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Powerful and secure infrastructures with WebSphere Application Server for z/OS

J2EE server security options

Redbooks

International Technical Support Organization

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HTTP Security Options and Configurations

WebSphere AS for z/OS: HTTP and Web container security options

Does your IBM HTTP Server on z/OS deliver the security infrastructure for your Web applications? Do you trust in its wonderful and unique capabilities to deliver thread-level security and SAF integration?

And do you realize, when WebSphere V 5 comes along--that all this will be history?

In WebSphere 5, security for your Web applications is managed within the Web Container of the WebSphere runtime--and WebSphere can manage your security with a wide range of choices! In this session, we explain the security possibilities that are available when your Web applications run in WebSphere 5, and detail how security will be inherited by your EJB Container. We also examine cross-platform security models within this context.

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cheat sheet

SSO	Single Sign On
GSO	Global Sign On
LTPA	Light Weight Third Party Authentication
CUR	Custom User Registry
CSIv2	Common Secure Interoperability Version 2
zSAS	z/OS Security Association Service
SAS	Security Association Service (IIOP) Security Attribute Service (CSIv2)
TAI	Trust Association Interceptor
PAM	Pluggable Authentication Module

Authentication Mechanism: SWAM, LTPA, ICSF

Authentication Method: Basic, FBL, SSL...

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Objectives

- A Brief History of Web(Sphere) Security
- Web Container Authentication Concepts
  - ROLES
  - Runas, ThreadID, resauth
  - Subjects and Principals
- Web Container Authentication Models
  - basic, form-based, client certificates, TAI & CUR

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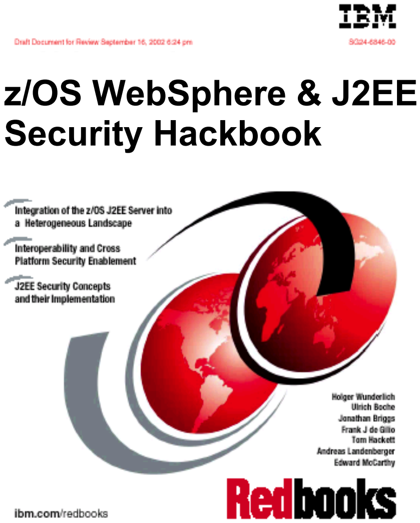
Based on: z/OS WebSphere and J2EE Security Handbook, SG24-6847/6086



Draft Document for Review September 16, 2002 6:24 pm

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SG24-6846-00

z/OS WebSphere & J2EE Security Hackbook

- Integration of the z/OS J2EE Server into a Heterogeneous Landscape
- Interoperability and Cross Platform Security Enablement
- J2EE Security Concepts and their Implementation

Holger Wunderlich
Ulrich Boche
Jonathan Briggs
Frank J de Gilio
Tom Hackett
Andreas Landenberger
Edward McCarthy

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What do you think of when someone mentions z/OS security? Probably of something that is trustworthy, or even impenetrable. Perhaps you also think of something that is a little complex and challenging to administer.

What comes to mind when someone mentions Internet security? Perhaps you think of prominent Web sites that have been "hacked" or credit card numbers that have been stolen.

Using working examples of code and configuration files, in this IBM Redbook we explain how you can run your Web-enabled applications with as high a level of security as other z/OS applications and subsystems--even if those applications were written or originally deployed on another platform--by using the Java TM 2 Platform Enterprise Edition (J2EE) programming model and the IBM WebSphere Application Server for z/OS and OS/390.

This redbook will help application programmers, WebSphere and security administrators, and application and network architects to understand and use these products.

http://www.redbooks.ibm.com/pubs/pdfs/redbooks/sg246846.pdf

http://wtscpok.itso.ibm.com/~redpiece/PDF/SG246086.PDF

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A Brief History of Web(Sphere) Security

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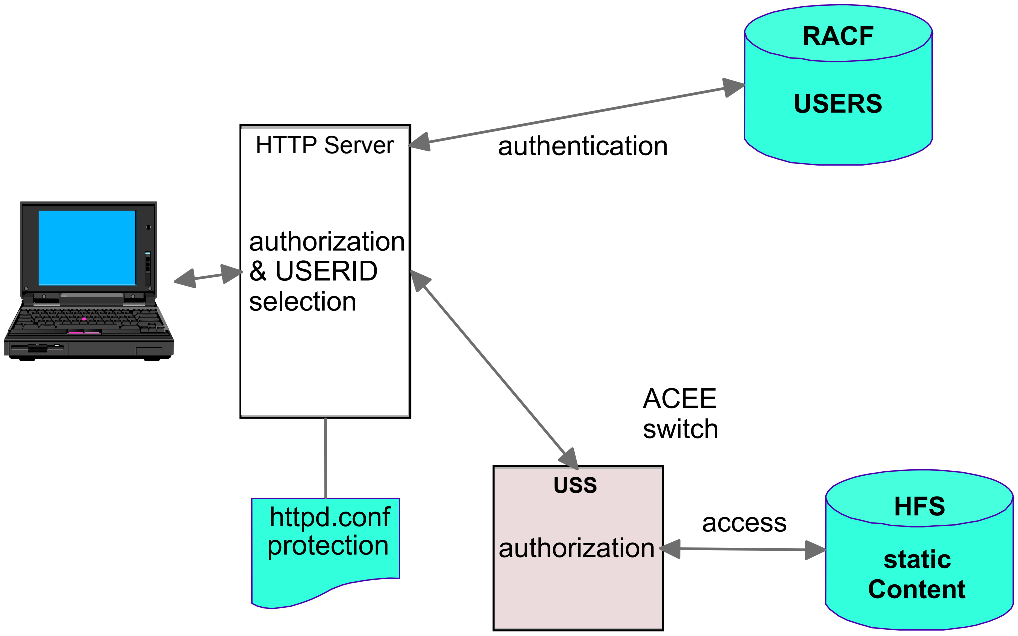
WebServer Security in z/OS



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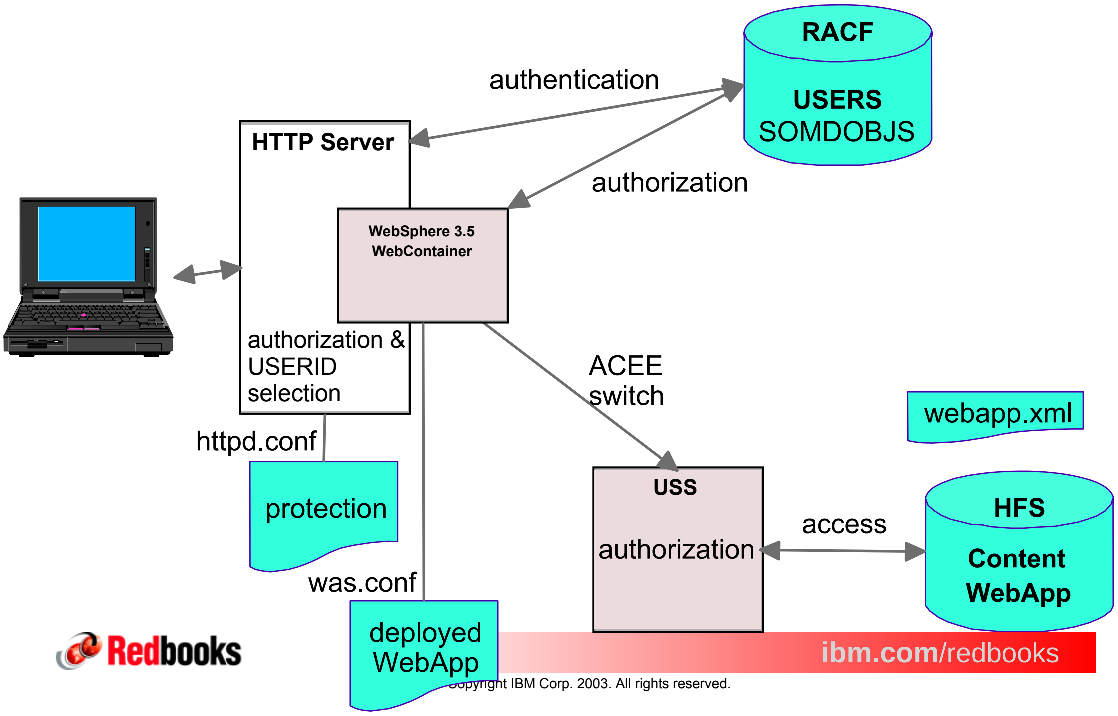
WebSphere 3.5 Security



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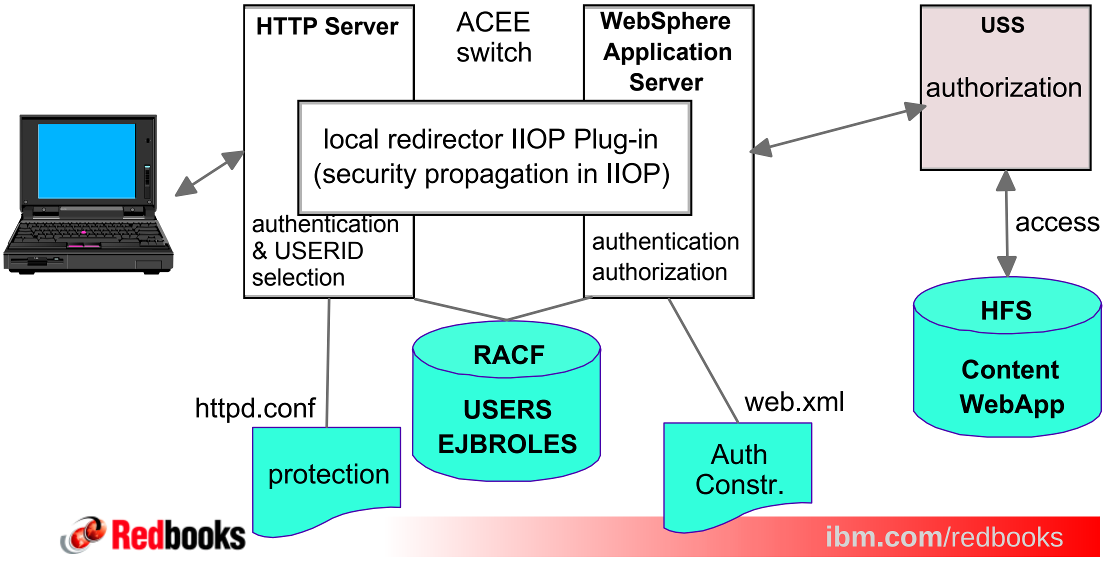
WebSphere 4 Security: IIOP Plug-In



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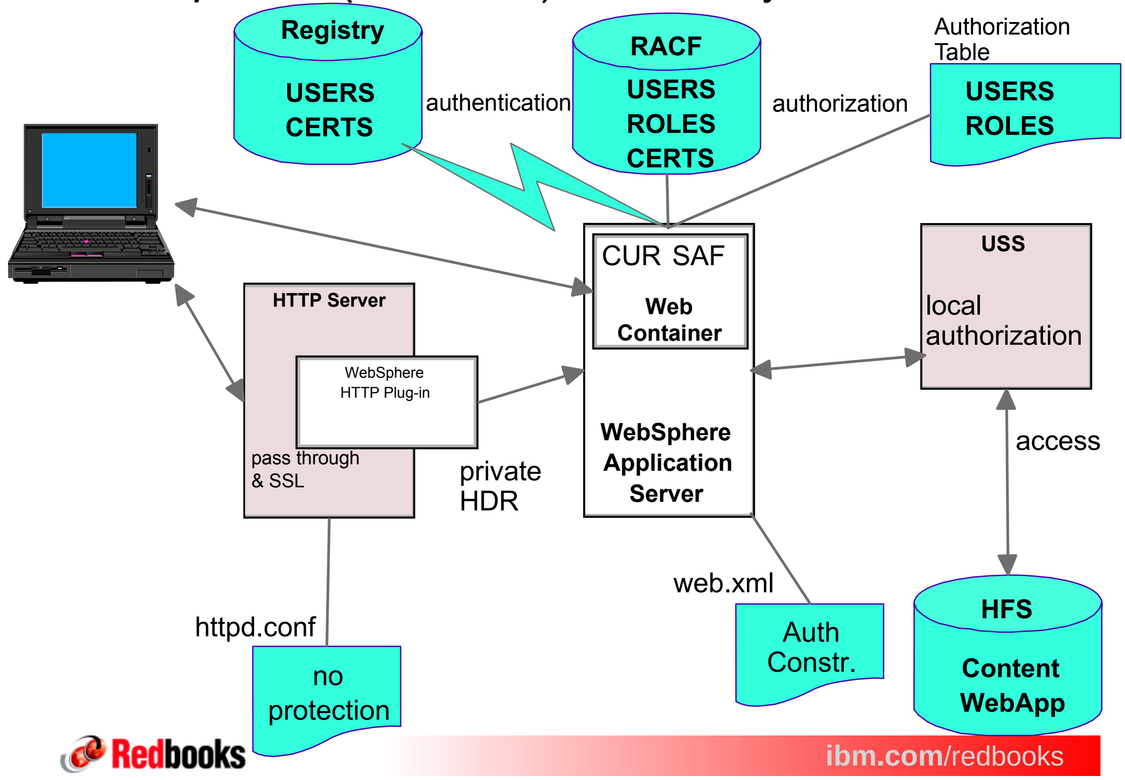
WebSphere 4(UQ90049) / 5 Security



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WebContainer Security Concepts

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Web Application Authorization

- registry independent:
- Programmatic: javax.servlet.http.HttpServletRequest interfaces
  - Access control within the program, fine grained
  - getUserPrincipal
    - Which identity am I running under?
  - isUserInRole()
    - Is the identity authorized to the role?
- Declarative: Security Constraints in DD (web.xml)
  - Container handles access control, based on method / URL
  - Web Resource Collections
  - Authorization Constraint one or more roles authorized to the urls in the Web Resource Collection
  - User data constraint to enforce SSL for specific URLs

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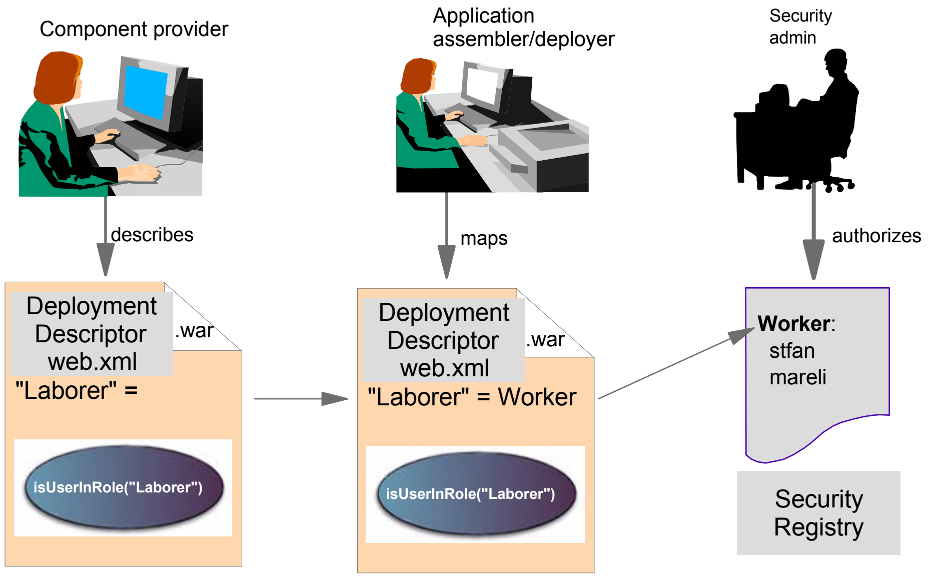
authorization tooling

isUserInRole("Laborer") ?



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run-as in the WebContainer (V5)

- run-as for the WebContainer was introduced in J2EE 1.3, which is supported in V5.
- The J2EE 1.3 specification is at the component level only
- run-as allows caller (default) or role to be specified
- role needs to be mapped back to an user

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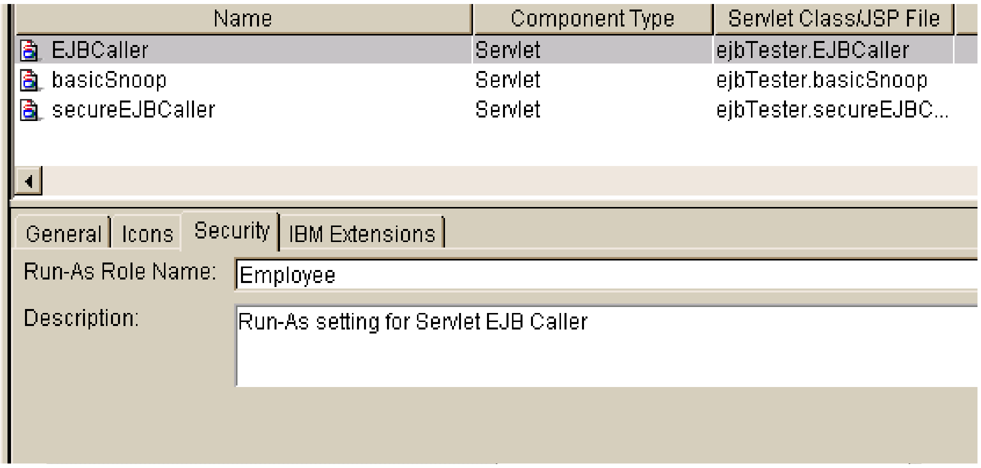
Delegation: servlet Run-as

- ➤ Does not change current Principal, only propagation identity.
- ➤ Applies also to unauthenticated requests.
- ➤ No support in WSAD.



Name	Component Type	Servlet Class/JSP File
EJBCaller	Servlet	ejbTester.EJBCaller
basicSnoop	Servlet	ejbTester.basicSnoop
secureEJBCaller	Servlet	ejbTester.secureEJBC...

Run-As Role Name: Employee

Description: Run-As setting for Servlet EJB Caller

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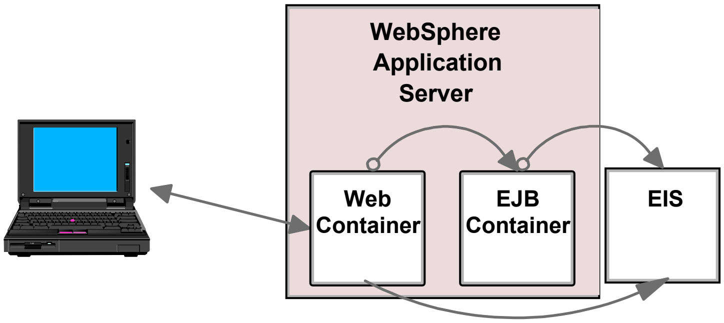
WebSphere WebContainer Identity Propagation



- ➤ Local
  - ➤ WebContainer authenticates
  - ➤ sets current userid (principal)
  - ➤ and propagates run-as id for downstream authorization
- ➤ Custom
  - ➤ WebContainer authenticates
  - ➤ sets current userid (principal)
  - ➤ and propagates server id or
  - ➤ WebAuth.CustomRegistry.SAFPrincipal for downstream authorization

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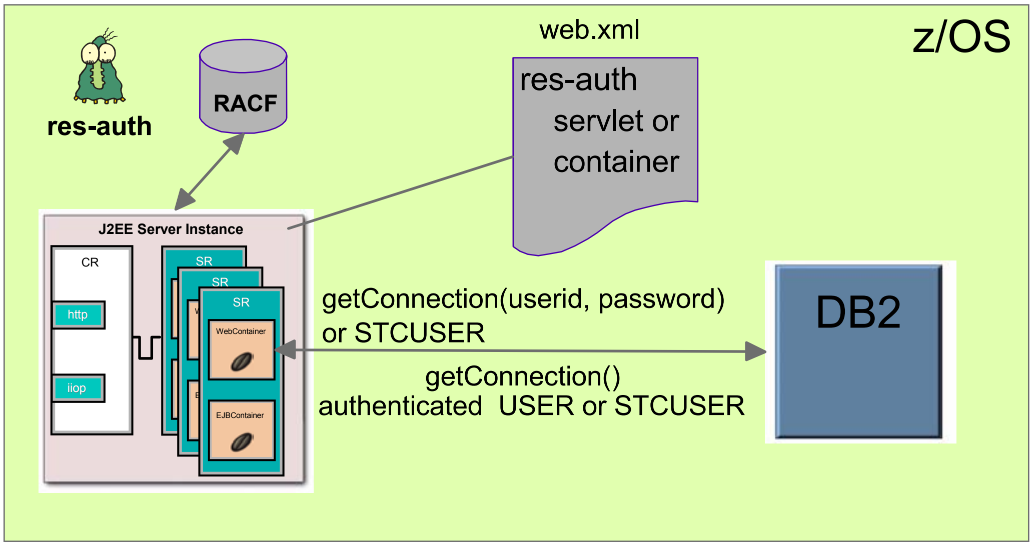
res-auth: JDBC Access from the WebContainer



z/OS

res-auth

RACF

web.xml

res-auth servlet or container

J2EE Server Instance

getConnection(userid, password) or STCUSER

getConnection() authenticated USER or STCUSER

DB2

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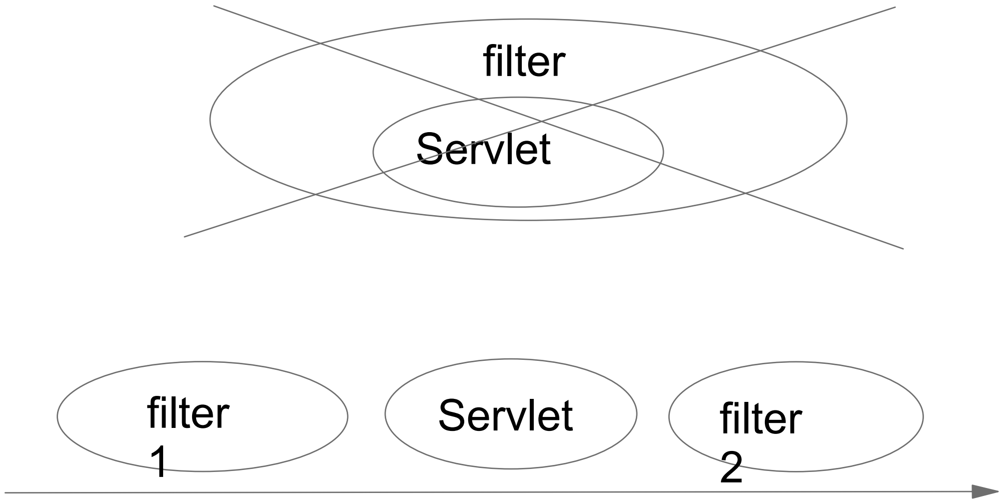
Servlet Filters



Servlet filters can be used for additional authentication or processing. Both form-based login and servlet filters are supported by the Web container. The form-based login servlet performs the authentication and servlet filters perform additional authentication, auditing, or logging information. The servlet filters are invoked either before or after the login actions (CustomLoginServlet)

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Authentication

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WAS Authentication Mechanisms

SWAM

- non forwardable tokens, no Single SignOn
- not supported with ND
- uses an HTTP session to manage the FB login token

LTPA

- forwardable token: "LtpaToken" cookie. Possible SSO with DP.
- encrypt the token with JCE keys. Can be exported/imported.

ICSF

- forwardable token: "LtpaToken" cookie. Possible SSO with v4 z/OS
- encrypt the token with ICSF keys.

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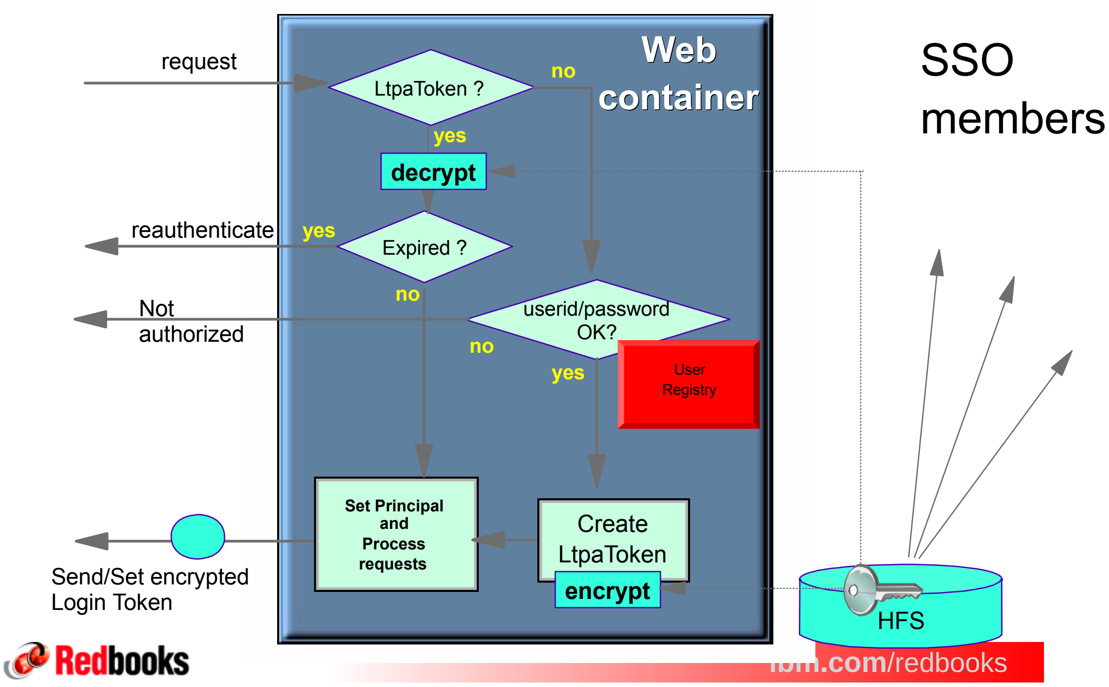
LTPA
Lightweight Third Party Authentication



request

LtpaToken ?

no

yes

decrypt

Web container

SSO members

reauthenticate

yes

Expired ?

no

Not authorized

userid/password OK?

no

yes

User Registry

Set Principal and Process requests

Create LtpaToken

encrypt

Send/Set encrypted Login Token

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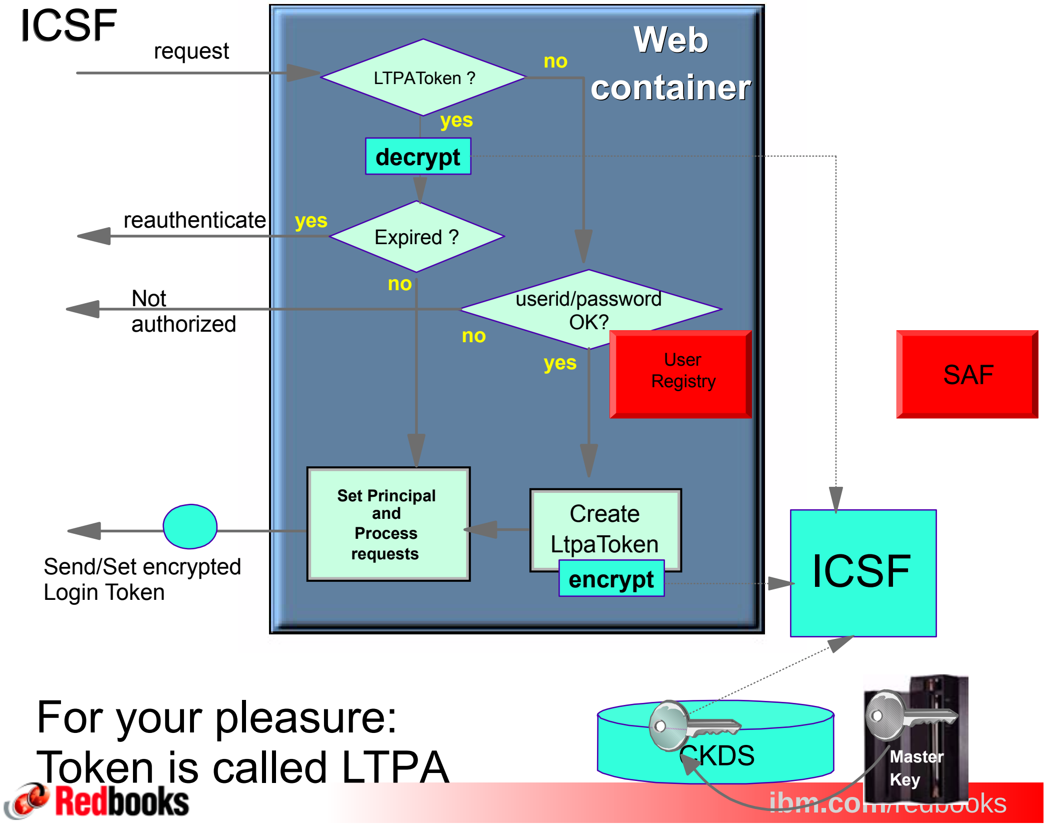
ICSF



request

LTPAToken ?

no

yes

decrypt

Web container

reauthenticate

yes

Expired ?

no

Not authorized

userid/password OK?

no

yes

User Registry

SAF

Set Principal and Process requests

Create LtpaToken

encrypt

ICSF

Send/Set encrypted Login Token

CKDS

Master Key

For your pleasure:
Token is called LTPA

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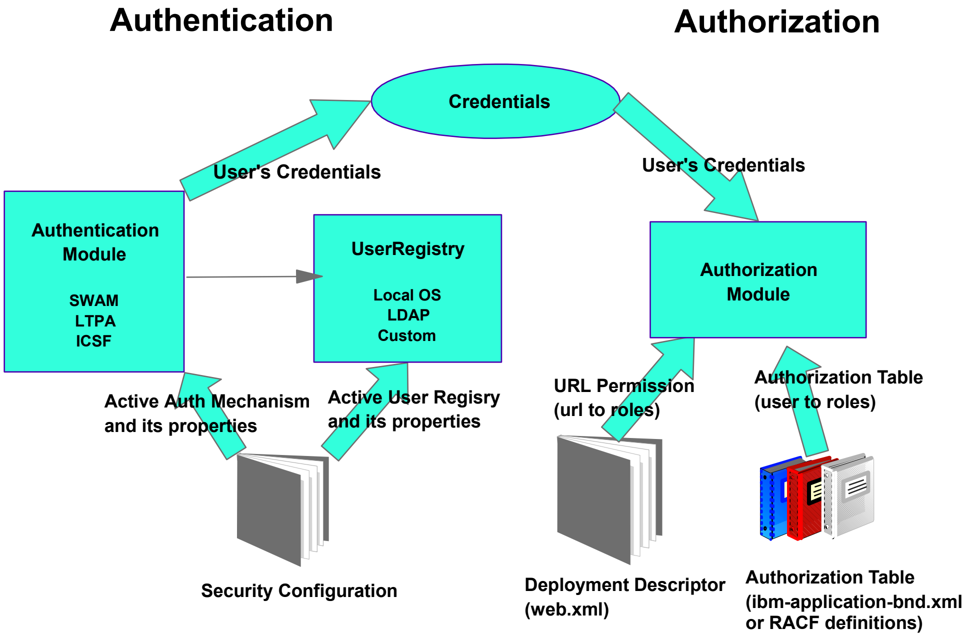
WebSphere Implementation


Authentication
Authorization
Credentials
User's Credentials
User's Credentials
Authentication Module
SWAM
LTPA
ICSF
UserRegistry
Local OS
LDAP
Custom
Authorization Module
Active Auth Mechanism and its properties
Active User Regisry and its properties
URL Permission (url to roles)
Authorization Table (user to roles)
Security Configuration
Deployment Descriptor (web.xml)
Authorization Table (ibm-application-bnd.xml or RACF definitions)

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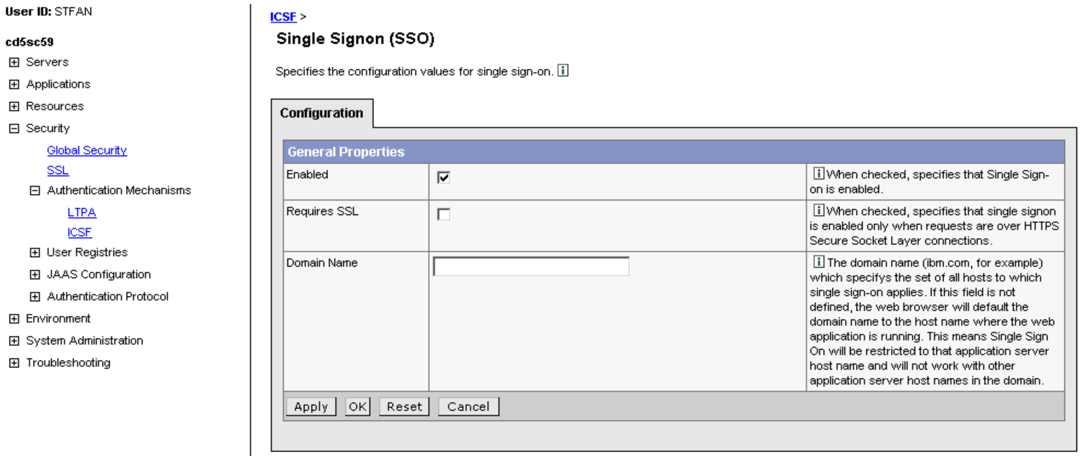
Single Sign On

Provided by forwardable LtpaToken (LTPA or ICSF)

... domain needs to share LtpaToken encryption and key mechanism.



Single Signon (SSO)

Specifies the configuration values for single sign-on.

General Properties		
Enabled	☑	When checked, specifies that Single Sign-on is enabled.
Requires SSL	□	When checked, specifies that single signon is enabled only when requests are over HTTPS Secure Socket Layer connections.
Domain Name		The domain name (ibm.com, for example) which specifies the set of all hosts to which single sign-on applies. If this field is not defined, the web browser will default the domain name to the host name where the web application is running. This means Single Sign On will be restricted to that application server host name and will not work with other application server host names in the domain.

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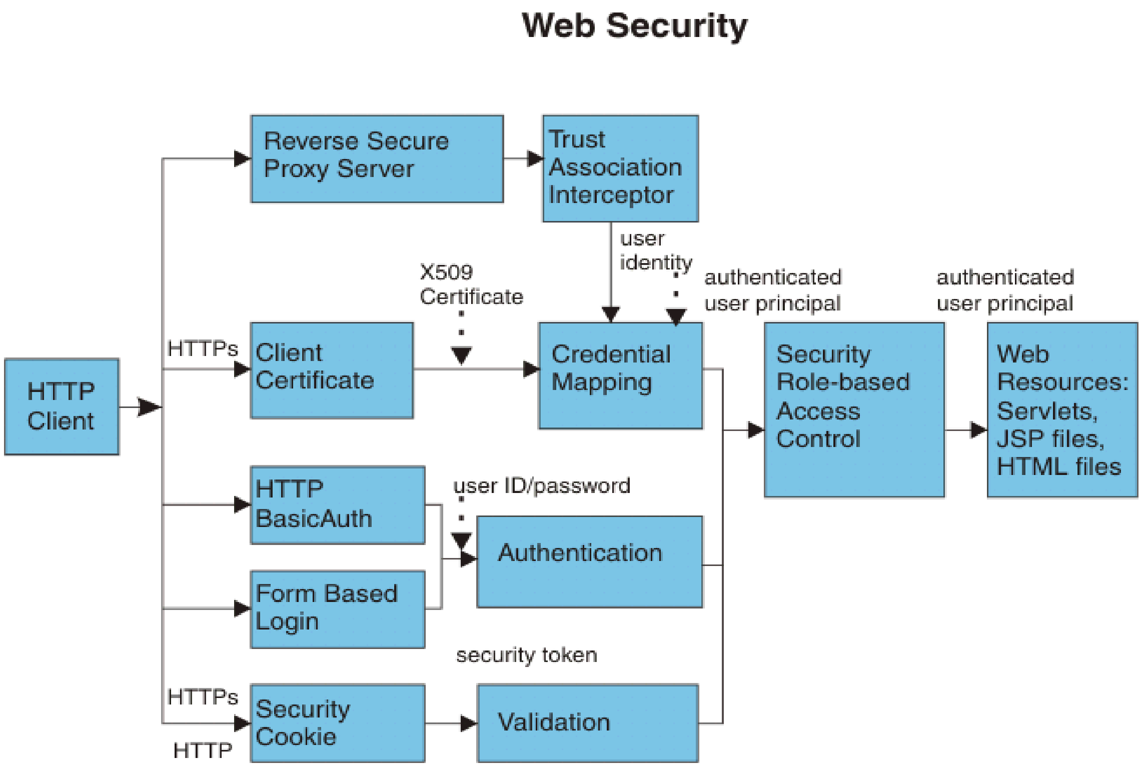
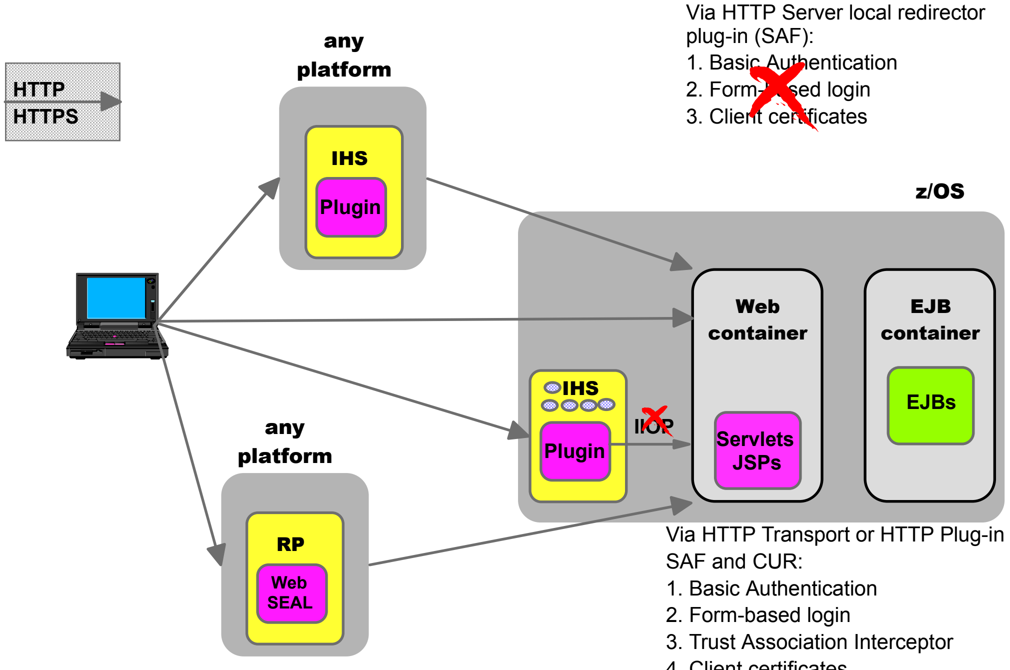
WebSphere HTTP Authentication



Authentication options: HTTP Server and HTTP Transport



Via HTTP Server local redirector plug-in (SAF):

1. Basic Authentication
2. ~~Form-based login~~
3. Client certificates

Via HTTP Transport or HTTP Plug-in SAF and CUR:

1. Basic Authentication
2. Form-based login
3. Trust Association Interceptor
4. Client certificates

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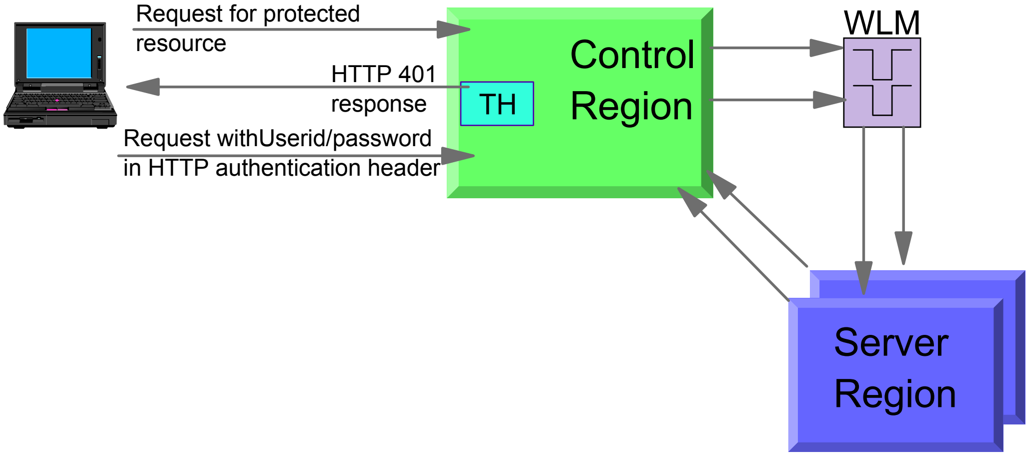
HTTP Transport Handler



Request for protected resource

HTTP 401 response

Request withUserid/password in HTTP authentication header

TH

Control Region

WLM

Server Region

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Basic Authentication

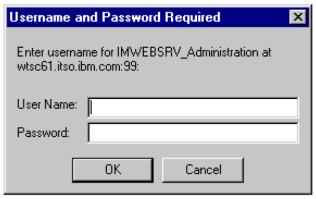
1. User clicks on link to protected page

Request: GET http://server/restricted.html

2. Server checks authority and rejects request

Response: Status 401
Realm "IMWEBSRV_Administration"

3. Browser pop-up window prompts user for userId and password



Username and Password Required

Enter username for IMWEBSRV_Administration at wtsc61.itso.ibm.com:99:

User Name:

Password:

4. Browser resends request with userid/password in request header

```
Request: GET http://server/restricted.html
```

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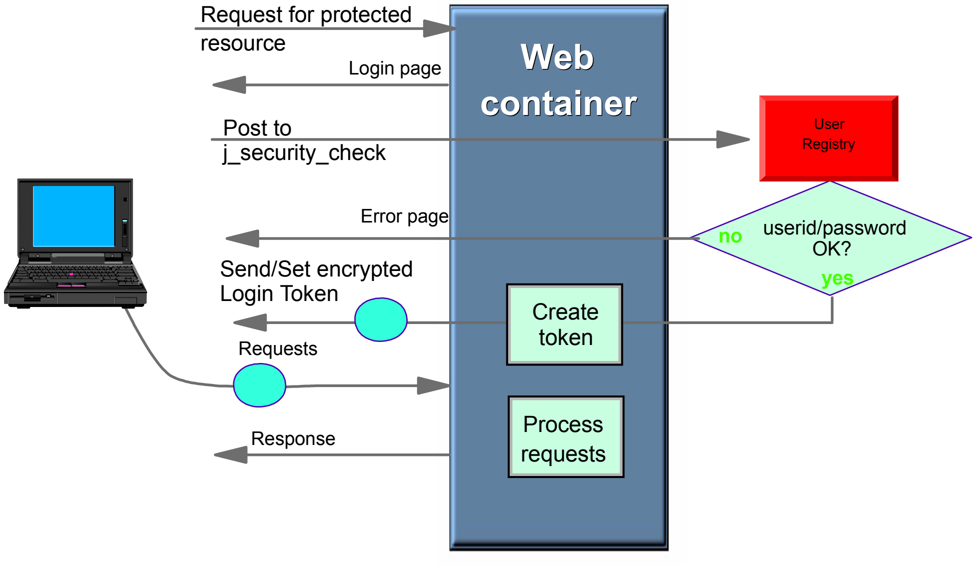
Form based



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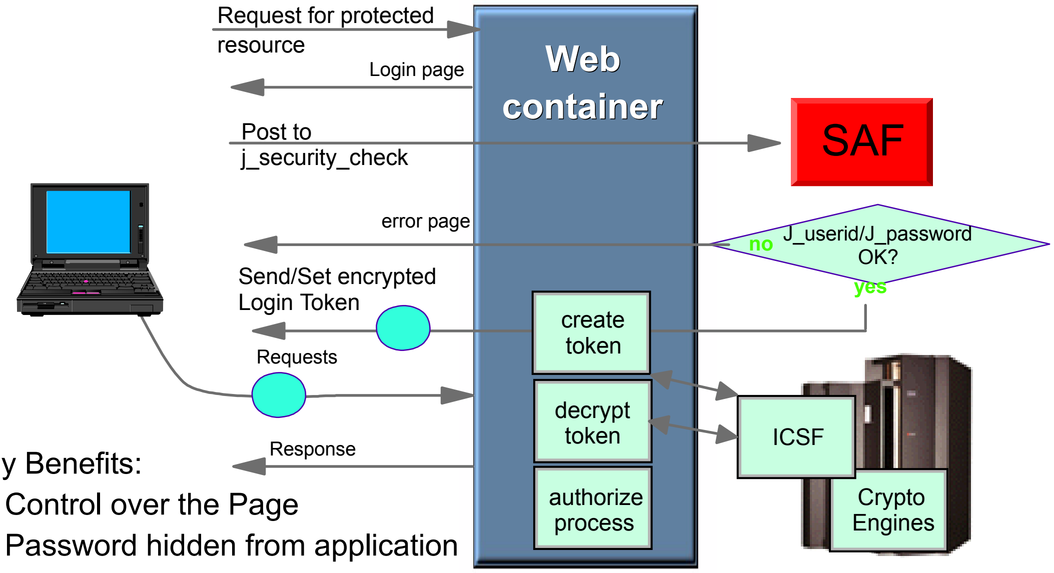
Form based login with SAF and ICSF



- Key Benefits:
  - Control over the Page
  - Password hidden from application
- Comments:
  - Requires cookies, requires encryption, SAF user present

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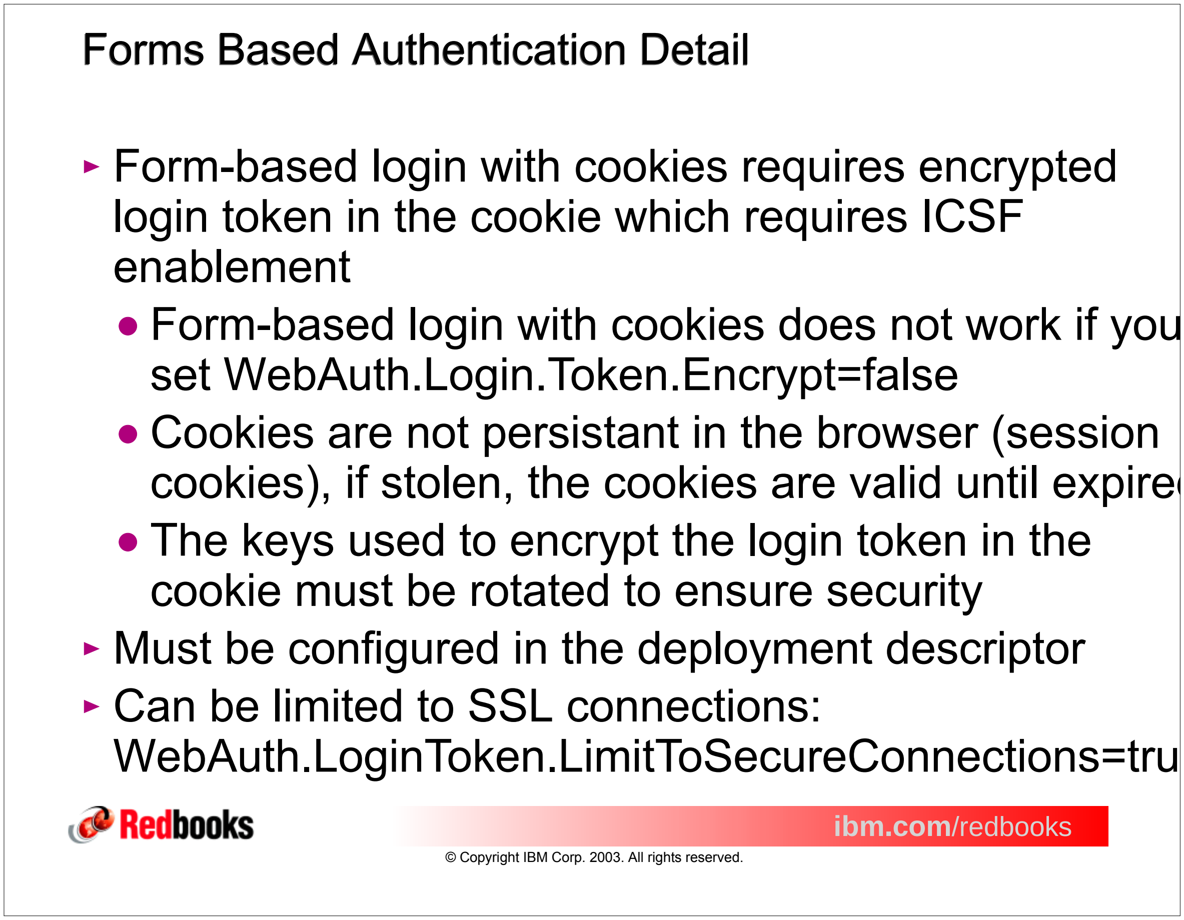

Forms Based Authentication Detail

- Form-based login with cookies requires encrypted login token in the cookie which requires ICSF enablement
  - Form-based login with cookies does not work if you set WebAuth.Login.Token.Encrypt=false
  - Cookies are not persistant in the browser (session cookies), if stolen, the cookies are valid until expire
  - The keys used to encrypt the login token in the cookie must be rotated to ensure security
- Must be configured in the deployment descriptor
- Can be limited to SSL connections: WebAuth.LoginToken.LimitToSecureConnections=tru

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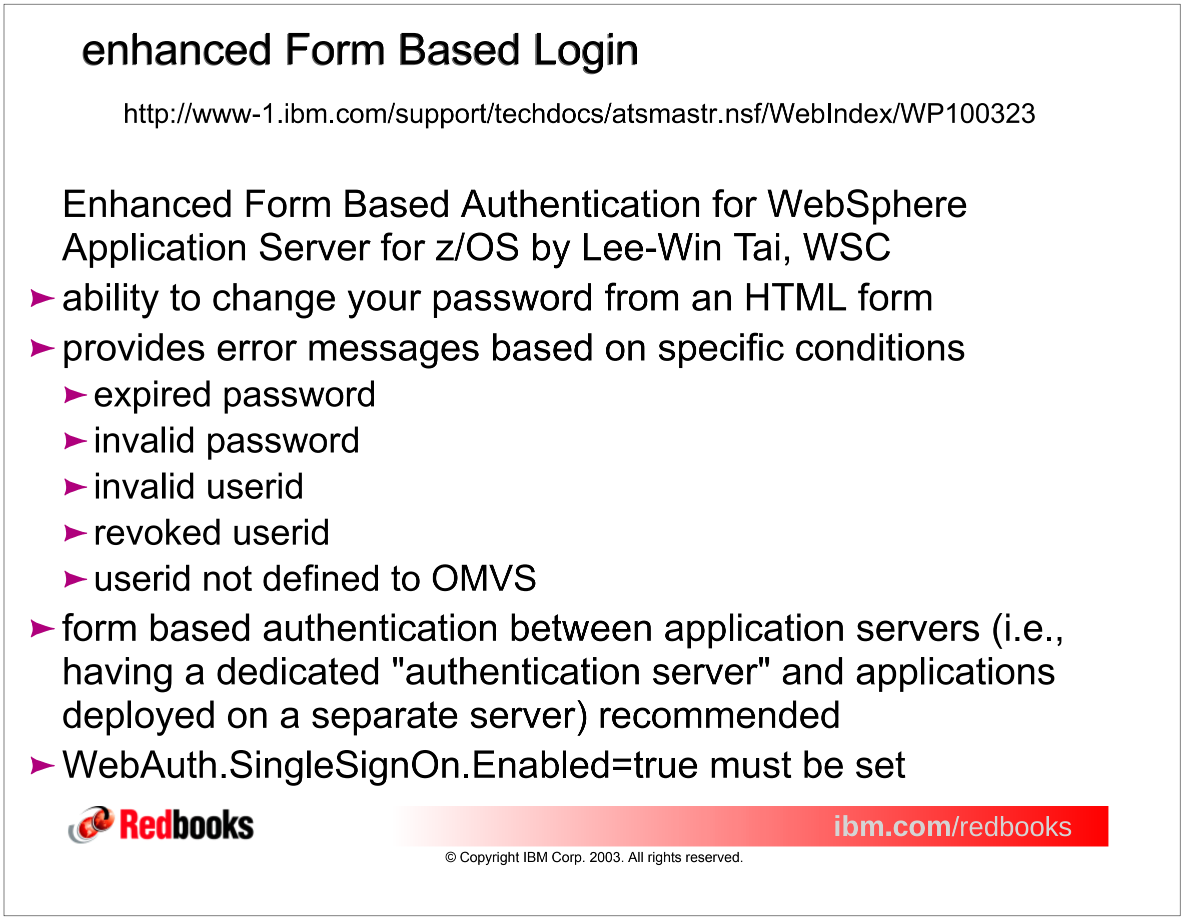

enhanced Form Based Login

http://www-1.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP100323

Enhanced Form Based Authentication for WebSphere Application Server for z/OS by Lee-Win Tai, WSC

- ability to change your password from an HTML form
- provides error messages based on specific conditions
  - expired password
  - invalid password
  - invalid userid
  - revoked userid
  - userid not defined to OMVS
- form based authentication between application servers (i.e., having a dedicated "authentication server" and applications deployed on a separate server) recommended
- WebAuth.SingleSignOn.Enabled=true must be set

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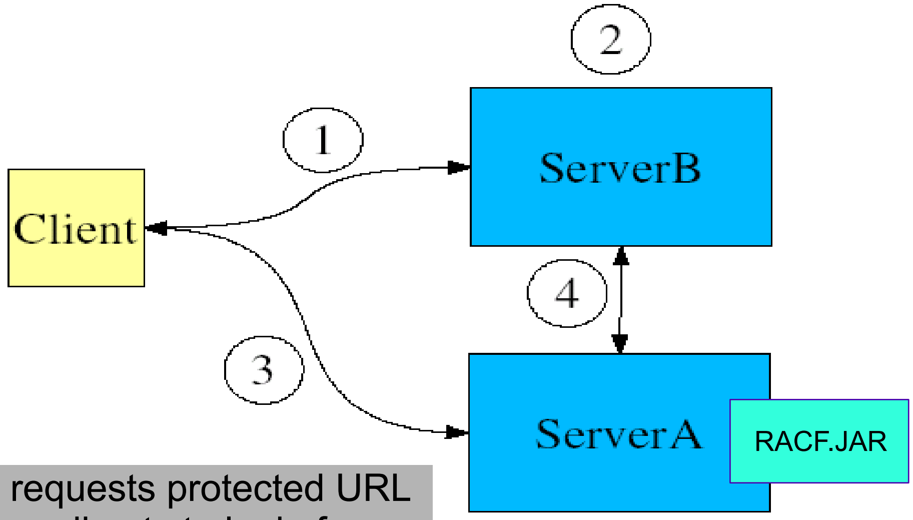
eFBL



1 Client requests protected URL
2 Server redirects to login form
3 Client submits form to authentication server
4 Client is redirected to originally requested URL

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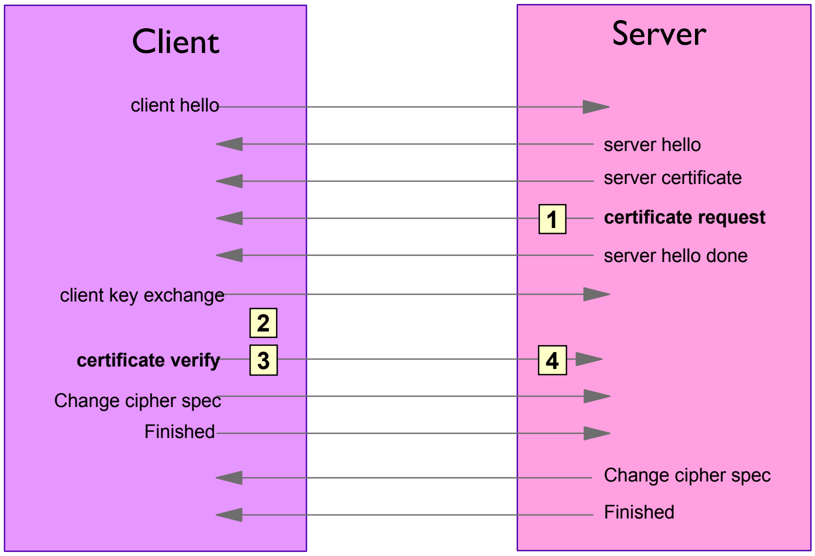
Certificates



HTTP custom prop. MutualAuthCBindCheck should control RACF certificate mapping.

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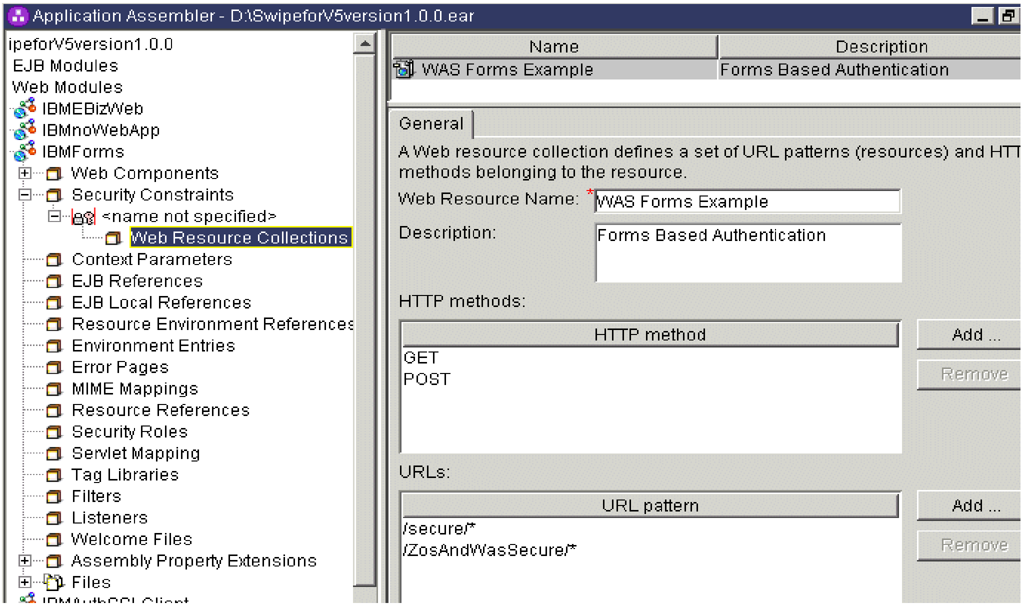
URL Protection



Name	Description
WAS Forms Example	Forms Based Authentication

A Web resource collection defines a set of URL patterns (resources) and HTT methods belonging to the resource.

Web Resource Name: * WAS Forms Example

Description: Forms Based Authentication

HTTP methods:

HTTP method
GET
POST

URLs:

URL pattern
/secure/*
/ZosAndWasSecure/*

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web.xml: Security Constraints

```
<security-constraint>
    <web-resource-collection>
        <web-resource-name>Secure Urls</web-resource-name>
        <description></description>
        <url-pattern>/secure/*</url-pattern>
        <http-method>GET</http-method>
        <http-method>PUT</http-method>
    </web-resource-collection>
    <auth-constraint>
        <description></description>
        <role-name>Manager</role-name>
    </auth-constraint>
    <user-data-constraint>
        <transport-guarantee>INTEGRAL</transport-guarantee>
    </user-data-constraint>
</security-constraint>
<login-config>
    <auth-method>BASIC</auth-method>
    <realm-name>SimpleRealm</realm-name>
</login-config>
<security-role>
    <description>Manager role</description>
    <role-name>Manager</role-name>
</security-role>
```

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HTTP Plug-in

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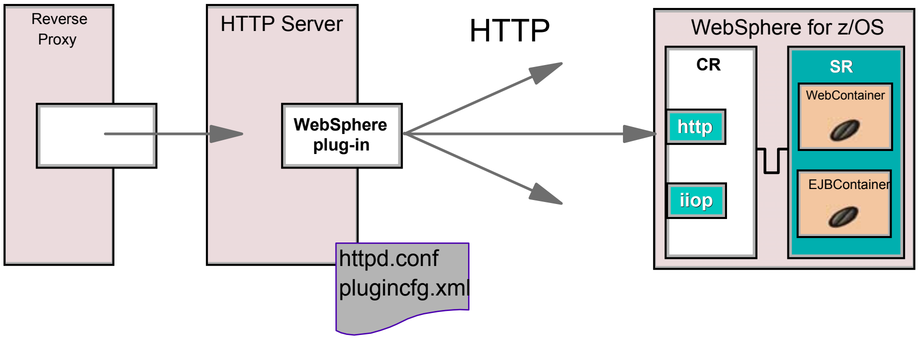
WAS 4/5 HTTP(S) plug-in (security aspects)



Reverse Proxy

HTTP Server

WebSphere plug-in

httpd.conf
pluginCfg.xml

HTTP

WebSphere for z/OS

CR

http

iiop

SR

WebContainer

EJBContainer

- ➤ SSL endpoint
- ➤ Authentication
- ➤ DMZ Integration
- ➤ Private WebSphere Headers

~~BBOC_HTTP_MODE=INTERNAL~~
TrustedProxy=true
~~BBOC_HTTP_SSL_MODE=INTERNAL~~
TrustedProxy=true

Private Headers contain:
certificate
remote user
remote host

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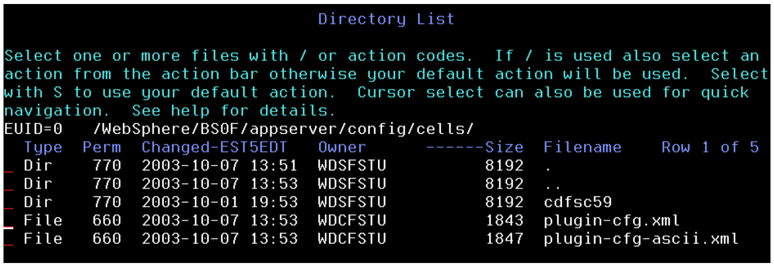
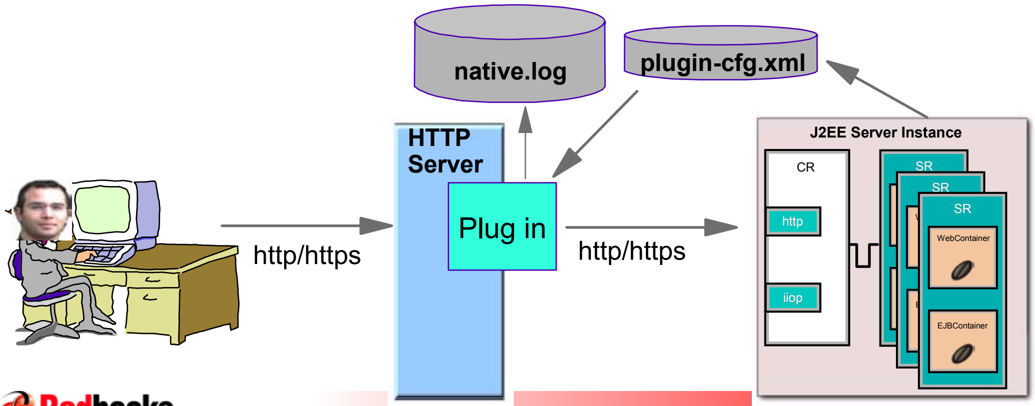
HTTP Plugin



```
                         Directory List

Select one or more files with / or action codes.  If / is used also select an
action from the action bar otherwise your default action will be used.  Select
with S to use your default action.  Cursor select can also be used for quick
navigation.  See help for details.
EUID=0   /WebSphere/BSOF/appserver/config/cells/
  Type  Perm  Changed-EST5EDT   Owner       ------Size  Filename    Row 1 of 5
_ Dir    770  2003-10-07 13:51  WDSFSTU           8192  .
_ Dir    770  2003-10-07 13:53  WDSFSTU           8192  ..
_ Dir    770  2003-10-01 19:53  WDSFSTU           8192  cdfsc59
_ File   660  2003-10-07 13:53  WDCFSTU           1843  plugin-cfg.xml
_ File   660  2003-10-07 13:53  WDCFSTU           1847  plugin-cfg-ascii.xml
```



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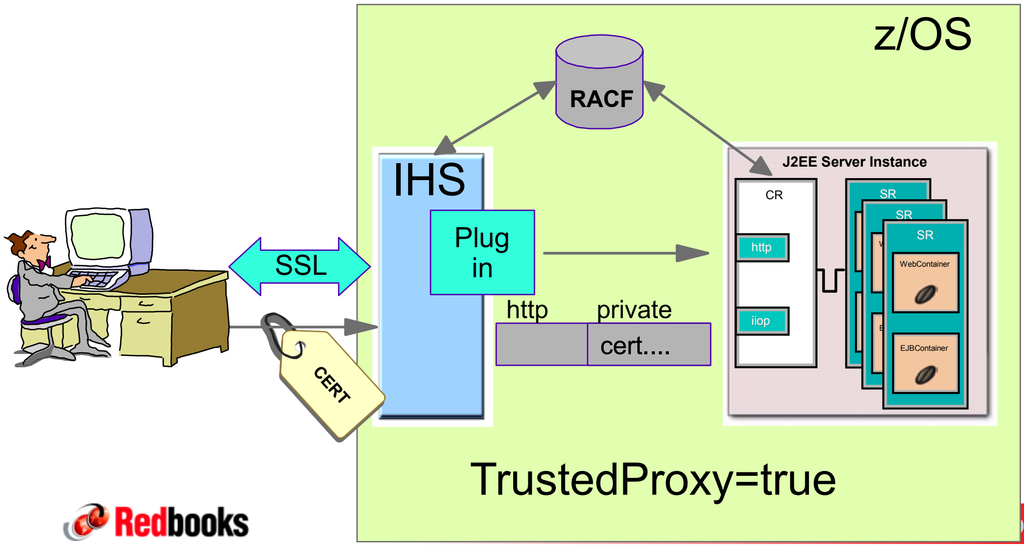
z/OS IHS Plug-in

- ➤do not use protection setups (%%CLIENT%%)
- ➤extattr +p ihs390WASPlugin_http.so
- ➤could be used for expired PW support (with protection setup and basic auth only)



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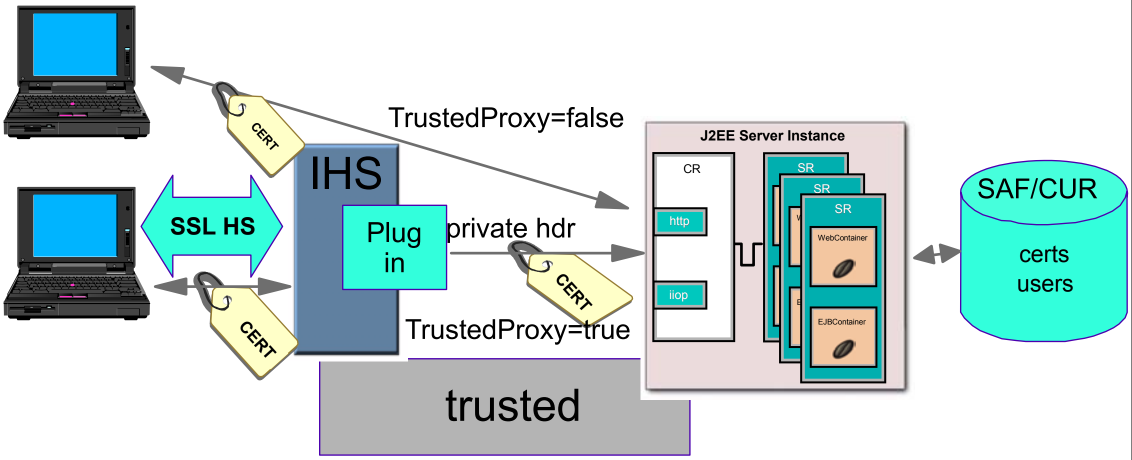
Client Certificates with Transport Handler



- Client Certificate returned from SSL Handshake
- Client Certificate info passed to Server Region via private header with request
  - Certificate not passed unless running in TrustedProxy=true. The Plug-in will pass any needed certificate info via HTTP headers

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Authentication variation according TrustedProxy property

Configuration	TrustedProxy=false	TrustedProxy=true
direct to HTTP transport handler	Basic auth. enabled	Basic auth. enabled
	Form based auth. enabled	Form based auth. enabled
	Certificate auth. enabled web container has an HTTPS transport.	Certificate auth. disabled
HTTP plug-in -> TH	Basic auth. enabled	Basic auth. enabled
	Form based auth. enabled	Form based auth. enabled
	Certificate auth. enabled. HTTP server certificate is used to authenticate if web container has an HTTPS transport.	direct user certificate auth. disabled. certs flow in a private header

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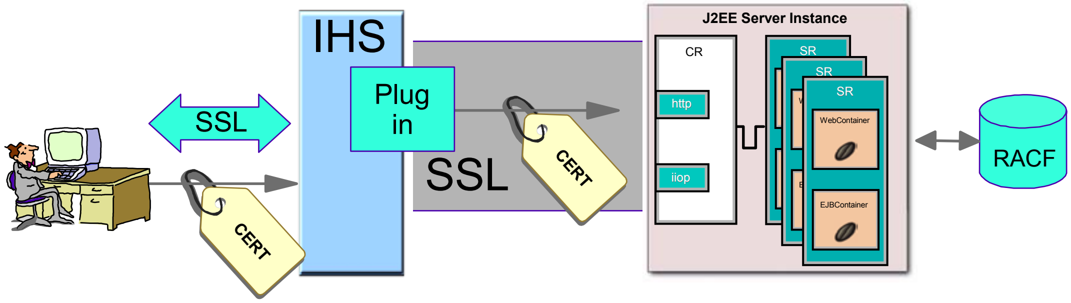
encrypting traffic between WAS and PI



- ➤To encrypt all traffic between the plugin and the web container remove all non-SSL transport ports from the web container, update the plugin-cfg.xml file. Following the regular InfoCenter instructions for configuring SSL for the plugin to web container connection would only encrypt https requests.
- ➤Use ~~BBOC_HTTP_SSL_CBIND=ON~~ protocol_https_mutual_auth_cbind_check to enforce mutual handshake and also restrict the clients that can connect to TH
- ➤CB.BIND provides addition level of security/verification on HTTP SSL Transport connections
  - ➤WebServers Cert must be mapped to an user which has access(CONTROL) to CBIND CB.BIND.webcontainerID
  - ➤PERMIT CB.BIND.servername CLASS(CBIND) ID(clientCertUserid) ACCESS(CONTROL)

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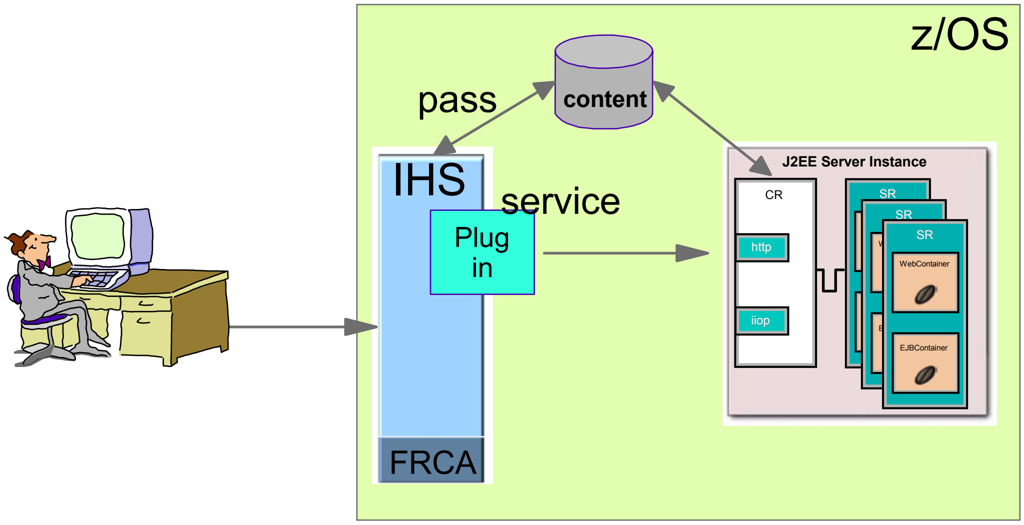
IHS/plug-in for static content acceleration



- ➤don't use security for the static content
- ➤or use basic auth and sync the values for the
  - ➤ServerID in the protection setup in the httpd.conf
  - ➤and the <realm-name> in the web.xml

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authc combinations

HTTP server with plug-in protection	Web container login setting	Result
None	Basic	web container prompts realm thru the plugin
	Form based	web container redirects request to the form login page thru the plugin
	Certificate	depends on HTTPS transport availability and TrustedProxy custom variable. See next pages
Basic	Basic	web container reuses HTTP server authentication if realm is the same
	Form based	web container ignores HTTP server authentication and redirects request to the form login page thru the plugin
	Certificate	depends on HTTPS transport availability and TrustedProxy custom variable.
SSL	Basic	web container ignores certificate authentication and prompts realm thru the plugin
	Form based	web container ignores certificate authentication and redirects request to the form login page thru the plugin
	Certificate	depends on HTTPS transport availability and TrustedProxy custom variable.

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top secret!
inside the private headers

```
PrintWriter server = new PrintWriter(s.getOutputStream());

String line;
System.out.println("Connected... Type your manual HTTP request");
System.out.println("----------------------------------------");

  server.print("GET /IBMClientSSL/secure/sslEjbCaller HTTP/1.1\n");
  server.print("Accept: image/gif, image/x-xbitmap, image/jpeg, image/pjpeg,  application/msword\n");
  server.print("Accept-Encoding: gzip, deflate\n");
  server.print("Cookie: msp=2\n");
  server.print("User-Agent: Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0)\n");
  server.print("Host: wtsc59.itso.ibm.com\n");
  server.print("Connection: Keep-Alive\n");
  server.print("Accept-Language: en-us\n");
  server.print("$WSCC: MIICYzCCAcygAwIBAgIBDjANBgkqhkiG9w0BAQUFADAkMQswCQYDVQQGEwJVUzEVMBMGA1UEAx...
  server.print("$WSIS: true\n");
  server.print("$WSSC: https\n");
  server.print("$WSPR: HTTP/1.1\n");
  server.print("$WSRA: 9.12.6.175\n");
  server.print("$WSSN: wtsc59.itso.ibm.com\n");
  server.print("$WSSP: 4469\n");
  server.print("$WSSI: BQACzgkMBq8IRAAAAAAAAAAAAAAAAAAAPyrtnQAAAAY=\n");
  server.print("Surrogate-Capabilities: WS-ESI=\"ESI/1.0+\"\n\r\n");  // HTTP lines end with \r\n
  server.flush();
```

client cert

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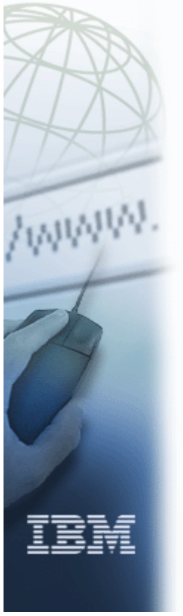

EJB Container

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Authc/Authz

Authentication

- LOCAL OS only
- delegation from WC (run-as)
- zSAS and/or CSIv2

Authorization

- SAF based or
- bindings

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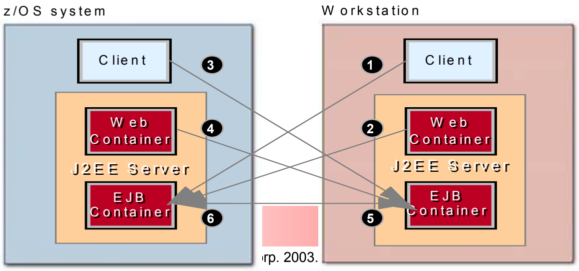
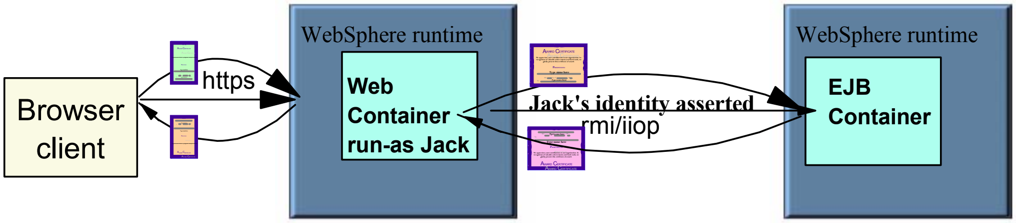
cross platform Authentication

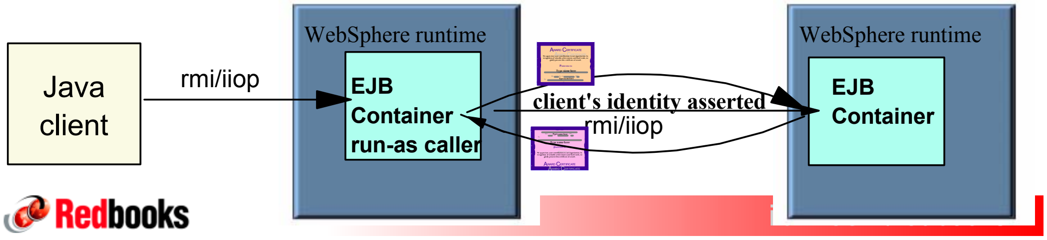
- **z/SAS Features**
  - IBM z/OS specific
  - Userid/Password over wire
  - SSL choice can be independent of security mechanism
  - requires zOS SAF credentials
- **CSIv2 Features**
  - SSL/TLS or TCPIP Choice per configuration
  - Accepts asserted Distinguished Names and Digital Certs from ND
  - requires zOS SAF credentials
  - Stateful/Stateless Choice

1) Userid/password over SSL, SSL mutual authentication
2) Server's userid/password over SSL
3) SSL mutual authentication
4) SSL mutual authentication
5) Server's userid/password over SSL
6) SSL mutual authentication
+
Supplemental Client Authentication asserted identities



CSIv2 identity assertion





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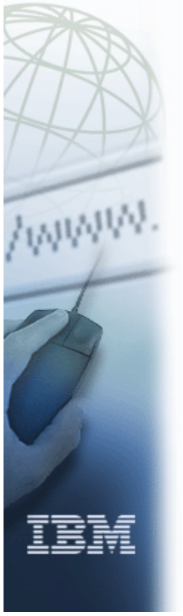

EIS security

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JCA Authentication Options

Defined by J2EE resource reference descriptor <res-auth>

- Container - Container Managed Sign-on
  - EIS sign-on managed by WebSphere Application Server
- Application - Component Managed Sign-on
  - Application component provides explicit security information

New in WAS V5! J2C Connection Factories can use JAAS Authentication Alias for Component and/or Container authentication

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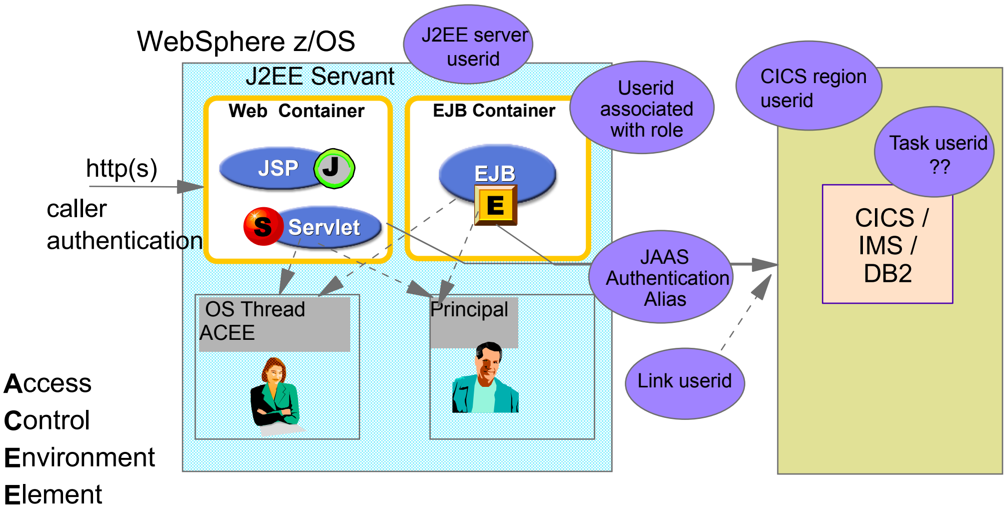
Lots of Userids/Principals/Identities!


WebSphere z/OS

J2EE server userid

J2EE Servant

Web Container

EJB Container

Userid associated with role

CICS region userid

Task userid ??

http(s)

caller authentication

JSP

J

S

Servlet

EJB

E

JAAS Authentication Alias

CICS / IMS / DB2

OS Thread ACEE

Principal

Link userid

Access

Control

Environment

Element

which userid do you want to flow to the EIS ?

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z/OS Thread Identity

Thread Identity: z/OS exclusive option that allows the identity of the current thread to be assigned to a connection.

Applicable only to JCA resource adapters and JDBC providers that support the use of thread identity and only when:

- res-auth=Container in J2EE Resource Reference
- no Container-managed JAAS alias specified for J2C Connection Factory

You do not need to specify anything to declare the level of support. The Resource Adapter's ConnectionFactory or DataSource states its level of support to the container.

- Thread identity support (Allowed, Not Allowed, Required)

Thread Identity support applies to local mode JCA only.

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Thread Security (SynchtoOSThread)

Thread Security: z/OS exclusive option that allows the identity of the current thread to be pushed onto the OS thread.

(Also known as SynchtoOSThread).

You do not need to specify anything to declare the level of support. The Resource Adapter's ConnectionFactory or DataSource states its level of support to the container.

- OS Thread Security support (Yes, Not Supported)

To enable Thread Security :

- Enable for the server using Administration Console Security->Global Security->Additonal Properties, z/OS Security Options. Then enter a check mark in the box titled,"Sync To OS Thread Allowed" (**Available only for AdminConsole W500103**)
- res-auth=Container in J2EE Resource Reference
- no Container-managed JAAS alias specified for J2C Connection Factory (DB2 z/OS Only)

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Thread Identity and Thread Security Support

Connectors	Thread Identity Support	Thread Security Support
IMS Connector local mode configuration	ALLOWED	Not supported
IMS Connector remote mode configuration	NOTALLOWED	Not supported
CTG Connector local mode configuration	ALLOWED	Not supported
CTG Connector remote mode configuration	NOTALLOWED	Not supported
IMS JDBC Connector	REQUIRED	True
RRA DB2 z/OS Local JDBC Provider	ALLOWED	True

- IMS Connector for Java ThreadIdentity support requires APAR PQ76633

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z/OS Thread Identity Connectors Support

<table>
<tr><td colspan="8">Container-managed JAAS Authentication Alias specified?</td></tr>
<tr><td colspan="4">NO</td><td colspan="4">YES</td></tr>
<tr><td colspan="4">Connector Allows or Requires Thread Identity?</td><td colspan="4">Connector Requires Thread Identity?</td></tr>
<tr><td>NO</td><td colspan="3">YES</td><td>NO</td><td colspan="3">YES</td></tr>
<tr><td rowspan="5">Proceeing is dependent on connector:
• may throw exception
• may default to connector user/pswd custom properties</td><td colspan="3">Connector Requires OS Thread Security?</td><td rowspan="5">Use specified JAAS alias</td><td colspan="3">Connector Requires OS Thread Security?</td></tr>
<tr><td>NO</td><td colspan="2">YES</td><td>NO</td><td colspan="2">YES</td></tr>
<tr><td rowspan="3">Use RunAs user identity associated with current thread</td><td colspan="2">Server Sync-To-Thread enabled?</td><td rowspan="3">Use RunAs user identity associated with current thread</td><td colspan="2">Server Sync-To-Thread enabled?</td></tr>
<tr><td>NO</td><td>YES</td><td>NO</td><td>YES</td></tr>
<tr><td>Use Server identity</td><td>Use RunAs user identity associated with current thread</td><td>Use Server identity</td><td>Use RunAs user identity associated with current thread</td></tr>
</table>

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DB2 z/OS

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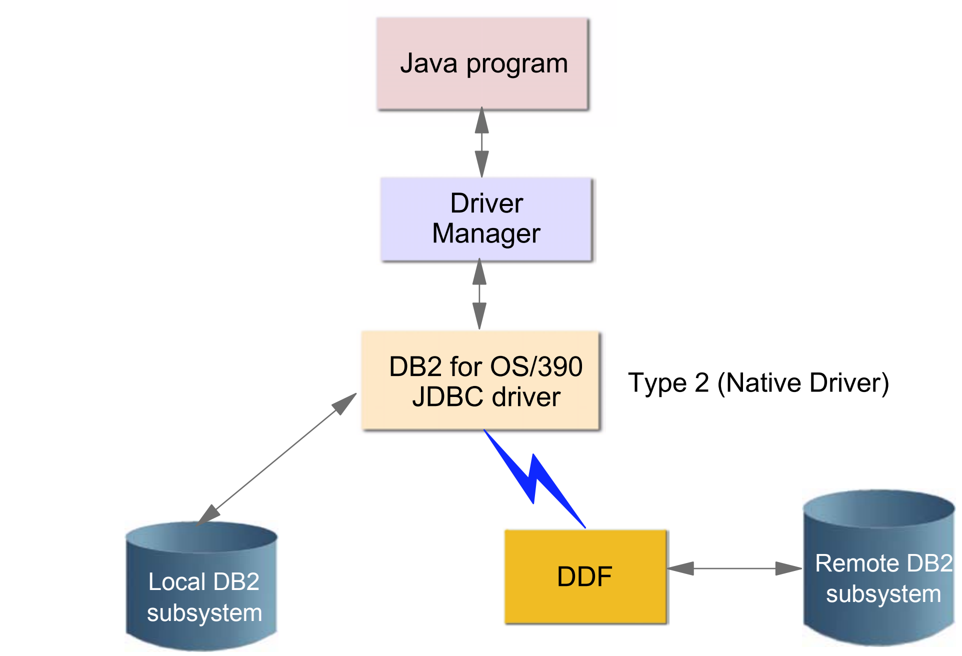
Java Application Flow with JDBC for OS/390



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Implicit and explicit userid in JDBC

```
Hashtable parms = new Hashtable();
parms.put(Context.INITIAL_CONTEXT_FACTORY,cx_factory);
Context ctx = new InitialContext(parms);
jndisource = "java:comp/env/jdbc/DbSecurity");   (1)
ds = (javax.sql.DataSource) ctx.lookup(jndisource);

// Are we trying to supply our own USERID and PASSWORD?
if (userid == null) {
      System.out.println("Use implicit Userid & Password");
      conn = ds.getConnection();   (2a)
}
else {
      System.out.println("Use explicit <" + userid + "> &
Password");
      conn = ds.getConnection(userid, password);   (2b)
}
```

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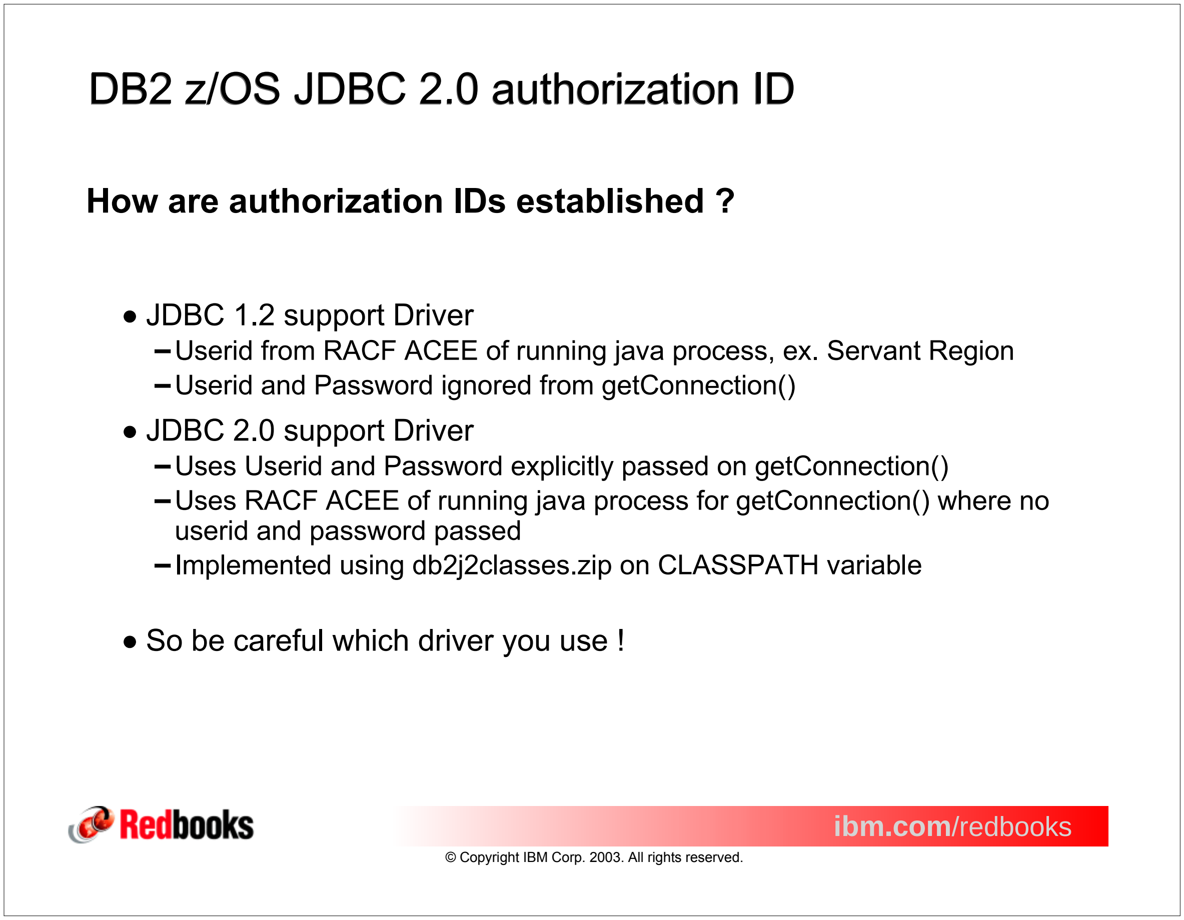

DB2 z/OS JDBC 2.0 authorization ID

How are authorization IDs established ?

- JDBC 1.2 support Driver
  - Userid from RACF ACEE of running java process, ex. Servant Region
  - Userid and Password ignored from getConnection()
- JDBC 2.0 support Driver
  - Uses Userid and Password explicitly passed on getConnection()
  - Uses RACF ACEE of running java process for getConnection() where no userid and password passed
  - Implemented using db2j2classes.zip on CLASSPATH variable
- So be careful which driver you use !

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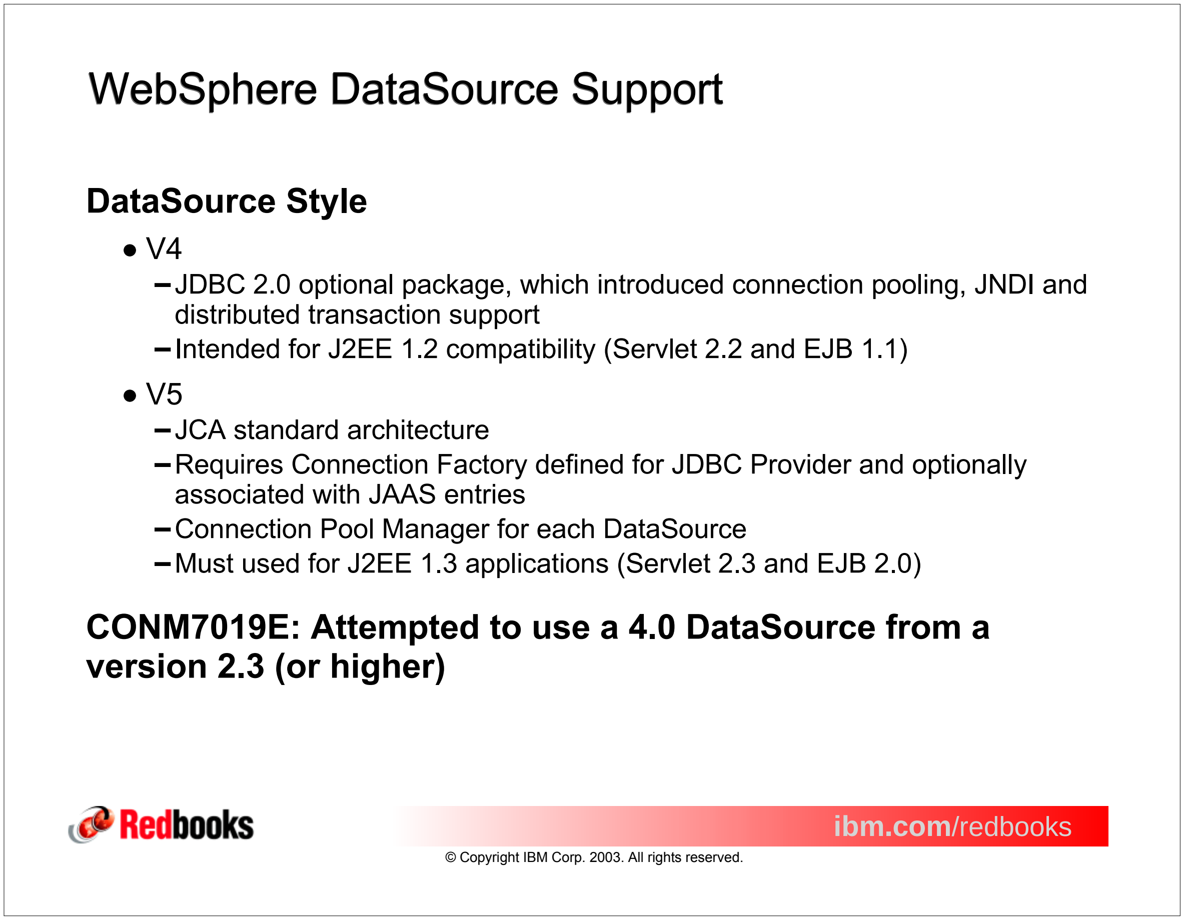

WebSphere DataSource Support

DataSource Style

- V4
  - JDBC 2.0 optional package, which introduced connection pooling, JNDI and distributed transaction support
  - Intended for J2EE 1.2 compatibility (Servlet 2.2 and EJB 1.1)
- V5
  - JCA standard architecture
  - Requires Connection Factory defined for JDBC Provider and optionally associated with JAAS entries
  - Connection Pool Manager for each DataSource
  - Must used for J2EE 1.3 applications (Servlet 2.3 and EJB 2.0)

CONM7019E: Attempted to use a 4.0 DataSource from a version 2.3 (or higher)

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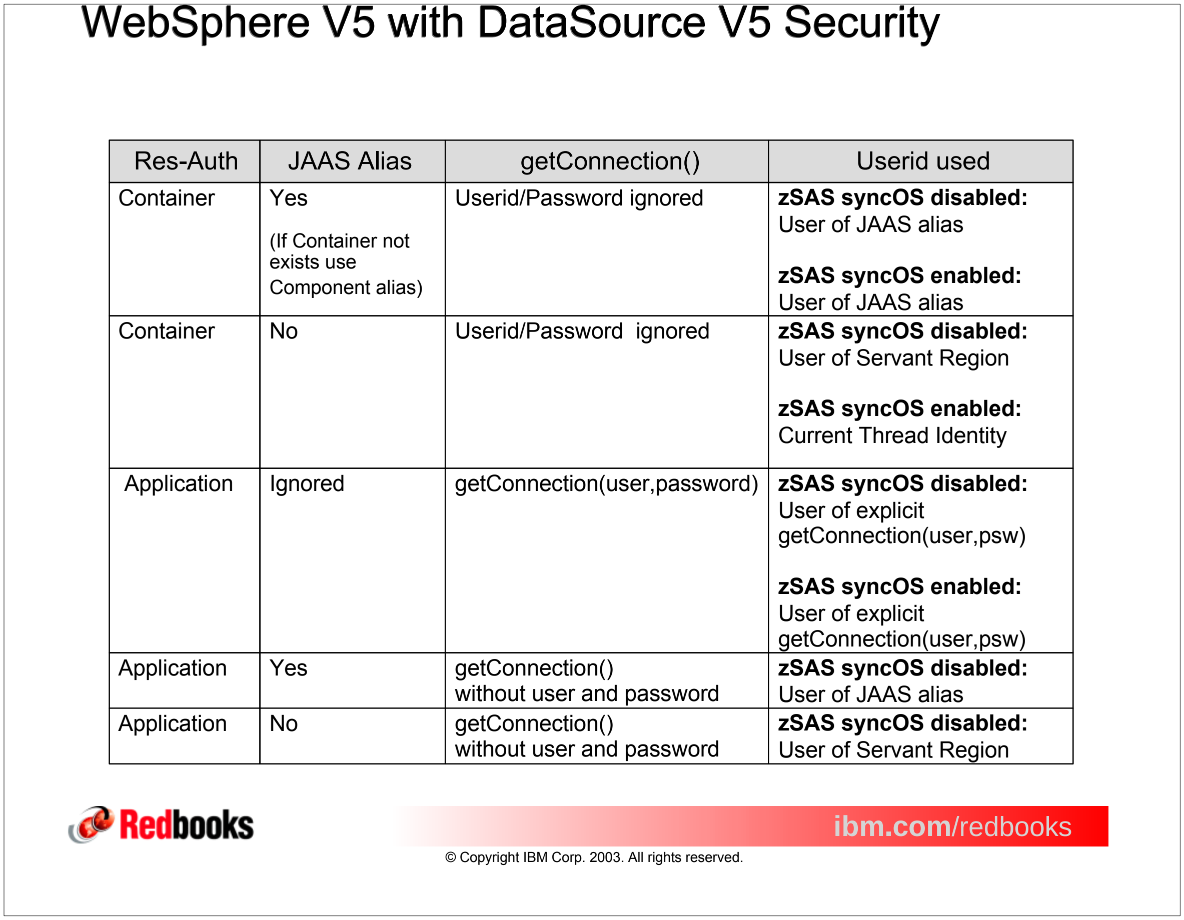

WebSphere V5 with DataSource V5 Security

Res-Auth	JAAS Alias	getConnection()	Userid used
Container	Yes (If Container not exists use Component alias)	Userid/Password ignored	**zSAS syncOS disabled:** User of JAAS alias **zSAS syncOS enabled:** User of JAAS alias
Container	No	Userid/Password ignored	**zSAS syncOS disabled:** User of Servant Region **zSAS syncOS enabled:** Current Thread Identity
Application	Ignored	getConnection(user,password)	**zSAS syncOS disabled:** User of explicit getConnection(user,psw) **zSAS syncOS enabled:** User of explicit getConnection(user,psw)
Application	Yes	getConnection() without user and password	**zSAS syncOS disabled:** User of JAAS alias
Application	No	getConnection() without user and password	**zSAS syncOS disabled:** User of Servant Region

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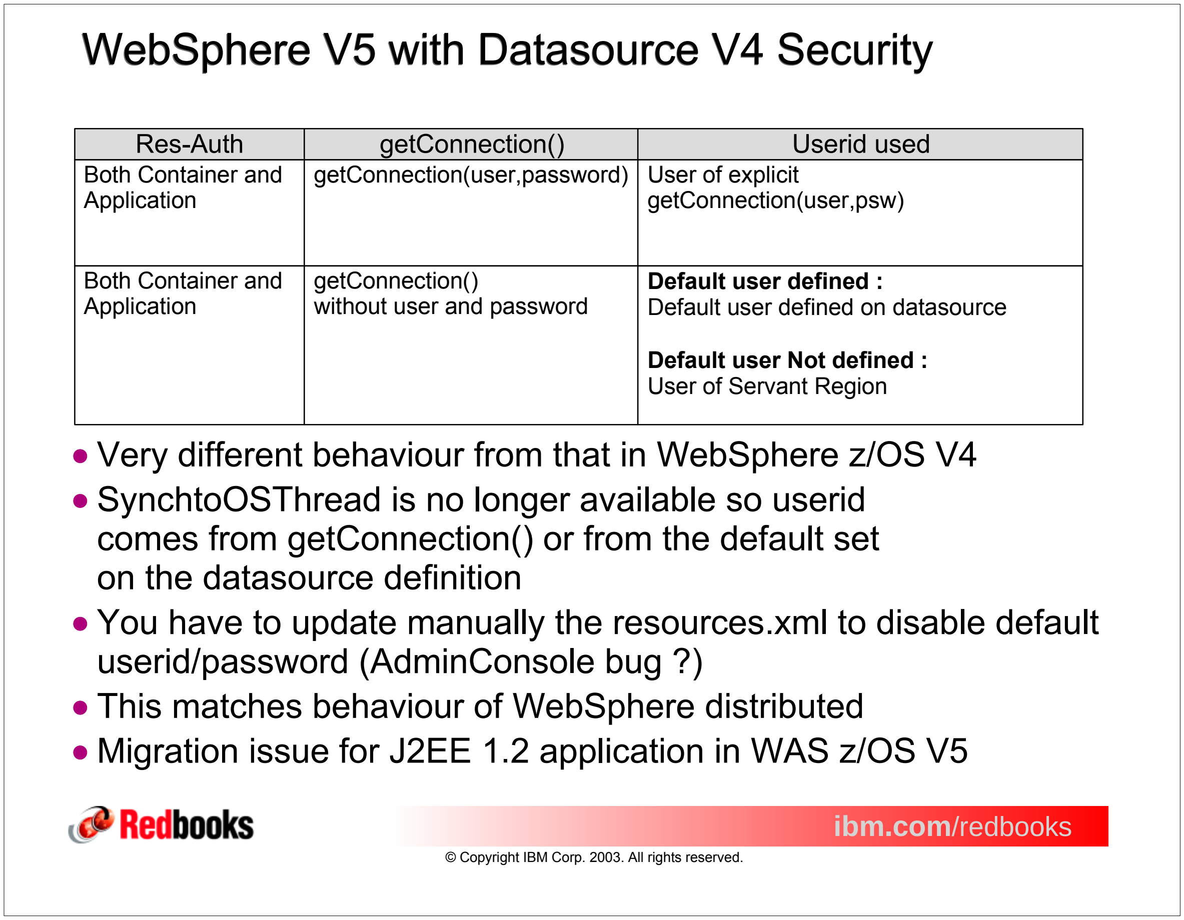

WebSphere V5 with Datasource V4 Security

Res-Auth	getConnection()	Userid used
Both Container and Application	getConnection(user,password)	User of explicit getConnection(user,psw)
Both Container and Application	getConnection() without user and password	**Default user defined :** Default user defined on datasource **Default user Not defined :** User of Servant Region

- Very different behaviour from that in WebSphere z/OS V4
- SynchtoOSThread is no longer available so userid comes from getConnection() or from the default set on the datasource definition
- You have to update manually the resources.xml to disable default userid/password (AdminConsole bug ?)
- This matches behaviour of WebSphere distributed
- Migration issue for J2EE 1.2 application in WAS z/OS V5

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Notes

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The difference is WebSphere.

IBM eserver zSeries