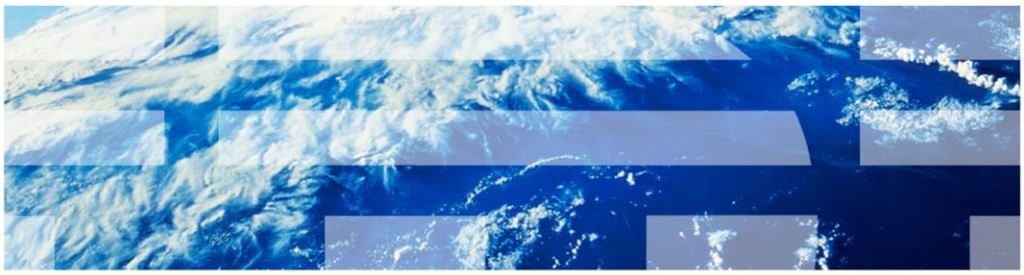
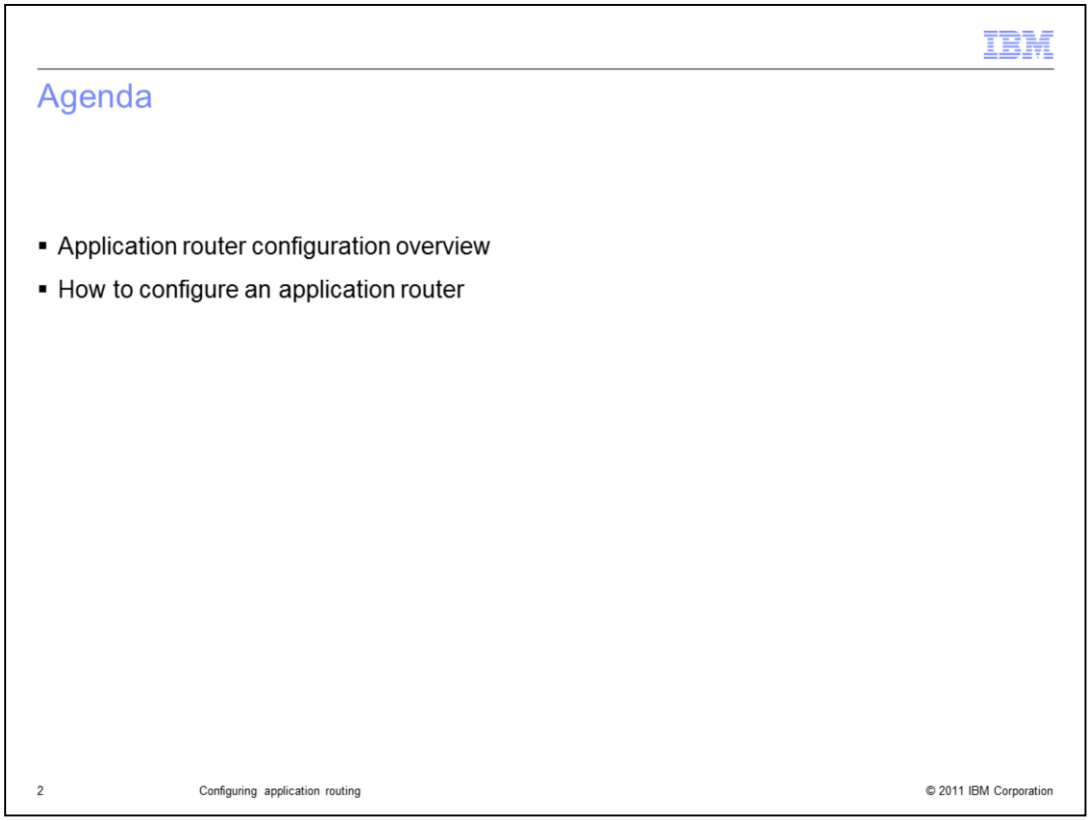
IBM

IBM WebSphere Application Server

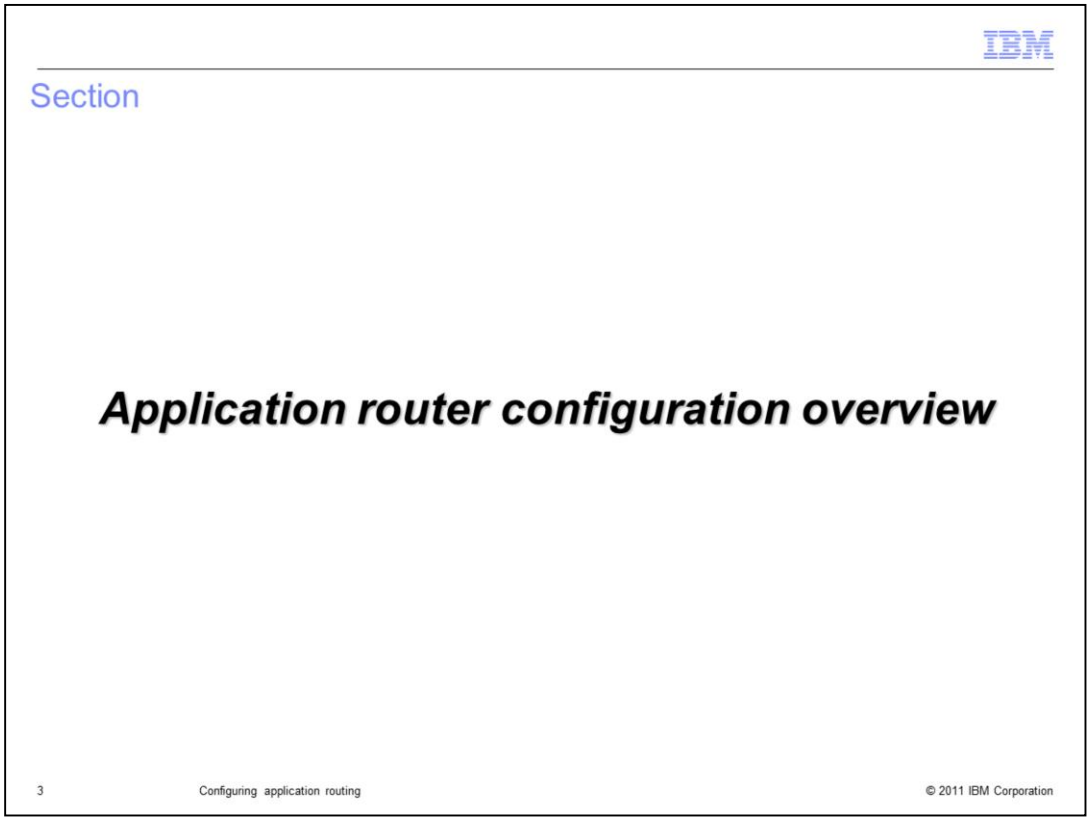
Configuring application routing



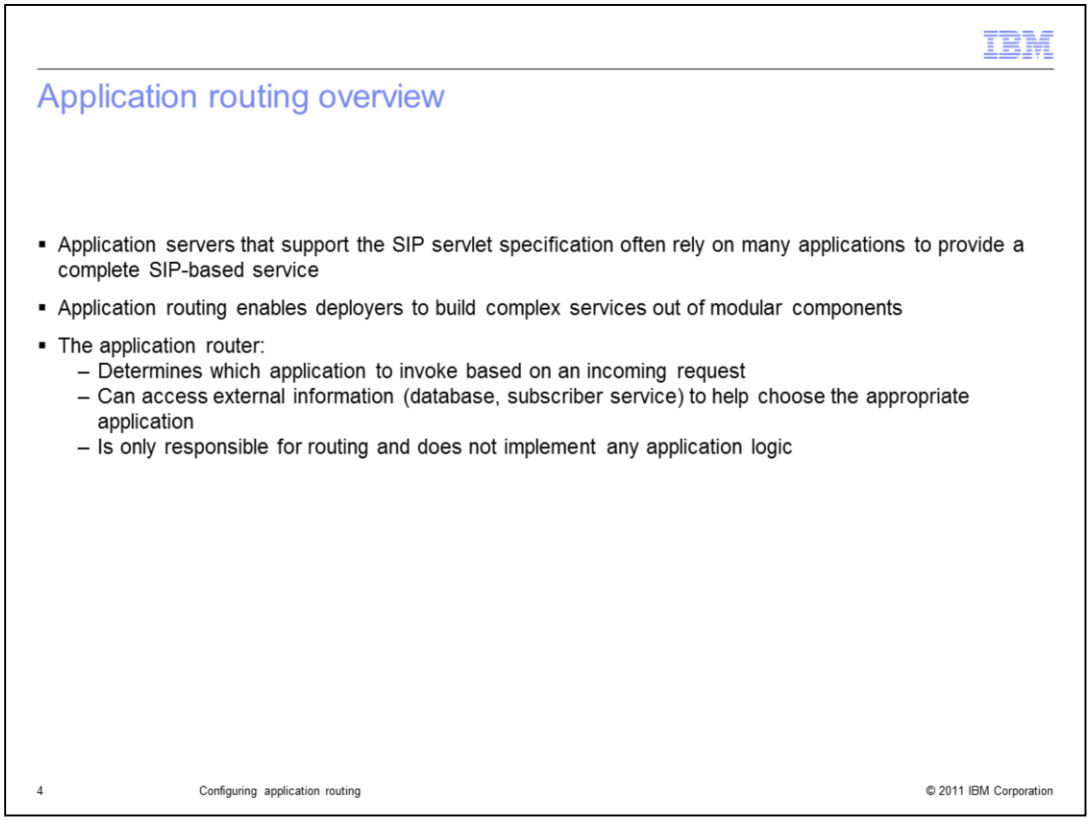
This presentation describes the options available for configuring a JSR 289 application router with IBM WebSphere Application Server and shows examples of how to perform router configuration.



The first section of this presentation gives an overview of the different ways you can configure an application router, and the second section shows several examples of how to configure application routing using the administrative console.

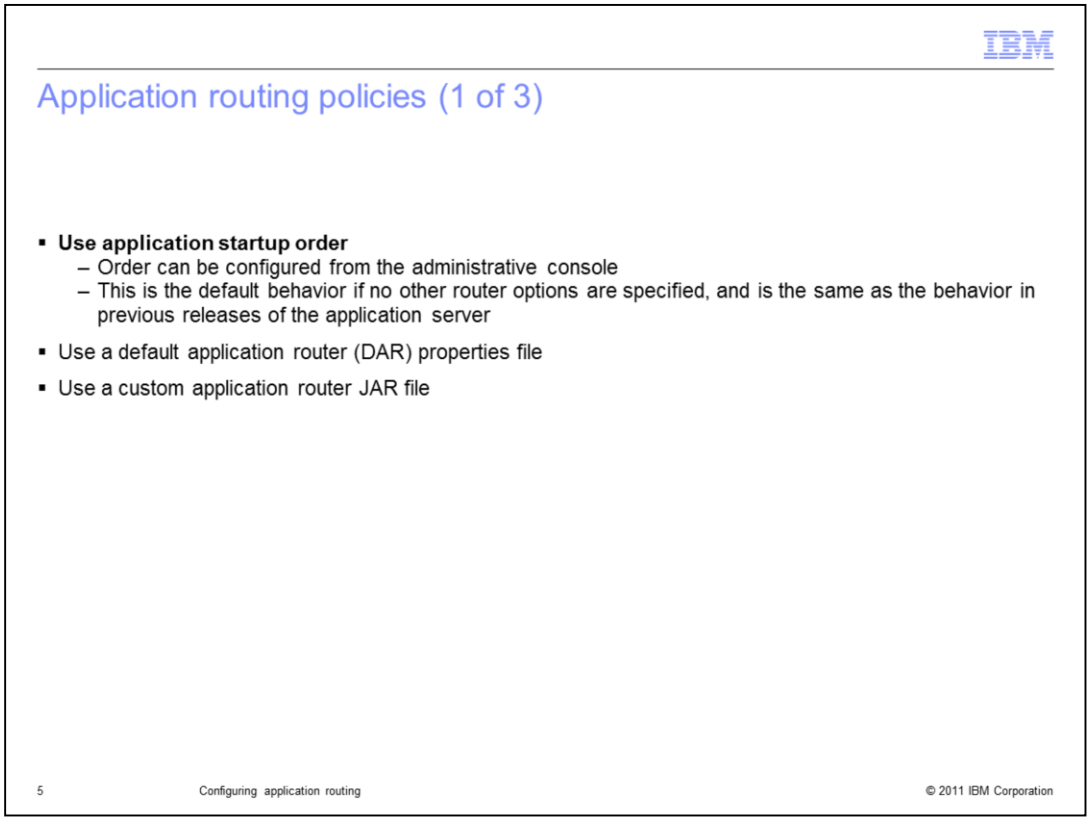


This section provides an overview of application router and the three types of routing policies that are available – application startup order, a properties-based default application router, and a custom application router implementation.

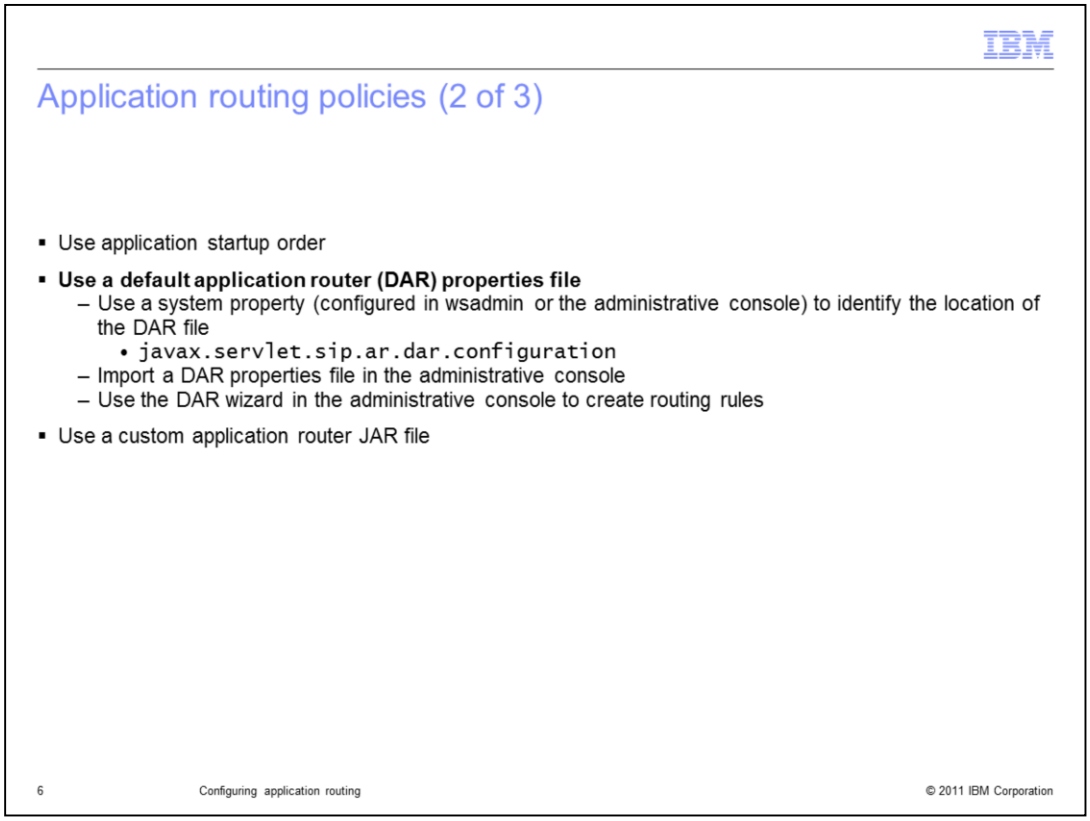


SIP servlet application servers are typically provisioned with many different applications. Each application provides specific functionality, but, by invoking multiple applications to service a call, the deployer can build a complex and complete service. This modular and compositional approach makes it easier for application developers to develop new applications and for the deployer to combine applications from different sources and manage feature interaction. A typical example from traditional telephony is a call-screening application and a call-forwarding application. If the application server receives an incoming INVITE destined to a callee who subscribes to both services, both applications should be invoked.

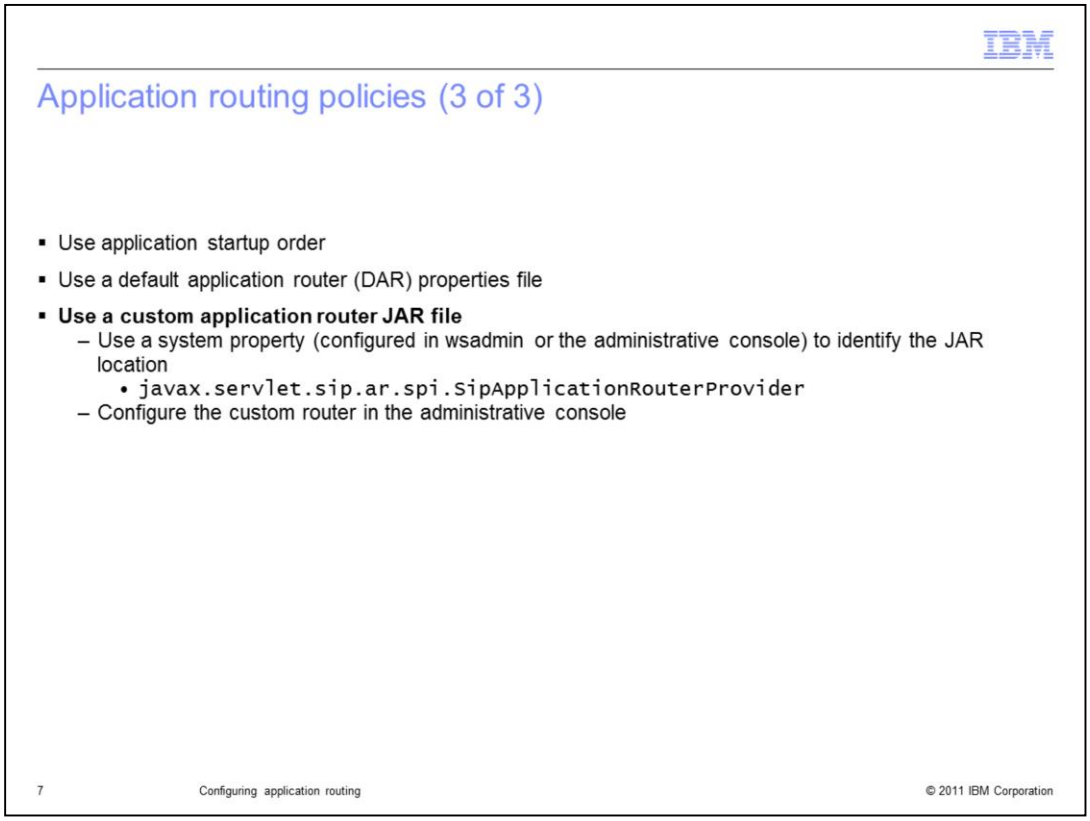
The application router is a separate component, outside of the SIP container. The container receives initial requests, calls the application router to determine which application to invoke, and then the container calls that application. Once the container has called into an application, that application calls into the appropriate servlet to handled the request, based on the application's configuration – for example, using mappings defined in the application's deployment descriptor. By default, WebSphere Application Server uses application startup weights to define the routing order. The JSR 289 specification also defines a Default Application Router (DAR) properties file format and a custom application router application format to describe application routing.



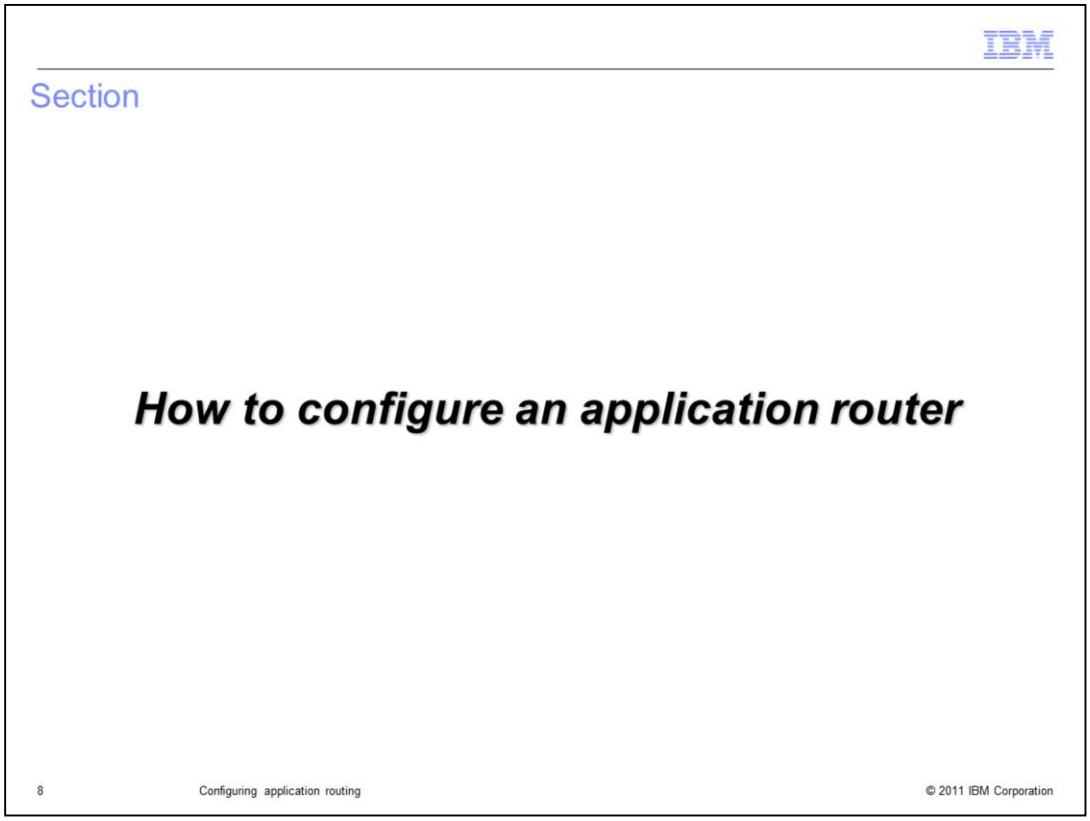
The default application routing policy is a basic application routing order based on application startup order. Startup order is typically determined by the order in which applications are installed, but the ordering can be changed later in the administrative console. Applications with the lowest number in the startup order get called first in the application chain. If a request gets proxied, it keeps going through the application chain defined by the ordering. This basic routing configuration offers the same behavior that was available in WebSphere Application Server V6.1.



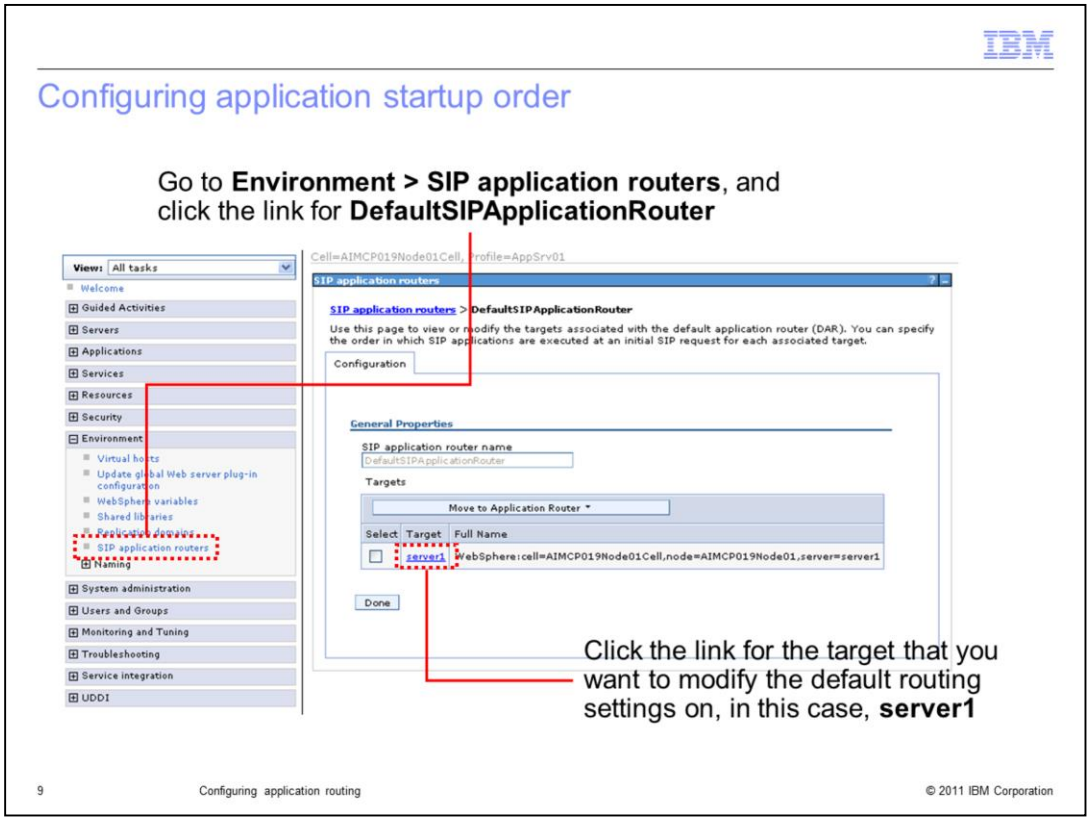
A default application router, or DAR, properties file can also be used to configure routing order. The rules for formatting the DAR properties file are defined in the JSR 289 specification. You can define a DAR properties-based router in three ways. First, you can define a system property, using wsadmin or the administrative console, to identify the location of the DAR file. This configuration option is specified in and required by JSR 289. The WebSphere administrative console also includes panels for working with a DAR properties file configuration. You can import a DAR properties file directly into your configuration from the console, or you can use a special wizard to define application routing rules.



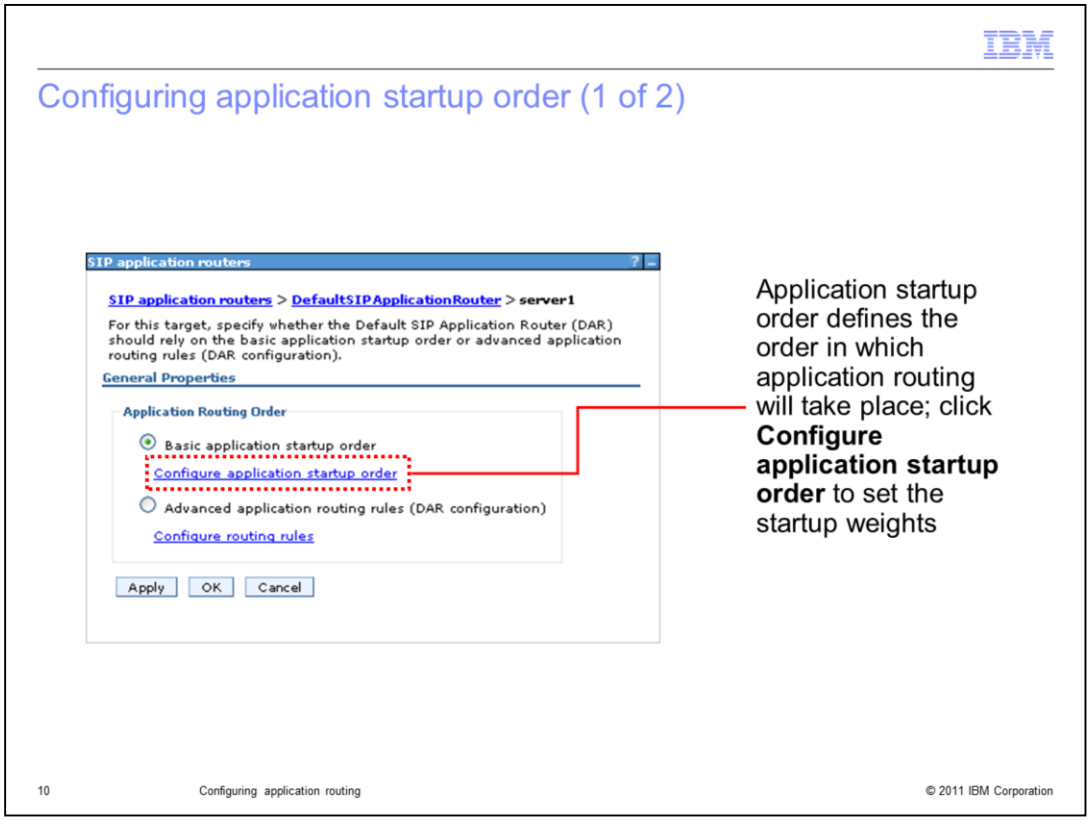
A custom application router is the most advanced application routing configuration available. A custom application router is a JAR file that contains your application router implementation. This application contains the routing rules for your environment and can reference external sources to pull in relevant user data to help determine the appropriate routing path. A custom application router can be defined using a system property or through the administrative console.



This section of the presentation includes several examples of how to configure an application router from the administrative console.

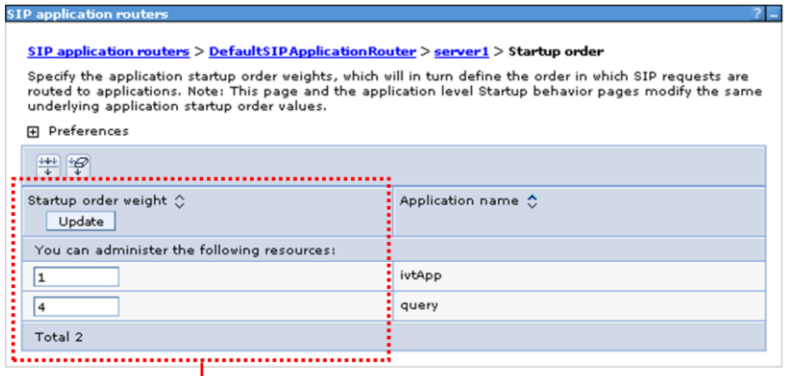


Application startup order is a basic form of application routing that is used by default. You can change the startup order of the applications in your server under the DefaultSIPApplicationRouter. Expand environment and go into the SIP application routers section. Click the link for the DefaultSIPApplicationRouter, and then you will see a panel similar to the one shown here that lists the targets defined in your environment. A target is something like a server or a cluster that you want to define a set of routing rules for. In this case, there is only one server defined in this profile, so that is the only target available. Click the name of the target you want to configure.



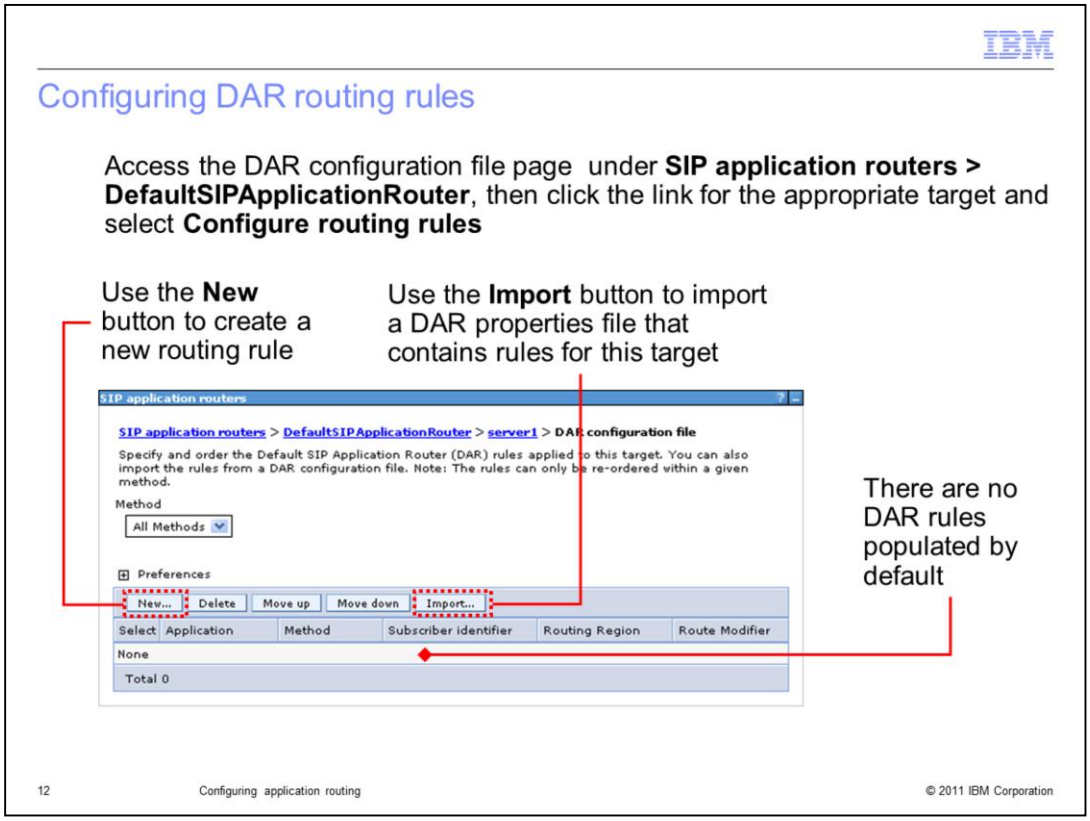
There are two options for the DefaultSIPApplicationRouter configuration object – either the basic application startup order, or application routing rules defined in a DAR properties configuration. To enable basic application routing using startup order, be sure that the radio button next to that option is selected (this option is selected by default). To modify the startup weights, click the text **Configure application startup order**.

Configuring application startup order (2 of 2)



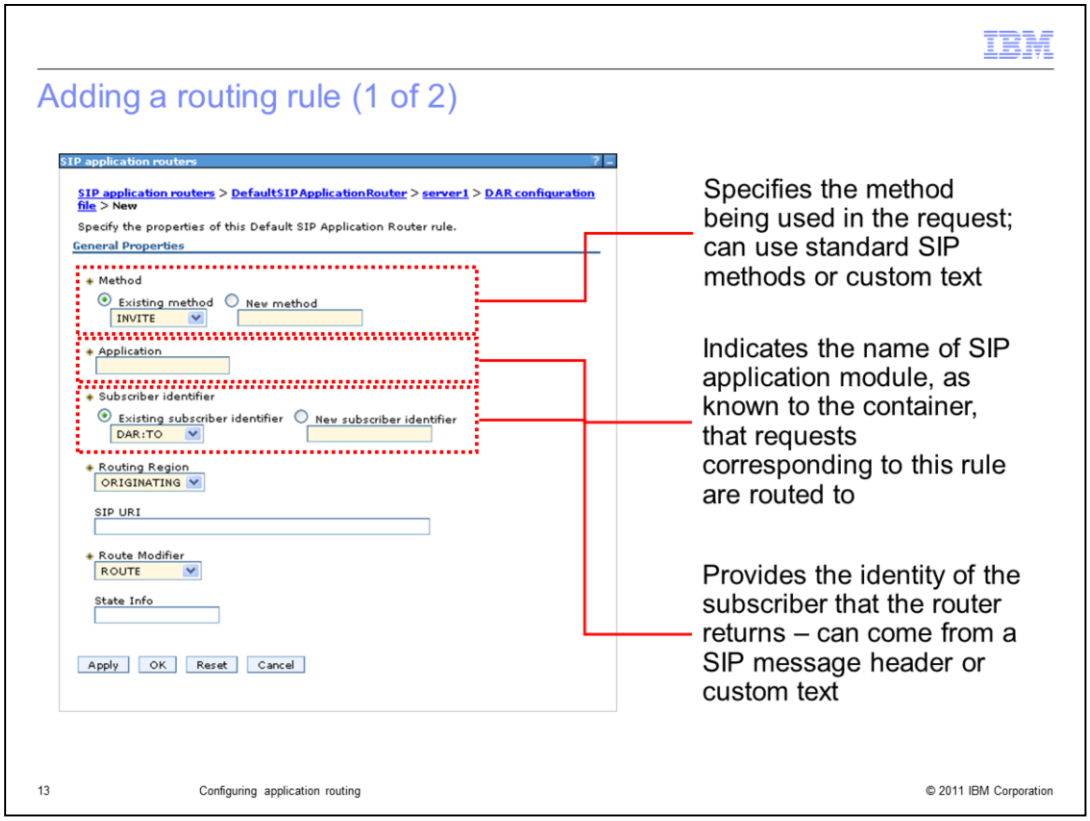
Enter the required application weights on this panel and click the **Update** button to update your configuration; lower numbers mean the application starts earlier

The application startup order panel lists all of the applications installed on this target and their current startup order. To change the startup order, type a number into a field on the left of the table, then click the Update button. Many fields can be changed and updated at the same time. Applications with lower numbers start earlier.

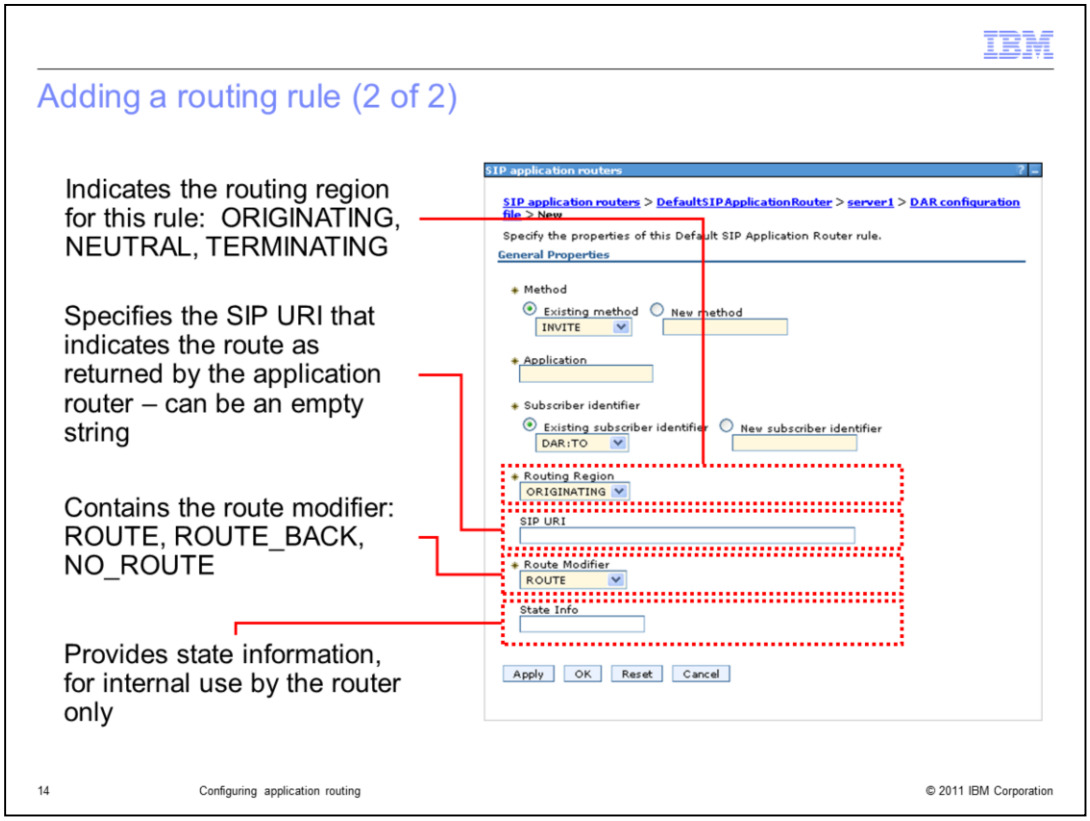


DAR configuration properties are also configured on the DefaultSIPApplicationRouter object. Only one DefaultSIPApplicationRouter object is defined per target, so a target cannot use both startup order and DAR configuration rules at the same time.

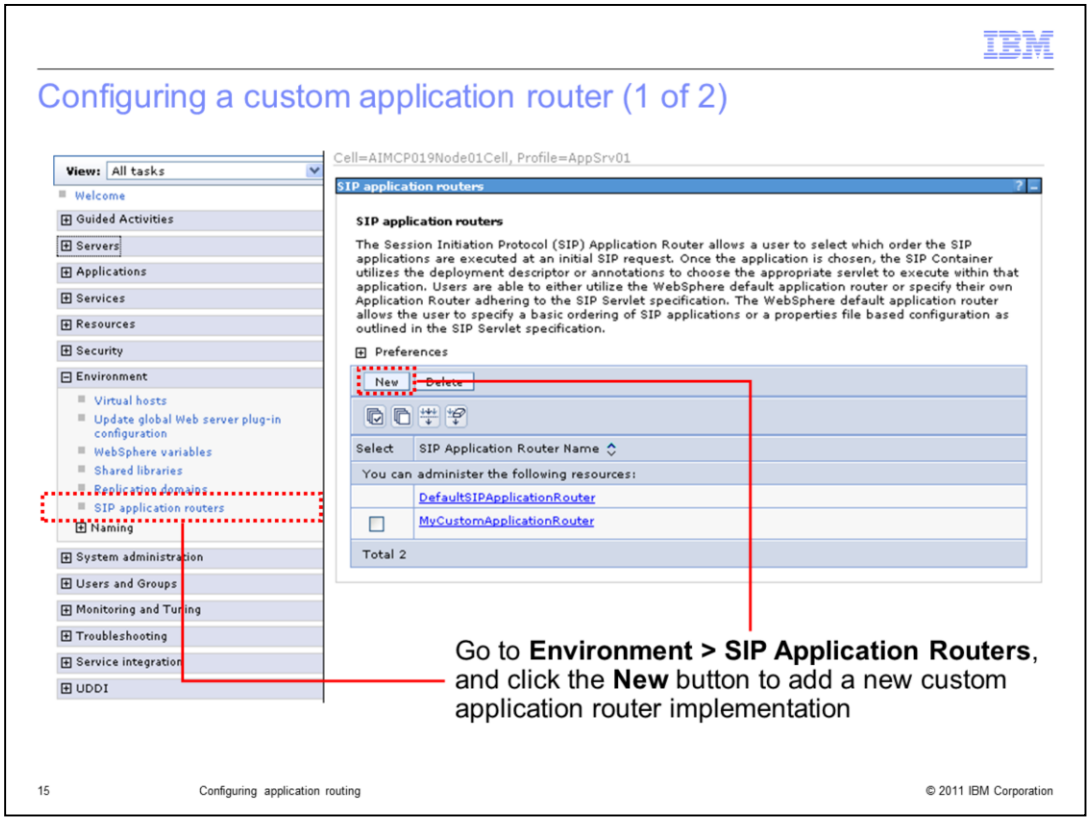
To work with DAR routing rules, go to the DefaultSIPApplicationRouter page in the console, select the target you want to configure routing rules for, and then click the Configure routing rules text. In order for the rules you define to take affect, you also need to select the radio button next to DAR configuration. The DAR configuration file page does not contain any routing rules by default – you need to define them. You can define them one at a time by clicking the **New** button to create a routing rule, or, you can import a DAR properties file into your configuration by clicking the **Import** button then providing the location of the properties file.



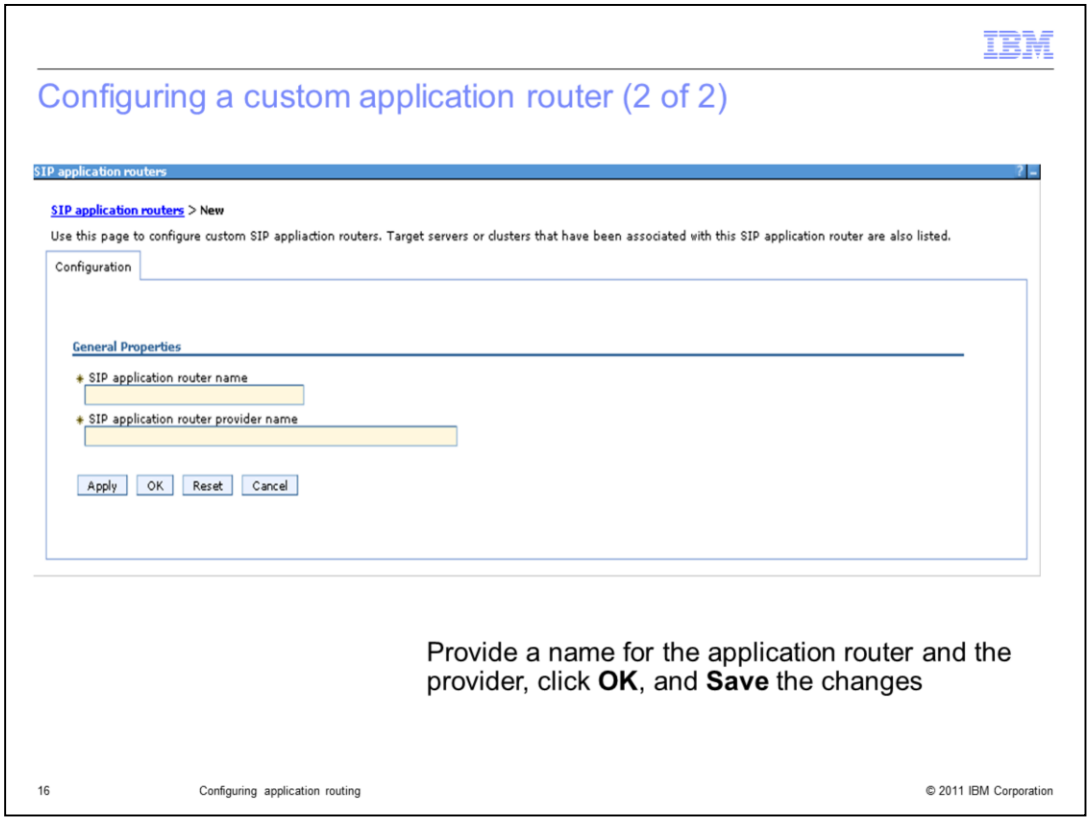
The administrative console provides a panel that includes all of the fields associated with defining an application routing rule. The method field specifies the method being used in the request that this rule is designed to process. The method can be either an existing method (the dropdown menu contains a list of standard SIP method names) or some other custom text that represents a method in your application. The application name field indicates name of SIP application module, as known to the container, that requests corresponding to this rule are routed to. This might be different than the name of the application. If the console detects any installed SIP modules on the server, this field will become a drop down list, populated with the module names. If no SIP modules are found, you are given a text field. The subscriber identifier field provides the identity of the subscriber that the router returns. This can be based on a SIP message header or can be any custom text.



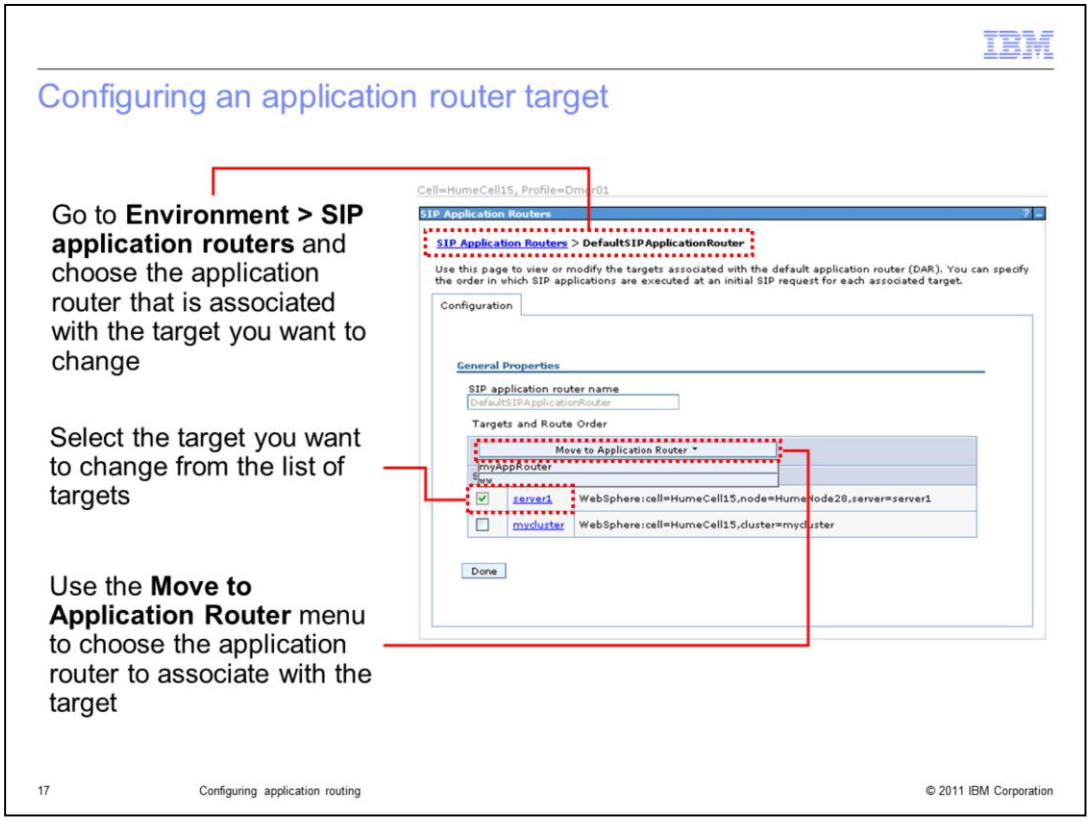
The routing region field indicates the routing region for this rule – either ORIGINATING, NEUTRAL, or TERMINATING. These regions are defined in the JSR 289 specification and are the only options available. The SIP URI field specifies the SIP URI that indicates the route, as returned by the application router. This is an optional field. The route modifier field can be either ROUTE, ROUTE_BACK, or NO_ROUTE – like with the routing region, these values are defined by the specification. The state info field is optional and can contain any other state information that the router might need to use.



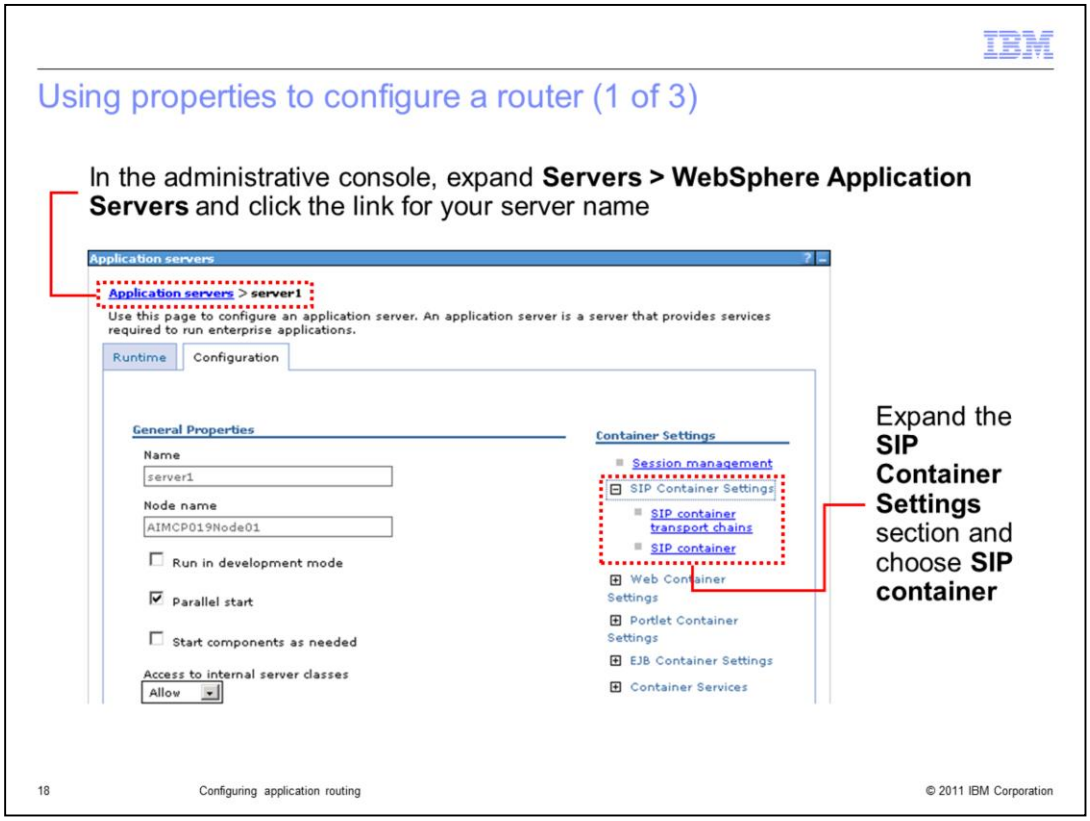
A custom application router configuration is easy to define in the administrative console. Start by going to the SIP application routers page, then click the **New** button to add a new custom application router implementation to your configuration repository.



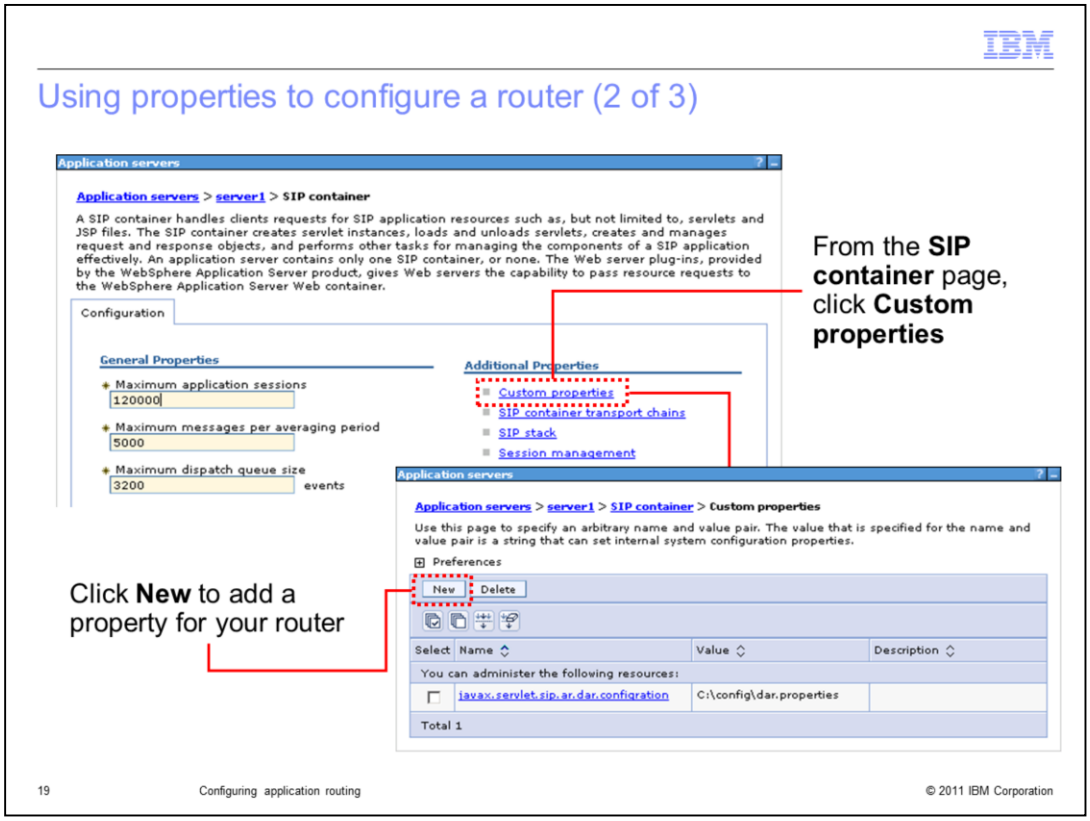
A custom application router is an application, packaged in a JAR file, that defines how application routing needs to work for your application set. The application structure and packaging is defined in the JSR 289 specification. On this panel, provide the name of the application router and the provider name of application router. This JAR file must be included in the classpath of the server.



The target for an application router can be changed after the router is created. To move a target to a new application router, go to the **SIP application routers** page and choose the router that's currently associated with the target that you want to modify. This will take you to a panel similar to the one shown on this page. Select the box next to the target you want to move, then click **Move to Application Router**. This brings up a list of application routers that are defined in your environment. Choose the application router that you want to associate with the selected target, then click the **Done** button.



In addition to using the new graphical configuration panels in the administrative console to configure your application router, you can also use the system properties defined in the JSR 289 specification to add either a DAR properties-based router or a custom application router to your configuration. The next few pages show how to define these system properties from the console. Start by opening the page for your server and going to the SIP container page under SIP Container Settings.

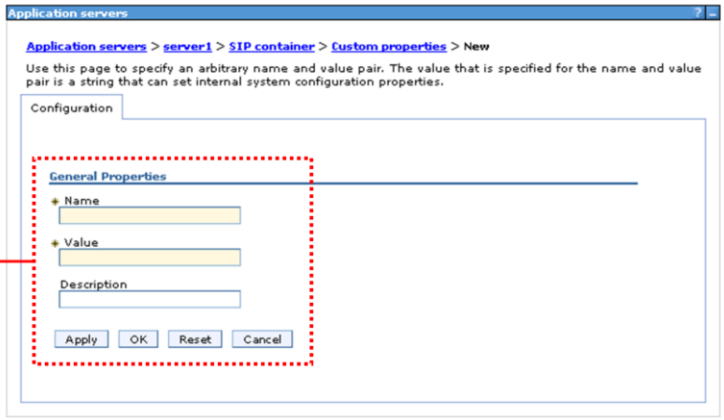


From the SIP container page, click Custom properties, then click the New button to add a property to define the location of your router.

Using properties to configure a router (3 of 3)

Provide the property name and value, then click **Apply** and **Save** your changes

Restart the application server for the changes to take effect

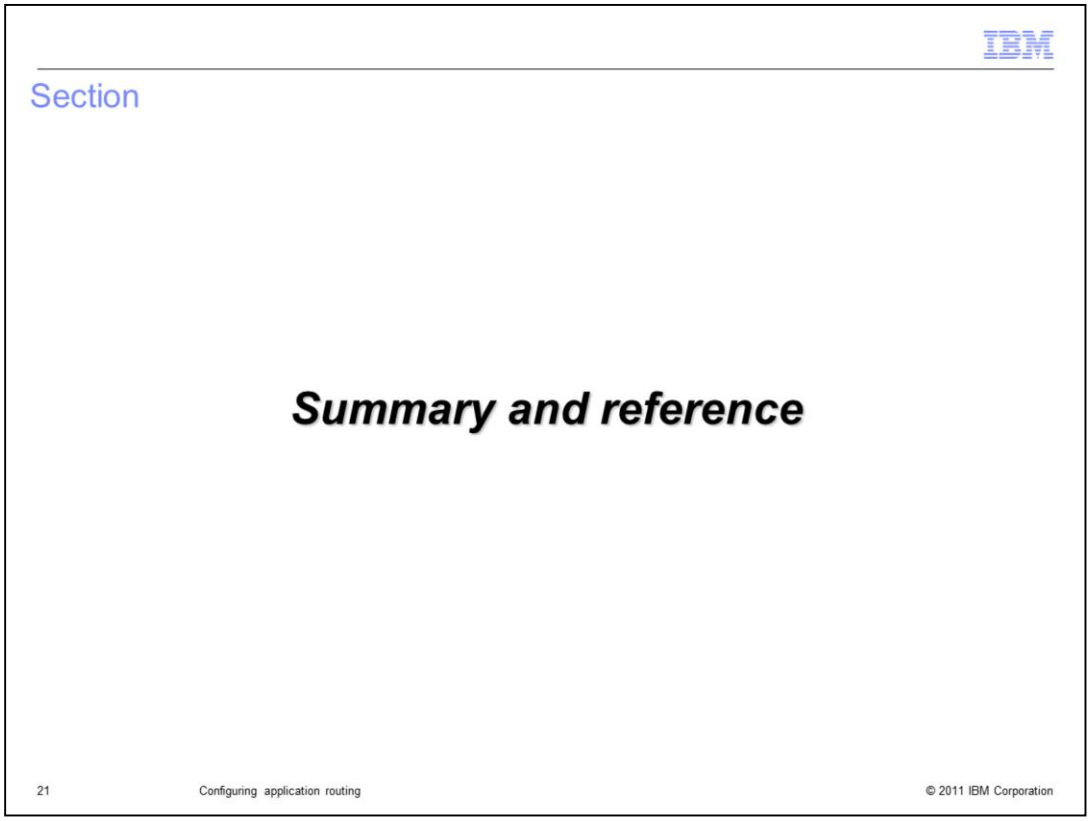


Custom router property name: `javax.servlet.sip.ar.spi.SipApplicationRouterProvider`
Custom router property value: Fully qualified class name of router implementation

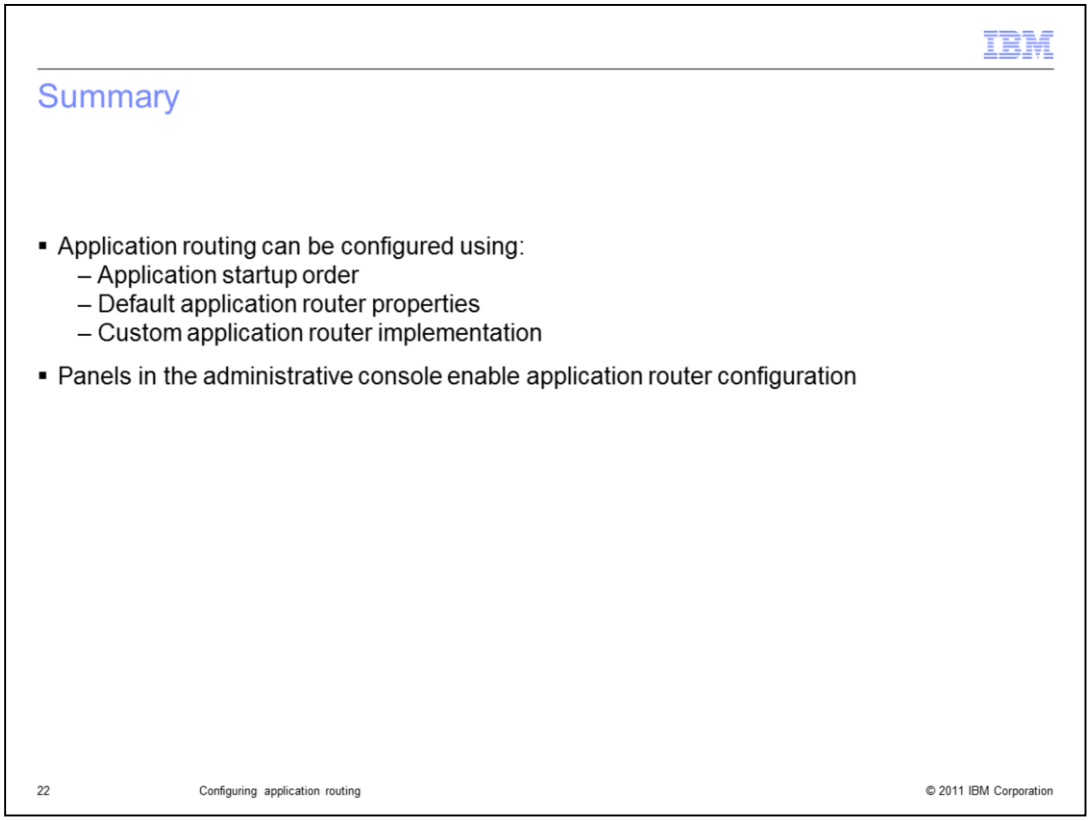
DAR properties router property name: `javax.servlet.sip.ar.dar.configuration`
DAR properties router property value: Location of the DAR properties file containing the routing rules

20 Configuring application routing

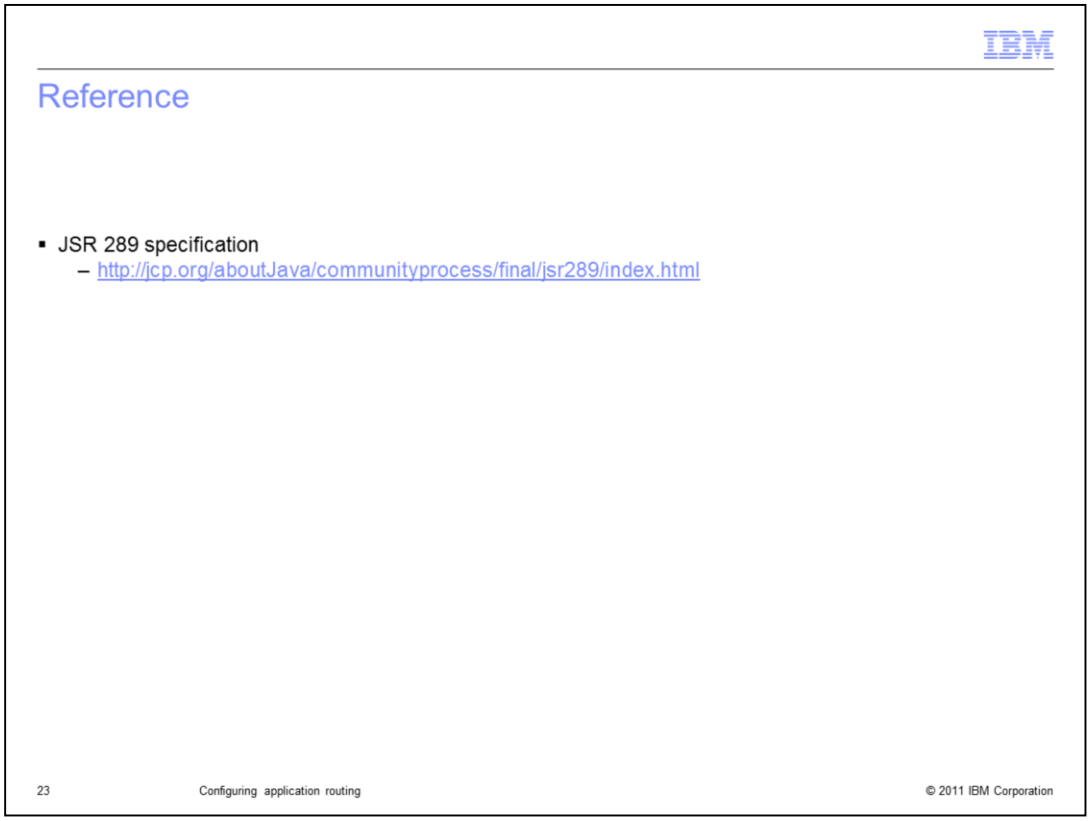
The JSR 289 specification defines two system properties for application routers – one for a DAR properties file router and one for a custom application router implementation file. Provide the name and value for the property you need to define then apply and save your changes. If you are defining a custom application router, the JAR file that contains the implementation also needs to be in your server's classpath. You need to restart your server for these application router configuration changes to take effect.



This section contains a summary and reference.



Application routing is a capability defined in JSR 289 that allows you to create end-to-end services by chaining together many SIP applications. Application routing can be defined in three ways – using basic application startup order, a default application router properties file, or a custom application router implementation. There are panels in the administrative console to enable application router configuration.



For more information about SIP application routing, see the JSR 289 specification.

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