MatrixCare®
Integrated Care. Better Outcomes.

A Corporate Commitment
to Openness, Data Access,
and Industry-Leading
Interoperability

A Guide for:
Current and Prospective Customers
Current and Prospective Partners

April 2017

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Contents

Executive Summary

MatrixCare is the largest provider of Electronic Health Record (EHR) and related technologies to the US Long-Term Post-Acute Care (LTPAC) sector, serving over 12,000 facility-based care settings and over 2,000 home care and home health agency offices as of the end of 2016.

The MatrixCare architecture is a fully integrated ecosystem including shared infrastructure services, care-setting management solutions, shared ancillary products, and enterprise management tools. All core services of the MatrixCare architecture are provisioned to end users on the Microsoft Azure hyper-cloud, the most secure and high-performance cloud computing environment available.

MatrixCare is an open architecture; providing secure access points for customer data access and for transactional interactions and standard healthcare information exchange with authorized external parties.

ONC INTEROPERABILITY PLEDGE

On March 3, 2016, MatrixCare joined leading health information technology companies and national health systems in a pledge to make electronic health records work better for residents, home care clients, and providers. The pledge focuses on three areas – consumer access, no blocking/transparency, and standards – with the goal of making accurate and timely health information available to residents, families, and care team members. U.S. Department of Health and Human Services (HHS) Secretary Sylvia M. Burwell announced the initiative March 1, 2016, at the Health Information Management Systems Society conference. MatrixCare was the first LTPAC HIT vendor to sign on to the pledge and remains 100% committed to its principles.

COMMITMENT TO OPEN DATA ACCESS

While MatrixCare is a cloud-delivered solution, MatrixCare is committed to providing customers and authorized agents of customers with full access to all relevant production data managed by MatrixCare in 2017 as the MatrixCare MyData solution, built on Azure, is rolled out. Relevant production tables from all licensed MatrixCare modules are replicated to an operational data store with a refresh interval of several times per day. This operational data store comes complete with relevant documentation to assist customers and authorized agents in accessing the data elements that they need for their purpose at hand.

CERTIFIED PARTNER ECOSYSTEM

MatrixCare, like other large EHR providers, does not provide solutions for every operational, financial, or clinical need, instead relying on certified partners to provide a fully integrated solution/service for use with MatrixCare. Accordingly, MatrixCare supports a full certified partner ecosystem through its MatrixCare Connections program where customers can pick from certified partner solutions to "fill in the gaps" or complement their MatrixCare investment. There are hundreds of certified MatrixCare Connections partners waiting to meet your needs today.

MatrixCare

MatrixCare Architecture - Access Points

This section outlines the various access points for integrating the MatrixCare architecture with authorized external services and third-party applications.

ARCHITECTURE OVERVIEW

The MatrixCare architecture is a fully integrated ecosystem including shared infrastructure services, care-setting management solutions, shared ancillary products, and enterprise management tools. All core services of the MatrixCare architecture are provisioned to end users on the Microsoft Azure hyper-cloud, the most secure and high-performance cloud computing environment available.

CUSTOMER DATA ACCESS

Customers and authorized agents of customers have full access to all relevant production data managed by MatrixCare in 2017 as the MatrixCare MyData solution, built on Azure, is rolled out.

MatrixCare MyData

Relevant production tables from all licensed MatrixCare modules are replicated to an operational data store with a refresh interval of several times per day. This operational data store comes complete with relevant documentation to assist customers and authorized agents in accessing the data elements that they need for their purpose at hand.

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● Care Coordination and Enterprise Services

● Shared Applications and Specialized Services

○ Shared Applications and Specialized Services (future) or Applications Available from Strategic Partners

● Clinical Decision Support

● Architecture Services

✳ 2017 Introduction

✳ 2018 Introduction
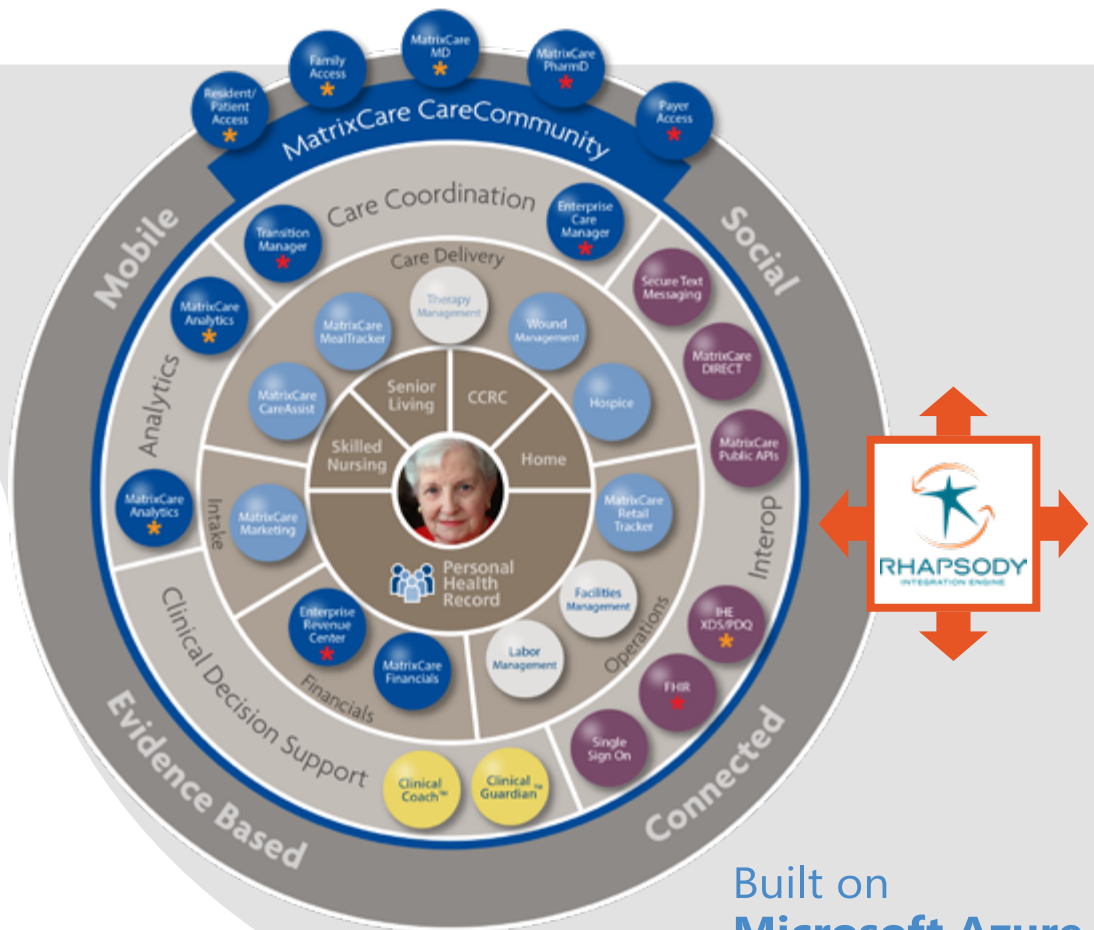
Built on Microsoft Azure
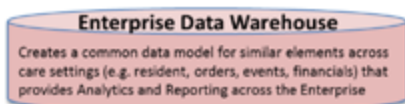
*Blue items are scheduled for Pilot testing in Q1 '17 with GA targeted for Q2; Gray items will be defined, prioritized and worked as resources permit in 2017.

MatrixCare MyAnalytics

Further data dimensioning and out-of-the-box visualizations for common Key Performance Indicators are provided through the MatrixCare MyAnalytics solution. MyAnalytics leverages the MyData layer in the same manner that a customer or authorized agent can, using a third-party analysis tool.
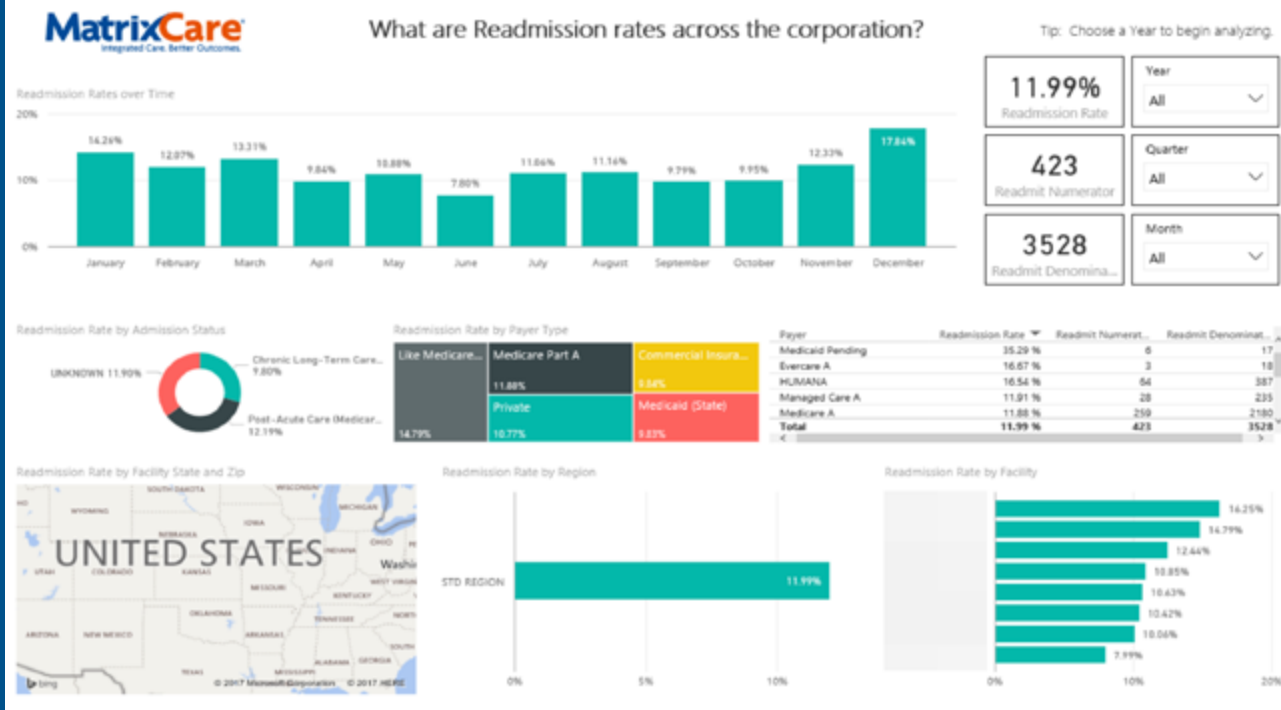
TRANSACTIONAL ACCESS THROUGH MATRIXCARE PUBLIC APIs

MatrixCare, like other large EHR providers, does not provide solutions for every operational, financial, or clinical domain. For example, MatrixCare does not currently provide a staff scheduling solution and instead relies on certified partners to provide a fully integrated solution for use with MatrixCare. Accordingly, MatrixCare supports a full certified partner ecosystem through its MatrixCare Connections program where customers can pick from certified partner solutions to "fill in the gaps" or complement their MatrixCare investment.

Integration with external services and applications is achieved through an integration engine and the MatrixCare Public Application Programming Interfaces (APIs) as follows:

- Connectivity and transport are managed by the MatrixCare integration engine, powered by Orion Health's Rhapsody Enterprise Integration Engine. Rhapsody supports every common transport protocol (e.g. FTP, TCP/IP sockets, Web Services, REST, etc.) and every industry-standard healthcare message construct (e.g. HL-7, XML, NCPDP, JSON, etc.). Once an external service or application is authorized, a secure encrypted route is defined through the integration engine between the external entity and the MatrixCare customer instance.

- Transformation is also managed by the MatrixCare integration engine. For inbound transactions, the incoming message is parsed into discrete elements per a specific defined message map. For outbound transactions, records from a specific outbound message queue of the MatrixCare customer instance are also parsed into their discrete elements per a specific defined message map.

- Inbound transactions are invoked by the MatrixCare integration engine calling the appropriate MatrixCare Public API and passing the parsed data elements as the parameters of the API call. Outbound transactions are invoked by the MatrixCare integration engine sending the mapped data elements to the external entity in the prescribed message format over the prescribed transport protocol.

TRANSACTIONAL ACCESS THROUGH FHIR

Excerpted from www.wikipedia.org, Fast Healthcare Interoperability Resources (FHIR, pronounced "fire") is a draft standard describing data formats and elements (known as "resources") and an Application Programming Interface (API) for exchanging Electronic Health Records. The standard was created by the Health Level Seven International (HL7) health-care standards organization.

FHIR builds on previous data format standards from HL7, like HL7 version 2.x and HL7 version 3.x. But it is easier to implement because it uses a modern web-based suite of API technology, including a HTTP-based RESTful protocol, HTML and Cascading Style Sheets for user interface integration, a choice of JSON or XML for data representation, and Atom for results.[1] One of its goals is to facilitate interoperation between legacy health care systems by making it easy to provide health care information to health care providers and individuals on a wide variety of devices from computers to tablets to cell phones, and allowing third-party application developers to provide medical applications which can be easily integrated into existing systems.

FHIR provides an alternative to document-centric approaches by directly exposing discrete data elements as services. For example, basic elements of healthcare like patients, admissions, diagnostic reports and medications can each be retrieved and manipulated via their own resource URLs.
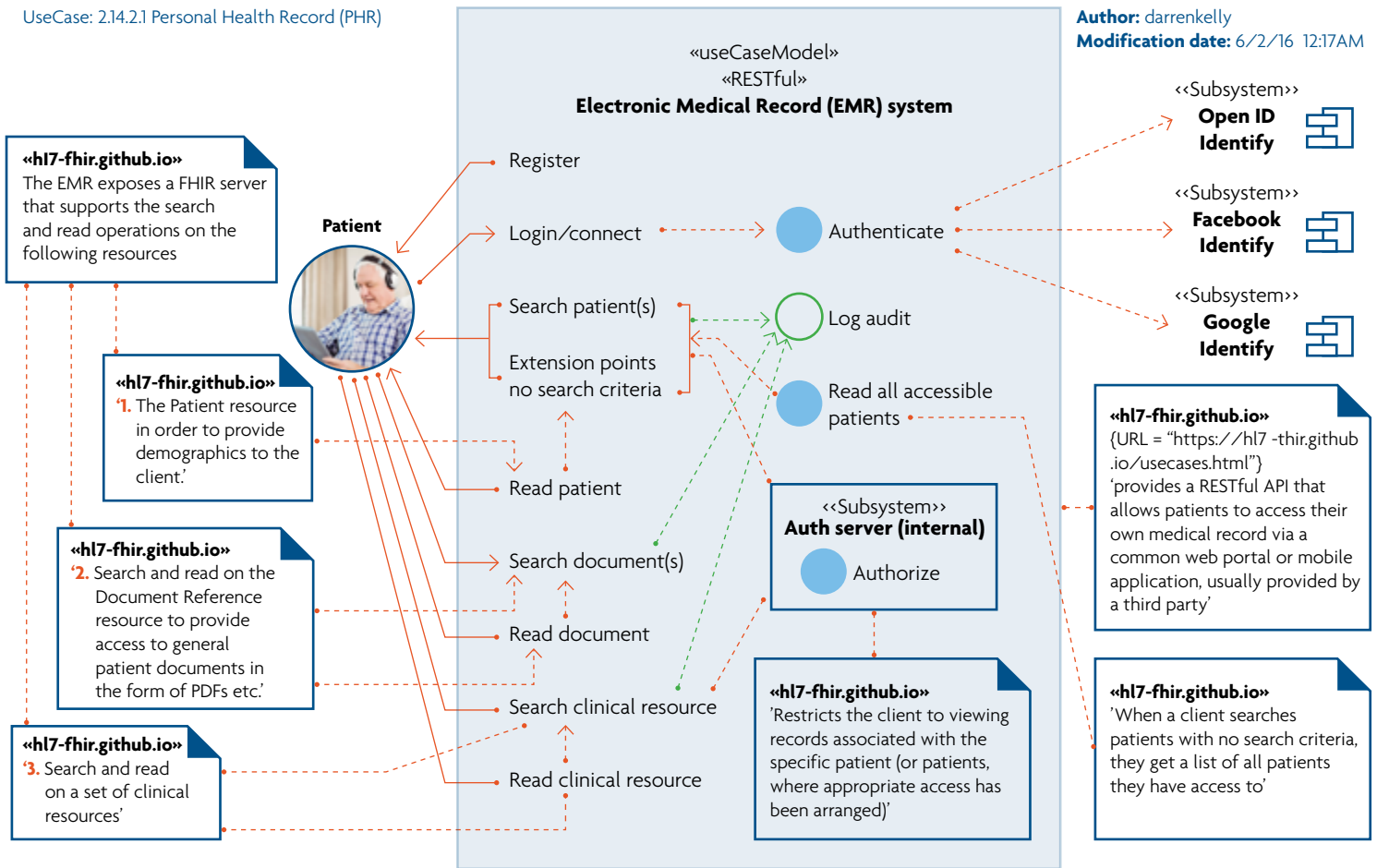
MatrixCare's integration engine already provides support for the emerging FHIR standard. MatrixCare sees FHIR as a very powerful, open, extensible mechanism for advancing healthcare interoperability and plans to introduce full FHIR support in 2018 subject to convergence and ratification of the standard.

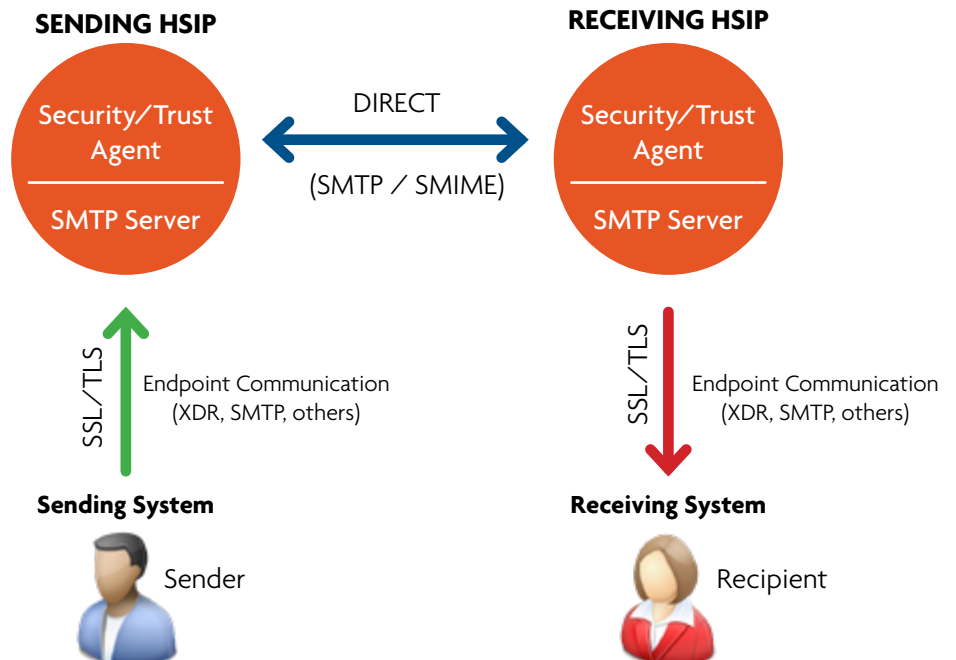UseCase: 2.14.2.1 Personal Health Record (PHR)

Author: darrenkelly
Modification date: 6/2/16 12:17AM

«useCaseModel»
«RESTful»
Electronic Medical Record (EMR) system

‹‹Subsystem››
Open ID Identify

‹‹Subsystem››
Facebook Identify

‹‹Subsystem››
Google Identify

«hl7-fhir.github.io»
The EMR exposes a FHIR server that supports the search and read operations on the following resources

Patient

Register

Login/connect — Authenticate

Search patient(s)

Log audit

Extension points no search criteria

Read all accessible patients

«hl7-fhir.github.io»
'1. The Patient resource in order to provide demographics to the client.'

Read patient

‹‹Subsystem››
Auth server (internal)

Authorize

«hl7-fhir.github.io»
{URL = "https://hl7 -thir.github .io/usecases.html"}
'provides a RESTful API that allows patients to access their own medical record via a common web portal or mobile application, usually provided by a third party'

«hl7-fhir.github.io»
'2. Search and read on the Document Reference resource to provide access to general patient documents in the form of PDFs etc.'

Search document(s)

Read document

«hl7-fhir.github.io»
'Restricts the client to viewing records associated with the specific patient (or patients, where appropriate access has been arranged)'

«hl7-fhir.github.io»
'When a client searches patients with no search criteria, they get a list of all patients they have access to'

«hl7-fhir.github.io»
'3. Search and read on a set of clinical resources'

Search clinical resource

Read clinical resource

Healthcare Information Exchange through DIRECT Messaging

DIRECT messaging is a national encryption standard for securely exchanging clinical healthcare data via the Internet. It is also known as the Direct Project, Direct Exchange and Direct Secure Messaging. It specifies the secure, scalable and standards-based method for the exchange of Protected Health Information (PHI). MatrixCare fully supports DIRECT messaging for the sending and receiving of PHI between providers and other entities.

SENDING HSIP

RECEIVING HSIP

Security/Trust Agent

SMTP Server

DIRECT

(SMTP / SMIME)

Security/Trust Agent

SMTP Server

SSL/TLS

Endpoint Communication (XDR, SMTP, others)

SSL/TLS

Endpoint Communication (XDR, SMTP, others)

Sending System

Sender

Receiving System

Recipient

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HEALTHCARE INFORMATION EXCHANGE THROUGH IHE PROTOCOL SUPPORT

Cross-Enterprise Document Sharing (XDS) is an interoperability profile that facilitates the registration, distribution and access across health enterprises of patient electronic health records. The MatrixCare architecture provides full support for the IHE Cross-Enterprise Document Sharing framework. The below section is excerpted from: http://wiki.ihe.net/index.php/Cross-Enterprise_Document_Sharing.

Summary

Cross-Enterprise Document Sharing (XDS) is focused on providing a standards-based specification for managing the sharing of documents between any healthcare enterprise, ranging from a private physician office to a clinic to an acute care in-patient facility, and personal health record systems. This is managed through federated document repositories and a document registry to create a longitudinal record of information about a patient within a given clinical affinity domain. These are distinct entities with separate responsibilities:

- *A Document Repository is responsible for storing documents in a transparent, secure, reliable and persistent manner and responding to document retrieval requests.*

- *A Document Registry is responsible for storing information about those documents so that the documents of interest for the care of a patient may be easily found, selected and retrieved irrespective of the repository where they are actually stored.*

- *Documents are provided by one or more Document Sources.*

- *They are then accessed by one or more Document Consumers.*

Benefits

Facilitates management of the Electronic Health Record:

- *Facilitates the registration, distribution and access across health enterprises of patient electronic health records.*

- *Focused on providing a standards-based specification for managing the sharing of documents between any healthcare enterprise, ranging from a private physician office to a clinic to an acute care in-patient facility.*

Details

The Cross-Enterprise Document Sharing (XDS) Integration Profile:

• *Assumes that the enterprises belong to one or more XDS Affinity Domains. An XDS Affinity Domain is a group of healthcare enterprises that have agreed to work together using a common set of policies and share a common infrastructure.*
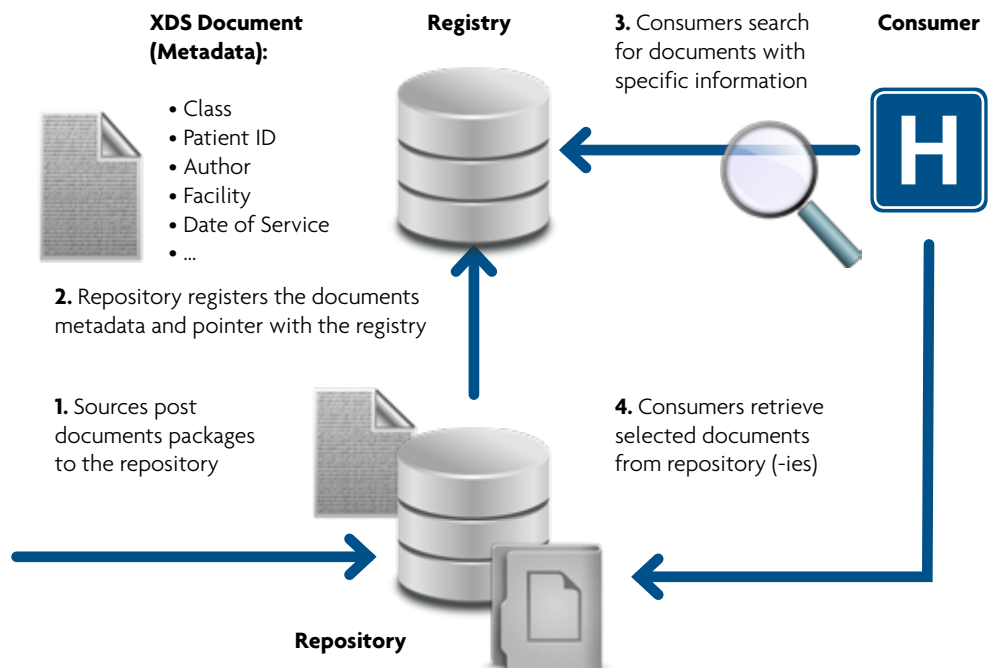
Examples of XDS Affinity Domains include:

• *Community of Care supported by regional health information organizations in order to serve all patients in a given region.*

• *Nationwide EHR*

• *Specialized or Disease-oriented Care*

• *Cardiology Specialists and an Acute Cardiology Center*

• *Oncology network*

• *Diabetes network*

• *Federation of enterprises*

• *A regional federation made up of several local hospitals and healthcare providers*

• *Government-sponsored facilities (e.g., VA or Military)*

• *Insurance Provider Supported Communities*

The concept of a document in XDS is not limited to textual information. As XDS is document content neutral, any type of clinical information without regard to content and representation is supported. This makes the XDS IHE Integration Profile equally able to handle documents containing simple text, formatted text (e.g., HL7 CDA Release 1), images (e.g., DICOM) or structured and vocabulary coded clinical information (e.g., CDA Release 2, CCR, CEN ENV 13606, DICOM SR). In order to ensure the necessary interoperability between the document sources and the document consumers, the XDS Affinity Domain must adopt policies concerning document format, structure and content.

XDS Process Flow

The diagram depicts the basic XDS process flow and interactions:

XDS Document (Metadata):

• Class
• Patient ID
• Author
• Facility
• Date of Service
• ...

Registry

3. Consumers search for documents with specific information

Consumer

2. Repository registers the documents metadata and pointer with the registry

1. Sources post documents packages to the repository

4. Consumers retrieve selected documents from repository (-ies)

Repository

XDS Transaction Set Details

The below diagram outlines the specific transactions involved in the process flow:

Patient Identity Source

Patient Identity Feed [ITI-8]
Patient Identity Feed HL7v3 [ITI-44]

Document Registry

Registry Stored Query [ITI-8]

H **Document Consumer**

Register Document Set - b [ITI-42]

Integrated Document Source/Repository

Provide & Register Document Set - b [ITI-41]

Registry Document Set [ITI-43]

Document Source

Document Repository
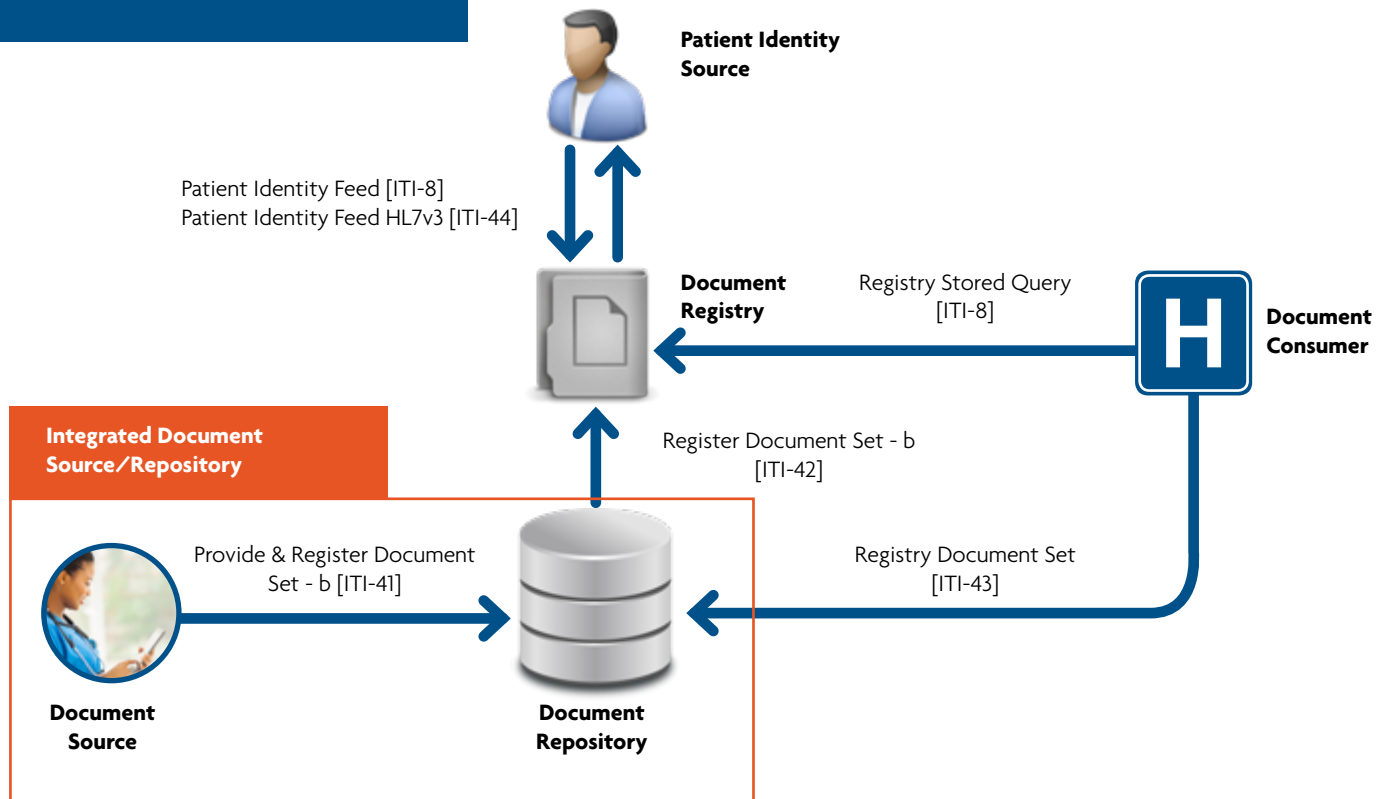
SUPPORTED INTEGRATIONS

As a vendor fully committed to openness, data accessibility, and industry-leading, standards-based interoperability, MatrixCare supports integrations with a broad array of third-party products and services. This includes entities that may directly compete with a MatrixCare offering.

While MatrixCare will support basic integration with directly competing offerings, we reserve the right to establish a higher level of private, value-added integration between MatrixCare modules than between MatrixCare modules and third-party products and services.

UNSUPPORTED INTEGRATIONS

MatrixCare will not support integrations with third-party products and services that are deemed (at MatrixCare's sole discretion) to introduce a risk to patient safety or otherwise place our customers and/or their customers in a position of harm, or are deemed to be accruing economic benefit from MatrixCare's intellectual property without acceptable remuneration to MatrixCare.

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Connections Partner Ecosystem

MatrixCare, like other large EHR providers, does not provide solutions for every operational, financial, or clinical need, instead relying on certified partners to provide a fully integrated solutions/services for use with MatrixCare. Accordingly, MatrixCare supports a full certified partner ecosystem through its MatrixCare Connections program where customers can pick from certified partner solutions to "fill in the gaps" or complement their MatrixCare investment. There are hundreds of MatrixCare Connections Partners waiting to meet your specific needs today.

WHY FORMAL PARTNERSHIPS?

MatrixCare establishes formal partnerships with its Connections program partners for a variety of reasons including:

- Ensuring that only fully validated entities are given access or connected into MatrixCare customer environments

- Detailed design of integrations between the partner solution and MatrixCare

- Clear assignment of operational responsibilities between the parties to ensure that joint customers are effectively managed and supported and traditional "finger pointing" is avoided

- Protection of Intellectual Property and Confidential Information

- Clear definition of quality or service-level expectations related to the solution

- Establishment of joint marketing activities to promote and present the solution to MatrixCare customers

- Clear definition of commercial terms including any startup and/or ongoing fees associated

MATRIXCARE CONNECTIONS PARTNER CATEGORIES

The MatrixCare Connections program supports partners across a variety of categories to meet the various needs of customers. Categories include:

Product Partners

MatrixCare Connections Product Partners provide applications that are certified to integrate with MatrixCare effectively now and in the future. These solutions are generally sold separately by the partner but may occasionally be bundled into a MatrixCare agreement.

Consulting and Service Partners

MatrixCare Connections Consulting and Service Partners are certified to provide a variety of value-added services related to the MatrixCare solution set. They are generally trained on specific modules and supporting processes of MatrixCare. They usually sell their services directly to MatrixCare customers but their services may be occasionally bundled into a MatrixCare agreement.

Pharmacy Partners

MatrixCare Connections Pharmacy Partners are certified to effectively conduct e-Prescribing with MatrixCare customer environments. The integration of MatrixCare and the pharmacy's specific pharmacy information system is formally certified. Pharmacy partners sell their services directly to MatrixCare customers.

ISV Partners

Beginning in 2018, MatrixCare will introduce a new category of partners to the Connections program – ISV Partners. ISV Partners will offer value-added applications built on top of the MatrixCare architecture that are fully certified to integrate effectively with MatrixCare. These ISV Partner applications will be sold through a new MatrixCare online application marketplace. Stay tuned for more details on this exciting new partner category in 2018.

HOW TO APPLY?

Prospective partners may apply to the Connections program at the following URL: http://www.matrixcare.com/company/partners/partner-request/.

Frequently Asked Questions

Q: I am a MatrixCare customer who would like to use Crystal Reports to build some new custom reports that combine MatrixCare data with data from my old accounting system? Can I do that? If so, what is required?

A: Yes. By licensing the MatrixCare MyData layer, you will have direct access to the relevant production data refreshed on a 15-minute interval. You can directly connect Crystal Reports (or any other reporting tool) to the MyData layer as well as any other external data sets.

Q: I am a Skilled Nursing operator using MatrixCare, and I would like to integrate with my hospital partner to do electronic transitions of care. Is that possible? If so, what is required?

A: Yes. It is possible in different ways, depending on your hospital partner's preferred method of integration.

  o If your hospital partner uses DIRECT messaging to send patient care summaries (i.e. CCDs) at time of transfer to the SNF, then you simply need to license the MatrixCare DIRECT messaging option. Once licensed, you will be able to securely send and receive PHI with any hospital partner or other healthcare provider.

  o If your hospital partner systems support the IHE XDS framework, then you simply need to license the MatrixCare IHE XDS option. Once licensed and configured, you will be able to securely exchange patient chart summaries and other PHI with your trading partner and other healthcare providers.

  o Contact your MatrixCare Account Manager for more information and for assistance in selecting the right approach.

Q: I am a MatrixCare customer who would like to have a third-party consultant develop a custom dashboard for me that uses data from MatrixCare and other systems. Is this possible? If so, how?

A: Yes. By licensing the MatrixCare MyData layer, you will have direct access to the relevant production data refreshed on a 15-minute interval. Once the third-party consultant is certified under MatrixCare Connections and we receive your explicit authorization, then the consultant will be allowed to connect the custom dashboard to your MyData layer.

Q: I am a MatrixCare customer who has had a third-party consultant develop a custom dashboard for me that uses data from MatrixCare. I would like to sell it to other MatrixCare customers. Is that OK?

A: No and Yes.

  o No, you are not allowed to sell this tool developed for your internal use to others as it is derived from MatrixCare intellectual property, notably the exposed data structures.

  o Yes, it may be possible for you (or your third-party consultant) to market this if your solution is certified under MatrixCare Connections and MatrixCare is appropriately compensated for the use of our intellectual property in your Connections agreement. If the developed solution is complementary to MatrixCare solutions, MatrixCare may offer to co-promote your application in the forthcoming MatrixCare online application marketplace beginning in 2018.

Q: I am a MatrixCare user and I would like to integrate with my state HIE. Is that possible? If so, what is required?

A: Yes. It is possible in different ways, depending on your HIE's preferred method of integration.

  o If your HIE uses DIRECT messaging to transmit PHI and other information, then you simply need to license the MatrixCare DIRECT messaging option. Once licensed, you will be able to securely send and receive PHI with any HIE or other healthcare provider.

  o If your HIE supports the IHE XDS framework, then you simply need to license the MatrixCare IHE XDS option. Once licensed and configured, you will be able to securely exchange patient chart summaries and other PHI with your HIE and other healthcare providers.

  o Contact your MatrixCare Account Manager for more information and for assistance in selecting the right approach.

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A Guide for:
Current and Prospective Customers
Current and Prospective Partners

MatrixCare®

MatrixCare
10900 Hampshire Avenue South, Suite 100
Bloomington, MN 55438

f t in

Call 800.869.1322 to learn more — or visit matrixcare.com

About MatrixCare

MatrixCare solutions have powered the long term care continuum for over 30 years. MatrixCare is the largest LTPAC technology provider in the US and the first to offer a true full-spectrum solution. Used in more than 13,000 facility-based care settings and 2,500 home care and home health agency locations, MatrixCare's solutions help skilled nursing and senior living providers, life plan communities (CCRCs), and home health organizations to prosper as we migrate to a fee- for-value healthcare system.

Visit www.matrixcare.com and www.carecommunity.com for more information.

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