

Module description

IHE Clients

The IHE Clients module enables systems to act as IHE-compliant Source and Consumer actors, allowing you to exchange relevant patient and document data with other systems of record.

Based on the MACH | Orchestra channel architecture, the IHE Clients module can be put in front of existing systems to ensure compliance with IHE integration guidelines.

The module includes the following functions:

Exchange of patient master data

The module provides functions for registering, querying and managing patient IDs and patient master data. The following profiles and IHE transactions are supported:

Patient Identifier Cross Referencing (PIX):

- ITI-8 Patient Identity Feed
- ITI-9 PIX Query
- ITI-10 PIX Update Notification
- ITI-44 Patient Identity Feed HL7 V3

Patient Demographics Query (PDQ):

- ITI-21 Patient Demographics Query
- ITI-47 Patient Demographics Query HL7 V3

Patient Administration Management (PAM):

- ITI-30 Patient Identity Management

You can use the IHE PIX profile to transfer and update patient IDs and master data. It enables you to reference patient data from multiple domains. In addition, you can either query IDs and master data using an appropriate interface, or you can update them or receive them following an update.

The PDQ profile allows you to query demographic patient data as well as its IDs and additional labels. Here the query is not based on IDs (as with PIX), but on demographic data.

The IHE PAM profile also allows you to manage patient data, both for acute treatment and within an outpatient care system.

Document exchange

The IHE Clients module provides a standardized workflow to support the exchange of documents between actors in the healthcare sector.

The following IHE transactions are supported:

Cross-Enterprise Document Sharing (XDS):

- ITI-18 Registry Stored Query
- ITI-41 Provide & Register Document Set-b
- ITI-42 Register Document Set-b
- ITI-43 Retrieve Document Set

The IHE XDS profile enables you to exchange medical documents interoperably and create cross-institution electronic patient records.

Document Digital Signature

The IHE profile Document Digital Signature (DSG) allows you to sign medical documents.

The IHE Clients module supports DSG in the XDS transactions ITI-41 Provide and Register Document Set-b with the DSG variant Detached Signature.

Document Encryption (DEN)

DEN is an IHE profile that you can use to encrypt healthcare documents independently of the document type and the communication protocol used (e.g. UDP, HTTP, HTTPS).

Using DEN is equivalent to end-to-end encryption. With the IHE DEN Content Creator actor, the document is encrypted using a secret key. It is decrypted after being received by the Content Consumer actor. Even if communication between the Creator and the Consumer is not encrypted, the documents cannot be read.

The IHE Clients module can take on the role of Content Creator or Content Consumer and supports all three encryption variants:

- Password: The secret key is a human-readable text.
- Shared symmetric key: The key is a hexadecimal string with a length of 128, 192 or 256 bit.
- Asymmetric key pair: The Content Creator uses the public key of the key pair for the encryption. Only the Content Consumer has the corresponding private key and can use it to decrypt the document.

It is generally recommended that you exchange DEN-encrypted documents using the XDS profile.

Prescribing and dispensing medication

The IHE profile CMPD (Community Medication Prescription and Dispense) was introduced for exchanging medication plans and prescriptions based on the XDS profile. A Community Pharmacy Manager is used instead of the Document Registry, and multiple Repository actors take the place of the Document Repository. There are specific actors depending on the document type (e.g. medication treatment plan, prescription, list of administered medications, etc.).

The following transactions are used in the CMPD profile:

- ITI-41 Provide & RegisterDocument Set-b
- ITI-43 Retrieve Document
- PHARM-1 Query PharmacyDocuments

ITI-41 and ITI-43 are defined in the XDS profile and can be used via the 'document exchange' functions.

Similarly to ITI-18, PHARM-1 also has various predefined query types:

- FindMedicationTreatmentPlans
- FindPrescriptions
- FindDispenses
- FindMedicationAdministrations
- FindPrescriptionsForValidation
- FindPrescriptionsForDispense
- FindMedicationList

Depending on the type of query, you will receive metadata on the corresponding CMPD document types. FindPrescriptions will only find metadata for prescription documents, while FindMedicationTreatmentPlans will find metadata on medication plan documents.

Country-specific elements

You can integrate country-specific elements into transactions as an additional component of the IHE Clients module. Enhancements such as HumanRequester or the ELGA

TransactionID were implemented for the integration with Austria's electronic health record (elektronische Gesundheitsakte, ELGA). In addition, the IHE Clients module can be operated in conjunction with eMedication in accordance with the IHE Pharm-1 profile.

Switzerland's electronic health record (elektronisches Patientendossier, EPD), too, is also supported by MACH | Orchestra's IHE Client module. It has been successfully tested as part of multiple projectathons. Country-specific elements such as CH-PIX, CH-PDQ, CH-XUA, CH ATNA, UPI and CH-HPD are also part of the solution. The IHE Clients module therefore also accommodates the multilingual nature of the EPD, allowing easy integration

into existing system landscapes using the underlying MACH | Orchestra.

In accordance with the German electronic health record (elektronischen Fallakte, EFA), the module implements the functionality, interfaces, security services and data protection requirements defined in EFA Specification Version 2.0 for the system components

- EFAv2.0 Member System
- EFAv2.0 Context Manager

for integration and interoperability with EFA components. It acts as an EFAv2.0 Consumer.

Logging and security

All of the module's incoming and outgoing connections are encrypted using TLS. You can configure the

cipher suites allowed for this purpose accordingly.

If necessary, you can add an HTTP proxy for the endpoints being addressed. The IHE XUA standard is supported for authentication.

Audit notifications are generated in accordance with the IHE ATNA profile for all IHE transactions contained in the IHE Clients module.

The IHE channels also allow you to log communications in journaling files.

Dependencies

You need to have a licence for MACH | Orchestra and this optional IHE Client Channel to use this module.

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