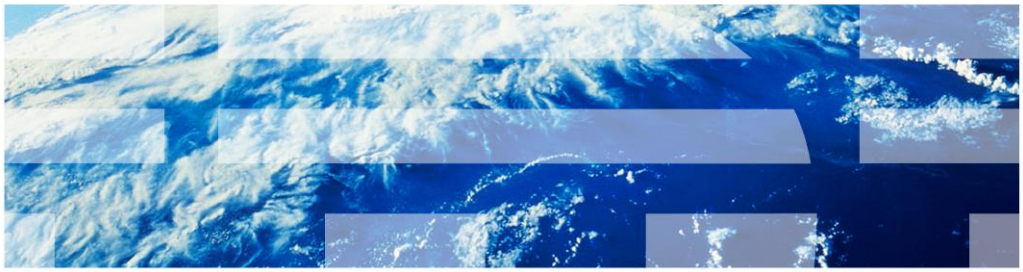
IBM Workload Deployer V3.1

Web Application Pattern Components and Links



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This presentation will discuss components and links in the IBM Workload Deployer patterns for web applications.

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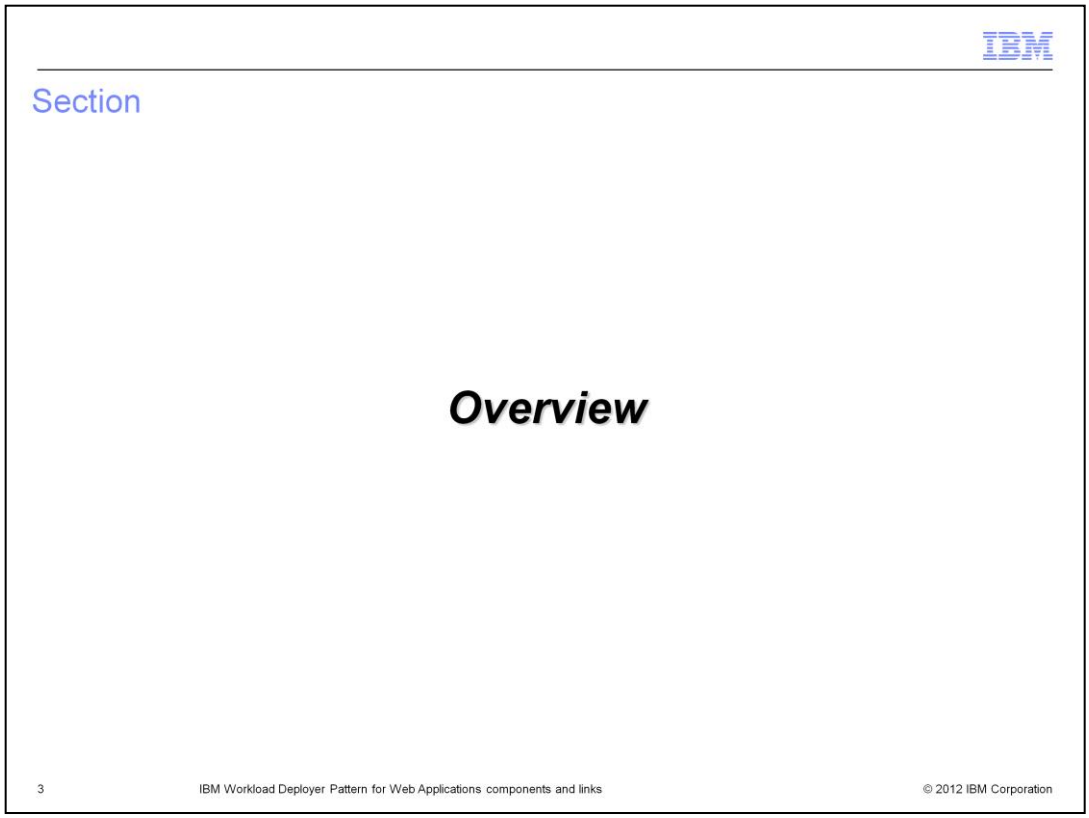
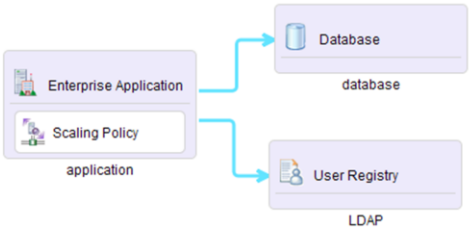
The presentation will give an in-depth look at components and links.



This section covers the overview.

Overview

- By design virtual applications limit the points of configuration
  - Configuration data specific to your application
    - for example, DDL, LDIF, JNDI names
  - Common tuning parameters
- Three asset types can be configured
  - Components
  - Links
  - Policies



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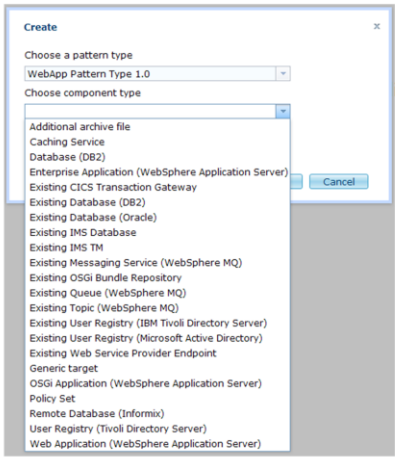
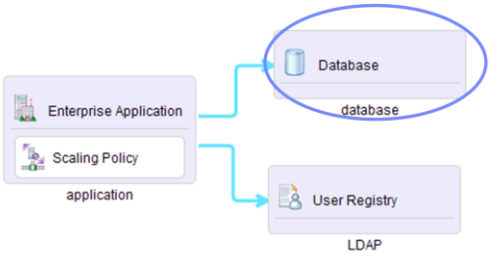
By design, Workload Deployer limits the configuration points for virtual applications. One of the key goals of virtual applications is to make it easy to create and deploy your application. One way this is accomplished is by limiting your interaction with the provided services and by allowing Workload Deployer to handle the installation and configuration of the required services.

Workload Deployer limits the configuration points, but does not totally do away with all of them. Some configuration points can only be provided by you and some deemed likely to be changed by you. There are three asset types that can be configured: components, links and policies. Component and link configuration is covered in this presentation. Given the scope and depth of polices, they are not covered in this presentation.

Components

- Components are the individual building blocks that make up a virtual application
- There are several component types that can be customized to meet your requirements





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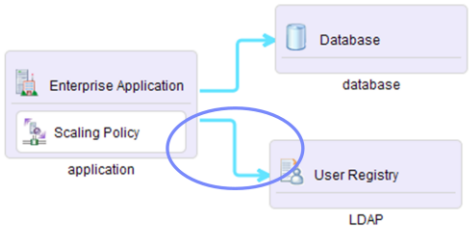
Components are the building blocks that make up your virtual application. They represent middleware products to be installed and configured by Workload Deployer, existing middleware products to be used and other additional functionality.

Components are represented by a gray box in the Virtual Application Builder tool.

Links

- Establish lines of communication between components
  - Configure components
  - Open required firewall ports
- Can be configured based on its type



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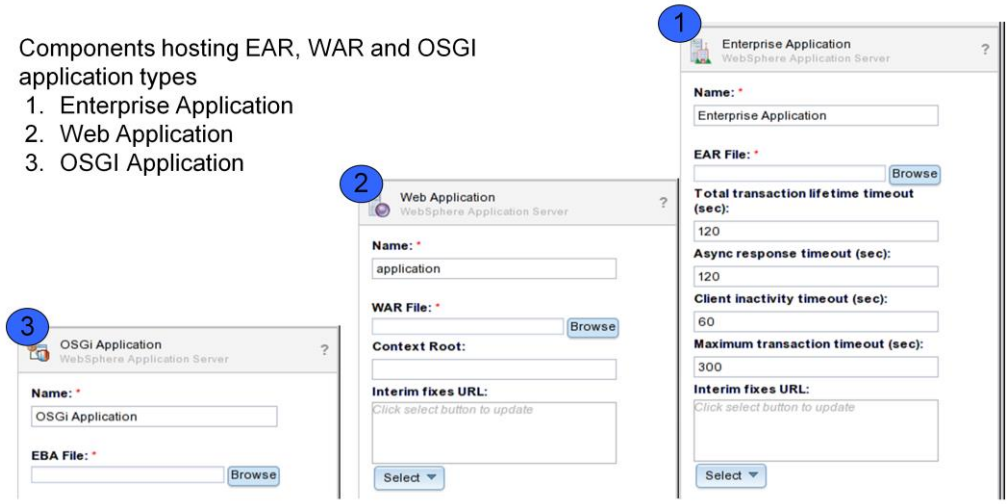
Each virtual machine in the virtual application runs a restrictive firewall; all inbound and outbound traffic is disabled by default. Links do two things, first they open an inbound and outbound port to another VM and second, they provide another configuration point.

Links are represented by a light blue line with an arrow representing the direction of communication in the Virtual Application Builder tool.

This section will cover available components and associated links.

Application Hosting Components

- Components hosting EAR, WAR and OSGI application types
  1. Enterprise Application
  2. Web Application
  3. OSGI Application



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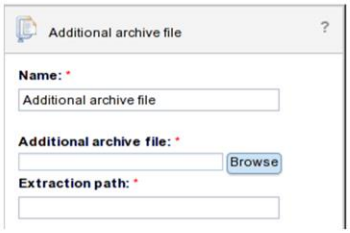
Enterprise Application, OSGI Application and web Application components are your runtime environment for your application. At deployment time these three components are deployed as WebSphere Application Server VMs hosting your application.

Additional Archive File

- Add additional files to the VMs for application use
- Additional archive file component can be associated with components:
  - Enterprise Application
  - Web Application



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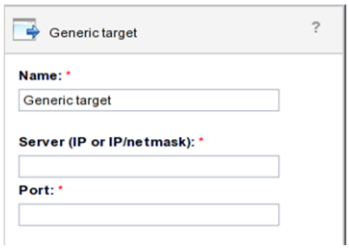
The Additional archive file component is used to add additional files to the Enterprise Application and web Application component VMs to be used by your application. The archive that you upload are extracted to the unique location defined in the Extraction path field.

The link to an additional archive file has no configurable attributes. Its role is to associate the additional archive file with the application hosting component.

Generic Target

- Opens outbound IP and port to communicate with external service
- Generic target can be associated with components:
  - Enterprise Application
  - Web Application
  - OSGI Application



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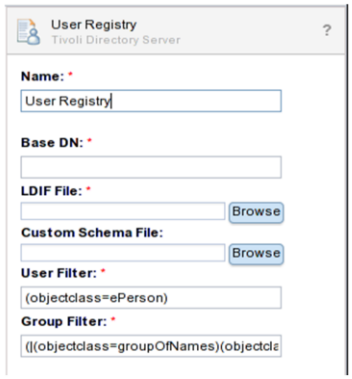
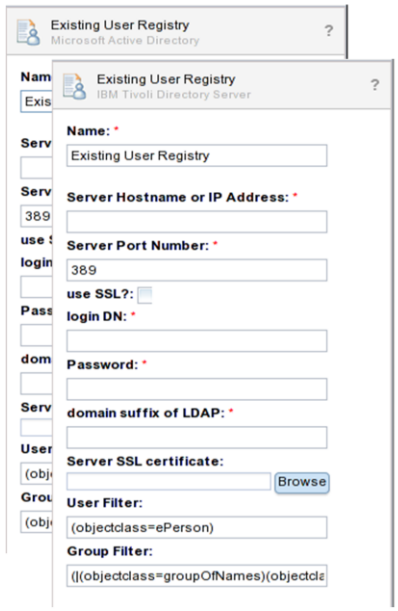
The Generic target component is used to open up an outbound IP and port to communicate with an external service. By default all ports are locked down, so adding a generic target component is a requirement if you need to communicate with an external service. The Generic target component can be associated with the Enterprise Application, web Application and OSGi Application components.

The link to the generic target component is not configurable. The only role that it plays is to open an outbound port allowing the VM to communicate with the external service.

Existing User Registry and User Registry

- Three User Registry components:
  - User Registry (Tivoli Directory Server)
  - Existing User Registry (Tivoli Directory Server)
  - Existing User Registry (Microsoft Active Directory)





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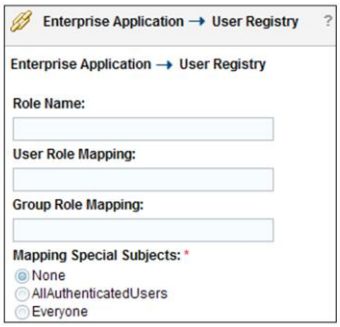
There are three user registry components backed by Tivoli Directory Server and Microsoft Active Directory. The User Registry (Tivoli Directory Server) component results in Workload Deployer creating a new VM with Tivoli Directory Server installed and configured. The Existing User Registry (Tivoli Directory Server) component is a connection to an existing Tivoli Directory Server instance. Existing User Registry (Microsoft Active Directory) component is a connection to an existing Microsoft Active Directory instance.

Links to Registry

- Enterprise Application / web Application / OSGi Application **links to:**
  - User Registry (Tivoli Directory Server)
  - Existing User Registry (Tivoli Directory Server)
  - Existing User Registry (Microsoft Active Directory)



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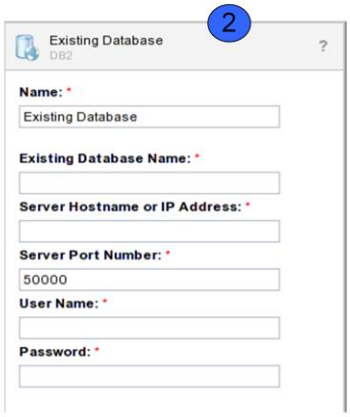
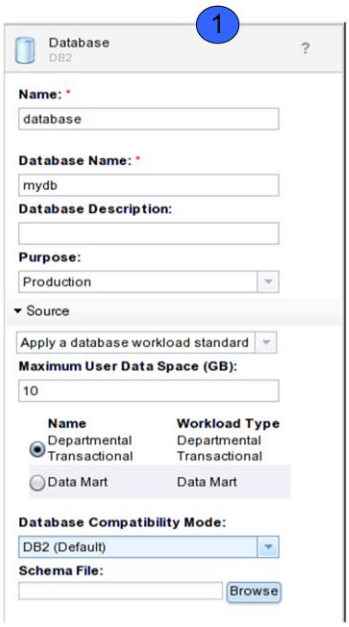
The User Registry link allows you to map a role defined in your application to a physical user or group defined in your LDAP server. For *each* role defined in your application you will need a link between your application hosting component and the User Registry component.

Database Components

- Two database component types:
  1. Database – create a new database
  2. Existing Database – connect to existing database
     - DB2
     - Informix
     - Oracle
     - IMS





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There are two database components.

The Database (DB2) component results in Workload Deployer creating a new VM with DB2 installed and configured.

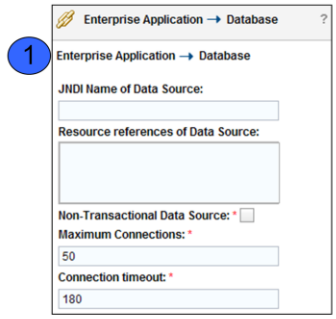
The Existing Database components represent a connection to an existing database instance.

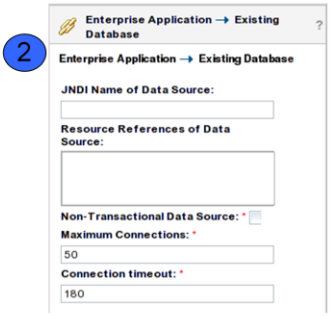
Both components have different configuration points. In the case Database (DB2) you can define the size of the DB, but are not required to specify the IP and port information. For an Existing Database you are required to specify the IP and port information since you are connecting to an existing DB that was not created as part of the virtual application.

Workload Deployer supports DB2, Informix, Oracle, and IMS database as “Existing” type database components.

Link to Database and Existing Database

- Enterprise Application / web Application / OSGi Application **links to:**
  1. Database (DB2)
  2. Existing Database
     - DB2
     - Informix
     - Oracle





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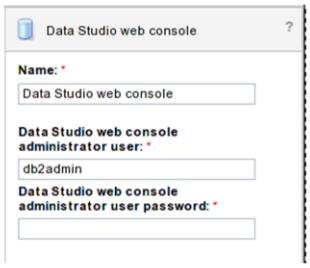
The Database and Existing Database links will result in a data source being created in the application hosting component. The JNDI name defined in the link is mapped to the data source's real JNDI name defined by WebSphere Application Server.

Data Studio Web Console

- Health and availability monitoring features
  - for cloud-based DB2 databases
- Runs in a separate virtual machine



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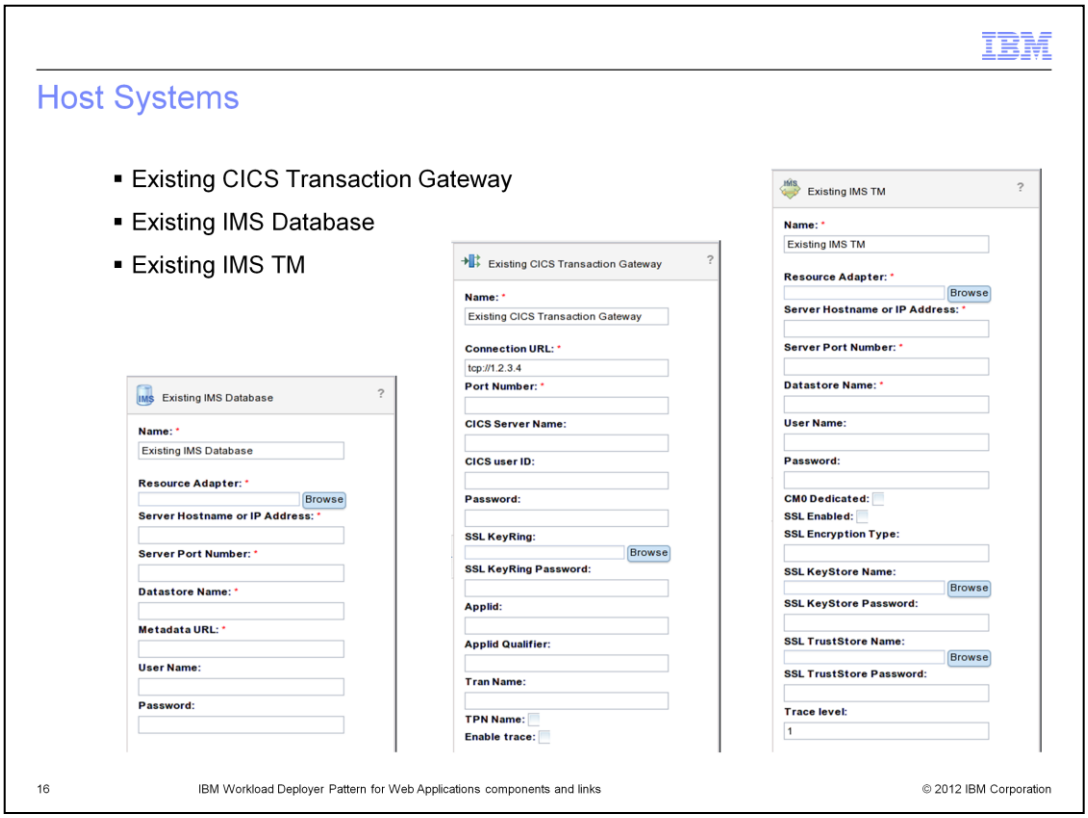
IBM Data Studio web console provides health and availability monitoring features for cloud-based DB2 databases. You can use the Data Studio web console to view alerts, applications, utilities, storage, and related information.

The virtual application builder tool does not provide for links between the Data Studio web console component and other components. To connect and monitor a database you must log into the deployed Data Studio web console and add a new database connection using the endpoint information provided for the target database.

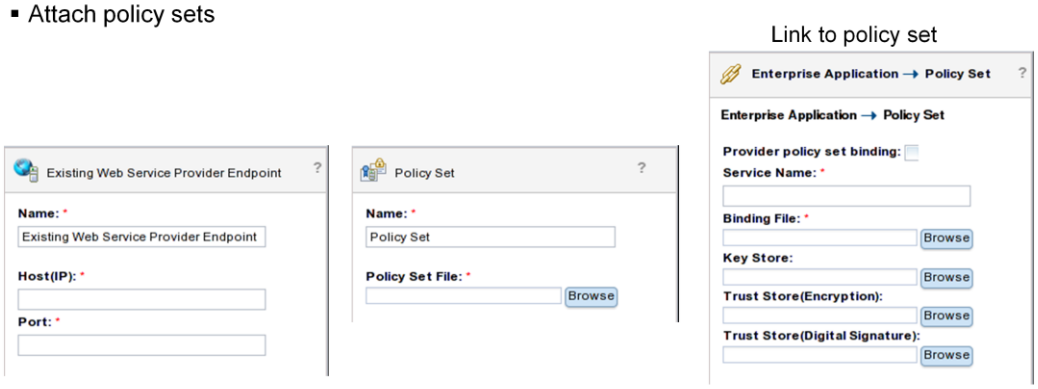
The IBM Data Studio web console component runs in a separate virtual machine.



To connect your application hosting component to an existing CICS application use the Existing CICS Transaction Gateway component. There is also support for IBM IMS Transaction manager and Existing IMS Database.

Existing Web Service Provider Endpoint and Policy Set

- Update .wsdl dynamically with host:IP of service
- Attach policy sets



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When connecting to an existing web service provider, Workload Deployer provides a mechanism to update the .wsdl file dynamically with host and IP information of the web service using the web service Provider Endpoint component. When using this approach, if the web service changes host and IP address it is updated in the pattern avoiding the need to manually edit the .wsdl file.

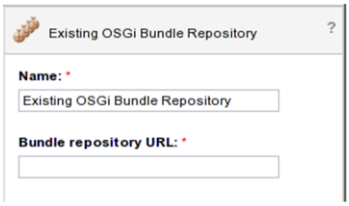
The Policy Set component represents a collection of assertions about how services are defined. They can be used to simplify security configurations. The binding file is exported from a WebSphere Application Server instance hosting the existing web service provider.

You can attach policy sets to your Enterprise or Web Application components. All web services will use the policy set attached.

The link to an existing web service endpoint specifies service name and security information.

External OSGi Bundle Repository

- OSGi bundle repository that is available outside (external) of the WebSphere Application Server hosting your application



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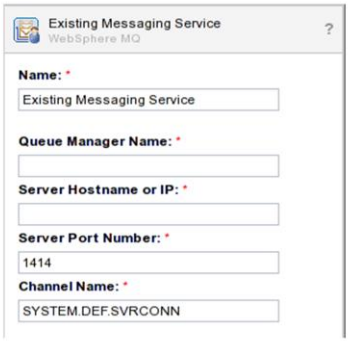
The External OSGI Bundle Repository component allows you to specify an external bundle repository for your OSGI Application component.

The External OSGi Bundle Repository link is used primarily to open an outbound port to communicate with the repository.

Existing Messaging Service (WebSphere MQ)

- Connection to a existing WebSphere MQ system



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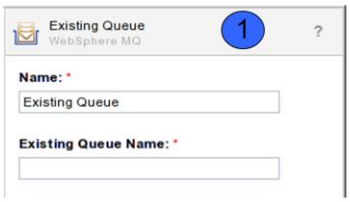
The Existing Messaging Service (WebSphere MQ) component represents a connection to an existing WebSphere MQ instance.

Existing Queue and Existing Topic (WebSphere MQ)

- Administered objects
  1. Queue
  2. Topic



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The Existing Queue and Existing Topic components are not external services, but rather administered objects. These two components result in Queue and Topic administered objects being added to the JNDI name server. These components work in conjunction with the Existing Messaging service component.

Links to Existing Messaging Service, Topic and Queue

- Enterprise Application / web Application **links to:**
  1. Existing Messaging Service
  2. Existing Topic
  3. Existing Queue

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One of the main jobs of a link is to connect the JNDI reference in your code to the JNDI name defined by WebSphere Application Server. When a link asks for a JNDI name, it is the JNDI name that you defined in your application. At deployment time, Workload Deployer will map the JNDI name you defined in the link to the real JNDI name defined by WebSphere Application Server.

Summary

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This section will give a brief summary.

Summary

- As mentioned, virtual applications by design hide much of configuration and deployment details
- Each component, policy and link has configuration points that are configurable by you:
  - Information that cannot be derived or an sensible default cannot be given
  - Information that you are likely to want to change

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Covered in this presentation were components and links. Components define the building blocks that make up your virtual application. Links link components together both at the network and middleware levels.

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