream) of data to be archived for a period up to 1 hour.

Ref [11] and Ref [12] describes the software requirements and the detailed design of the data handling system.

6.1 Data Archiving system

All data archived at ITER can be considered as time-series data. Some of the data are archived at regular intervals and some are archived based on a value change (typically for slow systems).

6.1.1 Description

This section gives an overview of the ITER data archiving system. Description

The data archiving system includes 3 main modules:

- *DAN* which includes an agent and an archiver to publish and collect high-throughput data. DAN is an in-house development product written in C/C++. For more information, refer to Ref[5] and source code can be requested.

SERVICE

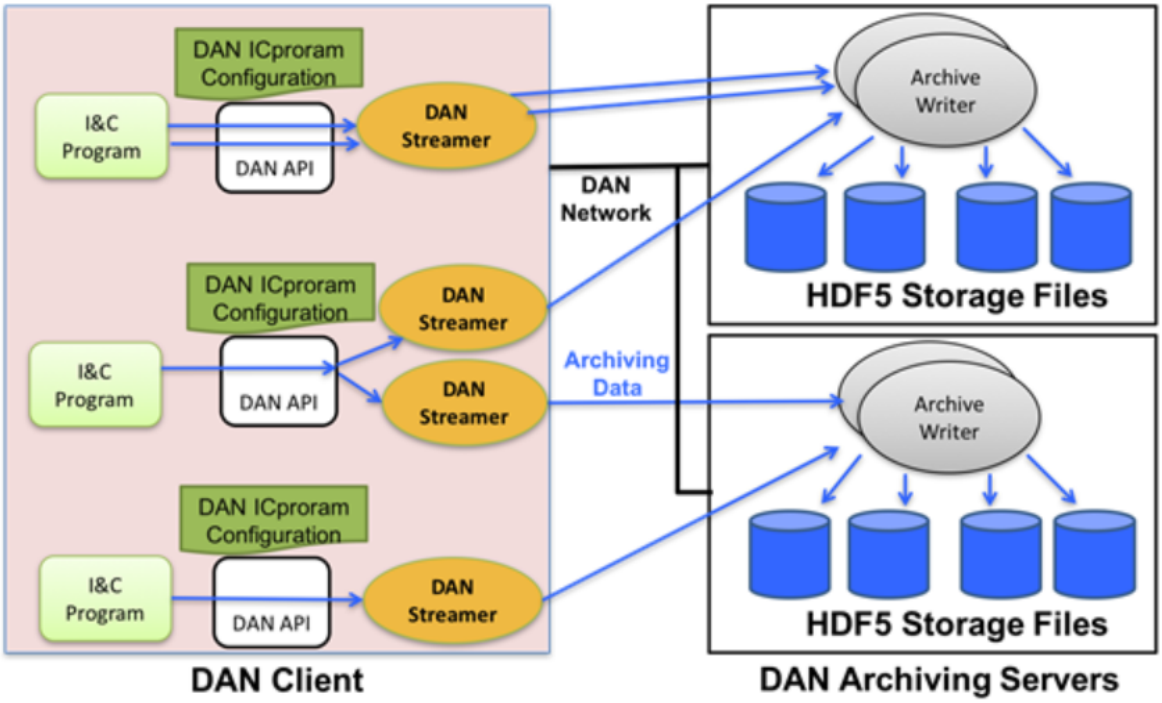

Figure 2.simplify overview of the DAN architecture

- *Data-archivers* for SDN data, PON data (both using Channel Access and PVAAccess protocol). These modules have been written in C++. More information can be found in this presentation Ref [6]

Data is stored in HDF5 format. The data type being archived varies from simple scalar (uint8/16/32/64) to complex structure (mainly the case for SDN and PON/PVAAccess).

6.1.2 Service Duration

See section 5

6.2 Data Access

Although the data archiving system is domain-oriented, the data access is made uniform, meaning that accessing DAN, SDN, PON/CA or PON/PVA is done via the same API. The end-user does not need to know this distinction when accessing the data.

There are two main ways to access the data, either by giving an absolute time range (used for continuous systems) or by pulse ID (used for pulsed systems).

In terms of data access, we need to provide 3 ways to access the data

- Data streaming or publisher-subscriber API (missing) which allows realization of workflow and pipelines: it is also linked with the data processors
- SQL like API which allows to analyse the data (partially implemented)
- Interoperable API (implemented by proposing a REST API) to interact with web application

6.2.1 Description

UDA Ref[7]developed originally by UKAE Ref[8] is used at ITER to serve the data. It is a server-client model, written in C/C++ and it is based on plugins. At ITER, a plugin has been developed to read our data format. Figure 3 represents an overview of the data access.

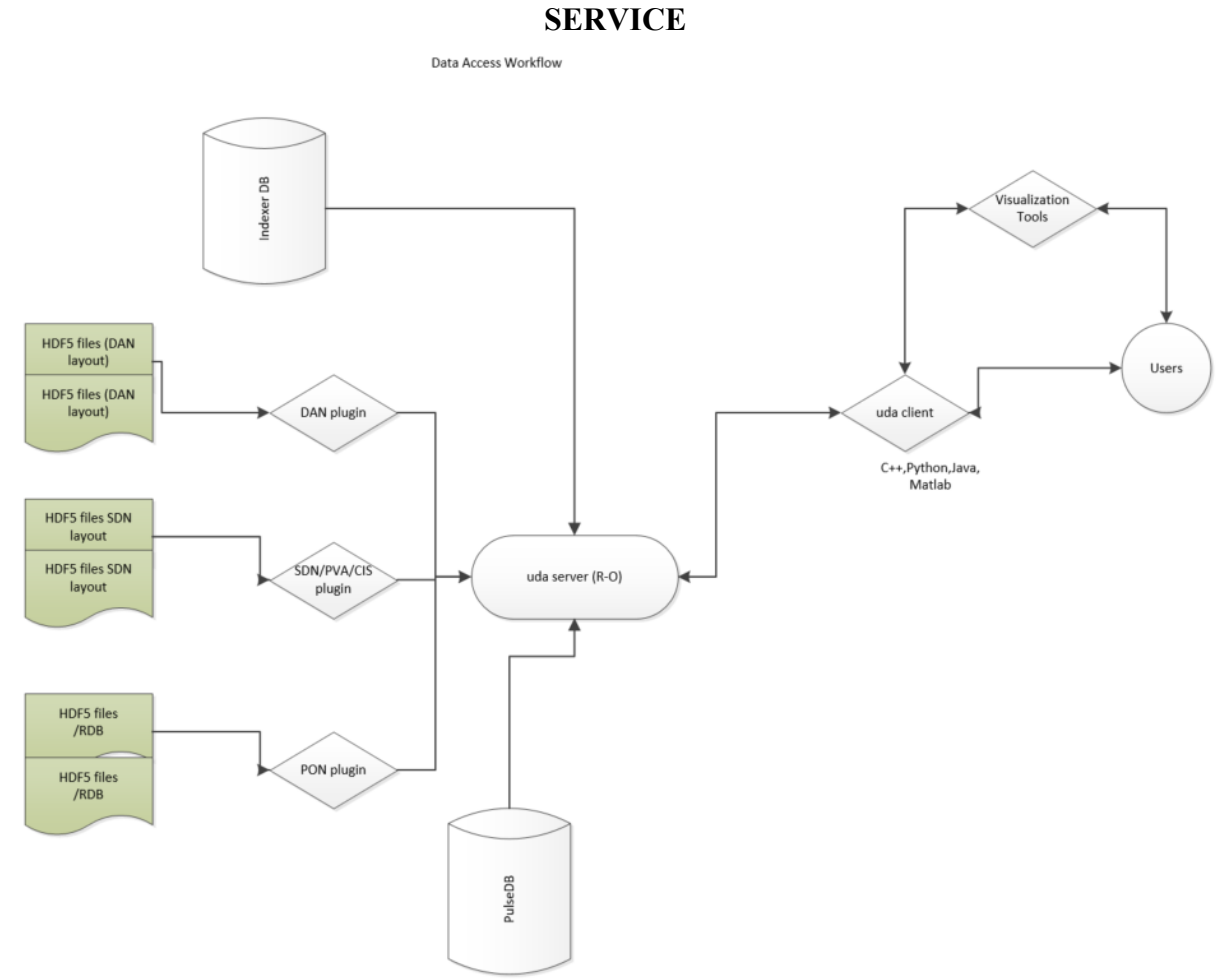

Figure 3. Overview of the Data Access

A REST server (third-party code) has been extended to support communication with a UDA server.

6.2.2 Service duration

See section 5

6.3 Data Processors and Mirroring

Due to the requirement to make the data available to outside POZ, there is a need to have a process which replicates the data from POZ to XPOZ (location will be SDCC).

With the huge amount of data collected at ITER, there is a need to precompute information to visualize the data in a fast way.

6.3.1 Description

Data mirroring has been implemented for DAN as duplicating the flows would have been too expensive. For SDN and PVA the data archivers are duplicated one in POZ and in XPOZ. But they could be a need to also develop data mirroring for other networks too.

Data processors are two-folds

- Components which downsample the data to speed-up data visualization: they can use different decimation algorithms

- Components which transform the data, typical use case is generated calibrated data. Data resampling to put signals on a common time base or to resample PON data to a regular time interval falls into this category.

Data Streamers subscribe to PON or SDN data and stream them as UDP streams. In case of PON data, the streamers are essentially transforming the data, whereas in case of SDN they downsample the data and then transform it. The output messages of the streamers are the same in case of PON or SDN. These streams are ingested by a web server (Node.js) which turns them into server-side events.

These components need to be highly-performant as for instance the first one shall run while data is being acquired.

6.3.2 Service duration

See section 5

6.4 Data visualization

Visualizing data is an important aspect: data retrieval and plotting need to be fast. It also needs quite advanced and domain-specific features. Two sets of tools have been implemented:

- Web applications
- Desktop utilities

6.4.1 Description

We have developed a set of Python modules based on PySide6 to allow scientists and diagnostics to build their own tools Ref[9]. It is also used to build the common tools one can find in fusion control rooms. See Ref[10]

A web application has been developed to allow users to make their own dashboards mixing archived data and real-time data. It makes use of the web server mentioned in 6.3.1

6.4.2 Service duration

See section 5

6.5 Data management

With the ITER lifetime, utilities and new or extensions to existing databases could be needed to curate the data. Raw data is written once, read many times and never deleted. Issues could happen such as calibration settings are wrong; units have changed or mistyped. Time information could also be wrong.

6.5.1 Description

Utilities to ensure data integrity between POZ and XPOZ are required. In case of mismatch, data need to be carefully analyzed and retrofit (with preserving the original dataset). This part will need to be integrated in an automatic workflow.

Utilities to correct data or metadata will be needed. Data access need to consider the different revisions of the data keeping performance. Utilities whenever possible shall be generic to cope with multiple use cases to avoid profusion of them.

SERVICE

New databases or extension of existing could be needed to annotate data to make the data retrieval more efficient. A typical use case is to overlay the data with component failures which come from another database for instance (logbook or alarm database).

6.5.2 Service duration

See section 5.

7 Location for Scope of Work Execution

Contractor can perform the work at their own location.

8 IO Documents

No input is expected from IO.

9 List of deliverables and due dates

The deliverables and due dates are specified in each task order drawn under this framework contract.

10 Quality Assurance requirements

The Quality class under this contract is [QC2], [Ref 1] GM3S section 8 applies in line with the defined Quality Class.

11 Safety requirements

No specific safety requirement related to PIC and/or PIA and/or PE/NPE components apply.

11.1 Nuclear class Safety

N.A

11.2 Seismic class

No specific safety requirement related to PIC and/or PIA and/or PE/NPE components apply

12 Special Management requirements

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

12.1 Contract Gates

The contract gates are defined in [Ref 1] section 6.1.5, this scope of service call for the following technical gates: [Contract Gates for Service]

12.2 CAD design requirements

This contract does not imply CAD activities

SERVICE

12.3 Services-specific requirements

12.3.1 Common to all

REQ1-1: the contractor shall document any architecture change in the current design or any introduction of a new component

REQ1-2: the contractor shall commit all the codes in ITER standard repositories

REQ1-3: the contractor shall demonstrate capability to understand, debug and extend a third-party code like UDA or HDF5

REQ1-4: the contractor shall develop and deliver improvements to the current ecosystem

REQ1-5 : the contractor shall help identifying weaknesses and propose solutions in the various components

REQ1-6: the contractor shall demonstrate a solid experience in building and maintaining long lasting complex architecture.

REQ1-7: the contractor shall demonstrate a solid experience in developing and investigating in Linux environments

REQ1-8: The contractor shall comply with the ITER software quality standards and requirements

REQ1-9: the contractor shall demonstrate a solid experience in network protocols

REQ1-10: the contractor shall demonstrate a solid experience in tuning parallel filesystems such Spectrum Scale or similar.

REQ1-11: the contractor

12.3.2 Data Archiving system

REQ2-1: the contractor shall have the capability to develop robust, reliable and performant C/C++ code

REQ2-2: the contractor shall keep the backward compatibility of the DAN API

REQ2-3: the contractor shall demonstrate a solid experience of HDF5-SWMR

REQ2-4: the contractor shall have the technical capabilities to extend the current code base with necessary features for image acquisition.

REQ2-5: the contractor shall have the technical capabilities to investigate performance bottleneck of the current code base and enhance it.

REQ2-6: the contractor shall have the technical capabilities to investigate and propose suggestion to improve the plant system I&C developer's code which integrate the DAN library or to fix the DAN library if needed.

REQ2-7: the contractor shall have the technical capabilities to extend the current code base with necessary features for data acquisition

REQ2-8: the contractor shall demonstrate the technical capabilities to work and tune very high data rates acquisition systems, that is machine equipped with 100Gb NIC. It also involves Linux kernel settings.

12.3.3 Data Access

REQ3-1: the contractor shall demonstrate the capability to develop performant C/C++ code

REQ3-2: the contractor shall keep as much as possible the backward compatibility of the UDA API

REQ3-3: the contractor shall be able to extend the current APIs with new SQL-features

REQ3-4: the contractor shall be able to extend the current REST API if needed

SERVICE

REQ3-5: the contractor shall be able to investigate and fix performance bottlenecks in the UDA current code base (including the plugins)

REQ3-6: the contractor shall be able to extend the current code base (including the plugins) with new needs such as cancelling a request

REQ3-7: the contractor shall be able to propose new solutions and be able to implement them to improve the performance of the data access.

REQ3-7: the contractor shall be able to propose new solutions and be able to implement them to improve the performance of the data access for images if needed.

REQ3-8: the contractor shall be able to propose and implement new signal decimation mechanisms if needed

12.3.4 Data Processors

REQ4-1: the contractor shall demonstrate the capability to develop performant C/C++ code

REQ4-2 the contractor shall demonstrate a solid experience in building publisher-subscribers component

REQ4-3 the contractor shall demonstrate a solid experience in tuning high-throughput systems (up to several GBs/sec)

REQ4-4 the contractor shall demonstrate a solid experience in realizing complex ETL and streaming processing using open-source technologies.

REQ4-5 the contractor shall be able to develop a reliable data mirroring application if needed

12.3.5 Data visualization

REQ5-1: the contractor shall demonstrate a solid experience in building efficient and interactive desktop tools using Pyside, PyQtGraph

REQ5-2: the contractor shall demonstrate a solid experience building web applications using state of the art technologies

12.3.6 Data management

REQ6-1: the contractor shall demonstrate a solid experience in data curation

REQ6-2: the contractor shall develop performant tools which can be either running synchronously or offline tools.

REQ6-3: the contractor shall demonstrate a solid experience in managing large datasets and workflows to indicate missing metadata to make the data access more useful

REQ6-4: the contractor shall be able to develop and enhance the data integrity data checks

REQ6-5: the contractor shall be able to contribute to signal mapping between CODAC and IMAS

12.4 Skills and qualifications

The Contractor shall provide a team with qualified and experienced persons to perform efficient planning, management, supervision and inspection of all services. The contractor shall be organised in terms of systems and processes.

SERVICE

The Contractor shall establish a management and records system to demonstrate staff member level of experience, including educational qualifications, work experience and training. Records shall be kept by the contractor and provided to IO upon request.

The Contractor shall present to the IO the CV of one named individual for each level of expertise requested and identify for each a substitute capable of replacing them in case of absence. If qualified, one person may be identified for up to two roles. These individuals shall not be changed during the period of execution of the services, unless agreed with IO as specified in the Contract.

The strategic functions per level of expertise are:

- Junior Software Engineer (< 5 years)
- Confirmed Software Engineer (5-10 years)
- Senior Software Engineer (> 10 years)

13 Appendices

ANNEX II

EXPRESSION OF INTEREST

To be returned by e-mail to: Lijun.Liu@iter.org

TENDER No.:	IO/25/OT/70001296/LLU
DESIGNATION:	Service Framework Contract for Data Handling Extensions and Maintenance
OFFICER IN CHARGE:	Lijun LIU – Procurement Division ITER Organization

We acknowledge having read the PIN notice for the above-mentioned tender and we would like to be invited for this process

.....

The contact person for this tender process:

Name: Title:

Email: Telephone:

Company Name:

Country of Company Registration:

Signature: COMPANY STAMP

Name: .....

Position: .....

Date: .....