



IBM Software Group

# Migrating to IBM<sup>®</sup> Integration Bus v90

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23 July 2013



WebSphere<sup>®</sup> Support Technical Exchange

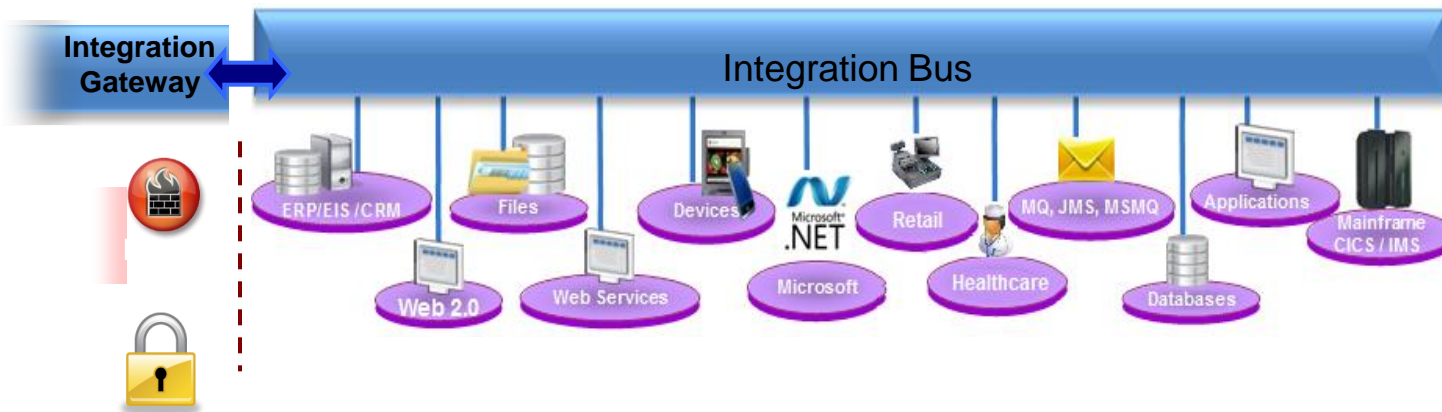


## Agenda

- Introduction to IBM® Integration Bus
- IBM® Integration Bus Themes
- Component Name Changes
- Changes in Behaviour
- Migration Paths
- Migration Scenarios
- Post Migration Tasks

# IBM® Integration Bus - Introduction

- IBM's Strategic Integration Technology
  - ▶ Single engineered product for .NET, Java™ and fully heterogeneous integration scenarios
  - ▶ DataPower continues to evolve as IBM's integration gateway



- A Natural Evolution for WebSphere Message Broker users
  - ▶ Significant innovation and evolution of WMB technology base
  - ▶ New features for Policy-based WLM, BPM integration, Business rules and .NET
- Designed to incorporate WebSphere Enterprise Service Bus use cases
  - Capabilities of WESB are folded in to IBM Integration Bus over time
  - Conversion tools for initial use cases built in to IIB from day one
  - WESB technology remains in market, supported. Migrate to Integration Bus when ready

# IBM® Integration Bus Themes

- Simple & Productive
  - ▶ Making it easier and quicker to develop and manage integration solutions
  - ▶ Learn, Develop, Deploy, Manage, Migrate quickly and easily
- Universal & Independent
  - ▶ Connecting to a range of different systems
  - ▶ Universal connectivity includes standards, de facto standards, industry and custom systems
- Industry Specific & Relevant
  - ▶ Provide industry relevant connectivity packs to solve domain specific problems
  - ▶ Industry specific nodes, solution-oriented patterns & user-oriented tooling
- Dynamic & Intelligent
  - ▶ Allow the creation of dynamic solutions that provide business insight
  - ▶ Flexible configuration tools, analysis of data and intelligence
- High Performing & Scalable
  - ▶ Provide a platform and technology neutral connectivity option
  - ▶ Work on the widest possible range of hardware, software and virtualized environment



# IBM Integration Bus – Name Changes

| WebSphere Message Broker   | IBM Integration Bus   |
|--|---|
| WebSphere Message Broker Toolkit   | IBM Integration Toolkit   |
| WebSphere Message Broker Explorer  | IBM Integration Explorer  |
| WebSphere Message Broker Administration for WebSphere Application Server | IBM Integration Administration for WebSphere Application Server |
| WebSphere Message Broker web user interface                              | IBM Integration web user interface                              |
| Broker   | Integration node<br>Integration broker (shortened to broker)    |
| Execution group  | Integration server  |
| Service  | Integration service   |
| Broker Component   | Integration Bus component                                       |

| WebSphere Message Broker                   | IBM Integration Bus                  |
|--|--------------------------------------|
| Message Broker API                         | Integration API                      |
| Message Broker Java API                    | Integration Java™ API                |
| MB8BROKER (default broker name)            | IB9NODE (default broker name)        |
| MB8QMGR (default queue manager name)       | IB9QMGR (default queue manager name) |
| Broker Application Development perspective | Integration Development perspective  |
| Broker Development view                    | Application Development view         |
| Brokers view                               | Integration Nodes view               |
| Message Broker project                     | Integration project                  |



# Behavioral Changes in IIB V90

- ▶ Web user interface
  - Not enabled
  - `mqsichangeproperties IB9NODE -b webadmin -o server -n enabled -v true`
- ▶ Action on z/OS
  - Integration Registry – enable for new installations of IIB v90
  - Value set to MAXMMAPAREA
  - Used for housing Workload Management policies and MQ service definitions
- ▶ Subflows and bar files
  - Default option to compile message flow and ESQL as source
  - Compatibility option compile in .cmf file
- ▶ Message flow projects are replaced by Integration projects in IIB v90
  - Convert to Applications or Libraries
  - Application = main message flow
  - Libraries = reusable routines and resources (subflows, ESQI modules)

# Behavioral Changes in IIB V90 (contd.)

- ▶ Message models
  - Schema are now the preferred method to model messages for data formats
    - DFDL and XML schema in Libraries
    - Applications and Integration services reference the Libraries
  - Message sets will continue to be supported going forward
    - Can be viewed, modified and deployed
  - Some message set menu items have been hidden
    - Enable via IBM Integration Toolkit -> Preferences
- ▶ Message maps
  - V61 and V70 msgmaps can be viewed, compiled and deployed but they are “Read-only”
  - To modify `.(msgmap)` convert `(.msgmap)` to `.map` file

## Database nodes



# So you want to migrate ....

## Yea...

WebSphere® Message Broker Version 61 (FP3 or later)

WebSphere® Message Broker with Rules and Formatter Extension Version 61

WebSphere® Message Broker Version 70

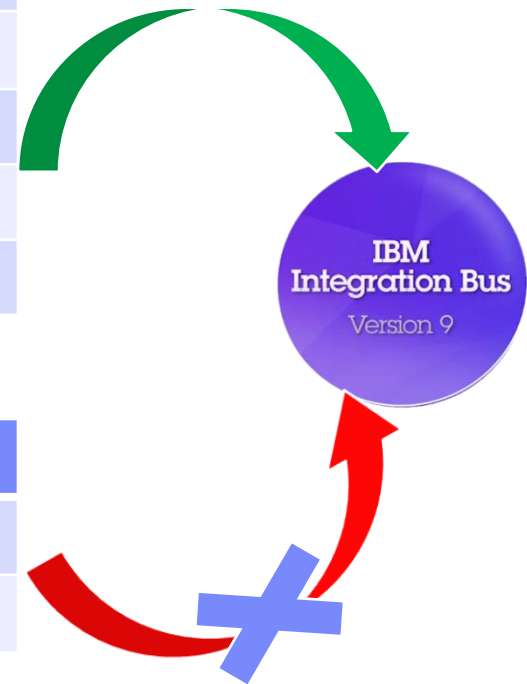
WebSphere® Message Broker with Rules and Formatter Extension Version 70

WebSphere® Message Broker Version 80

## Nay...

WebSphere® Message Broker Version Windows-x86 Windows on x86-64 product

WebSphere® Message Broker Version Linux-x86 to the Linux on x86-64 product





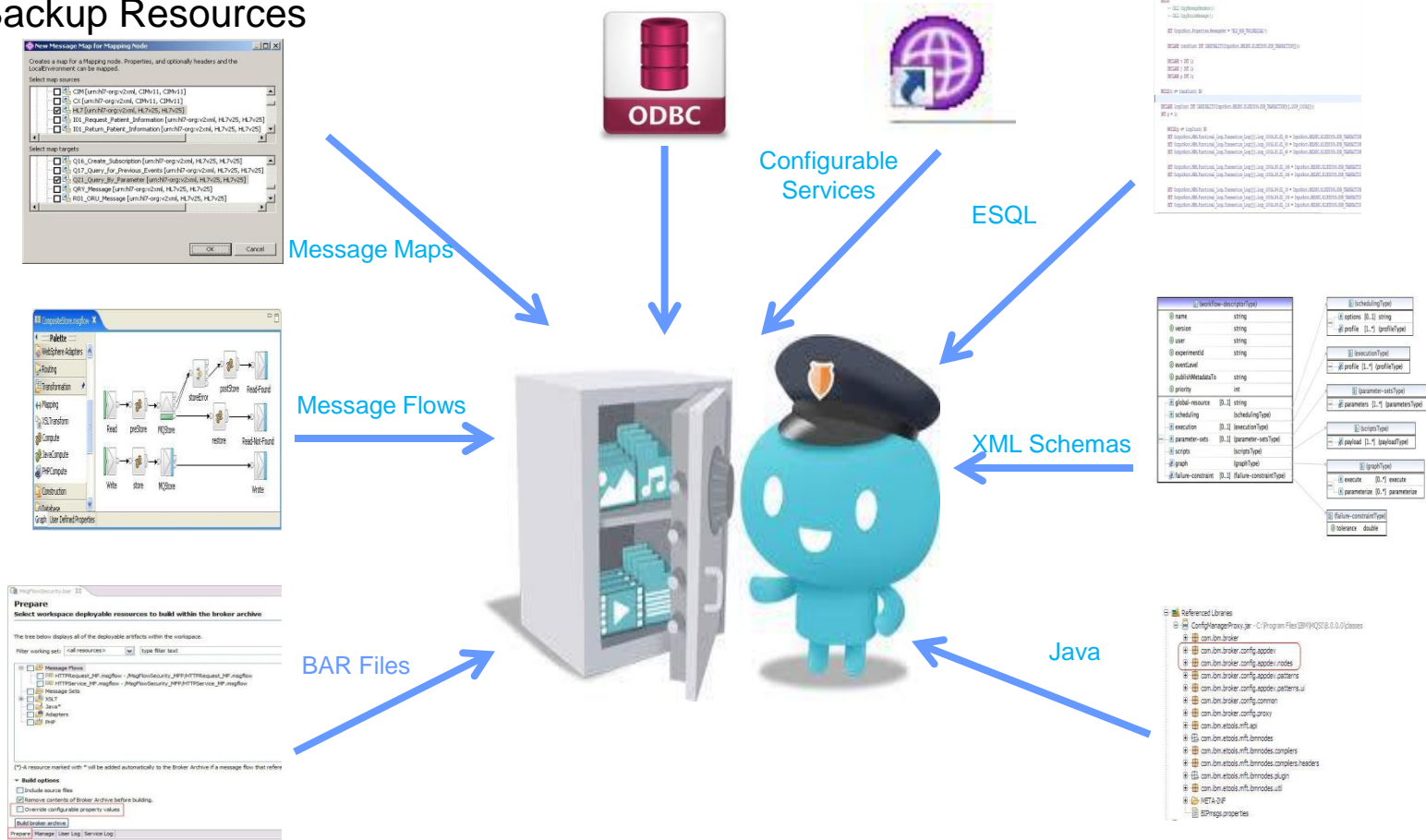
# WMB v80/v70 -> IIB v90

- Broker Component
  - ▶ Backup resources
  - ▶ Migrate WMQ to WMQ 7.5.1
  - ▶ Toolkit Development Resources
  - ▶ Inplace / parallel Broker migration
  - ▶ MSCS Brokers
  - ▶ Multi Instance Brokers
  
- Toolkit Component
  - ▶ Message Flow Migration
  - ▶ Resource Import from earlier versions



# WMB v80/v70 -> IIB v90 (contd.)

## Backup Resources



# WMB v80/v70 -> IIB v90 (contd.)

- Migrate WMQ to WMQ v7.5.1

- ▶ WMQ Migration & Installation Resources

- <http://www.ibm.com/support/docview.wss?uid=swg21611153&acss=dakc>

- ▶ Migrating from WMQ 7.0.1 to WMQ 7.5

- [http://pic.dhe.ibm.com/infocenter/wmqv7/v7r5/topic/com.ibm.mq.doc/mi77510\\_.htm](http://pic.dhe.ibm.com/infocenter/wmqv7/v7r5/topic/com.ibm.mq.doc/mi77510_.htm)



## WMB v80/v70 -> IIB v90 (contd.)

- Toolkit resources
  - ▶ No toolkit migration. IIB v90 Toolkit can coexist with earlier versions of WMB Toolkit
  - ▶ Message Flow projects from v61 and v70 converted to Integration Projects
  - ▶ Message Flow projects must be migrated to Integration Projects
  
- Importing resources
  - ▶ Resources from earlier versions can be imported as PIF files
  - ▶ Message Flows, Java Projects, messageset projects can be imported via toolkit by migrating your workspace
  - ▶ No more message flow projects. Message Flow projects can be imported as Integration projects
  - ▶ Migrated flows with some artifacts (WSDLs, SCA definitions) might generate errors on import. Quick fixes options available in IIB Toolkit



## WMB v80/v70 -> IIB v90 (contd.)

- Dos and Don'ts after importing toolkit resources
  - ▶ Can not share development resources with earlier versions of WMB toolkit
  - ▶ Mixed development environments (IIB and earlier versions), use WMB toolkit for resource development
  - ▶ Can not deploy resources from IIB Toolkit v90 to earlier versions
  - ▶ Quick fixes available for UDN metadata creation, plug-in identifier correction
  - ▶ Deployable JAR files for UDN can not be migrated
  - ▶ Workspace migration – Open IIB Toolkit and select workspace directory of earlier versions and reset perspective once toolkit opens



# WMB v80/v70 -> IIB v90 (contd.)

- In-place migration (Distributed Systems)
  - ▶ Includes migration of configuration data including broker databases, queues and registry
  - ▶ Forwards and backwards migration of existing components, in situ
    - **mqsimigratecomponents** command  
(includes **-t** option for rollback to V7 and V8)
- Steps for in-place migration
  - ▶ Install IIB v90 (on the same system as the WMB v80) in a new location
  - ▶ Remove broker from broker domain in the toolkit
  - ▶ Stop all channels connected to WMB v80 broker
  - ▶ Stop the broker
  - ▶ Update ODBC definitions
  - ▶ Setup V90 Command environment
  - ▶ Run mqsimigratecomponents command  
*mqsimigratecomponents <BrokerName>*
  - ▶ Copy any custom settings from your previous command environment
  - ▶ Start IIB v90 broker

# WMB v80/v70 -> IIB v90 (contd.)

- In-place migration (z/OS)
  - ▶ Install IIB v90 (on the same system as the WMB v80) in a new location
  - ▶ Remove broker from broker domain in the toolkit
  - ▶ Stop all channels connected to WMB v80 broker
  - ▶ Stop the broker
  - ▶ Complete steps documented in the IC topic  
[http://pic.dhe.ibm.com/infocenter/wmbhelp/v9r0m0/topic/com.ibm.etools.mft.doc/ae22400\\_.htm](http://pic.dhe.ibm.com/infocenter/wmbhelp/v9r0m0/topic/com.ibm.etools.mft.doc/ae22400_.htm)  
to create a new PDSE with customized V90 JCL scripts
  - ▶ Customize and submit BIPMGCMP (mqsimigratecomponents) job
  - ▶ Complete the steps in the above IC topic to replace the Version 80 Started Task JCL that is in the procedures library with the Version 90 Started Task JCL.
  - ▶ Start the Version 90 integration node

# WMB v80/v70 -> IIB v90 (contd.)

- In-place migration (Multi-instance broker)
  - ▶ Install IIB v90 on each node to a new location
  - ▶ Stop all channels connected to WMB v80 broker
  - ▶ Stop the broker on the stand-by node
  - ▶ Stop the broker on the active node
  - ▶ From a V90 command console, issue  
*mqsigratecomponents <BrokerName>*
  - ▶ Copy custom environment settings from previous command console
  - ▶ From the command console on active node, issue  
*mqsistart <BrokerName>*
  - ▶ From the command console on passive node, issue  
*mqsistart <BrokerName>*





# WMB v80/v70 -> IIB v90 (contd.)

- In-place migration (MSCS)

- ▶ Install IIB v90 on each node to a new location
- ▶ Stop all channels connected to WMB v80 broker
- ▶ In MSCS, bring broker resources offline, keeping cluster disk and MQ resources on primary node
- ▶ From a V90 command console, issue  
*mqsigratecomponents <BrokerName>*
- ▶ With the broker resources offline, move the broker cluster group to the secondary node
- ▶ From a V90 command console, issue  
*mqsigratecomponents <BrokerName> -1*
- ▶ Copy any custom settings from the previous command console
- ▶ Start the integration node cluster group on the primary node

## WMB v80/v70 -> IIB v90 (contd.)

- Parallel migration – Migrating application logic to a different V90 broker on the same computer or a different computer
  - ▶ Install IIB v90 on the same computer (to a different location) or a different computer
  - ▶ Optionally update ODBC Definitions
  - ▶ Setup V90 command environment
  - ▶ Create a V90 broker with a different broker name and QMGR name from that of V80
  - ▶ Start V90 broker
  - ▶ Make a list of Egs from V80 broker and create the same EGs on V90 broker
  - ▶ Deploy Message Flows and Message sets that are in use on v80 broker to V90 broker
  - ▶ Configure any properties that are configured for V80 broker on V90 broker as well
  - ▶ Start V90 broker

## WMB v61 -> IIB v90

- ▶ IIB v90 Architecture changes
  - No database
  - No Configuration Manager
  - Topic-based publish/subscribe operations are handled by WebSphere MQ
- ▶ Backup broker components
- ▶ Install WMQ v7.5.1
- ▶ Migrate WMB Toolkit development resources to II Toolkit v90
- ▶ Perform in-place migration to new WMQ and IIB v90
- ▶ Start the broker using “mqsisstart” command
- ▶ Perform Post migration task



# WMB v61 -> IIB v90 – Broker Component



- Migrating a v61 broker to v90 – Tasks to do before migration
  - ▶ Backup Message Broker Resources
  - ▶ ODBC files for User DB connections, Configurable Services, Broker toolkit resources (.msgflow, .mxsd, .java, .php, .esql, .mmap, .bar)
  - ▶ Update ODBC Definitions (Linux<sup>®</sup>/Unix<sup>®</sup> platforms)
    - Copy the odbc.ini and odbcinst.ini from <InstallDir>/ODBC/unixODBC to a location of your choice
    - Ensure that odbc.ini and odbcinst.ini are owned by mqm::mqbrkrs
    - Set your ODBCINI environment variable point to the odbc.ini file using absolute path
    - Set ODBCYSINI environment variable point to odbcinst.ini using absolute path
    - Please refer to IC topic for complete details:  
<http://pic.dhe.ibm.com/infocenter/wmbhelp/v9r0m0/topic/com.ibm.etools.mft.doc/bh23390.htm>

# WMB v61 -> IIB v90 – Broker Component

- Migrating ACLs (v61 only)
  - ▶ Admin security is disabled by default in v90
  - ▶ Since ConfigMgr component is removed, associated commands *mqsicreateconfigmgr*, *mqsichangeconfigmgr*, *mqsdeleteconfigmgr*, *mqsireportconfigmgr*, *mqsicreateaclentry*, *mqsdeleteaclentry* and *mqsilstaclentry* are removed
  - ▶ Refer to the instructions in the IC Topic:  
<http://pic.dhe.ibm.com/infocenter/wmbhelp/v9r0m0/topic/com.ibm.etools.mft.doc/bp43550.htm>



# Restrictions - Co-existence of V9 resources

- ▶ IBM Integration API
  - All programs can interactive with migrated or created v61 v70 and v80 brokers
  - Programs that start, stop, delete and monitor deployed resources
  
- ▶ Bar files
  - Earlier versions created in WMB Toolkit from IIB Toolkit V90
  - Can be deployed without changes
  
- ▶ IBM Integration Toolkit v90 complied resources
  - Can “not” be deployed - previous versions 
  
- ▶ IBM Integration Toolkit v90 workspace or source projects
  - Can “not” be shared – previous versions of WMB Toolkit 



## Co-existence with Toolkit

- ▶ IBM Integration Toolkit
  - Works only for migrated or brokers created in v90
  - Connection attempt fails if you try to connect - earlier version brokers
  
- ▶ IBM Integration Explorer
  - Can connect to v70, v80 and v90 brokers
  
- ▶ SupportPac IS02
  - IBM Integration Explorer Plug-in can “not” co-exist in IIB v90
  - Uninstall required before install of IIB Explorer v90
  - Delete - BrokerExplorer.link file or
  - Move directory **<WMQ Install Path>\eclipseSDK33\eclipse\links**

# Migration of WMB Explorer -> IIB Explorer v90

- ▶ Uninstall options
  - Graphical installation wizard
  - console mode
  - silent mode
- ▶ Authorization needed
  - On AIX<sup>®</sup> systems, you must log in as root.
  - On Linux and other UNIX systems - user ID “must” have root authority .
  - On all Windows – member of Administrators group.
  - On z/OS<sup>®</sup> systems, your user ID
    - no more than eight characters
    - suitable privileges to install with SMP/E.
    - valid OMVS segment for SMP/E APPLY processing
- ▶ Check that no files exist in the previous installation directory



# Migration of WMB Explorer -> IIB Explorer (contd.)

- ▶ Install IBM Integration Explorer v90
- ▶ Post Install
  - To initialize II Explorer V90
  - From command console run “strmqcfg -i
  - Start II Explorer V90
    - Use the II Explorer shortcut
    - From command console run “strmqcfg -c -d
  - Is new installation of II Explorer v90 needed
    - Move or delete .metadata directory
- ▶ You can now use II Explorer v90
  - Start → All Programs → IIB V9000 → II Explorer
  - From command shell run “strmqcfg”
- ▶ Note: One version of WMB Explorer or IBM Integration Explorer can be active. Only one version of WMQ Explorer can be installed.

# Migrating Deployable Resources

- ▶ IBM Integration v90 uses Integration projects not message flow projects
- ▶ Migrate message flow projects to Integration projects
  - Import Project Interchange
  - Migrate Workspace
- ▶ Reference: Importing resources into IBM Integration Bus Version 90 by using a project interchange file  
[http://pic.dhe.ibm.com/infocenter/wmbhelp/v9r0m0/topic/com.ibm.etools.mft.doc/bc23545\\_.htm](http://pic.dhe.ibm.com/infocenter/wmbhelp/v9r0m0/topic/com.ibm.etools.mft.doc/bc23545_.htm)
- ▶ Converting Integration projects to Applications or Libraries  
[http://pic.dhe.ibm.com/infocenter/wmbhelp/v9r0m0/topic/com.ibm.etools.mft.doc/bc23535\\_.htm](http://pic.dhe.ibm.com/infocenter/wmbhelp/v9r0m0/topic/com.ibm.etools.mft.doc/bc23535_.htm)



# Post Migration – Deployable Resource

- Post Migration Tasks – Things you need to consider
  - ▶ Migrate ESQL files
    - Character set encoding used by IIB v90 - UTF-8
    - For imports file encoding of the
      - workspace and host operating system must match
  - ▶ File nodes used in different EG's using an NFS server accessing the same directory in IIB v90 needs to use NFS version 4 to correctly support file locking
  - ▶ JMS nodes used in IIB v90 valid **Transaction mode** is **Yes** and **No**
  - ▶ JMS nodes Transaction mode values were **Local**, **Global** and **None**
  - ▶ JMS nodes “Transaction mode = None” migrated to **No**
  - ▶ JMS nodes “Transaction mode = Local or Global” warning message prompts you to change the value to **Yes**
  - ▶ JMS nodes that require XA coordinated transactions must select message flow **Coordinated Transaction** property

## Post Migration – SOAP & HTTP Flows

- Existing SOAPInput – SOAPReply flows that implement webservices, to make WSDL and XML schemas available, set Enable support for WSDL on SOAPInput node and redeploy the flow
- If you are using HTTPInput/HTTPReply nodes for WSDL queries, use SOAPInput /SOAPReply and send the WSDL request to the endpoint property on SOAPInput Node
- If both HTTP and SOAP flows are using the same listener, because of the clash of the URLs, a warning message is logged

## Post Migration – API changes

- Migrating from V61, you can not use ConfigManagerProxy.jar from this version instead use the one from V90. No method changes are necessary. The new version includes all deprecated classes and methods
- ConfigManagerProxy.jar from V70 and V80 is compatible with V90
- Can use ConfigManagerProxy.jar from V70 or V80 to connect to a V90 broker
- Applications must be recompiled if you use v90 jar file with V70 or V80 versions
- Any applications that use the API to connect to the broker, update the connection details

# Post Migration – Error Handling

- Update your message processing to handle new or reused messages, and to delete obsolete messages.
- V90 components generate BIP messages no longer use some BIP messages from previous versions
- If you have applications that check for specific messages, make sure you update them
- Refer to the following IC topic for more details on what messages changed  
<http://pic.dhe.ibm.com/infocenter/wmbhelp/v9r0m0/topic/com.ibm.etools.mft.doc/ah61170 .htm>

- V90 Messages

|                                |                     |
|--------------------------------|---------------------|
| Configuration 1000 – 1999      | Broker 2000 – 2999  |
| Built-in nodes 3000 – 4999     | Parsers 5000 - 5999 |
| WMQ Parsers 6000 – 6999        | Pub-Sub 7000 - 7999 |
| Commands 8000 – 8999           | z/OS 9000 – 9999    |
| Activity Logging 11000 - 12999 |                     |

# Recap

- Introduction to IIB v90
- IBM® Integration Bus Themes
- Supported Migration Paths
- Behavioral Changes in IIB V90
- In-Place Migration / Parallel Migration
- Migration Do's & Don'ts
- Post Migration
  - ▶ Migrating from WMB v80, WMB V70, WMB v61
  - ▶ Migrating the Broker Explorer to IIB Explorer v90
  - ▶ Deployable Resource Migration
  - ▶ JMS Nodes
  - ▶ File Nodes, WSDL Queries
  - ▶ API changes, Error Processing



# Additional WebSphere Product Resources

- Learn about upcoming WebSphere Support Technical Exchange webcasts, and access previously recorded presentations at:  
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- Access key product show-me demos and tutorials by visiting IBM Education Assistant:  
<http://www.ibm.com/software/info/education/assistant>
- View a webcast replay with step-by-step instructions for using the Service Request (SR) tool for submitting problems electronically:  
<http://www.ibm.com/software/websphere/support/d2w.html>
- Sign up to receive weekly technical My Notifications emails:  
<http://www.ibm.com/software/support/einfo.html>



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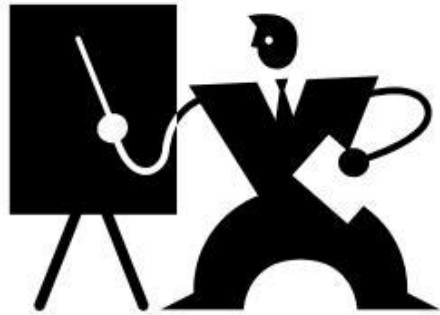
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Questions?

