



IBM Software Group

# IBM® WebSphere® Application Server V7

*High availability for inbound resource adapters*

*WebSphere Business Integration adapters*



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This presentation will discuss high availability for inbound resource adapters, WebSphere Business Integration adapters for WebSphere Application Server V7.0 on z/OS®.

## Agenda

- High availability (HA) for inbound resource adapters



This presentation will briefly discuss high availability (HA) for inbound resource adapters, WebSphere Business Integration adapters.

## Overview

- Configure WebSphere Business Integration adapters for HA
- Visible check box to support resource adapters (including vendors)
- Provide HA for JCA 1.5 resource adapters processing inbound messages
- Only one resource adapter can have endpoints active at one time



This feature provides a high availability solution for JCA resource adapters. This feature, to insure proper sequencing of events from the resource adapter, endpoints for that resource adapter must only be allowed to be active in one server in that cluster at any given time. To address a resource adapter instance failover, only one resource adapter in a high availability group is allowed to be started at one time across multiple servers. These options are mutually exclusive. The application that is running as the “hot standby” does not need any special processing to function in its backup capacity when needed.

With this configuration JCA resource adapter vendors are able to participate in high availability management without modification to their resource adapter implementation, or to your programming model.

## Overview continued

- Only one runtime resource adapter instance may exist at one time
- The application that is running “hot standby” does not have to do anything special to function in its backup capacity when needed.
- Allow failover without impact to the application programming model
- HA capability must be enabled for each resource adapter that needs to be managed within the HA group.

If there is a failure on a server that is high available, resource adapter configured, either the endpoints on a running resource adapter on the backup server is activated fixing an endpoint failover scenario or a resource adapter on the backup server is started, causing its endpoints to be activated fixing a resource adapter instance failover.

## Integrated solutions console

[Resource adapters](#) > [FVT Resource Adapter](#) > [Advanced resource adapter properties](#)

Use this page to manage advanced resource adapter properties.

Configuration

### General Properties

- Restrict the JVM to allow only one instance of the resource adapter
- Register this resource adapter with the high availability manager
  - Endpoint failover
  - Resource adapter instance failover



High available capable resource adapter will be configured when or after a RAR is installed, either stand-alone or embedded in an application, using the administrative console or scripting. A new check box on the Resource Adapter panel for any pluggable JCA 1.5 RAR with ActivationSpecs will indicate whether high available support should be enabled for the resource adapter. The check box will not appear for the built-in resource adapters (RRA, JMS, SIB).

## Scripting

- Scripting options
  - ▶ isEnabledHASupport {true / false}
  - ▶ haCapability RA\_ENDPOINT\_HA
  - ▶ haCapability RA\_INSTANCE\_HA



To enable or disable high availability support for a resource adapter use the `isEnabledHASupport {true / false}` attribute on the `J2CResourceAdapter` configuration object. The default is false. The `haCapability` attribute on the `J2CResourceAdapter` configuration object specifies the recommended and supported level of high availability support.

The new attributes `haCapability` and `isEnabledHASupport` are held in the `resources.xml` file on the `resources.j2c:J2CresourceAdapter` element.

## Error conditions

- Error conditions:
  - ▶ WebSphere Business Integration adapters only – configured HA capability incompatible with resource adapter capability
  - ▶ HA capability outside the expected range
  - ▶ Trying to pause / resume an HA enabled resource adapter (RA is under control of HA manager)



For WebSphere Business Integration adapters, if the needed high availability capability is not compatible with the capability of the resource adapter and this escapes configuration verification an error message is issued at runtime.

If the needed HA capability is found to be outside the expected range an error message is issued at runtime. This is not possible with the administrative console or scripting, since the values are an EMF ENUM.

If a call is made to pause or to resume a resource adapter which has HA enabled, an error message is issued at runtime.

## Summary

- This presentation has covered high availability for inbound resource adapters in WebSphere Application Server V7.0



This presentation has reviewed high availability for inbound resource adapters for WebSphere Application Server for z/OS V7.



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