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| Data Access Framework |
| Local Data Access Use Case and Functional Requirements |
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Table of Contents

[1.0 Preface and Introduction/Initiative Overview 4](#_Toc365980331)

[2.0 Initiative Challenge and Value Statement 4](#_Toc365980332)

[3.0 Use Case Scope (Local Data Access) 4](#_Toc365980333)

[3.1 In Scope 4](#_Toc365980334)

[3.2 Out of Scope 5](#_Toc365980335)

[4.0 Use Case Assumptions Section 5](#_Toc365980336)

[6.0 Post-Conditions 5](#_Toc365980337)

[8.0 Generic Scenario 6](#_Toc365980338)

[8.1 User Story 6](#_Toc365980339)

[8.2 Activity Diagram 6](#_Toc365980340)

[8.2.1 Base Flow 8](#_Toc365980341)

[8.3 Functional Requirements 9](#_Toc365980342)

[8.3.1 Information Interchange Requirements 9](#_Toc365980343)

[8.3.2 System Requirements 9](#_Toc365980344)

[8.4 Sequence Diagram 10](#_Toc365980345)

[9.0 Dataset Requirements 10](#_Toc365980346)

[Appendices 12](#_Toc365980347)

[Appendix A: Related Use Cases 12](#_Toc365980348)

[Appendix B: Previous Work Efforts 12](#_Toc365980349)

[Appendix C: References 12](#_Toc365980350)

**List of Figures:**

[Figure 3: Activity Diagram 10](#_Toc362429014)

[Figure 4: Sequence Diagram 12](#_Toc362429015)

**List of Tables:**

[Table 2: Actors and Roles 8](#_Toc362429016)

[Table 3: Base Flow of Scenario 1 10](#_Toc362429017)

[Table 4: Alternate Flow 10](#_Toc362429018)

[Table 5: Information Interchange Requirements 11](#_Toc362429019)

[Table 6: System Requirements 11](#_Toc362429020)

[Table 7: Dataset Requirements 13](#_Toc362429021)

# 1.0 Preface and Introduction/Initiative Overview

To fully realize the benefits of health IT, the Office of the National Coordinator for Health Information Technology (ONC), as part of the Standards and Interoperability (S&I) Framework is developing Use Cases that define the interoperability requirements for high priority health care data exchange; maximize efficiency, encourage rapid learning, and protect patients’ privacy in an interoperable environment. These Use Cases address the requirements of a broad range of Communities of Interests including; patients, their significant others and family members, providers, payers, vendors, standards organizations, public health organizations, and Federal agencies.

These Use Cases describe:

* The operational context for the data exchange
* The stakeholders with an interest in the Use Case
* The information flows that must be supported by the data exchange
* The types of data and their specifications required in the data exchange

The Use Case is the foundation for identifying and specifying the standards required to support the data exchange and developing reference implementations and tools to ensure consistent and reliable adoption of the data exchange standards.

# 2.0 Initiative Challenge and Value Statement

*This section provides the description of the current challenge or problem, on a healthcare industry level, that the Initiative seeks to address. Related issues that currently exist should be included within this section, with the exception of risks, which are outlined later in the Use Case.*

*This section provides the high level description of the value and/or benefit of this Use Case to the healthcare community. This section also identifies the anticipated outcomes and the metrics that will be used to assess the success of the Use Case.*

# For current charter, please see the [Charter Wiki Page](http://wiki.siframework.org/Data+Access+Framework+Charter+and+Members).

# 3.0 Use Case Scope (Local Data Access)

The scope of the Local Data Access Use Case is to define the requirements for intra-organizational data access. The requirements in this use case will focus on the interchange between two applications within the same Local Health IT system of an organization. The diagram below illustrates the scope within the larger workflow of a business user (Health Provider) accessing patient data within his/her own organization.

The use case and functional requirements will enable various types of data access mechanism: document metadata, data element and quality measure based access. All types of access may be done for individual known patients or for a population of patients given specific clinical criteria or parameters. Detailed definitions of each have been posted on the Wiki Page [here](http://wiki.siframework.org/DAF+Terminology) for reference.

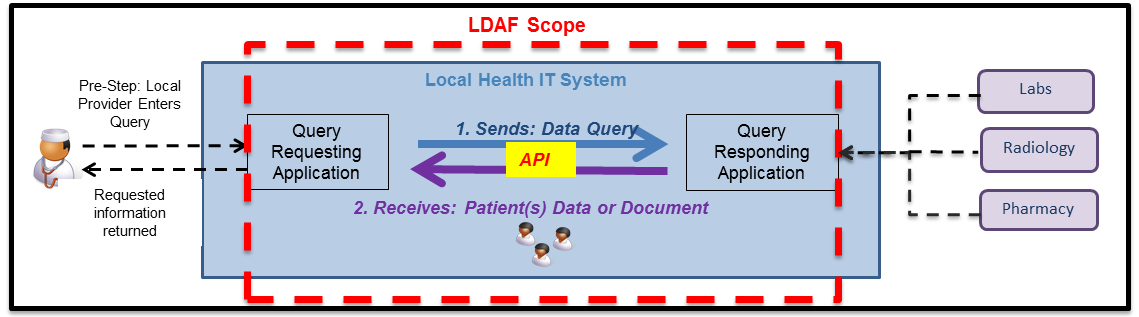


Figure : Use Case Context Diagram

## 3.1 In Scope

*This section indicates what is in scope for the Use Case. For example, it can include the type of transactions, the information/data to be exchanged, and specific aspects that need to be in place to enable the information to be sent, received and understood the same at both ends of the transmission.*

1. Defining requirements for providers, healthcare professionals etc. to internally be able to access already documented patient data from encounters, admissions, or visits.
2. Document Metadata Based Access: Accessing data using the metadata associated with clinical documents.
3. Data Element Based Access: Accessing data for one or more patients based on information that is part of the patient’s clinical record such as patient demographics, clinical conditions, etc.
4. Quality Measure Based Access: Accessing data created using quality measures such as NQF0059, NQF0038 etc.
5. Define requirements for standardized API’s that allow applications to access data in a consistent manner across the local Health IT system.

## 3.2 Out of Scope

*This section indicates what is out of scope for the Use Case. These points may highlight dependencies on the feasibility, implementability, and usability that result in limitations of the Use Case. At a high level, whatever is not declared “In Scope”, is by definition, “Out of Scope”.*

1. Defining policy and procedure considerations that allow data access queries to be executed within an organization.
2. Defining technology implementation details to retrieve information stored in internal databases or other applications used by the organization’s local Health IT system.
3. Accessing data from systems outside of the organization (systems belonging to different legal entities).
4. Patient generated queries and access are out of scope (addressed within BlueButton Initiative).
5. Displaying, consumption, and processing of results by the receiving system are out of scope.
6. Capabilities identified in the project charter as being out of scope (e.g. query execution policies, patient matching algorithms, new information models, discovery of query service end points).

## 4.0 Use Case Assumptions Section

*The Use Case Assumptions section outlines what needs to be in place to meet or realize the requirements of the Use Case (i.e. the necessary privacy and security framework). These points are more functional in nature and state the broad overarching concepts related to the Initiative.*

1. An organization refers to a legal entity which can have any number of sub-entities within the organization.
2. The necessary access controls and authorization protocols (including patient consent, permissions, data segmentation), and audits for any of the systems or users described, are in place.
3. An organization’s local Health IT system is comprised of any and all IT systems (i.e. varying EHR systems or other Health IT systems such as Pharmacy and Lab).
4. Federated query within a local Health IT system will be handled by the organization as required.
5. Information requestor (business user) knows how to query the local Health IT System.
6. Actors and systems shall execute queries and return query results based on their own internal service level agreements (SLAs).
7. Patient data can be queried as long as it has been documented and the organization's Local Health IT system makes it available to be queried against.

# 5.0 Pre-Conditions

*The Pre-Conditions section describes the state of the system, from a technical perspective, that must be true before an operation, process, activity or task can be executed. It lists what needs to be in place* ***before*** *executing the information exchange as described by the Functional Requirements and Dataset requirements.*

1. The Query Requesting and Query Responding Applications, where needed, know how to create and accept authorization statements (role, issuing authority, user identity and other items necessary to be authorized).
2. Query parameters required to create the query in a standardized format are known to the Query Requesting Application (for e.g patient id)
3. Query Requesting Application has knowledge about the Query Responding Application end point to send a query
4. Query Requesting and Query Responding Applications have a common understanding of the shared vocabulary that is used to create the queries and query results.

# 6.0 Post-Conditions

*The Post Conditions section describes the state of the system, from a technical perspective, that will result after the execution of the operation, process activity or task.*

Query Requesting Application has successfully received query results or error responses as appropriate from the Query Responding Application.

**7.0 Actors and Roles**

*The below table outlines the business actors that are participants in the information exchange requirements. A business actor is a person or organization that directly participates in a scenario.*

| **Actor** | **System** | **Role** |
| --- | --- | --- |
| Query Requesting Application | Local Health IT System | 1. Send query request 2. Receive query result(s) |
| Query Responding Application | Local Health IT System | 1. Receive query request 2. Process query request 3. Package query response 4. Send query response |

Table : LDAF Actors and Roles

# 8.0 Generic Scenario

A business user uses a query requesting application to access data from a Query Responding Application within the same local Health IT system in an organization. The Query Responding Application gathers the appropriate requested data and returns in the requested format to the Query Requesting Application.

## 8.1 User Story

*NOTE - Selected user stories will be pulled into this section after the Subworkgroup activities and discussions conclude.*

## 8.2 Activity Diagram

An Activity Diagram is a special form of a state transition diagram in which all or most of the states are activity states or action states. The Activity Diagram illustrates the Use Case flows graphically, and represents the flow of events and information between the actors. It also displays the main events/actions that are required for the data exchange and the role of each system in supporting the data change.

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Figure : Activity Diagram

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### 8.2.1 Base Flow

The Base Flow presents the step by step process of the information exchange depicted in the activity diagram (above). It indicates the actor who performs the action, the description of the event/action, and the associated inputs (records/data required to undertake the action) and outputs (records/data produced by actions taken).

| **Step #** | **Actor** | **Role** | **Event/ Description** | **Inputs** | **Outputs** |
| --- | --- | --- | --- | --- | --- |
| 1 | Query Requesting Application | Send query request | Query Requesting Application sends a query to a Query Responding application. | ***START*** - A business user identifies a need to query for patient data | Initiated query request sent to Query Responding Application |
| 2 | Query Responding Application | Receive Query Request | Query Responding Application receives the query from the Query Requesting Application | Query Responding Application receives query | Processing the various components of the query request |
| 3 | Query Responding Application | Process query request and Package query response | Query Responding Application processes and packages query response. | Processing the various components of the query request | Processed results packaged into a response |
| 4 | Query Responding Application | Sends Query response | Query Responding Application sends query response back to the Query Requesting Application. | Processed results packaged into a response | Packaged response sent to Query Requesting Application |
| 5 | Query Requesting Application | Receive query result(s) | Query Responding Application receives the response from the Query Responding Application | Packaged response sent to Query Requesting Application | Response received by Query Requesting Application - ***END*** |

Table : Base Flow of Scenario 1

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## 8.3 Functional Requirements

***Section Description:*** *Functional Requirements identify the capabilities a system in a role must have in order to enable interoperable exchange of the healthcare data of interest. They provide a detailed breakdown of the requirements in terms of the intended functional behaviors of the application. The Functional Requirements include Information Interchange Requirements and System Requirements.*

### 8.3.1 Information Interchange Requirements

***Section Description:*** *The Information Interchange Requirements**define the system’s name and role. They also specify the actions associated with the actual transport of content from the sending system to the receiving system. This use case has two information interchange requirements, as seen below.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Information Interchange Requirement** | **Initiating System** | **(describes action)** | **Information Interchange Requirement Name** | **(describes action)** | **Receiving System** |
| IIR 01a. | Query Requesting Application | Sends | Request for query using document metadata | Receives | Query Responding Application |
| IIR 01b. | Query Requesting Application | Sends | Request for specific clinical data value(s) | Receives | Query Responding Application |
| IIR 02a. | Query Responding Application | Sends | Request for query using document metadata | Receives | Query Requesting Application |
| IIR 02b. | Query Responding Application | Sends | Request for specific clinical data value(s) | Receives | Query Requesting Application |

Table : Information Interchange Requirements

### 

### 8.3.2 System Requirements

*This section**lists the requirements internal to the system necessary to participate successfully in the transaction. The sending and receiving functionality is excluded from system requirements because this is already included in the information interchange requirements section.*

| **System** | **System Requirement** |
| --- | --- |
| Query Requesting Application | 1. Generate a query for patient data or document 2. Package query in a specified standardized format |
| Query Responding Application | 1. Gather patient data or document in a specified standardized format 2. Process patient data or document in a specified standardized format 3. Package patient data or document in a specified standardized format |

Table : System Requirements

## 8.4 Sequence Diagram

*A Sequence Diagram is primarily used to show the interactions between objects in the sequential order that they occur. This representation can make it easy to communicate how the exchange works by displaying how the different components interact. The primary use of the diagram is in the transition from requirements expressed as use cases to the next and more formal level of refinement. Note:* *Horizontal lines are used to identify the specific activity between the systems.*

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Figure : Sequence Diagram

# 9.0 Dataset Requirements

*This table lists the data elements and data element sets that will be available within the message or document. Historically, the optional/required nature of each data element is deferred to the discussions during the harmonization phase. Since the experts who know what data are to be exchanged may be participating at this stage, it is essential that these dataset requirements be as fully specified as is possible. Each data element listed below is necessary for some aspect of the Use Case; however, the table does not specify exactly how they may be used together. All data element sets may contain multiple data elements unless otherwise stated.**For the purposes of this section,* ***do not*** *assume that any data elements are inferred. Be sure to provide elements at their most granular level. For example, if it is necessary to specify a zip code, do not use the less specific data element set, ‘address’. In addition, specify the base standard from which they are chosen, i.e., a specific vocabulary (SNOMED), code set (gender, marital status), classification (ICD-10-CM), or other, and who maintains this terminology.*

*Furthermore, it is important to understand that the identification of data elements forms the foundation for harmonization activities. The data elements identified in the Use Case set constraints on the contents of documents and messages. Workgroups should make every effort to ensure that the dataset and data element requirements are complete, accurate, and precise.*

| **Section** | **Data Element** | **Multiple Values (yes/no)** | **Data Element Description** | **Vocabulary** | **Additional Notes** |
| --- | --- | --- | --- | --- | --- |
|  | * <<Bulleted list>> |  |  |  |  |
|  |  |  |  |  |  |

Table : Dataset Requirements

# Appendices

*The content of this section varies depending on the needs brought forth by the Community. Some Use Cases may have appendices that are specific to their content and issues. The appendices listed below are suggested for inclusion.*

## Appendix A: Related Use Cases

* <<Bulleted List>>

## Appendix B: Previous Work Efforts

* <<Bulleted List>>

## Appendix C: References

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