

# DISTRIBUTED DATA COLLECTION FOR REINSURANCE AND RISK ADJUSTMENT ON-PREMISE EDGE SERVER GUIDANCE

**June 26, 2014**

**Health Insurance Exchange Program  
Training Series**



[WWW.REGTAP.INFO](http://WWW.REGTAP.INFO)

# On-Premise EDGE Server Agenda

- Introduction
- Session Guidelines
- Intended Audience
- Purpose
- Overview of On-Premise EDGE Server
- Infrastructure and Configuration
- Server Considerations
- Set-up Summary
- Security
- Cost and Server Administration
- Server Support and Release Management
- File Processing, Back-Up, Disaster Recovery
- CMS / Issuer Responsibilities
- Next Steps
- Resources
- Closing Remarks

# Session Guidelines

- This is a ninety-minute webinar session.
- For questions regarding content, please submit inquiries to REGTAP at <https://www.REGTAP.info/>.
- For questions regarding logistics and registration, please contact the Registrar at: (800) 257-9520.

# Intended Audience

- On-Premise EDGE server issuers (Exchange and Non-Exchange)
- Third Party Administrators (TPAs) and Support Vendors
- Those issuers deciding on which EDGE server option is the best fit for them

# Purpose

This Distributed Data Collection (DDC) Session will:

- Provide issuers and TPAs guidance on On-Premise EDGE server set-up
- Focus on the key technical steps required for On-Premise EDGE server set-up
- Provide security considerations
- Address On-Premise EDGE server support structure

# Overview of On-Premise EDGE Server

# On-Premise EDGE Server

- CMS is offering an On-Premise EDGE server to issuers.
- Issuers will be able to install and run the EDGE server software in a location that best fits their operational run model.
- The On-Premise EDGE server can run on physical hardware, on a virtual server farm, or in another cloud provider's space.

# On-Premise EDGE Server

Below is an overview of key features of the On-Premise EDGE server:

Considerations	On-Premise EDGE Server
Server Set-up	Manual
Hardware Requirements	Physical or Virtual Server
Software Requirements	Issuer purchases Operating System license
Security	Issuer-Owned
Infrastructure	Issuer provided based on CMS specifications
Scalability	Dependent on issuer capability
Installation	Issuer installs Operating System and initiates a CMS script to install the EDGE server application (includes MySQL and Java)
Network Connectivity	Issuer opens port 443 and 22

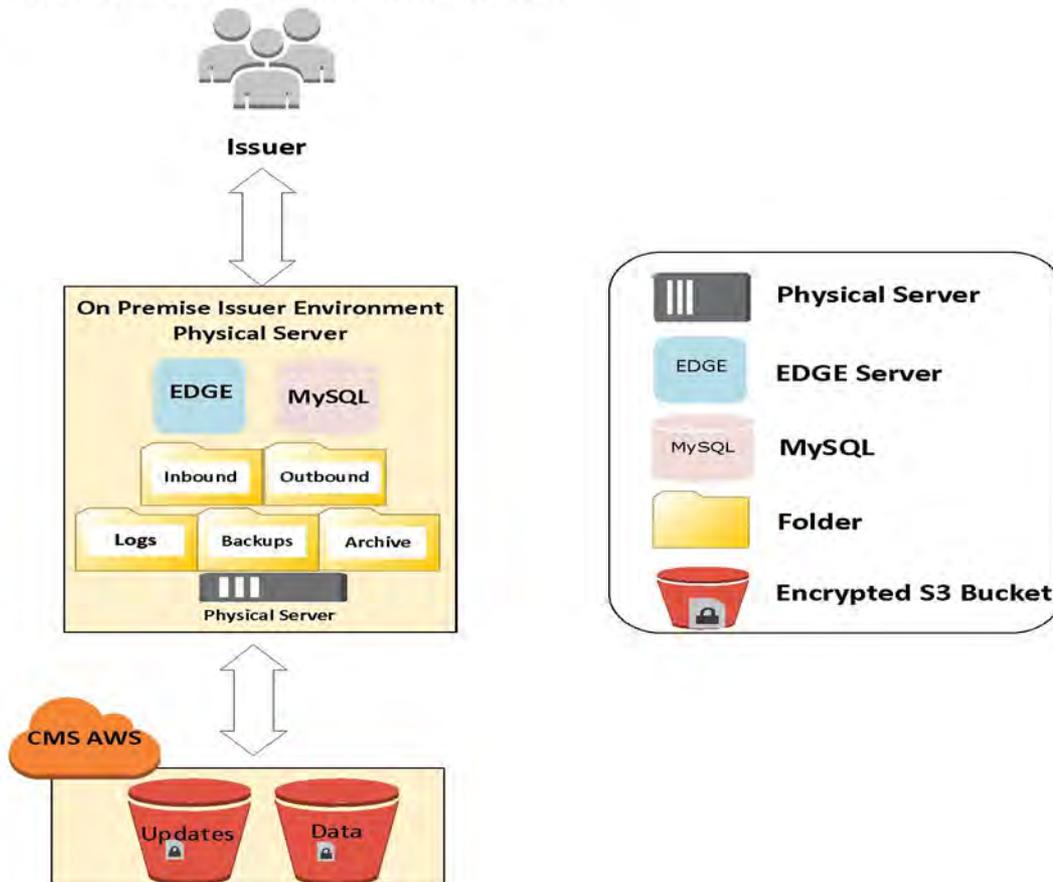
# On-Premise EDGE Server Infrastructure & Configuration

# On-Premise EDGE Server Infrastructure

- Issuers have the option of choosing between a physical or virtual server.
  - A virtual cloud provider, other than Amazon, may be used.
- Under the current design, issuers are restricted to 1 server per issuer ID in HIOS, unless they virtualize their physical box.
  - Issuers have the option of using a hypervisor (e.g. VMWare, Xen, Microsoft) for virtualization.
- Enrollment, supplemental, medical, and pharmacy files will be directly uploaded to the local directory on the EDGE server.
- Issuers will be able to migrate data.
  - Information will be provided in a future webinar session.

# On-Premise EDGE Server Ecosystem

## Issuer On Premise Physical Server



CMS will host a shared location from which the EDGE server will download the initial software and updates.

Documentation for the On-Premise EDGE server Ecosystem will be available in the REGTAP Library at <http://www.REGTAP.info>

# On-Premise EDGE Server Configuration

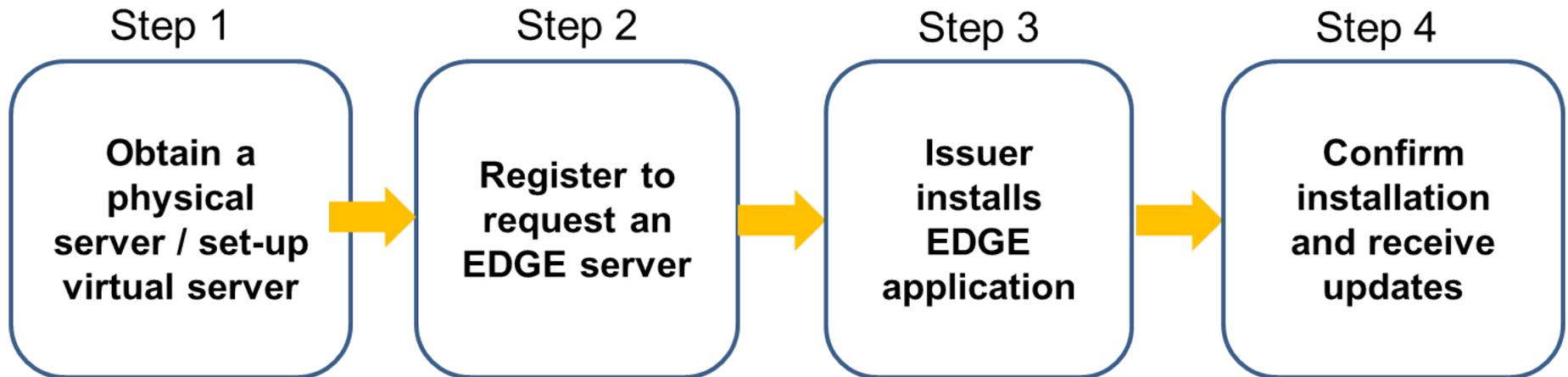
The following table provides examples of hardware server configuration specifications based on organization size.

**Table 1: Server Configuration Based on INTEL CPUs**

	<b>Small</b>	<b>Medium</b>	<b>Large</b>
<b>Number of Enrollees</b>	1,000,000	5,000,000	20,000,000
<b>*Claims Processing Throughput per hour</b>	500,000	1,000,000	2,000,000
<b>Processor</b>	2 x 4-Core	2 x 8-Core	4 x 8-Core
<b>Memory</b>	8 GB	16 GB	64 GB
<b>Recommend Storage</b>	1.4 TB RAID 5 (OS and Data)	200 GB RAID 0 or 1 (OS) 6 TB RAID 5 (Data)	200 GB RAID 0 or 1 (OS) 10 TB RAID 5 (Data)

# Overview of the On-Premise EDGE Server Set-up Process

# On-Premise EDGE Server Set-up Summary



- Issuers can perform Step 1 at any time.
- Registration and provisioning (Steps 2 & 3) for On-Premise EDGE servers will occur in late summer.
- Technical guidelines and specifications will be provided for each step of the set-up.

# Step 1: Obtain a Physical Server / Set-up Virtual Server

- Install and configure an On-Premise EDGE server
  - Issuers choose a physical or virtual server
  - Install and configure Red Hat Enterprise Linux version 6.4 (64 bit)
    - **NOTE:** Issuers can install and configure other software required by the enterprise (this could include, but not limited to antivirus, IDS/IPS, monitoring agents, backup agents, syslog agents etc.)

# Step 1: Obtain a Physical Server / Set-up Virtual Server (continued)

- Configure firewall rules
  - The On-Premise EDGE server will need to be able to communicate via HTTPS (port 443).
  - Verify access to AWS public site via the internet
- Issuers can run CMS-provided server hardening scripts or harden the server according to their own organization's standards.
  - **NOTE:** The EDGE server application has been tested with CMS provided hardening scripts.

# Step 2: Register to Request an On-Premise EDGE Server

The second step for establishing an On-Premise EDGE server is requesting the server from CMS.

- Issuers will access the EDGE server registration site by logging into HIOS.
  - Only issuers with valid HIOS accounts can access the EDGE server registration site.
  - Issuers will indicate if the server will be self-hosted or TPA-hosted.
  - An attestation will need to be signed to complete the process.
- A request will be sent to CMS to obtain a script so that an issuer may provision their On-Premise EDGE server.
  - Issuer will be provided a link and instructions to download and install the EDGE server application.



***Detailed instructions on registration and the attestation will be provided in an upcoming webinar.***

# Step 3: Install & Deploy On-Premise EDGE Server Application

- CMS will review and approve the On-Premise EDGE server request.
- Once the request has been approved, the issuer will receive a link to download a zip file containing a bootstrap script to run and install the application.
  - The application includes MySQL 5.5 and Java 1.7.
- Running the script is a manual process initiated by the issuer.
  - The issuer will be given a properties file or a key and will run the script with the key or file location as a parameter.
- Security certificates may be required.

# Step 3: Install & Deploy On-Premise EDGE Server Application (Continued)

- The deployment script will check the CMS/AWS S3 bucket for updates.
  - The CMS S3 bucket is a read only storage location within the CMS security boundary and includes application updates (application, database, reference tables, and OS).
  - Access is restricted to only registered EDGE servers.

# Step 3: Install & Deploy On-Premise EDGE Server Application (Continued)

- The application will be downloaded and installed to the On-Premise EDGE server automatically.
  - The bootstrap script will pull the application from the S3 bucket and issuers will run a script that will pull and install the application from the S3 bucket.
- Issuers can edit the properties file and set a flag to receive update automatically. By default this will be turned off except for application updates.

# Step 4: Confirm Installation

- The last step for issuers to complete is to confirm successful installation of the On-Premise EDGE server.
  - Issuers will use PuTTY to log onto their EDGE server to confirm versions.
- After installation is confirmed, issuers will be able to:
  - Perform security scans of the On-Premise EDGE server
  - Set up the administrator rights and user access to the server

# Operating the On-Premise EDGE Server

- Enrollment, medical and pharmacy claims, and supplement diagnosis code files will be directly uploaded to the local directory on the application server.
- File processing will automatically be initiated and will generate detail and summary reports for review.
  - The test zone only generates reports for issuers. The summary reports from the test zone are not sent to CMS.
  - The production zone generates reports for issuers and CMS. CMS will only be sent summary reports.

# Security and On-Premise EDGE Server

# On-Premise EDGE Server – Security Considerations

- Issuers will be responsible for the security of the data on their On-Premise EDGE server.
- Security Management
  - Issuers will be responsible for the complete suite of security support and controls, including: anti-virus checking, the controls around the actual platform, physical storage, and other sub-components such as the server, storage, database and data.
- Security will be controlled by the issuer at the directory level through the issuer's operating system.

# Issuer Data Security

- Issuers will need to determine if, and what, types of security software will be compatible with their physical or virtual EDGE server and install the appropriate security in accordance with their business practices.
- CMS will provide scripts to the issuers as part of the installation of the EDGE server application.
- Issuers have the option of applying the hardening scripts provided by CMS.
  - The scripts use NIST Moderate as a guideline.
  - These scripts have been tested with the EDGE server application.
- Issuers can add additional security configurations to meet their organization's security policies. However, issuer-specific configurations will not be tested by CMS.

# Cost and On-Premise EDGE Server Administration

# On-Premise EDGE Server – Cost Considerations

Issuers should consider the following when estimating costs for their On-Premise EDGE server.

- Hardware:
  - Obtaining physical server / Setting up virtual server
  - **NOTE:** CMS cannot provide any recommendations on hypervisor and virtual machine configurations (e.g. dedicated CPU, dedicated RAM, etc.)
- Software:
  - Red Hat Enterprise Linux version 6.4
- Staff Resources for:
  - Operations, security, maintenance, support
  - DBA Administration

# On-Premise EDGE Server Administration

## On-Premise EDGE Server Administration

- Issuers may elect to manage their server by using an in-house team of System Administrators or outsource the management of the server to a centrally located data center, while retaining full access and control to the data.
- Issuers should have resources versed in Red Hat Enterprise Linux Operating System and MySQL administration who will be responsible for the management of the MySQL database.
  - Resources will need to perform patching MySQL and resolving issues related to general database maintenance.

# On-Premise EDGE Server Administration (Continued)

- Issuers are responsible for firewall, NAT, and all other network configurations to support the On-Premise EDGE server.
  - If IP Tables are configured, the EDGE server application will require, at a minimum: ports 443 and 22.
  - Issuers may add additional firewall rules, NATs or network configurations.

# **On-Premise EDGE Server Support and Release Management**

# On-Premise EDGE Server and CMS Help Desk Support

- CMS will only be able to support the EDGE server application and issuers will be responsible for the On-Premise EDGE server infrastructure.
- CMS Help Desk will be the initial point of contact for application support.
- The CMS Help Desk may utilize a screen sharing support tool, such as GoToMeeting, for troubleshooting when necessary.
  - Issuers will no longer be required to have Jabber.

# Release Management

- CMS will provide scripts for updating the operating system, database and On-Premise EDGE server application.
  - Updates will be stored in CMS/AWS S3 bucket.
  - If updates are found, the available updates will be downloaded to the On-Premise EDGE server.
    - On-Premise EDGE server application updates will be automatic. Database and operating system updates will be manually applied by the issuer using scripts provided by CMS.

# Release Management (Continued)

- EDGE server updates are verified once downloaded to the On-Premise EDGE server.
- The application will not process files until the application, database and reference tables are updated to the current version.
- More information on Release Management guidelines will be provided in a future webinar session.

# File Processing, Backup and Disaster Recovery

# File Processing

- Data is processed by the On-Premise EDGE server application using scripts provided by CMS once the issuer uploads the inbound files to the physical/virtual directory.
- Issuers upload enrollment, claims and supplemental diagnosis files and the software then applies the verification edits outlined in the Interface Control Document and Business Rules.
- Issuer data will never leave the On-Premise network.
- Processing time is only limited by the size of the virtual/physical environment that is used by the issuer.

# File Processing Overview

- General file processing rules have not changed significantly.
  - XML files are still the method of data submission.
  - Enrollment files must be full files; pharmacy claim, medical claim and supplemental diagnosis files will be incremental.
  - An updated EDGE server Business Rules document has been published in the REGTAP library and includes updated definitions, clarifications and examples to address commonly asked questions.

# File Processing Changes

## IMPORTANT CHANGES:

- Enrollment, pharmacy claim, medical claim and supplemental diagnosis file submissions ***may only contain one issuer.***
  - Issuers may still submit multiple plans on a file.
- CMS has established an inbound file naming convention that must be used.
  - This will be defined and published in an updated version of the Interface Control Document.
- CMS only collects summarized/aggregated data.

# Backup and Disaster Recovery

- Issuers will be required to perform backup and disaster recovery processes on their EDGE servers.
- CMS will hold a future training on backup and recovery requirements.

# Responsibilities

# Issuer Responsibilities

- Setup/Configure physical or virtual cloud server running Red Hat Enterprise Linux version 6.4
- Request an EDGE server from CMS
- Perform server administration
  - Configuration of the operating system (user IDs, setting permission on file folders)
  - Infrastructure monitoring
  - Implement anti-virus, anti-intrusion and intrusion detection system, if appropriate according to individual company policy
  - The issuer is responsible for configuring user access logs

# Issuer Responsibilities (Continued)

- Issuer network team responsible for firewall, NAT and all other network configurations to support EDGE
- Backup of server, including database and file system
- Issuer will provide System Administrator and Database Administrator (DBA) services
- Issuers may need to obtain a security certificate from a 3<sup>rd</sup> party signing authority

# CMS Responsibilities

- Provide software that verifies and processes data on the On-Premise EDGE servers for reporting and carrying out RA and RI premium stabilization programs.
- Provides application and operating system update scripts using a pull methodology.
- Automated polling service to check if there are server updates.
- Server will pull updates and install the updates to the required packages.
- Provide job aids and technical guidance for issuers.
- Receives and reviews summary reports only.

# EDGE Server Implementation: Next Steps

# EDGE Server Operational Guidance

- Throughout the course of webinars, scheduled for the next several months, CMS will provide additional operational guidance.
- Issuers may refer to the Interface Control Document (ICD) and Business Rules posted in the REGTAP library for technical specifications on file processing and data file requirements.
- Announcements will continue to be communicated through the REGTAP portal.

# CMS Next Steps

- CMS will be providing additional details on both EDGE server options in upcoming webinars and user groups.
- Future webinar sessions will be held on Thursdays from 3:30 – 5:00 p.m. EST with user group sessions to follow on Tuesdays from 11:30 a.m. – 12:30 p.m. EST.

Webinar Topic	Scheduled Event Date
On-Premise EDGE server user group	Tuesday - July 1, 2014
Amazon EDGE server security	Thursday – July 17, 2014
Amazon EDGE server security user group	Tuesday – July 22, 2014

# Questions?

To submit questions by phone:

- dial '14' on your phone's keypad
- dial '13' to exit the phone queue

To submit questions by webinar:

- type your question in the text box under the 'QA' tab

# Resources

# Resources

Resource	Link/Contact Information
Center for Consumer Information and Insurance Oversight (CCIIO)	<a href="http://cms.gov/ccio/">http://cms.gov/ccio/</a>
Registration for Technical Assistance Portal (REGTAP) <ul style="list-style-type: none"><li>• Registration</li><li>• Inquiry Tracking and Management System (ITMS)</li><li>• Resource Library</li><li>• Frequently Asked Questions (FAQs)</li></ul>	<a href="https://www.REGTAP.info/">https://www.REGTAP.info/</a>

# Inquiry Tracking and Management System (ITMS)

ITMS is available at <http://www.REGTAP.info>

Users can submit questions after the Webinar by selecting “Submit an Inquiry” from My Dashboard.

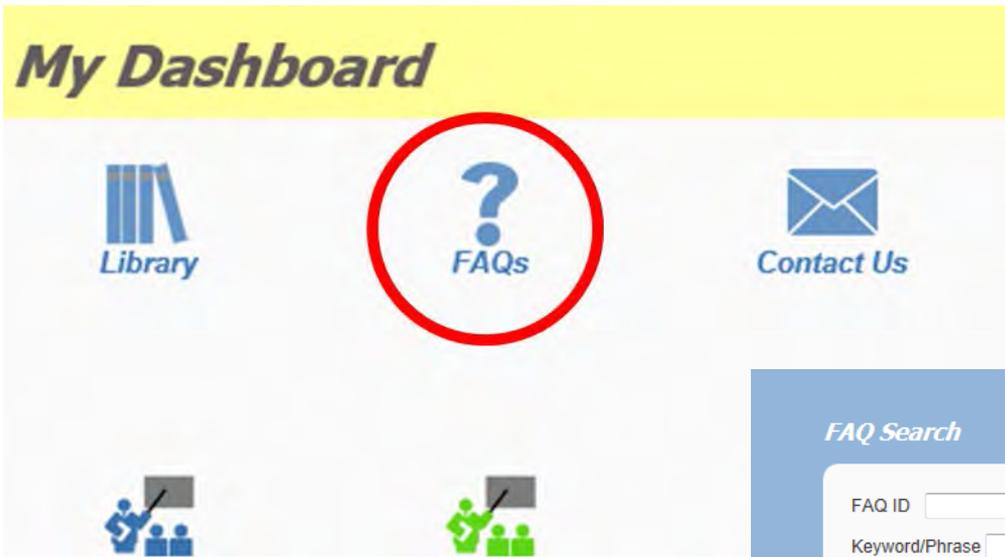
The screenshot displays the REGTAP My Dashboard interface. At the top, the REGTAP logo is visible, followed by navigation links: Registration, Technical Assistance Portal, My Dashboard, Training Events, Inquiry Tracking, Library, FAQs, Contact Us, About REGTAP, and Log Out. The user is logged in as saqib.talibi@ardx.net. The dashboard is divided into several sections:

- Announcements:** Contains three news items with dates, such as "FAQ and Timeline on QHP Application Extension and Data Correction Window (04/29/13)".
- My Events:** A section indicating the user is not currently registered for an event.
- My Dashboard Grid:** A collection of icons for various services: Library, FAQs, Contact Us, Suggestion Box, Update Password, Training Events, My Events, My Proxy Events, My Inquiries, and Submit an Inquiry. The "My Inquiries" and "Submit an Inquiry" icons are highlighted with a red box.
- Bottom Section:** Includes "Report Dashboard", "Registrar Reports", "Manage Events", "Upload Files", and "Manage Parent Organizations Organization Names".

At the bottom of the dashboard, there is a copyright notice: "Copyright© 2013 A. Reddix & Associates" and a "Contact Us" link. The CMS logo is also present in the bottom right corner.

**Note: Enter only one (1) question per submission.**

# FAQ Database on REGTAP



The FAQs Database allows users to search FAQs by FAQ ID, Keyword/Phrase, Program Area, Primary and Secondary categories, and Publish Date.

FAQs Database is available at <http://www.REGTAP.info>

# Closing Remarks