HP Service Manager

for supported $\mathsf{Windows}^{\mathbb{R}}$ and $\mathsf{UNIX}^{\mathbb{R}}$ operating systems

Software Version: 7.11 patch

Applications Patch Manager Guide

Document Release Date: October 2012 Software Release Date: October 2012



Legal Notices

Warrant

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notices

© Copyright 2012 Hewlett-Packard Development Company, L.P.

This product includes cryptographic software written by Eric Young (eav@cryptsoft.com). This product includes software written by Tim Hudson (tih@cryptsoft.com). Smack software copyright © Jive Software, 1998-2004. SVG Viewer, Mozilla JavaScript-C (SpiderMonkey), and Rhino software Copyright © 1998-2004 The Mozilla Organization. This product includes software developed by the OpenSSL Project for use in the OpenSSL toolkit. (http:// www.openssl.org). OpenSSL software copyright 1998-2005 The OpenSSL Project. All rights reserved. This project includes software developed by the MX4J project (http:// mx4j.sourceforge.net). MX4J software copyright © 2001-2004 MX4J Team. All rights reserved. JFreeChart software © 2000-2004, Object Refinery Limited. All rights reserved. JDOM software copyright © 2000 Brett McLaughlin, Jason Hunter. All rights reserved. LDAP, OpenLDAP, and the Netscape Directory SDK Copyright © 1995-2004 Sun Microsystems, Inc. Japanese Morphological Analyzer © 2004 Basis Technology Corp. The Sentry Spelling-Checker Engine Copyright © 2000 Wintertree Software Inc. Spell Checker copyright © 1995-2004 Wintertree Software Inc. CoolMenu software copyright © 2001 Thomas Brattli. All rights reserved. Coroutine Software for Java owned by Neva Object Technology, Inc. and is protected by US and international copyright law. Crystal Reports Pro and Crystal RTE software © 2001 Crystal Decisions, Inc., All rights reserved. Eclipse software © Copyright 2000, 2004 IBM Corporation and others. All rights reserved. Copyright 2001-2004 Kiran Kaja and Robert A. van Engelen, Genivia Inc. All rights reserved. Xtree copyright 2004 Emil A. Eklund. This product includes software developed by the Indiana University Extreme! Lab (<http://www.extreme.indiana.edu/>). Portions copyright © Daniel G. Hyans, 1998. cbg.editor

Eclipse plug-in copyright © 2002, Chris Grindstaff. Part of the software embedded in this product is gSOAP software. Portions created by gSOAP are copyright © 2001-2004 Robert A. van Engelen, Genivia Inc. All Rights Reserved. Copyright © 1991-2005 Unicode, Inc. All rights reserved. Distributed under the Terms of Use in http:// www.unicode.org/ copyright.html.

Trademark Notices

Java is a registered trademark of Oracle and/or its affiliates.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

Oracle® is a registered US trademark of Oracle Corporation, Redwood City, California.

UNIX® is a registered trademark of The Open Group.

Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to:

http://h20230.www2.hp.com/selfsolve/manuals

This site requires that you register for an HP Passport and sign in. To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

Or click the New users - please register link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

Support

Visit the HP Software Support web site at:

www.hp.com/go/hpsoftwaresupport

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support web site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

To find more information about access levels, go to:

http://h20230.www2.hp.com/new_access_levels.jsp

Contents

1	Overview	. 9
	Applications Patch Manager requirements	10
	Required knowledge	10
	Required tools	
	Required software	
	Documentation resources	
	HP Customer Support Web site access	
	Implementation Overview	13
2	Applying the out-of-box patch and reconciling the differences	15
	Setting up a copy of your production system	15
	Applying the out-of-box patch	16
	Reviewing the results	18
	Description of View/Merge results	19
	Reconciling differences	22
	Merging new objects with your tailored objects	
	Reconciling differences between RAD applications	24
3	Creating and applying the production patch	27
	Creating the production patch	28
	Testing the production patch	29
	Applying the production patch	29
	Going live after applying the production patch	30
Inc	dex	31

1 Overview

This guide describes the HP Service Manager Applications Patch Manager and how to use it to update your applications to the latest applications release.

The HP Service Manager Applications Patch Manager enables you to keep your Service Manager applications up to date without going through a complete application upgrade. By adding incremental updates, you decrease the number of changes you will need to reconcile on your next application upgrade.

Applications patch releases include fixes only, not enhancements. Any changes required for those objects are described in the *HP Service Manager* 7.11 Release Notes.

This version of the Applications Patch Manager updates your HP Service Manager applications from version 7.10 to version 7.11 patch, or from early patch of version 7.11 to the latest patch. After the patch is applied, the version of your HP Service Manager applications will be 7.11.xxx. Before you can apply the applications patch, you must first install the miminum required version of the Service Manager 7.11/9.21/9.30 client and server patch. For instructions see the *HP Service Manager Installation Guide*.



If you are working with localized Service Manager 7.10 system, you need to use the previous Applications Patch Manager for localization to upgrade your system to version 7.11 first. Then you can use this version of the Applications Patch Manager to upgrade your system from version 7.11 to the latest patch.

Topics in this section include:

- Applications Patch Manager requirements on page 10
- Implementation Overview on page 13

Applications Patch Manager requirements

Be sure to meet the requirements before you try to apply or create an applications patch.

Required knowledge

You should be an experienced System Administrator who is familiar with your Service Manager installation.

You should be familiar with the following:

- How your existing Service Manager system operates
- How the application files function
- How to compare records
- The Rapid Application Development (RAD) environment

If you do not have the administrative experience necessary to apply the applications patch, you may need assistance from your local application developers and database administrators. You can also contact HP Customer Support.

Required tools

After applying an applications patch, it is necessary to reconcile any conflicts that are discovered by the Applications Patch Manager. The utilities you will use most when reconciling conflicts include:

- Database Manager
- Display application
- Forms Designer
- Merge Utility
- RAD Editor

Required software

Service Manager system requirements:

- Service Manager application release level:
 - 7.10, 7.11 or 7.11 Application Patch
- Service Manager application release language:
 - All languages for 7.11
 - English for 7.10 only
- Service Manager client/server release level:
 - 7.11 Patch
 - 9.21 Patch
 - 9.30 Patch or 9.31
- The Service Manager server process must have read-write access to the database.

For detailed information, see the release notes that came with the Application Patch.

Documentation resources

You may require access to the following Service Manager documentation.

- Service Manager 7.11 online Help for information about Database Manager, Display application, Forms Designer, Merge Utility, and the RAD Editor.You can access the online Help by using the HP Service Manager client or Help server.
- *HP Service Manager* 7.11/9.21/9.30 *Installation Guide* for client/server installation instructions. HP bundles this guide with the installation media.
- *HP Service Manager 7.11/9.21/9.30 Release Notes* for information about Software Change Requests (SCRs), enhancements, and known issues. The release notes are part of the installation materials and are also available on the Customer Support Web site.

HP Customer Support Web site access

The HP Customer Support Web site has operating system and compatibility information, product documentation, and release notes. If you do not have an account for this Web site, contact HP Customer Support at: **www.hp.com/go/ hpsoftwaresupport.**

Implementation Overview

Before you can apply the Applications patch, you must first upgrade the client and server to the latest version. Do not upload the 7.11 data files. Then apply the applications patch on a copy of your production system. The Applications Patch Manager installs new objects and determines whether previously existing objects are identical to the ones installed originally. If an existing object is unchanged from the original object for your existing version of HP Service Manager, the Patch Manager replaces it with the new object. If the object on your system is different from the original for that version, the Patch Manager leaves the old object untouched. Patch Manager also installs the new object and adds a prefix (NEW7.11<*name*) to the name of the new version.

You can keep your old version, accept the new one, or merge the two versions. How much work this will require depends on whether the particular objects that this patch updates were tailored on your system, and on the specific differences that exist.

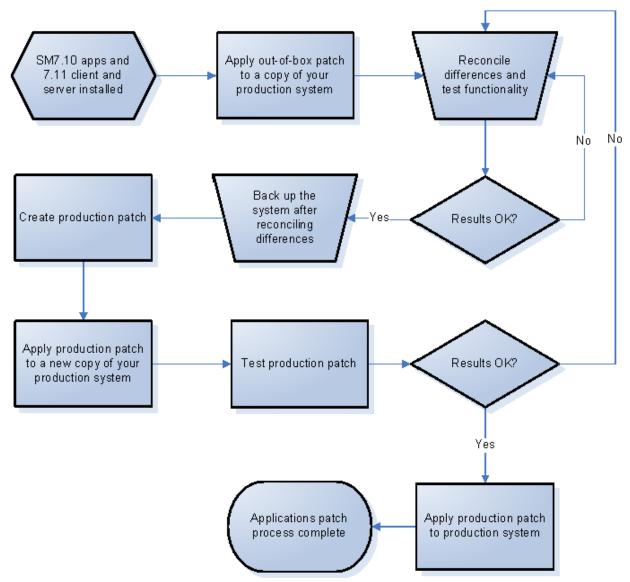


Figure 1 Applications Patch Manager Process Flows

2 Applying the out-of-box patch and reconciling the differences

Before you can update your tailored Service Manager system, you need to apply the out-of-box patch to a copy of that system, and then handle any objects the system could not update automatically.

This chapter explains what you need to do to apply the out-of-box patch and handle your tailored objects.

Topics in this section include:

- Setting up a copy of your production system on page 15
- Applying the out-of-box patch on page 16
- Reviewing the results on page 18
- Reconciling differences on page 22

Setting up a copy of your production system

In order to create the best possible production patch, create the patch on a system that replicates your production environment as closely as possible.

When setting up this system, be sure to incorporate the following:

- The same operating system version
- The same database version
- The same Service Manager client and server versions
- A copy of your production data

Applying the out-of-box patch

Once you have set up a copy of your production system, you must first upgrade the HP Service Manager client and server to the latest version (7.11 patch). Do not upload the data files when installing the new server.

Follow these steps to apply the out-of-box patch to a copy of your production system:

- 1 For Unix:
 - a Navigate to the directory where **APM-7.11.patchrel.zip** is located.
 - b Uncompress **APM-7.11.patchrel.zip** into the directory on the server where the production copy resides.

For Windows:

- a Navigate to the directory where APM-7.11-patchrel.msi is located.
- b Double-click **APM-7.11-patchrel.msi** and follow the steps provided by the installer to install the patch.

Regardless of the operating system, the installation process creates the **app_patchrel\SM7.10-7.11.xxx** directory, which contains the files that make up the applications patch release.

- 2 Log in to your Service Manager server as a System Administrator.
- 3 On the Service Manager toolbar, select **Window > Preferences**.
- 4 Uncheck the Client side load/unload checkbox and click OK.
- 5 Go to System Administration > Ongoing Maintenance > Patch Release and select Apply Patch Release.
- 6 Enter the fully qualified path and file name to **patchrel.unl** in **app_patchrel\SM7.10-7.11.xxx**, and then click **Next**.

If the client is not installed on the same machine as the server, the path must be relative to the server, instead of to the client computer.

The Applications Patch Manager displays the current version of your applications and the version that will result after you apply the patch.

7 Confirm that the source and target versions listed match your current production system and the applications patch version, and then click **Next** to apply the patch.

When the Applications Patch Manager finishes applying the patch, it displays a message indicating that your system was successfully updated.

8 Click Finish.

You will be disconnected from your Service Manger server.

Reviewing the results

After you apply the out-of-box patch to your system, you will be able review the list of updated objects.

Follow these steps to review the results of the applications update:

- 1 Log in to your Service Manager server as a System Administrator.
- 2 Go to System Administration > Ongoing Maintenance > Patch Release and select View/Merge Results.

Service Manager displays the Applications Patch Results screen.

3 Enter optional search criteria, and then click **Search**.

Service Manager displays the results of your search. For more information see, Description of View/Merge results on page 19.

4 Click a record in the list to review it.

Description of View/Merge results

The search criteria, search results, and a description of the applicable action for each result are described in the table below.

Field	Definition	
Object Name	Enter the name of the object you want to search for, or leave this field blank to return objects with any name. The object name is typically the unique identifier in the database table specified for the object type.	
Object Type	Enter the type of object you want to search for, or leave this field blank to return all object types. Some of the object types you could search for are: Application Cluster, Object, Process, ScriptLibrary, displayoption, format, formatctrl, help, joindefs, link, scmessage, screlconfig, triggers, validity, and wizard.	
Result: Added	Select this option to search for new objects that were added to the system by the patch. These objects did not exist in your system before this update. For objects with this result, no further action is necessary.	
Result: Error	Select this option to search for objects that encountered an error while being updated by the Applications Patch Manager. For more information about the error, review the sm.log file. Required Action: Fix the cause of the error in a copy of your production system, and then apply the patch again.	
Result: Forced	 Select this option to search for objects that were tailored on your Service Manager system, where the Applications Patch Manager added the new object and renamed your tailored object by adding the prefix OLDSM7.1 to the object name. You will only see this result after applying the production patch. For objects with this result, no further action is necessary. However, after the production system has been running successfully for some time, you may delete the old objects. 	

Table 1Patch Release Result fields and applicable actions for each
result

Field	Definition
Result: Merged	Select this option to search for objects that were tailored on your Service Manager system, which you have merged with the version in this patch. Required Action: Test these objects, and when satisfied change their
	result to Reconciled.
Result: Previously Reconciled	Select this option to search for objects that were tailored on your Service Manager system, that were marked as reconciled during a previous upgrade or patch release, or where your object was not changed and the Applications Patch Manager added a new object NEW7.11.xxx <object name="">.</object>
	Required Action: Choose one of the following for each object with this result.
	• <i>Keep the old version</i> — No further action is necessary.
	• <i>Keep the new version</i> — Select the object in the merge view and click Copy all from left to right on the tool bar.
	• <i>Merge new and old versions</i> — Determine which of the new features should be incorporated into your tailored object, and then make the changes in your tailored object. When finished, delete the new object.
Result: Reconciled	Select this option to search for objects that you have already marked as Reconciled .
	For objects with this result, no further action is necessary.

Table 1Patch Release Result fields and applicable actions for each
result

Field	Definition
Result: Renamed	Select this option to search for objects that were tailored on your Service Manager system, and where your object was not changed and the Applications Patch Manager added a new object NEW7.11.xxx< <i>object name></i> . You will only see this result after applying the out-of-box patch.
	Required Action: Choose one of the following for each object with this result.
	• <i>Keep the old version</i> — No further action is necessary.
	• <i>Keep the new version</i> — Select the object in the merge view and click Copy all from left to right on the tool bar.
	• <i>Merge new and old versions</i> — Determine which of the new features should be incorporated into your tailored object, and then make the changes in your tailored object. When finished, delete the new object.
Result: Updated	Select this option to search for objects that were automatically updated by the Applications Patch Manager. These are objects that were not tailored on your Service Manager system.
	For objects with this result, no further action is necessary.
Result: Already Current	Select this option to search for objects that were already the latest version. For objects with this result, no further action is necessary.

Table 1Patch Release Result fields and applicable actions for each
result

Reconciling differences

The next step is to reconcile any differences between your tailored objects and the updated objects introduced by the applications patch.

Use the RAD Comparison Utility to assist in merging changes in RAD applications. For all other types of objects, you can use the standard Service Manager tools, or the Merge utility.

- Merging new objects with your tailored objects on page 22
- Reconciling differences between RAD applications on page 24

Merging new objects with your tailored objects

After you have applied the out-of-box patch successfully, you are ready to reconcile the differences and merge the new objects with your tailored versions of the objects where necessary.

- Use the Merge utility to view and merge simple objects.
- Use the Merge utility to identify the changes necessary for records with complex data structures, such as formatctrl, joindefs, links, and structured arrays, but use the normal tool for tailoring these objects to integrate the necessary changes manually.



Avoid merging changes in XML records where there are instance nodes with record IDs (such as, recordid="svcCatalog"). Changes to instance nodes with record IDs can break the primary key for a record.

Follow these steps to use the Merge utility:

- 1 Log in to your Service Manager server as a System Administrator.
- 2 Go to System Administration > Ongoing Maintenance > Patch Release and select View/Merge Results.
- 3 Enter optional search criteria, and then click **Search**.

Service Manager displays the results of your search. For more information see, Description of View/Merge results on page 19.

4 Open the record you wish to merge, right-click the detail page and then click **Merge** in the drop-down menu.

Service Manager displays both objects side-by-side in the Merge Applications Patch Records view.

The XML for the new object is shown on the left side, and the XML for your tailored object is shown on the right side with the differences highlighted.

- 5 For simple objects and elements, use the arrow buttons at the top of the pane to select individual changes and copy them from the new object over to your tailored object, or copy all changes from the new record to your tailored object. For complex objects, do the merge manually by using the appropriate tool for the object type.
- 6 Click SAVE.
- 7 Change the Result to Merged and then click Save.
- 8 Test the updated functionality of the merged object.
- 9 When you are satisfied that the object is working correctly, right-click the detail page and then click **Mark as Reconciled** in the drop-down menu.
- 10 Repeat this procedure for all changes that need to be merged.

Example of reconciling an object by using the Merge utility

For this example, before applying the patch, we tailored the form **login.prompt.g** by adding the label "**TAILORED VERSION**". After applying the out-of-box patch, the **login.prompt.g** is one of the **Renamed** objects in the results list.

Follow these steps to merge the example form change:

1 Go to System Administration > Ongoing Maintenance > Patch Release and click View/Merge Results.

Service Manager displays the Applications Patch Results screen.

- 2 Specify login.prompt.g as the object name, and then click search.
- 3 Right-click the detail page and then click **Merge** in the drop-down menu.
- 4 Service Manager displays both objects side-by-side in the Merge Applications Patch Records view.

After you compare the two forms, you decide to merge the new changes into your tailored form.

5 Use the arrow buttons at the top of the pane to select the change.

- 6 Click Copy Current Change from Left to Right on the tool bar.
- 7 Click SAVE.
- 8 Change the Result to Merged, and then click Save.
- 9 Log out from the Service Manager server, and then log in again.
- 10 Confirm that the updated label is displayed on login.
- 11 Go to System Administration > Ongoing Maintenance > Patch Release and click View/Merge Results.

Service Manager displays the Applications Patch Results screen.

- 12 Specify login.prompt.g as the object name, and then click Search.
- 13 Right-click the detail page and then click **Mark as Reconciled** in the drop-down menu.

Reconciling differences between RAD applications

Use these guidelines when reconciling differences between a tailored RAD application and the new one:

- If your company does not have a RAD license, you will not be able to merge the two objects. Back up the old object by renaming it OLDSM7.1<*objectname>*, and then rename the new object by removing the prefix new7.11.xxx from the object name.
- If your company has a RAD license, use the RAD Comparison Utility to compare the objects and merge the changes.

Example of reconciling a RAD difference

For this example, we have tailored the RAD panel **approval.generate** by adding the expression **\$L.rem="TAILORED VERSION"** to the start panel. After we apply the out-of-box patch, the **approval.generate** is one of the **Renamed** objects in the results list.

Follow these steps to merge the panels:

- 1 Open approval.generate (the tailored version) in the RAD Editor.
- 2 Click **More** or the More Actions icon and then select **Compare Applications**.

- 3 Enter **NEW7.11.xxxapproval.generate** in the field for New Application Name where xxx is the current patch version. For example, if you are applying 7.11 Application Patch 1, the object name would be NEW7.11.001approval.generate.
- 4 Click **Compare All** on the tool bar.
- 5 Make a note of the Unmatched and Deleted Panels (these are the panels that you would like to analyze when reconciling differences).

In this example, the start panel appears in the Unmatched Panels column.

- 6 On the current session, navigate to the Start panel.
- 7 On another session, open **NEW7.11.xxxapproval.generate**, and then navigate to the Start panel.
- 8 After you compare the two panels, you decide that you would like to keep your tailoring. Copy the tailored expression (**\$L.rem="TAILORED VERSION"**) to the start panel of **NEW7.11.xxxapproval.generate**, then save and compile.
- 9 Delete your old tailored RAD application, and then rename NEW7.11.xxxapproval.generate to approval.generate.
- 10 Confirm the functionality of your change.
- 11 Go to System Administration > Ongoing Maintenance > Patch Release and click View/Merge Results.

Service Manager displays the Applications Patch Results screen.

- 12 Specify **approval.generate** as the object name, and then click **Search**.
- 13 Right-click the detail page and then click **Mark as Reconciled** in the drop-down menu.

3 Creating and applying the production patch

Once you have handled all objects requiring reconciliation, you will create a tailored production patch and apply it to your actual production system. It is recommended to back up your database after reconciliation to prevent any unexpected loss.

This chapter explains what you need to do to create a production patch and apply it to your tailored production Service Manager system.

Topics in this section include:

- Creating the production patch on page 28
- Testing the production patch on page 29
- Applying the production patch on page 29
- Going live after applying the production patch on page 30

Creating the production patch

Once you are satisfied with the results of your reconciliation process, you can create a production patch.

Follow these steps to create the production patch:

- 1 Log in to your Service Manager server as a System Administrator.
- 2 Go to System Administration > Ongoing Maintenance > Patch Release and select Create Patch Release.

The Applications Patch Manager asks you to prepare an area to contain the applications patch files that you will create. We'll call this the production patch directory.

- a Using the standard method for your operating system, create the production patch directory.
- b Copy the file patchrel.txt from the app_patchrel\SM7.10-7.11.xxx directory where you unzipped the out-of-box patch release to the production patch directory.
- c Create a directory named "data" under the production patch directory.
- d Enter the fully qualified path and file name to **patchrel.txt** in the production patch directory.
- 3 Click Next.

The Applications Patch Manager displays the version you will create the patch for.

4 Click **Next** to create the patch.

The Application Patch Manager creates the production applications patch in the production patch directory.

After you test this patch and confirm that it works as desired, you will be able to apply it to your production system.

Testing the production patch

After creating the applications patch for your production system, test it extensively. This will be an iterative process that may require several changes to patch objects and the recreation of production patches. Employ user acceptance testing verification and validate your changes.

Applying the production patch

The steps that you used to apply the out-of-box patch to the copy of your production system are the same steps you need to apply to the production patch that you created in your actual production system.



When applying the patch to the production system, you must be the only user logged in to the system.

Follow these steps to apply the patch you created to your production system:

- 1 Have all users log out of the server.
- 2 Prevent users from logging into your Service Manager Server by running the quiesce command from the operating system's command prompt. sm -quiesce:1
- 3 Log in to your Service Manager server as a System Administrator.
- 4 Go to System Administration > Ongoing Maintenance > Patch Release and select Apply Patch Release.

Service Manager displays a screen that asks you to find a file called **patchrel.unl**.

5 Enter the fully qualified path and file name to **patchrel.unl** in the production patch directory, and then click **Next**.

If the client is not installed on the same machine as the server, the path must be relative to the server, instead of to the client computer.

The Applications Patch Manager displays the current version of your applications and the version that will result after you apply the patch.

6 Confirm that the source and target versions listed match your current production system and the applications patch version, and then click **Next** to apply the patch.

When the Applications Patch Manager finishes applying the patch, it displays a message indicating that your system was successfully updated.

- 7 Click Finish.
- 8 Log out from your Service Manger server, and then log in again.
- 9 Allow users to log in to the server by running the quiesce command from the operating system's command prompt. sm -quiesce:0

Going live after applying the production patch

Any tailored objects that were updated by the application patch are prefixed with the word "OLD." If issues are encountered after going live, these objects can be quickly swapped back to their original tailored versions. It is suggested to delete the old objects after a period of time.

Index

A

added, patch release result, 19 already current, patch release result, 21

D

database manager, 10 display application, 10 documentation resources installation guide, 11 online help, 11 release notes, 11

E

error, patch release result, 19

F

forced, patch release result, 19 forms designer, 10

Μ

merged, patch release result, 20 merge utility, 10, 22 merging changes in xml records, 22

0

object name, patch release result field, 19 object type, patch release result field, 19 out-of-box patch, 15 to 17

P

patchrel.txt, 28 patchrel.unl, 16, 29 previously reconciled, patch release result, 20 production environment, 15 production patch, 15, 27 to 30 production system replicating, 15

R

RAD, 10 comparison utility, 22, 24 editor, 10, 24 license, 24 reconciling differences, 24 tailored, 24 **Rapid Application Development** see RAD reconciled, patch release result, 20 renamed, patch release result, 21 required tools database manager, 10 display application, 10 forms designer, 10 merge utility, 10 RAD editor, 10

requirements knowledge, 10 tools, 10 result added, 19 already current, 21 error, 19 forced, 19 merged, 20, 23, 24 previously reconciled, 20 reconciled, 20, 23, 24, 25 renamed, 21 updated, 21

U

updated, patch release result, 21

Х

xml records, merging changes in, 22