IBM
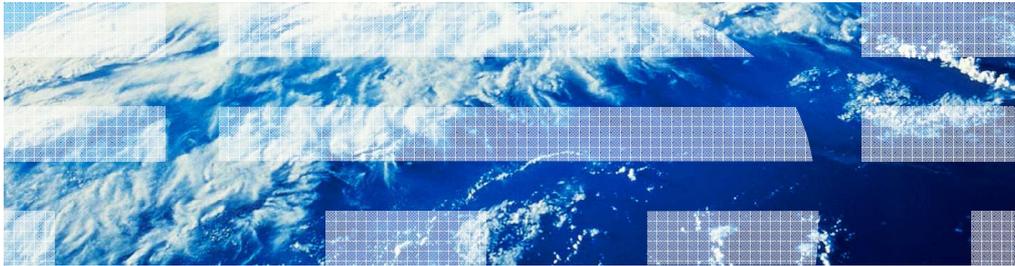
IBM Business Process Manager V7.5

IBM BPM Healthcare Pack V7.5

This presentation provides details about the Business Process Manager (BPM) Healthcare Pack V7.5

Goals and Agenda

- Goals
  - Introduction to BPM Healthcare pack V7.5
  - Introduction to different models within Healthcare pack

- Agenda
  - Healthcare pack standards
  - Healthcare pack assets
    - Capability models
    - Process models
    - Service models
    - Common components
    - Business vocabulary
    - Business objects models
  - Healthcare pack V7.5 features
  - Summary

The goal of this presentation is to provide an introduction to the BPM Healthcare Pack V7.5 and to understand the various assets provided with the pack.

Section

Healthcare pack standards

This section provides a list of standards that are supported by the BPM Healthcare Pack V7.5

Summary of Key Standards Leveraged

ASC X12

The Accredited Standards Committee (ASC) X12 chartered by the American National Standards Institute in 1979. It develops electronic data interchange (EDI) standards and related documents for national and global markets. With more than 315 X12 EDI standards and a growing collection of X12 XML schemas, ASC X12 enhances business processes, reduces costs and expands organizational reach

www.x12.org/
www.hipaa.org/

Business Vocabularies, Business Object Models, Common Components

Health Level Seven International (HL7) is the global authority on standards for interoperability of health information technology with members in over 55 countries. HL7's vision is to create the best and most widely used standards in healthcare

HL7 provides standards for interoperability that improve care delivery, optimize workflow, reduce ambiguity and enhance knowledge transfer among all of stakeholders, including healthcare providers, government agencies, vendor community, fellow SDOs and patients. In all of processes, we exhibit timeliness, scientific rigor and technical expertise without compromising transparency, accountability, practicality, or willingness to put the needs of stakeholders first

www.hl7.org/

Business Vocabularies, Business Object Models, Service Models

The key standards that are used by the BPM Healthcare Pack are the X12 electronic data exchange (EDI) standards and the Health Level Seven International (HL7) standards.

The BPM Healthcare pack includes pre-built healthcare-specific assets based on this industry standards and IBM best practices. It is not a replacement of Healthcare standards – it provides derivative works based on ASC X12 EDI (HIPAA) and HL7 standards.

Section

Healthcare pack assets

IBM BPM Healthcare Pack V7.5

This section provides details about different assets of BPM Healthcare Pack V7.5

IBM Business Process Manager Healthcare Pack V7.5

Healthcare "Solution Scenario"
for Benefits Eligibility

| Process Flows | Coach Flows | KPIs / Reports | Integration Services |

Pre-built scenario that combines the Healthcare assets into an end-to-end BPM solution

Healthcare Assets

Process Models	**Service Models**	**Business Object Models**
Process Flows to visualize human workflows & automate processes	*Service Interfaces & Schemas to facilitate creation & assembly of process implementations*	*Conceptual Data Models to provide a foundation for information management*
IBM BPM Process Designer	**IBM BPM Process Designer and Integration Designer**	**IBM Rational Software Architect**
Capability Models	**Business Vocabulary**	**Common Components**
Capability Maps & Process Maps to align business strategy with process execution	*Business Concepts, Terms & Relationships to ensure consistency*	*Common Services & Utilities to enable interoperability with the application ecosystem*
WebSphere Business Compass	**WebSphere Business Services Fabric**	**IBM BPM Integration Designer**

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The BPM Healthcare Pack provides the Benefits and Eligibility solution scenario to demonstrate the capabilities of assets in developing an end-to-end Business Process Management (BPM) solution based on a eligibility inquiry scenario that is considered common within the healthcare industry. The Healthcare provider can use Benefits Eligibility transactions to determine whether a payer or HMO has a subscriber or dependent on file and the status of the subscriber or dependent. It can also be used to check the current healthcare eligibility and the benefit information for the subscriber or dependent. The various artifacts that are used in the Benefits Eligibility Solution Scenario can be viewed by using the different tools that each of these artifacts use as mentioned in the boxes. Benefits Eligibility is used to view the data associated with the benefit and eligibility information of a patient and based on the patient name, date of birth, and so on, it determines the information that is supplied.

A demonstration is provided on how to run the Benefits Eligibility Solution Scenario. The next few slides discuss healthcare assets that different users can use based on their business requirements.

The Healthcare Capability Model consist of Capability Maps which represents the healthcare domain decomposition of business capabilities. Based on HL7's EHR standards and IBM Best Practices, the capability models help in managing healthcare claims, plans, providers and members. In the previous release of the BPM Healthcare Pack, processes and sub processes were part of process maps, which were mapped to capability maps. In this release, these processes and sub processes have been moved such that they form the next level of sub capabilities in an existing capability map. These assets are packaged as a Business Document Archive (.bda) files and can be easily viewed using WebSphere Business Compass. Before you can begin using the capability maps you need to identify the business area that corresponds to your requirement. This identification helps in aligning the business strategy with process execution.

The Healthcare Process Models are modeled as Business Process Definitions (BPDs) inside the IBM Process Designer. A BPD defines the process workflow for users, creating logic inside a process, and integrates with other applications and data sources. The process acts as a container for all the components of a process definition, which includes participant groups, lanes, services, activities, gateways, sequence lines, rules, and variables.

Each of the BPDs related to a specific focus area are packaged as part of the Toolkits. The Healthcare Process Models include the Member and Sponsor Management and Claims Management toolkits. The BPDs that are available as part of the Healthcare Pack serve as templates that can be used to start, or in some cases, accelerate the development of a Process Application. This provides you an ability to use the provided assets as a starting point and customize them as per their requirements.
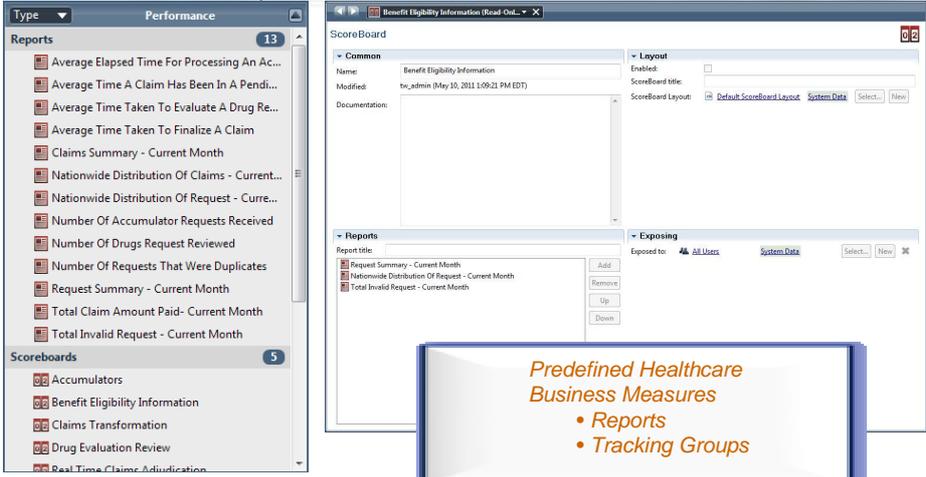
In the earlier release, the Process Models were provided as WebSphere Business Modeler artifacts.

The toolkits contain predefined Reports and Scoreboards for monitoring process related performance. Reports are used to analyze the process performance-related data as a graph or chart that easily depicts the data in an easy to understand format, as opposed to a tabular format of information. Scoreboards are an aggregation of reports that can be seen in the IBM Process Portal.

Assemble Integration Solution by using Healthcare *Service Models*

Developer

- **Based on** *HL7 Reference Information Model, ASC X12 EDI for HIPAA* **and** *IBM Best Practices*
- **Tooling with** *WebSphere Integration Developer*; **Packaged as** *SCA libraries*
- **E.g.** *Bill Inquiry, Eligibility Transaction History, Eligibility Report, Filter Eligibility Data, Retrieve Eligibility Request, Apply Benefits, Eligibility callback, Notify Member, Retrieve Provider Fees*

- *Service Interface & Schemas facilitate creation & assembly of process implementations*
- *Service definition includes input, output, operations, etc*

The Healthcare Service Models are pre-built service interfaces and schemas that facilitate interoperability across diverse platforms for a specific industry. You can use the service interfaces and the associated schemas to create and assemble process implementations that can later be used as endpoints for process flow executions.

The service interfaces are created based on Industry Best Practices and are packaged as SCA libraries which can be viewed in the IBM Integration Designer.

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Achieve component reuse using Healthcare *Common Components*

Developer

- Based on *HL7 Reference Information Model, ASC X12 EDI for HIPAA* and *IBM Best Practices*
- Tooling with *IBM Integration Designer*; Packaged as *SCA Modules*
- E.g. *Generate HIPAA 275, EDI Validation Result Transformation, EDI Unbundling, EDI Bundling, EDI Validation, EDI Error Extractor, Image Transformation, EDI Debulking*
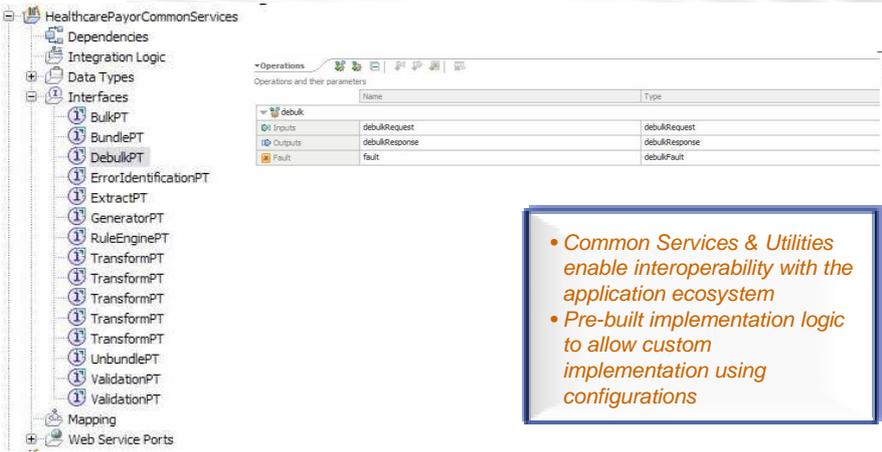
- *Common Services & Utilities enable interoperability with the application ecosystem*
- *Pre-built implementation logic to allow custom implementation using configurations*

The Healthcare Common Components includes a set of Healthcare-specific common service definitions and implementations. The common services help achieve component reuse and serve as accelerators for BPM solutions, where you can use the provided implementations or customize their configurations to suit your application needs. The Common Components are based on HL7 Reference Information Model, ASC X12 EDI standards for HIPAA, and IBM Best Practices.

In this release of the BPM Healthcare Pack, it has added support for HIPAA5010 standard implementation in the Bulking, De-bulking and Error Extractor Common Components. Also the Electronic Data Interchange (EDI) parser has been made available as a utility to be used while working with HIPAA EDI files. It contains the object model for EDI transactions that can be used to read or write an EDI file. The parser can be used in an application to parse an EDI Document and generate an in-memory EDI Object Model instance of claims and other healthcare transactions.

These assets are packaged as SCA Modules that can be imported within IBM Integration Designer and then deployed onto the IBM Process Server runtime. The entire list of Common Components packaged with the BPM Healthcare Pack is available in the Information Center for BPM Industry Packs.

The Healthcare Business Vocabulary is a taxonomy of business terms derived from various industry models and standards for the Healthcare industry. The Business Vocabulary provides the ability to interoperate between diverse systems in an enterprise through business services metadata such as roles, channels, assertions, and policies. The Business Vocabulary terms are based on the HL7 Reference Information Model (RIM) version 3, HL7 Vocabulary, ASC X12 EDI standards for HIPAA and the IBM Best Practices. These assets are packaged as Fabric Content Archives that can be imported and deployed within WebSphere Business Services Fabric administrative console.
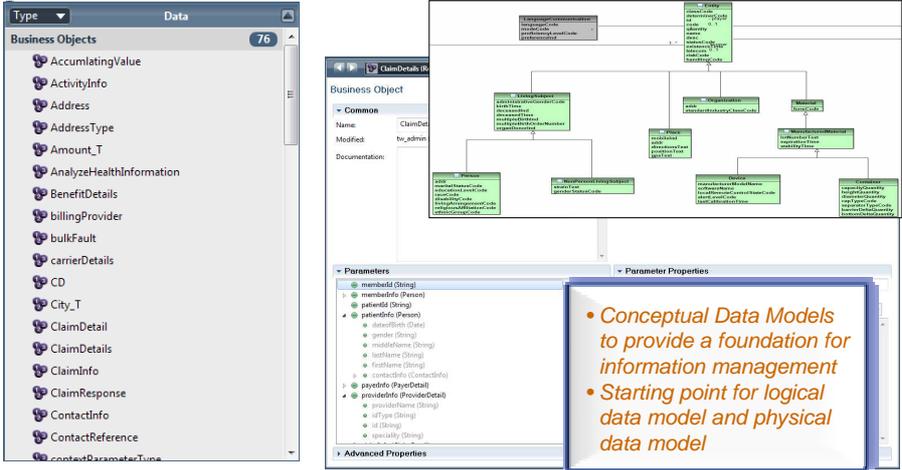
The Healthcare Business Object Models are conceptual data models that provide the foundation for information management. You can implement a logical data model (LDM) and physical data model (PDM) using the Business Object Models. These assets are based on the HL7 RIM (Reference Information Model) standards. The HL7 RIM specifies the grammar of HL7 messages, the basic building blocks of the language, and their permitted relationships.

The Healthcare Business Object Model is made available as a UML model that can be imported in a UML modeling tool such as Rational Software Architect.

Section

Healthcare pack V7.5 features

IBM BPM Healthcare Pack V7.5

This section provides details of new features in healthcare pack V7.5

Healthcare Pack Features V7.5

Feature	Healthcare Pack 7.0		Healthcare Pack 7.5	
Capability Models	✅		✅	Process Maps are mapped as sub capabilities level 3 onwards.
Process Models	✅		✅	New models for Process Designer
Service Models	✅		✅	
Business Object Models	✅		✅	
Common Components	✅		✅	Enhanced support for HIPAA 5010 and ICD-10.
Solution Scenarios *Benefit and Eligibility*	✅		✅	Updated for Express, Standard, and Advanced editions, including: • Process Flows • Coach Flows • Scorecards / KPIs • Integration Services
Dynamic Service Selection and Business Vocabulary	✅	Dynamic Assembler	⚠️	2 New options: • Integration Designer + Decision Service • Process Designer + Decision Service Fabric vocabulary only needed for Fabric-based Dynamic Service Selection

Key: ✅ Available ⚠️ Capability preserved but accomplished differently

IBM BPM Healthcare Pack V7.5

A comparison of the assets and the features provided in the previous release and the current V7.5 is shown in a tabular format.

Capability Model - Updates

Existing Capability Map

Final Capability Model

Existing Process Map
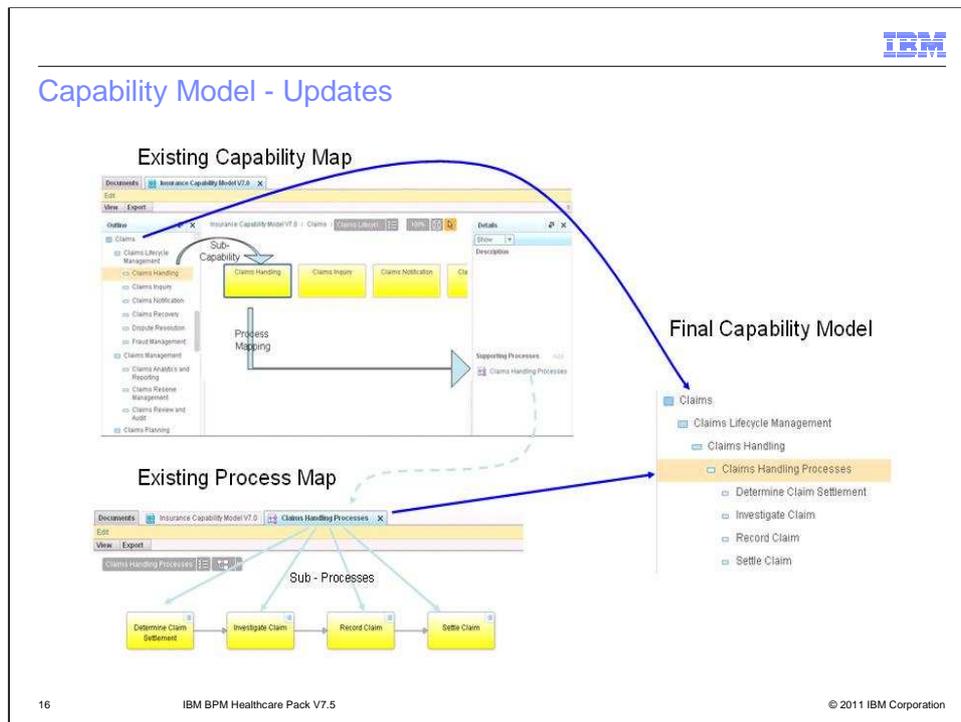
Sub - Processes

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In the previous release of the BPM Healthcare pack, processes and sub processes were part of process maps, which were mapped to capability maps. In this release, these processes and sub processes have been moved such that they form the next level of sub capabilities in an existing capability map. As shown here the Claims Handling Processes is now a sub-capability under Claims Handling.

Healthcare Pack Toolkits

Benefits Eligibility

instantiates

Claims Management

This toolkit contain Business Process Definitions (BPDs)

User Specific Solution

Member and Sponsor Management

Healthcare Common

This toolkit contains Variable Types, Participant groups, Integration Services, Common utilities (such as jar files, CSS, …)

Approach: There are separate toolkits per function/subject area. A common toolkit is available for all variable types, roles and so on

Toolkit | Process Apps | ------- Dependency

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The Healthcare Process Models are modeled as Business Process Definitions (BPDs) inside the IBM Process Designer. Each of the BPDs related to a specific focus area are packaged as part of the Toolkits. The Healthcare Process Models include the **Member and Sponsor Management** and **Claims Management** Toolkits. The Healthcare Common toolkit contains reusable assets like Variable Types, Participant Groups, Integration Services and common utilities like jar files, css and so on.

Customer can use these toolkits as dependent project or can create new process applications using assets defined in toolkits.
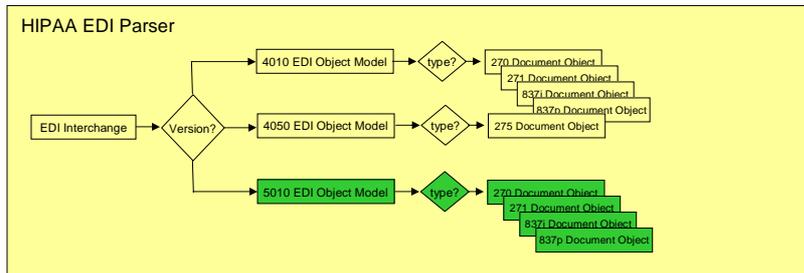
Electronic Data Interchange (EDI) Parser

```
ISA*00*          *00*          *22*HEALTHCARE1
GS*HC*DEVELOPMENT*PROFSERV*20070612*1041*42*X
ST*837*1323*005010X222~
BHT*0019*00*244579*20061015*1023*CH~
NM1*41*2*PREMIER BILLING SERVICE*****46*TGJ23~
PER*IC*JERRY JAMES*TE*3055552222*EX*231~
NM1*40*2*KEY INSURANCE COMPANY*****46*66783JJT
HL*1**20*1~
SV1*HC:87070*15*UN*1***1~
DTP*472*D8*20061003~
LX*3~
SV1*HC:99214*35*UN*1***2~
DTP*472*D8*20061010~
LX*4~
SV1*HC:86663*10*UN*1***2~
DTP*472*D8*20061010~
SE*43*1323~
```

The following table provides information about the supported HIPAA versions for each HIPAA documents.

Table 1. HIPAA document mapping to the HIPAA Version

HIPAA Document	HIPAA 4010 Version supported	HIPAA 5010 Version supported
270 - Health Care Eligibility Benefit Inquiry	004010X092A1	005010X279
271 - Health Care Eligibility Benefit Response	004010X092A1	005010X279
276 - Health Care Claim Status Request	004010X093A1	005010X212
277 - Health Care Claim Status Response	004010X093A1	005010X212
820 - Payroll Deducted and Other Group Premium Payment for Insurance Products	004010X061A1	005010X218
834 - Benefit and Enrollment Maintenance	004010X095A1	005010X220
835 - Health Care Claim Payment/Advice	004010X091A1	005010X221
837d - Health Care Claim: Dental	004010X097A1	005010X224A1
837i - Health Care Claim: Institutional	004010X096A1	005010X223A1
837p - Health Care Claim: Professional	004010X098A1	005010X222
997 - Functional Acknowledgment	4010	5010

HIPAA EDI Parser

EDI Interchange → Version? →
- 4010 EDI Object Model → type? → 270 Document Object / 271 Document Object / 837i Document Object / 837p Document Object
- 4050 EDI Object Model → type? → 275 Document Object
- 5010 EDI Object Model → type? → 270 Document Object / 271 Document Object / 837i Document Object / 837p Document Object
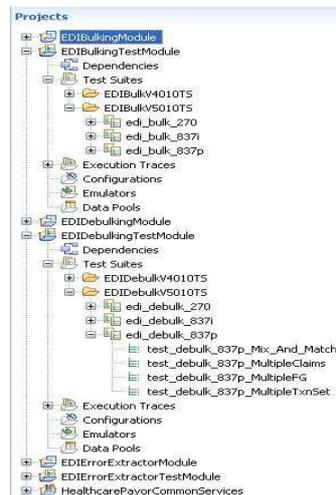
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In this release the Electronic Data Interchange (EDI) parser has been made available as a utility which can be used for working with HIPAA EDI files. It contains the object model for EDI transactions that can be used to read or write an EDI file. The parser can be used in an application to parse an EDI Document and generate an in-memory EDI Object Model instance of claims and other healthcare transactions.

The table shown here provides information about the supported HIPAA versions for each HIPAA documents/transactions.

HIPAA5010 Implementation Support for Existing EDI based Common Components

- EDI Bulking
  - This service provides the necessary interface and implementation for bulking the multiple HIPAA EDI transaction sets into one EDI file.

- EDI Debulking
  - This service provides the necessary interface and implementation for debulking the HIPAA EDI transaction sets to multiple EDI files.

- EDI Error Extractor
  - This service provides the necessary interface and implementation for removal of the erroneous requests from the original request.

In this release of the BPM Healthcare Pack, it has added support for HIPAA5010 standard implementation in the existing EDI based common components like Bulking, De-bulking and Error Extractor.

ICD 9/10 Conversion Common Components

- ICD stands for International Classification of Diseases
- What is this feature?
  - ICD Report Generator Common Service added for extracting ICD and EDI Transaction related information from the incoming EDI Message
  - ICD Code Updation Common Service added for the updation of ICD 9 or ICD 10 Codes within the EDI transaction based on the Analysis Result
- Why have this enhancement?
  - These services will participate as part of integration or crosswalk solution. The EDI document is intercepted and updated with appropriate version of ICD code supported by backend systems.
- Customer Scenario
  - ICD Common Services can be used as part of a solution that is targeted to solve the ICD code version compliance problem which is common in US healthcare market currently before all healthcare proxies and transactions are mandated to use ICD version 10.

International Statistical Classification of Diseases and Related Health Problems (ICD) is an international coding system that is used to record medical diagnoses and hospital inpatient procedures.

To help industry users with this transition from ICD-9 to ICD-10, several vendors are providing custom solutions. These two ICD common services can participate in development of such solutions keeping the effort of working with EDI file separate from the actual augmentation of the code.

Section

Summary and References

IBM BPM Healthcare Pack V7.5

This section provides summary about different assets and new features of BPM Healthcare Pack V7.5

Goals and Agenda

- Summary
  - Learned about different industry standards that are supported by BPM Healthcare pack
  - Provided details of healthcare-specific assets
    - Capability models
    - Process models
    - Service models
    - Common components
    - Business vocabulary
    - Business objects models
  - Learned about new features and enhancements in V7.5

- References
  - Industry Packs information center V7.5
    - http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r5mx/index.jsp?topic=/com.ibm.ws.wicp.icmaster.doc/ic-homepage.html

IBM BPM Healthcare Pack V7.5

In summary, you have learned about different standards and assets that are supported by BPM Healthcare Pack V7.5. You have also learned about new features in Healthcare pack V7.5

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