Migrating to IBM® Integration Bus v90

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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

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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, ESQL 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
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
  - Message Flows
  - Message Maps
  - BAR Files
  - Configurable Services
  - ESQL
  - XML Schemas
  - Java
WMB v80/v70 -> IIB v90 (contd.)

- Migrate WMQ to WMQ v7.5.1
  - WMQ Migration & Installation Resources

- Migrating from WMQ 7.0.1 to WMQ 7.5
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
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
    to create a new PDSE with customized V90 JCL scripts
  - Customize and submit BIPMGCMMP (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
    \[\text{mqsimigratecomponents} \ <\text{BrokerName}>\]
  - Copy custom environment settings from previous command console
  - From the command console on active node, issue
    \[\text{mqsisstart} \ <\text{BrokerName}>\]
  - From the command console on passive node, issue
    \[\text{mqsisstart} \ <\text{BrokerName}>\]
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
    
    `mqsimigratecomponents <BrokerName>`
  - With the broker resources offline, move the broker cluster group to the secondary node
  - From a V90 command console, issue
    
    `mqsimigratecomponents <BrokerName> -1`
  - Copy any custom settings from the previous command console
  - Start the integration node cluster group on the primary node
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 “mqsistart” 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®/Unix® 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 `ODBCSYSINI` environment variable point to odbcinst.ini using absolute path
    - Please refer to IC topic for complete details:
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`, `mqschangeconfigmgr`, `mqsideleteconfigmgr`, `mqssreportconfigmgr`, `mqsicreateaclentry`, `mqsideleteaclentry` 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](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 interact 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® 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® 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

- Converting Integration projects to Applications or Libraries
  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

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Recap

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- 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


- Join the Global WebSphere Community: [http://www.websphereusergroup.org](http://www.websphereusergroup.org)

- Access key product show-me demos and tutorials by visiting IBM Education Assistant: [http://www.ibm.com/software/info/education/assistant](http://www.ibm.com/software/info/education/assistant)


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