

Mirth Training Syllabus

Mirth Connect Training (Days 1-3)

1. Course Introduction
 - a. Trainer/Trainee Introductions
 - b. Course Overview
 - c. Course Materials
 - a. Classroom Network/Hardware
 - b. Agenda
 - c. About Mirth Corporation
2. Introduction to Mirth Connect
 - a. The History of Mirth Connect
 - b. The Healthcare Interoperability Problem
 - c. The Integration Solution
 - d. What is Mirth Connect?
 - i. Sample Use Cases
 - ii. Mirth Connect Components
 - A. Mirth Connect Server
 - B. Mirth Connect Server Manager
 - C. Mirth Connect Administrator
3. Introduction to Document Standards
 - a. HL7, version 2.x
 - i. LAB: Manually Parsing HL7 Messages
 - b. XML
 - c. HL7, version 3
 - d. X12/EDI
 - e. NCPDP
 - f. DICOM
 - g. Delimited Text
4. Getting Started with Mirth Connect
 - a. Installation
 - i. LAB: Install Mirth Connect in Windows environment
 - b. Starting the Mirth Connect Server
 - i. Mirth Connect Server Manager
 - ii. Windows Service
 - iii. Executable
 - iv. LAB: Stop/Start Mirth Connect Server
 - c. Starting the Mirth Connect Administrator
 - i. Java Web Start via Browser
 - ii. Mirth Connect Server Manager
 - iii. LAB: Start the Mirth Connect Administrator
5. Mirth Connect Fundamentals
 - a. Channels
 - i. Connectors
 - ii. Deploying Channels
 - iii. LAB: Creating and Deploying Channels
 - iv. Viewing Processed Messages
 - b. Message Viewing
 - i. Viewing, Filtering and Reprocessing Messages
 - c. Message Processing Flow and Transformations
 - i. Source Processing Flow
 - ii. Destination Processing Flow
 - iii. Message Transformation
 - d. Message Templates
 - i. Inbound Template
 - ii. Outbound Template
 - iii. Template Properties
 - iv. LAB: Defining Message Templates
 - e. Filters
 - i. Types of Filter Rules
 - ii. LAB: Create a Filter via Drag and Drop
 - f. Transformers
 - i. Types of Transformer Steps
 - ii. LAB: Create a Transformer via Drag and Drop
 - g. Connectors
 - i. File/FTP/SFTP Connectors
 - A. Walkthrough of connector settings
 - B. LAB: Create a channel with File connectors using FTP and network shares
 - ii. TCP, LLP Connectors
 - A. Walkthrough of connector settings
 - B. LAB: Create a channel with LLP and TCP connectors
 - iii. Database Connectors
 - A. Walkthrough of connector settings
 - B. LAB: Create a channel with a Database Reader
 - C. Installing database drivers
 - D. LAB: Install new database driver
 - iv. HTTP Connectors
 - A. Walkthrough of connector settings
 - B. LAB: Create a channel with an HTTP Listener
 - C. LAB: Pass an HL7 message between an HTTP Sender and HTTP Listener
 - v. SOAP (Web Service) Connectors
 - A. Walkthrough of connector settings

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- B. LAB: Create a channel with a SOAP Listener
- A. LAB: Create a channel with a SOAP Sender
- xvii. JMS Connectors
 - A. Walkthrough of connector settings
 - B. LAB: Create channels with JMS Reader and JMS Writer to interact with a JMS queue
- xviii. PDF/RTP Writer Connector
 - A. Walkthrough of connector settings
 - B. LAB: Create a channel that generates a PDF document from patient data
- xix. Email Sender Connector
 - A. Walkthrough of connector settings
 - B. LAB: Create a channel with an Email Sender
- xx. DICOM Connectors
 - A. Walkthrough of connector settings
- 6. Using JavaScript with Mirth
 - a. JavaScript Review
 - b. E4X/Using JavaScript in Mirth Connect
 - i. Using built-in code templates
 - ii. Using Java classes
 - iii. Regular Expressions
 - c. JavaScript Filters
 - i. LAB: Create Channel with Complex JavaScript Filter Steps
 - d. JavaScript Transformers
 - i. Accessing Mapper Variables
 - ii. LAB: Create Channel with JavaScript Transformers
 - e. JavaScript Connectors
 - i. Database Connectors
 - ii. LAB: Use JavaScript to Conditionally Update or Insert to a Database
 - iii. JavaScript Connectors
 - iv. LAB: Use JavaScript to Poll a Java Application
 - f. Global and Channel Scripts
 - i. Deploy Scripts
 - ii. LAB: Create a Global Deploy Script
 - iii. Shutdown Scripts
 - iv. Preprocessor Scripts
 - v. LAB: Create a Preprocessor Script
 - vi. Postprocessor Scripts
 - vii. LAB: Create a Custom ACK Response
- g. Code Templates
 - i. LAB: Create a Function Template
- 7. Advanced Message Routing
 - a. Common Routing Patterns
 - i. Broadcast Mode
 - ii. Router Mode
 - iii. Application Integration Mode
 - b. Internal Routing
 - i. Channel Reader/Writer Connectors
 - ii. VM Routing
 - iii. LAB: Use Internal Routing
 - c. Dynamic Configuration
 - i. LAB: Use Dynamic Configuration to Route Message
- 8. Other Advanced Topics
 - a. XSLT Transformations
 - i. LAB: Create channel that transforms XML document to HTML
 - b. Encoding/Decoding Data
 - i. LAB: Create two channels that use Base64 encoding/decoding
 - c. Attachments
 - i. LAB: Create channel that uses attachments
- 9. Mirth Connect Operations
 - a. Logs and Logging
 - i. LAB: Log a message
 - b. Connection Monitoring
 - c. Settings
 - i. LAB: Configure SMTP Host Settings
 - d. Alerts
 - i. LAB: Create an Alert
 - e. System Events
 - i. Demo: View the System Events log
 - f. User Management
 - i. LAB: Adding, Editing and Deleting a User
 - g. Import/Export
 - i. LAB: Export a Channel, Import a Channel
 - h. Maintenance and Deployment
 - i. Extension Manager
 - ii. Message Pruner
 - iii. LAB: Configure Message Pruner

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- iv. Server Configuration Backup
 - v. LAB: Create Server Configuration Backup
- 10. Mirth Connect Architecture
 - a. Mirth Connect Database
 - i. Configuring an External Database
 - ii. LAB: Configure Mirth Connect to Use PostgreSQL Database
 - iii. LAB: Connect to Mirth Connect Database
- 11. Shell Client
 - a. LAB: Launch Shell, Walkthrough Commands, List/Start/Stop Channels
 - a. Using Automated Scripts
 - b. LAB: Run shell with automated script
- 12. Java Client API
 - a. Demo: Interfacing with Mirth Connect Server using the Java Client API
- 13. Mirth Connect Training Wrap-Up
 - a. Open Questions & Answers

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Mirth Appliance Training (Day 4)

1. Course Introduction
 - a. Prerequisites & Assumptions
 - b. Agenda
2. Introduction to Mirth Appliances
 - a. Benefits
 - b. Available Models
3. Getting Started
 - a. Installation on Network
 - b. Demo: Install Physical Appliance
 - c. Accessing the Appliance Control Panel
 - i. Bonjour
 - ii. Find IP address
 - iii. Log in
 - d. LAB: Connect to Virtual Appliance
 - e. Appliance Control Panel Overview
 - f. Initial Setup/Configuration
 - i. Network/IP Settings
 - ii. Date & Time
 - iii. Mail Configuration
 - iv. Appliance Customization
 - g. Launching Mirth Connect
 - i. LAB: Send a test message through the control panel
4. Administration
 - a. User Management
 - i. LAB: Create new user
 - b. Folders
 - i. Default Folders
 - ii. LAB: Create new folder, Mirth Connect channel that uses that folder
 - iii. Network Folders
 - iv. LAB: Create network folder, update Mirth Connect channel to use folder
 - c. Backup/Restore
 - i. LAB: Create backup set; restore
 - ii. Auto Backup Service
 - iii. LAB: Configure Auto Backup Service
 - d. Updates
 - i. LAB: Download and install latest update
 - ii. Auto Update Service
 - iii. LAB: Configure Auto Update Service
 - e. Certificates
 - i. LAB: Create updated certificate
5. Services
 - a. Services Control
 - b. Directory Service
 - i. LAB: Configure directory replication
 - c. Clustering
 - i. LAB: Configure clustering, replicate failure situation
 - d. SFTP
 - i. LAB: Configure SFTP for use with Mirth Connect channel
 - e. SSL Tunnels
 - i. LAB: Create SSL tunnels for use with Mirth Connect channels
 - f. VPN
 - i. LAB: Create VPN connection for use with Mirth Connect channel
 - g. Database
 - i. LAB: Add database for use with Mirth Connect channel
 - h. Printing
 - i. Demo: Configure printing service with network printer; print from Mirth Connect channel
 - i. Console Service
 - i. LAB: Enable Console Service and connect with terminal client over SSH
6. Monitoring
 - a. SNMP
7. Applications
 - a. Control Panel
 - b. Mirth Connect
 - c. Future Applications
8. Help and SupportNet
9. Appliance Training Wrap-Up
 - a. General Appliance Q&A

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Certification (Day 5)

1. Certification Overview/Agenda/Review
2. Multiple Choice Exam
3. Practical (Hands-On) Exam
4. Mirth Developer Q&A availability after exam completion