The eHealth Exchange* and CONNECT Overview

*eHealth Exchange – formerly known as the Nationwide Health Information Exchange (NwHIN)
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What is the eHealth Exchange?
(formerly referred to as the Nationwide Health Information Network (NwHIN))

The eHealth Exchange transitioned from an ONC nationwide health information network program initiative, the NwHIN Exchange, to operate as a public-private partnership in October 2012.

Healtheway is a non-profit, public-private partnership that operationally supports the eHealth Exchange. With production starting in 2009, the eHealth Exchange has become a rapidly growing community of public and private organizations, representing thousands of providers and millions of patients.

Sources: http://www.healthewayinc.org

A community of exchange partners who share information under a common trust agreement, using a common set of technical requirements, policies and testing process.
What is the eHealth Exchange?

Activities:
The eHealth Exchange helps to improve the health and welfare of all Americans through health information exchange that is trusted, scalable and enhances quality of care and health outcomes by supporting comprehensive longitudinal health records.

Origin and Oversight of NwHIN

NwHIN transitioned to the eHealth Exchange in October 2012
<table>
<thead>
<tr>
<th>Nationwide Health Information Network</th>
<th>eHealth Exchange</th>
<th>Healtheway</th>
</tr>
</thead>
<tbody>
<tr>
<td>A portfolio of standards, services and policies for secure exchange of health information over the Internet</td>
<td>A community of exchange partners who share information under a common trust agreement, using a common set of technical requirements, policies and testing process</td>
<td>Non-profit organization chartered to support the eHealth Exchange and focused on cross-industry collaboration to advance HIE implementation</td>
</tr>
<tr>
<td>Federal program initiative led by ONC</td>
<td>Operational governance established by contract <em>(Data Use and Reciprocal Support Agreement – DURSA)</em> with oversight by Coordinating Committee</td>
<td>Corporate board of directors to oversee Healtheway strategy and sustainability, no authority or oversight of eHealth Exchange</td>
</tr>
</tbody>
</table>

National Health Information Infrastructure (NHII) Evolution

The **eHealth Exchange** has evolved since **2004** when it began as the **National Health Information Infrastructure (NHII)**.

**Definition:**
The National Health Information Infrastructure (NHII) was a healthcare standardization initiative for the development of an interoperable health information technology system.

**NHII Goal:**
Build an interoperable system of clinical, public health and health information technology.

**How To Achieve NHII Goal:**
Encourage public-private partnership with a federal leadership role.

**Sources:**
The NwHIN to Exchange from Prototype to Production

<table>
<thead>
<tr>
<th>NHIN Prototype Phase I:</th>
<th>NHIN Prototype Phase II:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Contract awarded May 2007</td>
<td>• Contract awarded October 2007 for $22.5 M</td>
</tr>
<tr>
<td>• Determination of need</td>
<td>• “Specification Factory”</td>
</tr>
<tr>
<td>• Four contractors involved:</td>
<td>• Nine HIEs to participate in NHIN implementation:</td>
</tr>
<tr>
<td>- Accenture</td>
<td>- CareSpark – (TN/VA)</td>
</tr>
<tr>
<td>- CSC</td>
<td>- Delaware Health Information Network</td>
</tr>
<tr>
<td>- IBM</td>
<td>- Indiana University – Indianapolis</td>
</tr>
<tr>
<td>- Northrup Grumman</td>
<td>- Long Beach Network for Health (CA)</td>
</tr>
<tr>
<td>• Demonstration model (i.e., prototype) only</td>
<td>- Lovelace Clinic Foundation (NM)</td>
</tr>
<tr>
<td></td>
<td>- MedVirginia (Central VA)</td>
</tr>
<tr>
<td></td>
<td>- New York eHealth Collaborative</td>
</tr>
<tr>
<td></td>
<td>- North Carolina Healthcare Information and Communications Alliance, Inc.</td>
</tr>
<tr>
<td></td>
<td>- West Virginia Health Information Network</td>
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</tbody>
</table>

Definition of the eHealth Exchange

**Definition:**
A set of standards, services and policies that enable secure health information exchange over the Internet.

**Goal:**
Operationalize the exchange of healthcare information nationwide utilizing the governance established by Contract ([Data Use and Reciprocal Support Agreement – DURSA](http://www.healthewayinc.org/index.php/exchange/dursa)) with oversight by Coordinating Committee.

**Approach:**
Public-private venture.

**Stakeholders:**
- Care Delivery Organizations (CDOs) using EHRs
- Consumer organizations operating Personal Health Records (PHRs)
- Health Information Exchanges (HIEs) with multi-stakeholder entities to facilitate data within a state, region or group of stakeholders
- Specialized participants (data for secondary uses)

Office of the National Coordinator (ONC)

Oversight of NwHIN through the Office of the National Coordinator (ONC) – 2004-2012
(Organizational Structure Detail – NwHIN governance transitioned to Healtheway, Inc., 10/2012)

The CONNECT program, while formally associated with Federal Health Architecture (FHA), has applicability to the eHealth Exchange.
Federal Health Architecture (FHA)

What is the FHA?

• An e-Government line of business initiatives
• Coordinates health IT activities among more than 20 federal agencies that provide health and healthcare services to citizens

Goals:

• Work with federal partners to build a federal health information technology environment
• Interoperability with private sector systems
• Support President’s plan to enable better point-of-service care, increase efficiency and improve overall health in the U.S. population

Managed By:

Office of the National Coordinator for Health IT

Responsibilities:

• Support federal efforts to deploy health IT standards
• Ensure federal agencies seamlessly exchange health data among themselves; with state, local and tribal governments; and with the private sector

Federal Health Architecture (FHA)

List of Participating Federal Agencies:

<table>
<thead>
<tr>
<th>Federal Health Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration for Children and Families</td>
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<tr>
<td>Administration on Aging</td>
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<tr>
<td>Agency for Healthcare Research and Quality</td>
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<tr>
<td>Agency for Toxic Substances and Disease Registry</td>
</tr>
<tr>
<td>Centers for Disease Control and Prevention</td>
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<tr>
<td>Centers for Medicare and Medicaid Services</td>
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<tr>
<td>Department of Agriculture</td>
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<tr>
<td>Department of Commerce</td>
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<td>Department of Defense</td>
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<tr>
<td>Department of Energy</td>
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<tr>
<td>Department of Health and Human Services</td>
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<tr>
<td>Department of Homeland Security</td>
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<td>Department of Housing and Urban Development</td>
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<td>Department of Justice</td>
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<tr>
<td>Department of Labor</td>
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<td>Department of State</td>
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<tr>
<td>Department of the Treasury</td>
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<tr>
<td>Department of Transportation</td>
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<tr>
<td>Department of Veterans Affairs</td>
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<tr>
<td>Environmental Protection Agency</td>
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<tr>
<td>Food and Drug Administration</td>
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<tr>
<td>Health Resources and Services Administration</td>
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<tr>
<td>Indian Health Service</td>
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<tr>
<td>National Institutes of Health</td>
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<tr>
<td>SAMHSA</td>
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<tr>
<td>National Aeronautics and Space Administration</td>
</tr>
<tr>
<td>National Science Foundation</td>
</tr>
<tr>
<td>National Disaster Medical Systems</td>
</tr>
<tr>
<td>Substance Abuse and Mental Health Services Administration</td>
</tr>
</tbody>
</table>

LEAD PARTNERS:

- Department of Health & Human Services (Managing Partner), Department of Defense, Department of Veterans Affairs
- Office of Personnel Management
- Railroad Retirement Board
- Small Business Administration
- Social Security Administration
- United States Agency for International Development
What is CONNECT?

Federal Health Architecture

**Initial Goal:** Support the health-related missions of federal agencies

**Current Goal:** Provide open-source software solutions to all organizations to assist health information exchanges and share data using nationally recognized interoperability standards

**Managing Partner:** Department of Health & Human Services

**Lead Partners:** Department of Health & Human Services, Department of Defense and Department of Veterans Affairs

**Other Partners (Alphabetical Order):** Administration for Children and Families, Administration on Aging, Agency for Healthcare Research and Quality, Agency for Toxic Substances and Disease Registry, Centers for Disease Control and Prevention, Centers for Medicare and Medicaid Services, Department of Agriculture, Department of Commerce, Department of Energy, Department of Labor, Department of State, Department of Transportation, Department of the Treasury, Environmental Protection Agency, Food and Drug Administration, Health Resources and Services Administration, National Aeronautics and Space Administration, National Disaster Medical Systems, National Indian Health Service, National Institutes of Health, National Science Foundation, Office of Personnel Management, Railroad Retirement Board, Small Business Administration, Social Security Administration, Substance Abuse and Mental Health Services Administration, U.S. Agency for International Development

NwHIN Overview: 2004 to Present

2004

March 22, 2004
Federal Health Architecture (FHA) created to create interoperability and increase efficiency within the public sector.

April 27, 2004
President signs Executive Order 13335 (EO) announcing commitment to promotion of HIT to improve efficiency.

2005

Nov. 15, 2004
HHS issues RFI: Request Public Input and Ask How an NHIN Might Be Developed.

Feb. 15, 2005
HHS RFI Responses Are Due.

April 26, 2005
Indian Health Services Exchanging Data with NASA.

June 3, 2005
HHS Releases Responses from RFI.

Oct. 6, 2005
HHS Grants 3 Contracts for $17.5M: (1) create standards, (2) compliance certification process, and (3) analysis of state medical laws.

Nov. 10, 2005
HHS Grants Awards to Develop NHIN.
**NwHIN Overview: 2004 to Present**

**2006**
- Feb. 2006
  - CCHIT Issues Criteria for Ambulatory EHR Certification
- March, 2006
  - Federal Health Architecture (FHA) Is Realigned: Represent & coordinate Federal activities in all matters relating to the President's health IT plan
- June 2006
  - Proposed NHIN Architecture Requirements Developed
- May 23, 2006
  - Several NHIN Contracts Awarded

**2007**
- Jan. 25-26, 2007
  - NHIN Prototypes Demonstrated
- March, 2007
  - CCHIT Issues FINAL Criteria for Ambulatory EHR Certification
- May 31, 2007
  - HHS Analysis of NHIN Prototypes; Report by Gartner
- Sept. 28, 2007
  - Trial Implementations for NHIN Announced
- October, 2007
  - Federal Agencies vote to participate in the NwHIN and begin development of CONNECT

**Source:** NHIN Timeline [http://www.worldprivacyforum.org/NHIN_timeline.html](http://www.worldprivacyforum.org/NHIN_timeline.html)  Accessed 12/7/12.
NwHIN Overview: 2004 to Present

2008 to 2009

**2008**
- **Feb. 26, 2008**
  20 Federal agencies to build a mini-NHIN for government, the NHIC-Connect Gateway
- **March, 2008**
  "DURSA" (Data Use and Reciprocal Support Agreement) Workgroup slated to complete data use of reciprocal support agreement for NHIN test data
- **Dec. 15-16, 2008**
  Progress Reports About NHIN trials

**2009**
- **Sept. 23, 2008**
  NHIN trial implementation projects are set to be demonstrated
- **Feb. 17, 2009**
  ARRA signed into law numerous provisions relating to healthcare IT, the Office of the National Coordinator, and other NHIN-related issues
- **March, 2009**
  Federal Health Architecture (FHA) grants awards to begin development of CONNECT

NwHIN Overview: 2004 to Present

2010

- HIEs continue to onboard as exchange partners with VA/SSA

2011

- NHIN Trial Specifications Version 2.0 are released

October 2012

- NHIN (eHealth Exchange)

Note: There is limited information posted on the official ONC website beyond 2009; specific details for this timeline are not currently available.
# NHIN Inventory of Tools

The Nationwide Health Information Network has a set of tools available that will aid organizations in implementing secure electronic health information exchange. These range from service specifications and documentation to reference implementations and actual infrastructure items. The table below lists the assets that are available with links to download the source material.

## Filter List by Category:
- All Categories

## Specifications

<table>
<thead>
<tr>
<th>Asset Name</th>
<th>Description</th>
<th>Categories</th>
<th>Type</th>
<th>Release</th>
<th>Link to Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHIN Architectural Overview</td>
<td>Overview of the NHIN architecture</td>
<td>Architecture</td>
<td>Documentation</td>
<td>Rel 1</td>
<td>Architecture Overview Document</td>
</tr>
<tr>
<td>NHIN Infrastructure</td>
<td>Overview of the NHIN infrastructure for the network</td>
<td>Architecture</td>
<td>Documentation</td>
<td>Rel 1</td>
<td>Infrastructure Overview Document</td>
</tr>
<tr>
<td>NHIN Medicaid Eligibility Verification Specification</td>
<td>Describes how NHIN exchange partners may use X12 270/271 transactions to transmit Medicaid Eligibility Verification data</td>
<td>Messaging</td>
<td>Specification Pilot</td>
<td>(n/a)</td>
<td>Specification [Emergence Pilot (v1.0)]</td>
</tr>
<tr>
<td>NHIN Messaging Platform Specification</td>
<td>Standards-based specifications set including SOAP, HTTP, PKI and HL7 v3.0 RIM-based messages that allow messaging across the NHIN.</td>
<td>Security, Messaging</td>
<td>Specification</td>
<td>Trial, Rel 1</td>
<td>Specification (Final Prod)</td>
</tr>
<tr>
<td>NHIN Web Services Registry Specification</td>
<td>A common, curated network registry that allows the discovery of other NHIN participants and the services they offer on NHIN Full</td>
<td>Security, Messaging</td>
<td>Specification, Infrastructure</td>
<td>Rel 1</td>
<td>Specification (Final Prod)</td>
</tr>
<tr>
<td>NHIN Authorization Framework</td>
<td>Standards-based specifications supporting the verification of trusted health information exchange across the NHIN.</td>
<td>Security, Privacy,</td>
<td>Specification</td>
<td>Trial, Rel 1</td>
<td>Specification (Final Prod)</td>
</tr>
</tbody>
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eHealth Exchange: From Concept to Reality
Exchange Interoperability Specifications Factory

The HITECH Act highlights the need for standards and interoperability specifications to support health information exchange. The role of the Spec Factory is to develop interoperability specifications based upon use cases that could be used to test the eHealth Exchange.

**The Goals of the Spec Factory:**

- Maintenance of legacy exchange specifications based on issues identified by implementers and other exchange stakeholders.
- Package exchange specifications into human readable format by building upon the visions for the eHealth Exchange, while adhering to applicable governing body decisions and prioritizations to support use cases, business scenarios and implementations.
- Generate implementation specification with an explicit description of the **standards**, **services** and **policies**.
- Create guidelines for development of reference implementation.

**Who is the Spec Factory Team?**

The Spec Factory consists of stakeholders who come from across the healthcare IT industry. Currently, the Spec Factory is made up of the Core Services and Security & Privacy workgroups. Each workgroup is responsible for providing subject matter expertise, as well as maintenance for respective specifications.

**How do I get involved?**

The Spec Factory is open to all individuals and organizations who wish to contribute to defining interoperability specifications that could be used to test the eHealth Exchange. The individual Spec Factory workgroups listed above have regular meetings throughout the year. You can participate as a workgroup leader, an active participant or an observer.
Components of the eHealth Exchange

- Authentication / Certificates
- Delivery Protocols
- Trust Framework
- Security
- Vocabulary / Documents / Message Standards
- Directories
Components of the eHealth Exchange

Adopted / Approved for Exchange

- DURSA
- Operating Policies & Procedures
- Specifications
- Test Cases

Designated third party

- eHealth Exchange Coordinating Committee
- Shared Infrastructure
  - Digital Certificates
  - Service Registry
- Testing Body
- Testing Tools
**eHealth Exchange Specifications Overview**

**Transaction profiles**
Utilize Exchange Patterns for specific transactions

- CMS PQRI
- CMS CARE
- CMS ESMD
- C32+
- C-CDA

**Transactions**
Exchange services / transaction patterns

- **Discovery Pub/Sub**
- Subjects
- Services
- Query / Retrieve

- **Push / Pull**
- Admin Distribution
- Doc Submission

- **Push**
- HIEM

**Messaging, Security, Transport**
Enable secure and interoperable communication of health information

- Messaging Platform
- Authorization Framework

**Operational Infrastructure**
Runtime systems that support the Exchange

- Security Infrastructure
  (managed PKI)
- Web Services Registry
Benefits of the Exchange

Federal Agencies and Healthcare Organizations

- Provide robust gateway and single, data use Agreement to securely exchange health information
- Reduce costs
- Empower citizens
- Deliver better health diagnosis and faster benefits decisions

Providers

- Reduce time in processing claims
- Support Meaningful Use
- Aid in coordination between Gov’t and private providers
- Aid Federal, state and local response to public health emergencies

Citizens

- Ensure reliable and secure health information exchange
- Deliver fast and accurate communication among providers / Speed diagnosis
- Reduce medical errors and unnecessary costs of care

State Health Information Exchanges

- Provide common set of standards and protocols
- Eliminate for “home-grown” solutions
- Deliver electronic health exchange with providers from 50 states, Federal Agencies, and national health providers

Source: Graphic adapted from presentation: NHIN University. *NHIN 101: An Introduction to the Health Information Network*, February 22, 2010, Doug Fridsma, PhD, Mariann Yeager, PhD, and David Lansky, PhD.
eHealth Exchange Transition Overview *(prior & current state)*

**Through September 2012**

- ONC initiative – NwHIN Exchange
- Coordinating Committee*
- DURSA*
- Onboarding & testing facilitated by ONC
- Operations supported & funded by ONC
- Services provided to participants for free
- Test cases developed by ONC

**As of October 2012**

- Healtheway – Public-private initiative – eHealth Exchange
- Coordinating Committee*
- DURSA*
- Testing facilitated by testing body designated by CC – CCHIT
- Operations supported / funded by Healtheway
- Participants to begin paying for services in future
- Test cases developed in conjunction with EHR-HIE Interoperability WG (IWG)

* Unchanged
New joint workgroup starting December 3, 2012

**Workgroup Purpose:**
- Harmonize current production Exchange content with Interoperability Work Group content implementation specification
- Draw from HITSP C-32 with additional required templates from C-CDA care summary
- Include a clear roadmap from C-32 (MU1) to C-CDA (MU2)

**Future Work Efforts:**
- Later will include a highly constrained C-CDA implementation specification that leverages current industry work
# Healtheway Bundles *(Service Specifications)*

<table>
<thead>
<tr>
<th>Bundle Description</th>
<th>Specification</th>
</tr>
</thead>
</table>
| Lookup and Retrieval of Documents (HIE-HIE)                   | • Messaging Platform  
• Authentication Framework  
• Query Documents  
• Retrieve Documents  
• Content (optional)  
• Web Services Registry |
| Lookup and Retrieval of Documents (EHR-HIE)                   | • Messaging Platform  
• Authentication Framework  
• Query Documents  
• Retrieve Documents  
• Content (required) |
| Add-on Modules                                                | • Access Consent  
• Deferred Messaging for Patient Discovery  
• Content Validation (C32)  
• Web Services Registry  
• Messaging Platform  
• Authentication Framework |
| Submit Documentation                                          | • Messaging Platform  
• Authentication Framework  
• Document Submission  
• Administrative Distribution |
| Direct Transport (IWG Only)                                   | • Direct (Send / Receive)  
• Content |

(29)

Healtheway Bundles *(Service Specifications)*
Collaboration with EHR/HIE Interoperability Workgroup (IWG)

- eHealth Exchange and EHR/HIE Interoperability Workgroup (IWG) collaborating for collective benefit of eHealth Exchange and 15-state initiative
- Joint Task Group
  - Testing
  - Content
- Product Certification Program
- Ongoing collaboration to promote adoption
Collaboration with EHR/HIE Interoperability Workgroup

15 states represent ~50% of US population

States
- California
- Florida
- Illinois
- Maryland
- Missouri
- New York
- Utah
- Virginia
- Colorado
- Georgia
- Kentucky
- Michigan
- New Jersey
- Oregon
- Vermont

37 leading EHR and HIE vendors with significant market share

<table>
<thead>
<tr>
<th>EHRs</th>
<th>HIEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allscripts</td>
<td>ApeniMED</td>
</tr>
<tr>
<td>Cerner</td>
<td>GE</td>
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<tr>
<td>Data Strategies</td>
<td>dbMotion</td>
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<tr>
<td>Dr. First</td>
<td>GSI Health</td>
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<tr>
<td>eMDs</td>
<td>HealthUnity</td>
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<tr>
<td>ePocrates</td>
<td>ICA</td>
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<tr>
<td>Epic</td>
<td>MedAllies</td>
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<tr>
<td>First Medical Solutions</td>
<td>Med3000</td>
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<tr>
<td>Greenway</td>
<td>Mirth</td>
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<td>MdClick</td>
<td>Medicity</td>
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<tr>
<td>Nortec Software</td>
<td>Misys Open Source Solutions</td>
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<td>Siemens</td>
<td>OmniMD</td>
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<td>Orion</td>
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<td>Optum</td>
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<td>RelayHealth</td>
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</tbody>
</table>
Overall Goal:

• Reduce barriers to HIE and establish interoperability while minimizing cost and complexity when possible
• Test once, capable of exchanging with many others

Product Testing Program:

• Provide market assurance and technical clarity in compliant products
• Assure Provider-to-HIE interoperability

eHealth Exchange Participation Testing Program:

• Verify that implementations of successfully certified products are compliant as a condition of participation in the eHealth Exchange
• Assure interoperability among participants in the eHealth Exchange

Onboarding eHealth Exchange Testing Program Goals
Onboarding Process Overview to eHealth Exchange

**APPLY**
- Submit Application Package
- CC determines eligibility

**TEST**
- Complete eHealth Exchange Participation Testing with CCHIT
- Results presented to CC for approval

**ACTIVATE**
- CC approval
- Go Live!
- Ongoing Monitoring
To be eligible to participate in the eHealth Exchange, an Applicant must:

• Be a valid business in good standing, or a governmental agency, operating in the US.
• Meet all solvency and financial responsibility requirements imposed by the statutes and regulatory authorities of the jurisdiction or jurisdictions which it, or any subcontractor performing some or all of its functions, would serve.
• Be an organization or agency that oversees and conducts, on its own behalf and/or on behalf of its Participant Users, electronic transactions or exchanges of health information among groups of persons or organizations.
• Have the organizational infrastructure and legal authority (through statutes, regulations, organizational agreements, contracts or binding policies) to comply with the obligations in the DURSA and to require its Participant Users to comply with applicable requirements of the DURSA.
• Not be aware of any information that would preclude the Applicant from fully complying with the provisions of the DURSA.
• Intend to Transact information with other Participants for a Permitted Purpose as defined in the DURSA.
• Have sufficient financial, technical and operational resources to support the testing and operation of transactions among Participants.
• Submit a completed Application, signed DURSA Joinder Agreement (Attachment 7 of the DURSA), and the eHealth Exchange Participation Agreement.
• Utilize a system which has been verified as compliant with the eHealth Exchange technical requirements, by eHealth Exchange designated testing body, CCHIT, and accepted by the eHealth Exchange Coordinating Committee.
Onboarding Process to the eHealth Exchange

Any organization can utilize the specifications adopted by participating organizations in the eHealth Exchange. Organizations interested in becoming operational eHealth Exchange Participants may follow these simple steps to get started:

1) Become familiar with the Data Use and Reciprocal Support Agreement (DURSA).
2) Ensure your agency, organization or entity meets the Participant eligibility criteria as described in the Operating Policies and Procedures.
3) Identify the business use case and related Specifications applicable to your organization’s transactions patterns.
4) Complete and submit an Application Package (which includes an Application for Participation, the Data Use and Reciprocal Support Agreement and eHealth Exchange Participation Agreement) to admin@healthewayinc.org.

Fees will be charged beginning January 2014. The Participant fee is proportional to an organization’s annual combined revenue. For academic or governmental organizations, the fees are associated with annual operating budget. The participant fees apply to 12 months of eHealth Exchange connectivity and infrastructure support, starting on the effective date of the Participant Agreement.

For more information on current eHealth Exchange Participating Organizations:
http://www.healthewayinc.org/index.php/exchange/participants

Source: http://www.healthewayinc.org/index.php/exchange/onboarding
Healtheway staff review applications to verify completeness and readiness for CC review.
  – Clarifications and additional information may be requested.

Completed application packages are presented for CC review in monthly meetings.
  – If eligible, Applicant is notified and referred to CCHIT to complete eHealth Exchange Participation Testing.
  – If ineligible or if insufficient information to determine eligibility, Applicant is notified, with recommended next steps.
eHealth Exchange – Testing

• Eligible Applicants will be referred to CCHIT to begin testing
  – Prepare for testing, using available resources and automated testing environment
  – Complete conformance testing
  – Submit completed test results to CCHIT

• Conformance test results reviewed

• If conformant, proceed to participant interoperability testing

• Schedule interoperability test with CCHIT

• Complete participant interoperability testing in observed demonstration using automated testing environment

• Results captured and reported to eHealth Exchange CC
CCHIT is partnering with AEGIS.net to provide a highly automated testing environment called Developer’s Integration Lab (DIL)

- Will become an open source asset to the entire industry
- Cloud-based 24 x 7 x 365 for vendor self-service
- Can be used for development and self-testing
- Contains multiple reference systems to assess interoperability with product instances
- Provides an easy-to-use and understand interface for configuring and executing test cases
- Enables CTB Testers to observe and verify testing results
- Includes a test case library, test data, checklists, guides, and more
Determine Participation

- CCHIT sends completed test results to the eHealth Exchange CC
- Test results presented for consideration in monthly eHealth Exchange CC meetings
- eHealth Exchange CC determines participation
  - If approved, Applicant notified of conditional participation with next steps for activation
  - If not approved, Applicant notified
- Once activated in the service registry and using the eHealth Exchange digital certificate, conditional participants must go into production and be capable of exchanging within 120 calendar days following the CC approval date
eHealth Exchange – Activation

• Complete and submit documentation to activate approved participants (Activation Materials):
  – Digital certificate form and agreement
  – Service registry form

• Process Activation Materials:
  – If complete, production certificate is issued and entry is added to service registry – participant activated and ready to exchange
  – If not complete, applicant is notified or, if necessary, application is presented to Coordinating Committee for resolution
eHealth Exchange – Monitoring

• New participants, or existing participants who retest, are subject to a probationary period once in production (e.g., 90 days)

• Participants and their partners report issues via a designated mechanism

• Issues are triaged to assess whether participant is meeting conformance and interoperability requirements

• If all issues resolved, probationary period ends

• Matters may be escalated, including disputes, to the Coordinating Committee for resolution
CONNECT
What is CONNECT?

CONNECT is an open-source software solution that supports health information exchange – both locally and at the national level.

- Initially developed by federal agencies to support their health-related missions.
- Now available to all organizations.
- Can be used to help set up health information exchanges and share data using nationally-recognized interoperability standards.

CONNECT uses eHealth Exchange standards and governance formerly known as Nationwide Health Information Network (NwHIN) to ensure that health information exchanges are compatible with other exchanges being set up throughout the country.

Source: [http://www.connectopensource.org/](http://www.connectopensource.org/)
What is CONNECT?

**Purpose of CONNECT:**

- Set up a health information exchange within an organization.
- Tie an organization into regional and national networks of health information exchanges using eHealth Exchange standards.
- By advancing the adoption of interoperable health IT systems and health information exchanges, the country will be better able to achieve the goal of ensuring all citizens have electronic health records by 2014.
- Health data will be able to follow a patient across the street or across the country.

Source: [http://www.connectopensource.org/](http://www.connectopensource.org/)
Components of CONNECT

Source: http://www.connectopensource.org/about/what-is-connect
Components of CONNECT

Ability to locate patients at other organizations, request and receive documents associated with the patient, and record these transactions for subsequent auditing by patients and others.

Other features:
1) Mechanisms for authenticating network participants
2) Formulating and evaluating authorizations for the release of medical information
3) Honoring consumer preferences for sharing their information, and
4) eHealth Exchange Interface specifications are implemented within this component.

Source: http://www.connectopensource.org/about/what-is-connect
Components of CONNECT

Provide default implementations of many critical enterprise components required to support electronic health information exchange, including:

1) Master Patient Index (MPI)
2) XDS.b Document Registry and Repository
3) Authorization Policy Engine
4) Consumer Preferences Manager
5) HIPAA-compliant Audit Log and others

Implementers of CONNECT can choose to:

a) adopt the components, or
b) use their own existing software for these purposes

Source: [http://www.connectopensource.org/about/what-is-connect](http://www.connectopensource.org/about/what-is-connect)
Components of CONNECT

Contains a set of applications to be adapted to quickly create an edge system, and be used as a reference system, and/or can be used as a test and demonstration system for the gateway solution.

This layer makes it possible to innovate on top of the existing CONNECT platform.

Source: [http://www.connectopensource.org/about/what-is-connect](http://www.connectopensource.org/about/what-is-connect)
Agencies that Collaborated to Create CONNECT

Federal Agencies and the CONNECT Initiative
CONNECT Adopters

CONNECT is being used by organizations throughout the country to help them meet their health IT interoperability objectives. Below is a list of some of the organizations using CONNECT for pilots or in production.

<table>
<thead>
<tr>
<th>ORGANIZATION</th>
<th>DEMO/PILOT</th>
<th>PRODUCTION</th>
<th>CASE STUDY/PRESS RELEASE/OTHER</th>
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<td>AperiMED</td>
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<td>The Marshfield Clinic</td>
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<td>The Territory of Guam HIE</td>
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<td>California eHealth Collaborative</td>
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</table>

More information available through the CONNECT Community Portal

http://www.connectopensource.org/adopters
Bibliography
### Reference Web Sites

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- **CONNECT: A Gateway to NHIN**  

- **Federal Health Architecture (FHA)**  

- **Healtheway eHealth Exchange**  
  [http://healthewayinc.org](http://healthewayinc.org)

- **Nationwide Health Information Network Exchange**  

- **Office of the National Coordinator**  
  [http://www.hhs.gov/about/orgchart/onc.html](http://www.hhs.gov/about/orgchart/onc.html) and  

### Documents