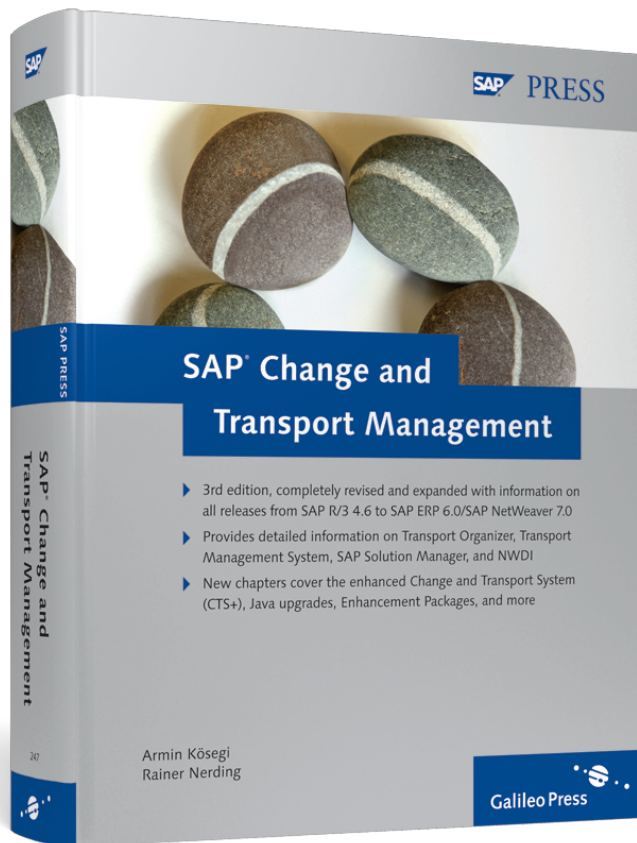


Armin Kösegi, Rainer Nerding

SAP® Change and Transport Management




Galileo Press

Bonn • Boston

Contents at a Glance

PART I The Big Picture

1	SAP ERP Architecture and Data Components	31
2	Realizing Business Processes in SAP ERP	45
3	The SAP ERP System Landscape	67
4	Managing Changes and Data in an SAP ERP System Landscape	109
5	Setting Up a System Landscape	139
6	Maintaining a System Landscape	167

PART II Technical Tasks

7	Transport Setup Activities at Installation	213
8	Setting Up the TMS	247
9	Client Tools	301

PART III Tools

10	Managing Development Changes	347
11	Managing Customizing Changes	409
12	Releasing and Exporting Change Requests	455
13	Importing Change Requests	487
14	Technical Insight into the Import Process	527
15	SAP NetWeaver Development Infrastructure	573
16	Enhanced Change and Transport System	617
17	Maintaining SAP Software	643
18	SAP Software Release Upgrade	719
19	SAP Solution Manager	801

Appendices

A	Transport Profile Parameters	881
---	------------------------------------	-----

B	Selected Transaction Codes	899
C	Glossary	905
D	Questions and Answers	933
E	Literature	975
F	Authors	979

Contents

Foreword	21
Introduction	23

PART I The Big Picture

1 SAP ERP Architecture and Data Components 31

1.1 Client/Server Architecture in Brief	32
1.2 The SAP ERP Database	35
1.2.1 The Repository	35
1.2.2 Customer Data	36
1.2.3 Technical Implementation	37
1.3 SAP ERP Clients	37
1.3.1 Technical Implementation	38
1.3.2 Data Components	39
1.3.3 Standard SAP ERP Clients	42
1.4 Questions	43

2 Realizing Business Processes in SAP ERP 45

2.1 Customizing	46
2.1.1 SAP ERP Reference Model	47
2.1.2 Implementation Guide (IMG)	48
2.2 Development	53
2.2.1 ABAP Workbench	54
2.2.2 Customer-Developed Repository Objects	55
2.2.3 Enhancements	56
2.2.4 Modifications	59
2.3 Questions	63

3 The SAP ERP System Landscape 67

3.1 SAP ERP Client Roles	68
3.1.1 Critical Client Roles	68
3.1.2 Additional Client Roles	71

3.2	Defining an SAP Client	74
3.2.1	Client-Dependent Change Option	75
3.2.2	Client-Independent Change Option	77
3.3	Multiple Clients in an SAP ERP System	79
3.3.1	Functional Limitations	79
3.3.2	Technical Limitations	80
3.3.3	Protective Measures for Multiple-Client Operations	81
3.4	The SAP Three-System Landscape	82
3.4.1	Standard SAP Systems	82
3.4.2	Distribution of Client Roles	83
3.5	Alternative System Landscapes	86
3.5.1	One-System Landscape	86
3.5.2	Two-System Landscape	87
3.5.3	Four-System Landscape	89
3.6	Complex System Landscapes	89
3.6.1	Multiple Production System Landscape	90
3.6.2	Phased System Landscape	94
3.6.3	Global System Landscape	100
3.7	Questions	105

4 Managing Changes and Data in an SAP ERP System Landscape 109

4.1	Transporting Customizing and Development Changes ...	109
4.1.1	Change Requests and Tasks	110
4.1.2	Preparing Changes	114
4.1.3	Importing Changes	117
4.1.4	Change and Transport System (CTS)	122
4.2	Transferring Data	124
4.2.1	Master Data	125
4.2.2	Transaction Data	128
4.2.3	User Master Data	131
4.3	Copying SAP ERP Systems and Clients	134
4.3.1	System Copy	134
4.3.2	Client Copy	135
4.4	Questions	136

5 Setting Up a System Landscape 139

5.1	Setting Up the Development System	139
5.1.1	Post-Installation Processing	140
5.1.2	Setting Up the Transport Management System (TMS)	141
5.1.3	Creating Clients	142
5.2	Setting Up the Quality Assurance and Production Systems	146
5.2.1	After Installing the New SAP System	147
5.2.2	Change Request Strategy	148
5.2.3	Quality Assurance Procedure of the TMS	151
5.2.4	Client Copy Strategy	153
5.3	System Copy Strategy	158
5.3.1	System Copy of Quality Assurance	159
5.3.2	Cleaning Up after a System Copy	160
5.4	Release Considerations	162
5.5	Questions	165

6 Maintaining a System Landscape 167

6.1	Implementation Plan	168
6.2	Managing Implementation Projects	170
6.2.1	Implementation Phases	170
6.2.2	Managing Change Requests	172
6.2.3	Unit Testing	175
6.2.4	Releasing and Exporting Change Requests	177
6.3	Transport Management	179
6.3.1	Exporting Change Requests	180
6.3.2	Importing Change Requests	181
6.3.3	Post-Import Issues	188
6.3.4	Importing into the Production System	190
6.4	Business Validation	197
6.4.1	Testing Procedures	197
6.4.2	SAP Testing Tools	199
6.5	Support for the SAP Standard	202
6.5.1	Support for an SAP Release	202
6.5.2	Release Upgrades	207
6.6	Questions	208

PART II Technical Tasks

7	Transport Setup Activities at Installation	213
7.1	Specifying the System ID (SID)	213
7.2	Setting Up the Transport Directory	214
7.2.1	One or Many Transport Directories?	216
7.2.2	Transport Directory Structure	217
7.2.3	Procedure	219
7.3	Configuring a Transport Profile	225
7.3.1	Transport Profile as of R/3 Release 4.5	225
7.3.2	Profile Syntax	228
7.3.3	Required Parameters	231
7.4	Activities within SAP ERP	238
7.4.1	Initializing the Change and Transport Organizer (CTO)	239
7.4.2	Setting the Global System Change Option	240
7.4.3	Verifying Required Background Jobs	243
7.4.4	Verifying Background Work Processes	244
7.5	Questions	244
8	Setting Up the TMS	247
8.1	TMS Terminology and Concepts	247
8.1.1	Transport Domain	248
8.1.2	Transport Routes	251
8.2	Setting Up the Transport Domain	254
8.2.1	Setting Up the Domain Controller	255
8.2.2	Extending the Transport Domain	257
8.2.3	Backup Domain Controller	264
8.2.4	Verifying the Transport Domain	266
8.2.5	Technical Aspects of the Configuration Process ...	270
8.3	Configuring Transport Routes	276
8.3.1	Procedure	276
8.3.2	Extending and Changing a Transport Route Configuration	281
8.3.3	Extended Transport Control	288
8.4	Verifying the System Landscape Setup	294
8.4.1	Verifying the TMS Setup	295

8.4.2	Verifying the Transport Route Configuration	296
8.4.3	The Alert Monitor	297
8.5	Questions	298

9 Client Tools 301

9.1	Creating Clients	302
9.1.1	Client Entries	302
9.1.2	Client Settings	305
9.2	Providing a Client with Data	309
9.2.1	Selecting a Client Copy Tool	310
9.2.2	Using Client Copy Profiles to Select Data	312
9.2.3	Local and Remote Client Copy	315
9.2.4	Client Transport	317
9.2.5	Monitoring and Verifying a Client Copy	323
9.2.6	Considerations for a Client Copy	328
9.3	Deleting a Client	333
9.4	Table Logging for a Client	334
9.4.1	Resource Constraints	334
9.4.2	Activating Table Logging	335
9.4.3	Viewing Table Logs	337
9.4.4	Removing Change Documents	340
9.5	Authorization Profiles for Client Tools	341
9.6	Questions	343

PART III Tools

10 Managing Development Changes 347

10.1	Development Prerequisites	347
10.1.1	SSCR Registration of Developers	348
10.1.2	Packages	349
10.2	Workbench Change Requests	361
10.2.1	Transportable Change Request	362
10.2.2	Local Change Request	363
10.2.3	Tasks	363
10.2.4	Viewing Workbench Change Requests	364
10.2.5	Creating a Workbench Change Request	367

10.2.6	Recording Repository Objects to Change Requests	370
10.2.7	Object List of Change Requests and Tasks	372
10.3	Repairs and Modifications	378
10.3.1	Setting the Repair Flag	379
10.3.2	Modification Assistant	379
10.3.3	Modification Browser	381
10.3.4	Modifications	381
10.4	SAP Enhancement Concept	384
10.5	The Object Directory	398
10.5.1	Object Attributes	400
10.5.2	Displaying or Changing an Object Directory Entry	401
10.5.3	Transporting Objects Using the Transport Organizer (Extended View)	403
10.6	Questions	406

11 Managing Customizing Changes 409

11.1	Customizing Prerequisites	409
11.2	Customizing Change Requests	413
11.2.1	Viewing Customizing Change Requests	414
11.2.2	Creating Customizing Change Requests	415
11.2.3	Customizing in Project IMGs	418
11.2.4	Recording Customizing Changes	421
11.2.5	Object Lists for Customizing Change Requests ...	424
11.2.6	Identifying Change Requests with the Same Object	427
11.3	Nonstandard Customizing Activities	429
11.3.1	Client-Independent Customizing Activities	429
11.3.2	Manual Transports and Other Transport Types ..	433
11.3.3	Customizing in a Production Client	435
11.4	Support Tools for Customizing	436
11.4.1	Comparing Customizing in Two Clients	437
11.4.2	Single comparison with Transaction SCMP	446
11.4.3	Business Configuration Sets	448
11.4.4	Customizing Transfer Assistant	449
11.5	Questions	452

12 Releasing and Exporting Change Requests 455

12.1	Documenting Change Requests and Tasks	456
12.1.1	Creating and Changing Documentation	456
12.1.2	Action Logs for Change Requests	457
12.2	Unit Testing	458
12.2.1	Client-Dependent Customizing	458
12.2.2	SAPscript Styles and Forms	460
12.2.3	Report Variants	461
12.3	Releasing a Task	462
12.3.1	Release Errors	462
12.3.2	Impact on the Change Request	463
12.4	Releasing a Change Request	465
12.4.1	Merging Change Requests	466
12.4.2	Procedure for Releasing a Change Request	467
12.4.3	The Export Process	472
12.4.4	Authorizations	475
12.5	Transport Logs	476
12.5.1	Managing Transport Logs	478
12.5.2	Displaying Transport Errors at Logon	478
12.6	Versioning for Repository Objects	480
12.6.1	Version Management	481
12.6.2	Versions in Nondevelopment Systems	483
12.7	Questions	484

13 Importing Change Requests 487

13.1	Understanding Import Queues	487
13.1.1	Import Overview	488
13.1.2	Import Queue	490
13.2	Performing Imports	495
13.2.1	Before Performing Imports	495
13.2.2	Import All	497
13.2.3	Preliminary Imports	499
13.3	Managing Import Queues	502
13.3.1	Forwarding a Change Request	502
13.3.2	Deleting a Change Request from an Import Queue	503

13.3.3	Adding a Change Request to an Import Queue	504
13.3.4	Moving an End Mark	504
13.3.5	Performing Checks	505
13.4	Scheduling Imports	509
13.4.1	Importing into Multiple Clients	510
13.4.2	Importing into Multiple Clients without Extended Transport Control	511
13.4.3	Importing an Import Queue into Multiple Clients	512
13.5	Monitoring Imports	513
13.5.1	Import Monitor	513
13.5.2	tp System Log	514
13.5.3	Action Log File	515
13.5.4	Single Step Log Files	515
13.6	Transporting between Transport Groups	515
13.7	Transporting between Transport Domains	517
13.7.1	Configuration	519
13.7.2	Transport	520
13.7.3	Linking Domains Using Domain Links	522
13.8	TMS Authorization	523
13.9	Questions	524

14 Technical Insight into the Import Process 527

14.1	The Transport Control Program tp	528
14.1.1	Prerequisites	528
14.1.2	Command Syntax	529
14.1.3	Import Queues and Import Buffers	530
14.1.4	Performing Imports Using tp	533
14.1.5	tp Processing Sequence	538
14.2	Using Log Files for Troubleshooting	543
14.2.1	Generic Log Files	543
14.2.2	Single Step Log Files	544
14.2.3	Return Codes	546
14.2.4	Troubleshooting Techniques	548
14.3	Buffer Synchronization	554
14.4	Naming Conventions in the Transport Directory	556

14.5	Understanding Transport Tools	560
14.5.1	The Transport Program R3trans	560
14.5.2	ABAP Programs	563
14.6	Questions	569

15 SAP NetWeaver Development Infrastructure 573

15.1	The SAP NetWeaver Application Server Structure	573
15.2	Overview of the Java Development Process	575
15.3	Parts of the SAP NetWeaver Development Infrastructure	580
15.4	Configuration of the SAP NetWeaver Development Infrastructure	584
15.4.1	Local Development Environment	584
15.4.2	Overview of the Different Development Scenarios	585
15.5	Configuration of the SAP NetWeaver Development Infrastructure	592
15.5.1	Configuration of the System Landscape Directory	593
15.5.2	Setting Up Users and Authorizations	597
15.5.3	Setting Up SAP NetWeaver Developer Studio ...	599
15.5.4	Creating Products and Software Components ...	600
15.5.5	Creating a Domain and Track in the Change Management Service	602
15.5.6	Creating a Development Component	605
15.6	Developing in the SAP NetWeaver Development Infrastructure	605
15.6.1	Creating a J2EE Application	607
15.6.2	Creating a Local Build and Carrying Out the Local Tests	608
15.6.3	Check-in of Changes	608
15.6.4	Activation in the CBS, Central Deployment, and Central Test	610
15.6.5	Release of Changes to the Consolidation System	611
15.7	Transporting Java Projects	611
15.8	Summary	614
15.9	Questions	615

16 Enhanced Change and Transport System 617

16.1	Overview and Architecture	619
16.2	Performing Transports for Non-ABAP Objects	621
16.2.1	Export of a Portal Development from the Portal Content Studio	622
16.2.2	Transport Organizer Web UI	623
16.2.3	Import Transport Requests with Non-ABAP Objects	627
16.3	Configuration of the Enhanced Change and Transport System	627
16.3.1	Setting up the ABAP Stack	628
16.3.2	Setting up the Java Stack	629
16.3.3	Setting up the TMS System Landscape	629
16.3.4	Configuration Parameters for Non-ABAP Source Systems	632
16.3.5	Configuration Parameters for Non-ABAP Target Systems	632
16.3.6	Connection of the Development Environment to the Transport System (Close Coupling)	633
16.4	CTS+ Transport Landscapes	635
16.4.1	Non-ABAP System	635
16.4.2	Dual-Stack System	637
16.4.3	Combined CTS+ Applications	638
16.5	Questions	640

17 Maintaining SAP Software 643

17.1	Making Manual Corrections on the Basis of SAP Notes ...	644
17.1.1	SAP HotNews	644
17.1.2	SAP TopNotes	646
17.2	Implementing Notes with the SAP Note Assistant	647
17.2.1	Registering Manually-Implemented Notes	648
17.2.2	Processing Notes	649
17.2.3	Implementation Status and Processing Status of Notes	667
17.3	ABAP Support Packages	669
17.3.1	Applying ABAP Support Packages	671
17.3.2	Modification Adjustment	696

17.4	Java Corrections	697
17.4.1	Java Correction Types	697
17.4.2	Version Information of a Java System	700
17.4.3	Java Support Package Manager (JSPM)	701
17.4.4	Importing Java Support Packages	705
17.5	Support Package Stacks	707
17.5.1	SP Stack Strategy with the Usual Import Procedure	709
17.5.2	Cross-System Support Package Stacks	712
17.5.3	Details of the Components in SAP Support Package Stacks	712
17.5.4	SP Stack Calendar	714
17.6	Side Effects	715
17.7	Questions	717

18 SAP Software Release Upgrade 719

18.1	Lifecycle of an SAP Production System	719
18.1.1	SAP Release and Maintenance Strategy	720
18.1.2	Upgrade Motivation	722
18.2	Release Change Process	724
18.2.1	SAP System Switch Upgrade Procedure	728
18.2.2	SAP System Switch Upgrade in Detail	730
18.3	Modification Adjustment	735
18.3.1	Modification Adjustment During Release Changes	739
18.3.2	Modification Adjustment During the Import of Support Packages	742
18.3.3	Modification Assistant	745
18.4	Upgrade Strategies for a Transport Landscape	747
18.4.1	Release Change in a Three-System Landscape ...	748
18.4.2	Release Change with an Additional Development System	749
18.4.3	Release Change with Five Systems	750
18.5	SAP Enhancement Packages	754
18.5.1	Implementation Activities for SAP Enhancement Packages	756
18.5.2	Technical Implementation	761

18.6	Upgrades and Unicode	768
18.6.1	CU&UC	775
18.6.2	TU&UC	776
18.6.3	Unicode Hardware Requirements	777
18.6.4	Unicode Transports	779
18.7	Java Upgrade	780
18.8	Additional Recommendations for a Release Change	786
18.8.1	Upgrade Tools and SAP Upgrade Service Offers ...	786
18.8.2	Other Recommendations	794
18.9	Questions	798

19 SAP Solution Manager 801

19.1	Customizing Synchronization	805
19.1.1	Customizing Distribution	806
19.1.2	The Customizing Scout	811
19.1.3	Creating and Loading Synchronization Objects ...	819
19.2	Change Request Management	821
19.2.1	Change Request Management Workflow	824
19.2.2	Architecture	826
19.2.3	Project Cycles	828
19.2.4	Task List	832
19.2.5	Change Management Work Center	833
19.2.6	Change Request	834
19.2.7	Change Types	836
19.2.8	Change Tracking	839
19.3	Change Analysis	842
19.3.1	Features	843
19.3.2	Performing an Analysis	843
19.3.3	Architecture	848
19.4	SAP Maintenance Optimizer	851
19.4.1	Features	851
19.4.2	Integration with other Tools	852
19.4.3	Setting up Maintenance Optimizer	853
19.4.4	Import of Support Packages	854
19.4.5	Import of Enhancement Packages	861
19.4.6	Reporting for Maintenance Procedures	864
19.5	Upgrade Support	865
19.6	Questions	875

Appendices	881
A Transport Profile Parameters	881
B Selected Transaction Codes	899
C Glossary	905
D Questions and Answers	933
D.1 Chapter 1: SAP ERP Architecture and Data Components	933
D.2 Chapter 2: Realizing Business Processes in SAP ERP	934
D.3 Chapter 3: The SAP ERP System Landscape	937
D.4 Chapter 4: Managing Changes and Data in an SAP ERP System Landscape	940
D.5 Chapter 5: Setting Up a System Landscape	942
D.6 Chapter 6: Maintaining a System Landscape	944
D.7 Chapter 7: Transport Setup Activities at Installation	946
D.8 Chapter 8: Setting Up the TMS	948
D.9 Chapter 9: Client Tools	950
D.10 Chapter 10: Managing Development Changes	952
D.11 Chapter 11: Managing Customizing Changes	953
D.12 Chapter 12: Releasing and Exporting Change Requests ...	955
D.13 Chapter 13: Importing Change Requests	957
D.14 Chapter 14: Technical Insight—the Import Process	959
D.15 Chapter 15: SAP NetWeaver Development Infrastructure	962
D.16 Chapter 16: Enhanced Change and Transport System	964
D.17 Chapter 17: Maintaining SAP Software	965
D.18 Chapter 18: SAP Software Release Upgrade	968
D.19 Chapter 19: SAP Solution Manager	970
E Literature	973
E.1 SAP Online Help	973
E.2 SAP Training Courses	973
E.3 SAP Developer Network (SDN)	974
E.4 SAP Service Marketplace	974
E.5 Bibliography	974
F Authors	977
Index	979

SAP provides several methods to correct errors that have occurred in your SAP system. This chapter describes these methods, the contents of the changes involved, and recommendations for project implementation.

17 Maintaining SAP Software

In this chapter, you will learn about the software maintenance strategies and tools provided by SAP and, in particular, about Support Packages and SAP Notes. Support Packages correct all errors that have been identified within a specific time period in a system, whereas SAP Notes correct individual errors as they occur. This chapter also explains the modification adjustment steps you need to take when importing Support Packages.

The tools discussed in this chapter are as follows.

- ▶ The Note Assistant (Transaction SNOTE), used to import Notes with code corrections. Tools
- ▶ The SAP Patch Manager (Transaction SNOTE), used to import Support Packages.
- ▶ The SAP Add-on Installation Manager (Transaction SAINT), used to import add-ons and delta upgrades.
- ▶ The SAP Java Support Package Installation Manager, used to import Java Packages.

This chapter is intended primarily for system administrators and technical consultants who are responsible for maintaining and updating an SAP ERP system landscape. Nonetheless, project leads and strategic consultants will also benefit from this information because it is helpful for planning package upgrades and for estimating the time and staff costs involved. Experience shows that the main factors causing difficulties in

Support Package implementation projects are the required downtime, the time and effort necessary for testing, and the indispensable code freeze. Section 17.3 addresses these aspects, and also describes the benefits gained from importing Support Packages.

Section 17.4 focuses on the maintenance of Java-based systems in particular, which in many respects is different from the maintenance of ABAP systems.

17.1 Making Manual Corrections on the Basis of SAP Notes

If a specific problem occurs with the SAP ERP software and this problem is corrected, details of the correction are published in an SAP Note. The correction is also included in the next Support Package.

If the problem is particularly urgent, you may not be able to wait for the Support Package and will have to manually make the correction with the help of an SAP Note.

SAP provides the SAP Note Assistant to enable customers to import SAP Notes. This tool considerably reduces the amount of manual work required to implement the Note and make modification adjustments later on.

Particularly important Notes—such as those about faults with serious consequences including system downtime and data inconsistencies—are classified as HotNews and are published on the SAP Service Marketplace.

17.1.1 SAP HotNews

SAP HotNews items are SAP customer Notes with Priority 1 (very high). These Notes contain the solutions to problems that could cause a system breakdown or data loss in the SAP system. Therefore, if one of

these Notes applies to your system, it is very important that you take it seriously.

The new SAP HotNews process enables you to display only HotNews items that are relevant to your areas. The shared personalization interface for SAP HotNews and SAP TopNotes (see the text that follows) allows you to create multiple filters for the applications you use (such as SAP ERP or SAP CRM). Using the filter maintenance functions, you can select your products (such as SAP ERP), product versions (such as SAP R/3 4.6C), software components (such as SAP Basis 4.6C), and Support Packages, and the system returns only the HotNews items that are relevant to your criteria. **Process**

SAP HotNews items are located in the SAP Service Marketplace under the /notes Quick Link: <http://service.sap.com/notes>. (You need a Service Marketplace user to be able to view this content.)

You can also have the SAP HotNews that are of interested to you emailed to you in the SAP Service Marketplace newsletter. To subscribe to the relevant topic area—NEWS FOR ADMINISTRATORS (INCL. SAP HOTNEWS)—of the SAP Service Marketplace newsletter, you need to configure the required settings in the SAP Service Marketplace under MY PROFILE. You will then be informed automatically as soon as there is a new SAP HotNews item that is relevant to your settings. **Newsletter**

If you receive an SAP HotNews item with information that is extremely important for the operation of your SAP system, you should confirm receipt of this item in the SAP Service Marketplace. When you do so, this HotNews item is no longer displayed to you. SAP is also notified that you have read the HotNews item and that you have taken the recommended measures.

As an SAP system administrator, you should regularly review all SAP HotNews items, or ensure that this is done and, if necessary, proactively implement applicable items in your system. Figure 17.1 shows the SAP HotNews Browser in the SAP Service Marketplace.

Welcome, Rainer Nerdling my Profile **SAP Support Portal** Other Portals Quick Links Sitemap Help SAP

☑ SAP Service Channel - my Inbox Search Go! Advanced Search

HOME **Problem Solving** Downloads Keys & Requests Data Administration Maintenance & Services SAP Support Infrastructure Release & Upgrade Info

SAP Notes Customer Messages Your Connection to SAP Worldwide Support Centers

You are here:

- Find SAP Notes
 - SAP Notes Search
- SAP HotNews**
 - SAP HotNews Documentation
 - SAP HotNews 2005
 - SAP HotNews Archive
 - SAP HotNews Workflow (internal)
- SAP TopNotes
 - Side-Effects of SAP Notes
 - Media Library
 - Note Assistant
 - Learning Map
 - Additional Information - Internal Only

Quick Link Information

Access this topic directly at
<http://service.sap.com/notes>

Copyright Privacy Imprint

SAP HotNews Feedback Doc. Info Add to Favorites

SAP HotNews Help

Display of the SAP HotNews for my Components

Filter: BC1 [Top of Page](#)

BC-CST-NU (Number Range Buffer)	<input type="checkbox"/> Patch level 652 (Release 6.20) & 1445 (Release 4.6D)	27.03.2003
BC-CST-UP (Update)	<input type="checkbox"/> trRFC/qRFC LUWs disappear	30.09.2004
	<input type="checkbox"/> Problems after importing note 455543	12.04.2002
BC-CTS-TLS (Transport Tools)	<input type="checkbox"/> Language transport overwrites EUDB entries	05.06.2002
BC-DB-ORA (Oracle)	<input type="checkbox"/> Error in corrections within Notes 865198 / 865478 / 864677	06.10.2005
	<input type="checkbox"/> Oracle Critical Patch Update Program	06.10.2005
	<input type="checkbox"/> ORA-00600: [KCOAPL_BLKCHK]	12.09.2005
	<input type="checkbox"/> Oracle Critical Patch Update Program	19.08.2005
	<input type="checkbox"/> Block corruption, ORA-600 [4512], ORA-600 [KTSF_RSP_BITMAP]	19.07.2005
	<input type="checkbox"/> Desupport of multibyte character sets as of Oracle 10g	04.07.2005
	<input type="checkbox"/> Incorrect values for query with OR	27.06.2005
	<input type="checkbox"/> "Cust. Care Support" Oracle 8.0.4 and 8.0.5 discontinued	12.05.2005
	<input type="checkbox"/> Incorrect values for a query with a "common sub-expression"	19.04.2005

Figure 17.1 SAP HotNews Browser in the SAP Service Marketplace

17.1.2 SAP TopNotes

SAP TopNotes are the most important SAP Notes in a component or sub-component (such as FI-AR). These are the Notes that are most frequently attached to customer problem messages. Every month, the system identifies the ten most common messages for the component in question. Then, the TopNotes are checked manually, and other important SAP Notes can be added to them or replace them. This concept is described in detail in Note 557703.

SAP TopNotes are also located in the SAP Service Marketplace under the /notes Quick Link (<http://service.sap.com/notes>). As with SAP HotNews, you can also be notified of new SAP TopNotes by email.

17.2 Implementing Notes with the SAP Note Assistant

The SAP Note Assistant (Transaction SNOTE, see Figure 17.2) can automatically implement Notes that contain corrections to source code. Other changes, such as Customizing changes or changes to a table cannot be automatically implemented. Always make sure to read the Note carefully before implementing it using the Note Assistant. It may contain information about prerequisites, interdependencies, and references to clean-up steps you'll need to consider in the implementation process.

Transaction SNOTE

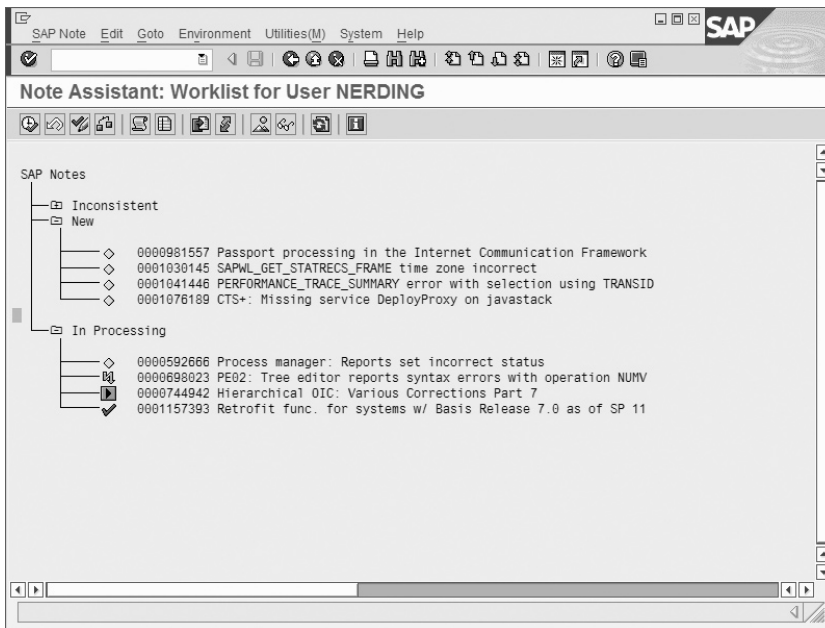


Figure 17.2 The SAP Note Assistant

The Note Assistant provides the following functions:

► Reporting

Provides an overview of the existing Notes and their processing status, and of all the source-code corrections that have been implemented to date.

► **Project administration**

Allows you to assign Notes to processors, which can then set the processing status. The system notifies you if a Note has an inconsistent status.

► **Retraceability**

Means that the system automatically logs the processing steps.

► **Error correction**

Enables you to automatically implement source-code corrections (correction instructions) that are described in Notes.

► **Integration**

When Support Packages or upgrades are imported, the system automatically identifies the Notes that the Support Package or upgrade resolves and which correction instructions have to be reimplemented.

17.2.1 Registering Manually-Implemented Notes

If you implemented corrections from Notes in your SAP system before installing the Note Assistant, you can retroactively “notify” the Note Assistant of this fact. Because the Note Assistant cannot automatically determine whether a Note correction was implemented in your system manually (that is, without the use of the Note Assistant), this is important to do. Proceed as follows:

1. In the ABAP Editor (Transaction SE38), call the program `SCWN_REGISTER_NOTES`.
2. In the program's input screen, enter the numbers of the Notes you want to register and that have been fully implemented.
3. This can cause the following situations to occur:
 - If you created a Remote Function Call (RFC) connection to the SAP-Net-R/3 frontend, the program automatically loads the Notes to be registered into your system's database.
 - If you did not create an RFC connection, first load the Notes to be registered from the SAP Service Marketplace. Then, upload the Notes in the Note Assistant.

4. The program checks whether the Notes are valid for your release and Support Package level. It also verifies whether the Notes are already registered as having been implemented in the Note Assistant. The system then outputs the results of these checks to a list.
5. To register the Note, select `PROGRAM • EXECUTE`.

To be able to register the Note as implemented, the system has to enter the details of the Note and the objects it corrected in a change request. When you transport this request, you are registering the Note as implemented, even in your downstream systems. If it is not possible to include the Note and its objects in one request—because, for example, some objects have already been locked in other requests—the system will reject the registration. **[+]**

17.2.2 Processing Notes

To correct an error in a program using the Note Assistant, proceed as follows:

1. Load the Note into your system. During the loading process, the Note Assistant checks whether the characteristics of the Note (software component, release level, and Support Package level) match those of your system. It then states whether the corrections can be implemented.

Only Notes with source-code corrections (correction instructions) can be automatically implemented.

2. Read the Note description carefully.

The Note description may contain information about prerequisites and interdependencies, and references to post-processing steps (for example, changes that need to be made to a table), which the Note Assistant does *not* automatically recognize. If you do not read and, if required, act upon this information, serious problems can result. It is therefore absolutely imperative that you read the Note before you start the implementation. **[+]**

3. Determine whether the Note is relevant to you. Classify the Note in accordance with the processing status.

4. Implement the correction.
5. Carry out any post-processing steps that may be specified in the Note.
6. Test whether the error has been successfully corrected.
7. Set the processing status to `COMPLETED`.
8. Release the transport request and import the corrections into the downstream systems in your system landscape.

Search Note

Note Browser The Note Browser enables you to search through all SAP Notes in your system. It also displays Notes that are assigned to another processor and Notes that have already been implemented. Proceed as follows:

1. Select a search criterion for the Note:
 - ▶ Note number
 - ▶ Application component
 - ▶ Processing status
 - ▶ Implementation status
 - ▶ Processor
2. Select which option you require:
 - ▶ Restrict the selection process to certain software components and their releases.
 - ▶ Sort the Notes according to their number or the application component to which they belong.
3. Confirm your selection.

The Note Browser then displays a list of the Notes that match your criteria, including their Note number, short text, component, processing status, implementation status, and user (see Figure 17.3). You can also implement Notes directly from the Note Browser.

Note	Short text	Appl. component	Status	Implementation Stat.	User
310988	SE: bank account number check not complete	FI-AP-AP-N		Cannot be implemented	
372115	Check/ bank account number/ warning message AR140	FI-BL-MD		Cannot be implemented	
507186	BP: Check of bank account number is incorrect	CA-BK		Cannot be implemented	
672642	Inkonsistente Ableitungsschritte Typ Funktionsbaustein	CO-PA-TO		Can be implemented	KOESEGI
733960	Bank account number check: MESSAGE_TYPE_UNKNOWN	CA-BK		Cannot be implemented	
776418	DMEEEngine: Falsche Beträge im Format FR_ETEBAC_VRT-ETR	FI-AP-AP-B1		Can be implemented	NERDING
778625	BP_RAT: Flag 'Internes Bew.verf.' lässt sich nicht sichern	FS-BP		Can be implemented	NERDING
790644	Meldungen: RTF-Dokumente können nicht angezeigt werden.	BC-TWB-ORG		Can be implemented	
791367	DMEEEngine: Feld MP_IF_TP wird nicht richtig bestimmt	FI-AP-AP-B1		Can be implemented	
805006	DMEE: Zähler läuft nur bis 9999	FI-AP-AP-B1		Can be implemented	
805396	DMEECONVERT: Summenüberlauf für aggregierte Funktion	FI-AP-AP-B1		Can be implemented	NERDING
807660	Popup bei Verwendungsnachweis in Typgruppe	BC-DWB		Completely implemented	NERDING
826925	Account number check - Sweden	CA-BK		Completely implemented	NERDING
839444	Kontonummerprüfung Schweden - Erweiterung	CA-BK		Completely implemented	NERDING

Figure 17.3 The Note Browser Displays All Notes That Have Been Implemented Using the SAP Note Assistant

Load Note

You can load SAP Notes into your system from the SAP Service Marketplace or the SAPNet-R/3 frontend, using either a direct RFC connection (Note download) or by file transfer (Note upload). Note download has the following benefits:

- ▶ You can transfer the Note in the Note Assistant from the SAPNet-R/3 frontend directly to your system.
- ▶ If the Note in question specifies other Notes as prerequisites, the Note Assistant automatically downloads these in the implementation process.
- ▶ You can download updated versions of the Notes with the touch of a button.

To download a Note, you must create an RFC connection to the SAPNet-R/3 frontend. To upload a Note, a permanent RFC connection to the

SAPNet-R/3 frontend is not necessary. Instead, first load the required Note from the SAP Service Marketplace and save it locally on your PC. Then, upload the Note from inside the Note Assistant.

To download a Note, proceed as follows:

**Procedure for
Note download**

1. Select GoTo • DOWNLOAD SAP NOTE in the Note Assistant.
2. Enter the numbers of the Notes you want to download. You can use the selection function to select individual Notes or a list of Notes.
3. Confirm your selection. The system then loads the matching Notes from the SAPNet-R/3 frontend into your database.

**Procedure for
Note upload**

For Note Upload to be available, the SAP Download Manager must be installed on your computer. Notes can then be downloaded from the SAP Service Marketplace. For more information on the SAP Download Manager, see the SAP Service Marketplace at service.sap.com/swcenter. Proceed as follows:

1. Select the Note in question from the SAP Service Marketplace under service.sap.com/notes.
2. Select DOWNLOAD. The Note is added to your Download Basket. Repeat this process as many times as necessary.
3. To save the selected Notes to your local PC, start the SAP Download Manager. Select DOWNLOAD. The Notes are saved as files to the local directory you specified.
4. In the Note Assistant, load the Note files into your system using the Note Upload function (GoTo • UPLOAD SAP NOTE).

After you have successfully downloaded or uploaded a Note that was not previously in your system, it is listed with processing status NEW.

Classify Note

Classifying a Note allows you to specify the relevance or processing status of a Note. Read the Note carefully and decide whether its content is relevant to the situation in your system. Then proceed as follows:

1. If the Note is relevant, set its status to IN PROCESSING (see Figure 17.4). This informs other users that you are already processing this Note.

2. Closely follow the recommendations given in the Note. If the Note contains a correction instruction, implement it in your system.
3. If you want to assign the Note to another processor, enter the user name of the processor.

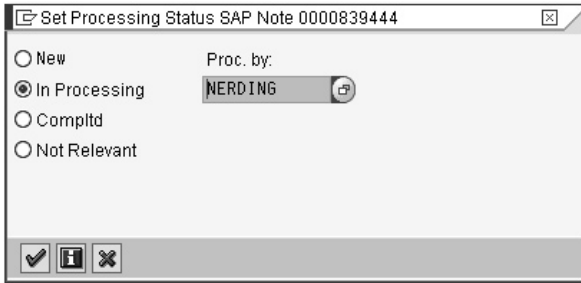


Figure 17.4 Processing Statuses for Implementing Notes

All of your actions are recorded in the log file for the Note. You can also enter additional comments in the log file, for instance, information you may want to pass on to another user.

If the Note is not relevant to you, set the processing status to NOT RELEVANT. This signals to you and all other users that this Note can be disregarded.

Implement Correction Instruction

A function exists that implements the correction instruction contained in a Note. If you have previously modified the object that is the subject of a correction instruction, you can also adapt the correction to your modifications.

To implement the correction instruction of a Note in your system, proceed as follows:

Preparations

1. Place the cursor on the title of the Note in the initial screen of the Note Assistant and select SAP NOTE • IMPLEMENT SAP NOTE. First, the system checks which correction instruction from the Note is appropriate for your release and Support Package level. It then checks whether any corrections from other Notes are a prerequisite to the implemen-

tation of this correction. If there are prerequisite Notes, the system displays these in a dialog box.

- ▶ If you have an RFC connection to the SAPNet-R/3 frontend, you can automatically download these Notes by confirming the dialog box.
- ▶ Otherwise, load them from the SAP Service Marketplace and then upload them using the Note Assistant.

If the prerequisite Notes are relevant to your system, they are then displayed in the order in which they need to be implemented (see Figure 17.5). If possible, the system implements all prerequisite Notes in one step.

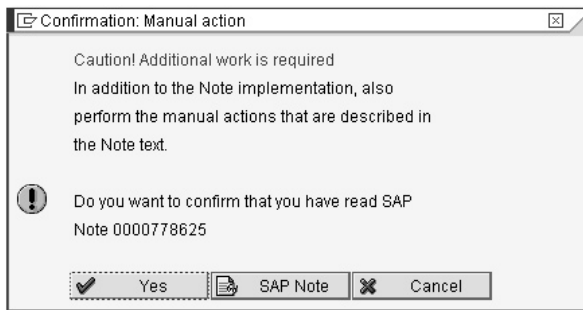


Figure 17.5 Prerequisite Notes

[+] Read the prerequisite Notes as carefully as you would any other Notes.

If any prerequisite Notes are not relevant (for example, because they have already been imported in a Support Package), the Note Assistant automatically assigns the correct status to them and does not display them in the list. To view these Notes, call the Notes Browser and select the NOT RELEVANT processing status.

2. Before the system corrects the objects, it opens a dialog box in which you can select the change request.

Select request

Either select a suitable change request, or create a new one.

The Note (R3TR NOTE), including all correction instructions (R3TR CINS) and all changed objects, is entered into the request. The transport request then transports all corrections to the downstream systems.

Note that all objects to be corrected, plus details of the Note, must be entered in a request. This is the only way to ensure that the corrections are transported in their entirety to the downstream systems. **[+]**

No SSCR key is required for automatically implementing Note corrections.

3. A dialog box opens that lists all of the objects to be changed. A traffic light icon shows whether the system can automatically implement the correction. **Change objects**

Click on the object name to open an editor. The editor shows you the changes in detail.

If you previously modified the objects to be corrected, the Note will have a yellow traffic light. You can then adapt the corrections to suit your modifications (also see the section “Split-Screen Editor”).

If you make manual changes when implementing Notes, the system cannot judge whether the corrections have been implemented properly. Therefore, you must confirm in a separate dialog box that the corrections can be classified in the system as fully implemented (see figure 17.6).

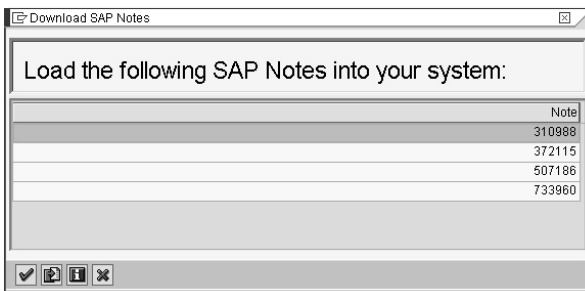


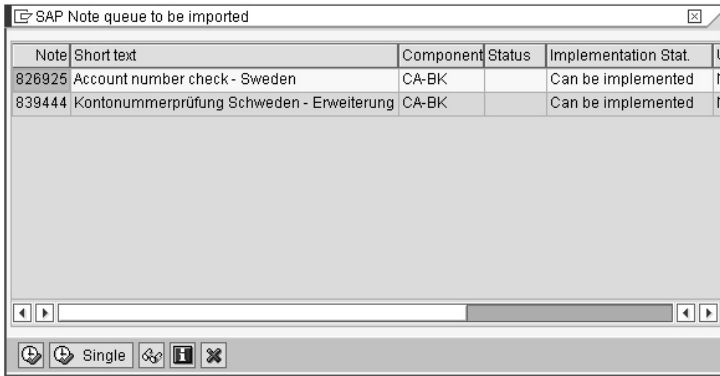
Figure 17.6 Additional Manual Action Required in Note Implementation

If the system cannot automatically implement a correction, even though the objects in question were *not* previously modified, you should first attempt to import the Note using the split-screen editor. In many cases, minor differences in the source code cause the automatic implementation to fail. If the implementation still doesn't **[+]**

work, it is probably because the Note contains an error of some sort. If this happens, contact SAP Support by creating a problem message under the Note's component (for example, FI-AR-CR).

- | | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Syntax checking | 4. Check that the corrected objects do not contain any syntax errors. This is particularly important if they also contain customer-specific modifications. Note that currently the system can automatically implement only source-text changes. If any other changes are required (changes to Dictionary objects, for example), they are described in the Note text and must be manually implemented in your system. |
| Testing | 5. After implementing the corrections, test the function in question to ensure that it has been fully corrected by the Note.

You can display all objects that were corrected by the Note; simply select GoTo • CORRECTED OBJECTS to call the modification browser. |
| Completed | 6. Set the processing status to COMPLETED. |
| [+] | In exceptional cases, you can remove correction instructions that you have implemented. This undoes all implemented changes. The Note in question remains in your system and is reset to the status it had prior to it being implemented. To remove certain correction instructions, select SAP NOTE • RESET SAP NOTE IMPLEMENTATION. |
| Release | 7. After you have solved your problem via the Note, release the change request that was created when you implemented the correction instruction. This transports the corrections and the Note data to the downstream systems in your system landscape. |
| Note queue | If a particular Note has prerequisite Notes, the Note Assistant identifies these when the Note is being implemented and instructs you to load them into your system. As soon as the prerequisite Notes are available, the Note Assistant displays the Note you selected along with all additional Notes in a dialog box called the Note queue (see Figure 17.7). The Notes have to be implemented in the order shown in the Note queue. Before you start the implementation process, read the prerequisite Notes as carefully as you would any other Notes. |



Note	Short text	Component	Status	Implementation Stat.
826925	Account number check - Sweden	CA-BK		Can be implemented
839444	Kontonummerprüfung Schweden - Erweiterung	CA-BK		Can be implemented

Figure 17.7 Implementing a Note Queue

You have the following options:

► **Implement multiple Notes in one step**

The system implements as many of the specified Notes as possible, in one step, in sequence. The Notes that can be implemented at the same time are highlighted in color.

The system can implement multiple Notes in one step only if all corrections can be transferred in unmodified form from the Notes. If you have made your own modifications to the includes in question, the system may be unable to insert individual changes. The system always implements such Notes individually so that you can adapt your modifications.

► **Implement all Notes individually**

The system implements the specified Notes individually. This option allows you to review in detail what source code changes belong to which of the specified Notes, and to modify the changed source code, if necessary.

► **Cancel SAP Note implementation**

The system does not make any changes to the source code.

The CONFIRM CHANGES dialog box shown in Figure 17.8 displays which objects will be changed by the Note implementation, and whether the Note Assistant can copy in the changes. If you confirm this dialog box, the system implements the corrections into the specified objects. If you select Cancel, the system does not make any corrections.

Confirm changes

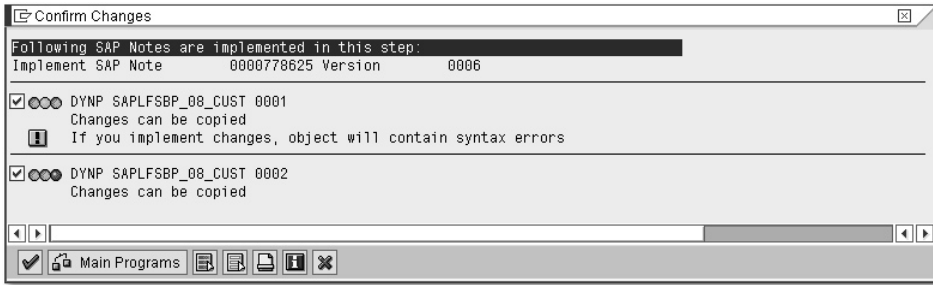


Figure 17.8 Display of Objects to Be Changed

The 'traffic light' icons show you whether the corrections in a Note can be implemented. The different colors have the following meanings:

► **Green light**

The corrections can be implemented without any changes.

► **Yellow light**

Some of the corrections can be implemented.

Before you confirm the implementation, you should adapt the corrections so that the object changes can be imported correctly. To do this, click on the object name or on the traffic light icon. The split-screen editor opens, where you can edit the source code.

► **Red light**

The object changes cannot be implemented.

This can occur for a variety of reasons; for example, the object has to be created from scratch, or is locked by another change request.

A corresponding message text exists for every object (for example, Corrections that have not been included completely). If you click on the text, the system displays the appropriate long text with detailed information.

To implement the corrections, select all of the objects for which you want to implement corrections and select **CONTINUE**.

[+] Note that only the objects you selected will be changed.

Split-screen editor

The split-screen editor shown in Figure 17.9 provides a detailed display of all corrections in an object. You can use this editor to adapt the corrections to your own modifications, if necessary.

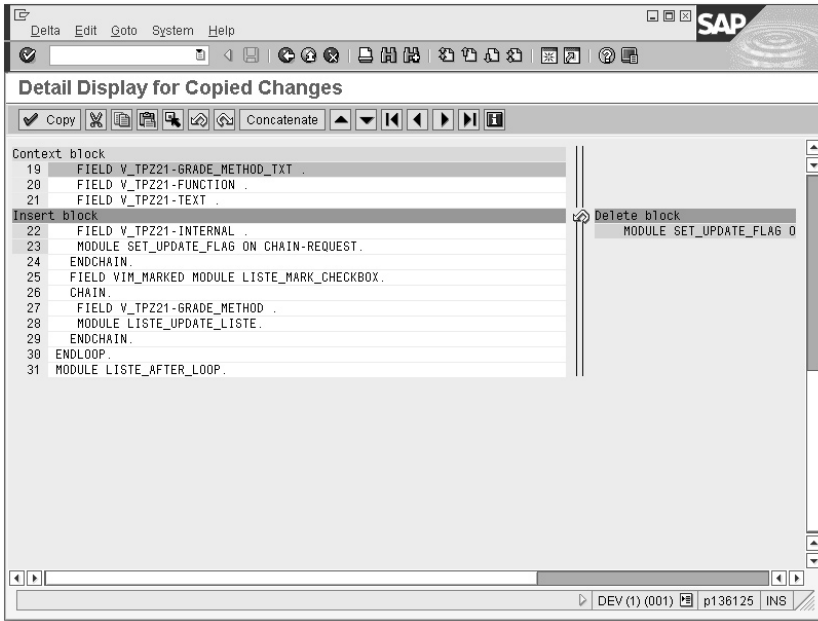


Figure 17.9 Split-Screen Editor

The split-screen editor is divided into two areas:

- ▶ On the left-hand side of the screen, you see the source code as it looks after the changes have been implemented. The changes are highlighted in color. You can edit the source code in this portion of the screen.
- ▶ On the right-hand side of the screen, you see the parts of the program that have been deleted, and the corrections the Note Assistant cannot implement automatically. These deletions and corrections are displayed in the form of context blocks, delete blocks, and insert blocks.

You can do the following on the left-hand side of the screen:

- ▶ Manually edit the program
- ▶ Select, cut, copy, and paste blocks

To select a block that is highlighted in color, place your cursor on the header line and choose **SELECT**. You can also select multiple lines. **[+]**

To do so, place your cursor on the first line of the block you want to select and choose **SELECT**. Then place your cursor on the last line and choose **SELECT** again.

- ▶ Select **UNDO** to undo all changes, step by step, that you made in the split-screen editor.
- ▶ Select **REDO** to restore all changes you undid.
- ▶ Use the arrow buttons to go to the next or last change.
- ▶ Select **CONCATENATE** to attach two lines to each other.

If a block has been inserted or deleted, the **UNDO/REDO** button appears between the left- and the right-hand side of the editor. You can use it to undo or redo individual changes. The technical function of the undo and redo buttons is to exchange individual delete and insert blocks.

Technical Details on Correction Instructions

Technical details on correction instructions contains information on the following topics:

- ▶ The format of correction instructions
- ▶ The validity of correction instructions
- ▶ Prerequisites for correction instructions

Format Correction instructions describe how the source code of ABAP programs has to be changed to resolve an error. These instructions are located at the end of each SAP Note. You use correction instructions to automatically correct the source code of ABAP programs, ABAP includes, function modules, method implementations, dynpro flow logic, and type groups.

Every change contains information about the object (for example, the include or the function module) and the modularization unit (such as the FORM routine) in which it will be made. The location of the change is identified by the unique number of the unchanged lines that directly precede the lines to be changed (context block). The lines to be deleted are then listed (delete block), followed by the lines to be inserted (insert block). A correction instruction can consist of multiple context blocks, delete blocks, and insert blocks.

When automatically implementing a correction instruction, the system finds the context blocks in the include or function module to be corrected, checks whether the context blocks follow the lines to be deleted, and replaces these lines with the lines to be inserted.

If the include or function module to be corrected contains customer modifications, sometimes the system cannot find the context blocks specified in the correction instruction, or in the lines to be deleted. In other words, the system cannot fully implement the correction. In this case, you can use the split-screen editor to adapt the corrections in the Note to your modifications.

Since 1998, correction instructions have been formalized to such a degree that they can be implemented automatically. However, older Notes may still be in non-standardized format, and the Note Assistant will be unable to automatically completely implement these Notes. However, as mentioned before, you can manually edit the source code, using the split-screen editor. It is recommended that you do this to ensure that the Note Assistant can register the Note in your system.

Every correction instruction specifies the release and Support Package levels in which you can implement the correction instruction. These levels are known as the *validity range* of the correction instruction .

Validity of Notes

For example: if an error is detected in Release SAP_BASIS 7.00, and Support Package 5 corrects this error, the validity period of the correction instruction in question will be specified as "SAP_BASIS 7.00, Support Packages 1–4."

A Note can also specify that a correction instruction may not be implemented if the system contains a specific software component (such as an add-on). This may be the case if, for example, a correction makes changes to a part of a program that is required in its unmodified form by another software component.

If such a condition exists, this information displays in the header area of the correction instruction under *Invalid for <software component, release, Support Package level>*.

The Note Assistant automatically checks the validity and implements a correction instruction only if the status of the system is included in the specified validity area.

Prerequisites In certain cases, correction instructions can be implemented only if other correction instructions have already been implemented. This is due to interdependent changes made to the same points in the source code, or to semantic dependencies.

These dependencies are described in the header area of the correction instructions. If there are dependencies, you will have to implement not just one Note, but a series of Notes.

Log File

A log file is created when you download a Note (see Figure 17.10). A log file contains information about all of the main processing steps, including the date, time, system, and user in question, allowing you to trace the steps that have already been taken.

You can also save your own notes or remarks in the log file, provided that you are entered as a processor for this Note.

The information in the log file cannot be deleted.

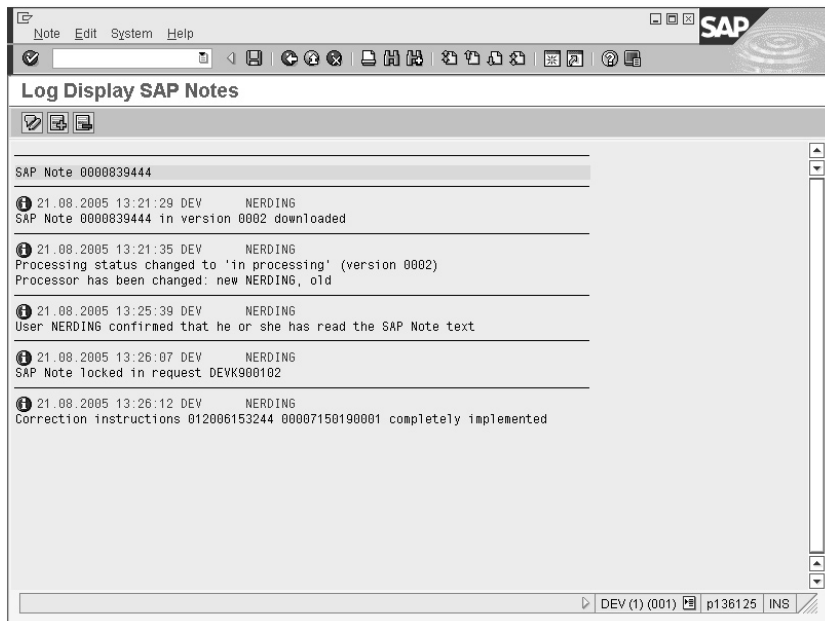


Figure 17.10 Log File

Update Note

Updating a Note allows you to adjust the version of a Note in your system to the current version in the SAPNet-R/3 frontend. You can thus check at any time whether the Notes in your system are up to date. If necessary, the system downloads the latest version.

You have the following options:

- ▶ Adjust an individual Note from within the Notes display
- ▶ Adjust all Notes listed in your worklist
- ▶ Adjust all Notes listed in the Notes browser

Notes can be automatically updated only if you have set up an RFC connection to the SAPNet-R/3 frontend. **[+]**

To update a Note, proceed as follows:

1. Choose **DOWNLOAD LATEST VERSION OF SAP NOTES**.

The system checks whether your system contains the latest versions of the Notes listed on the screen.

It also displays—in a dialog box—any Notes that SAP has changed since the last time you downloaded them.

2. To download the latest versions of these Notes, click **OK** in the dialog box.

If the current Note was changed, and therefore has to be reimplemented, the Note Assistant displays this Note in your worklist under the **INCONSISTENT** heading. In this case, all you have to do is reimplement the Note.

Post-Processing Support Packages

A Support Package contains a collection of error corrections. Support Packages can be imported only in their entirety and only in the specified order. Every correction in a Support Package is documented in a Note.

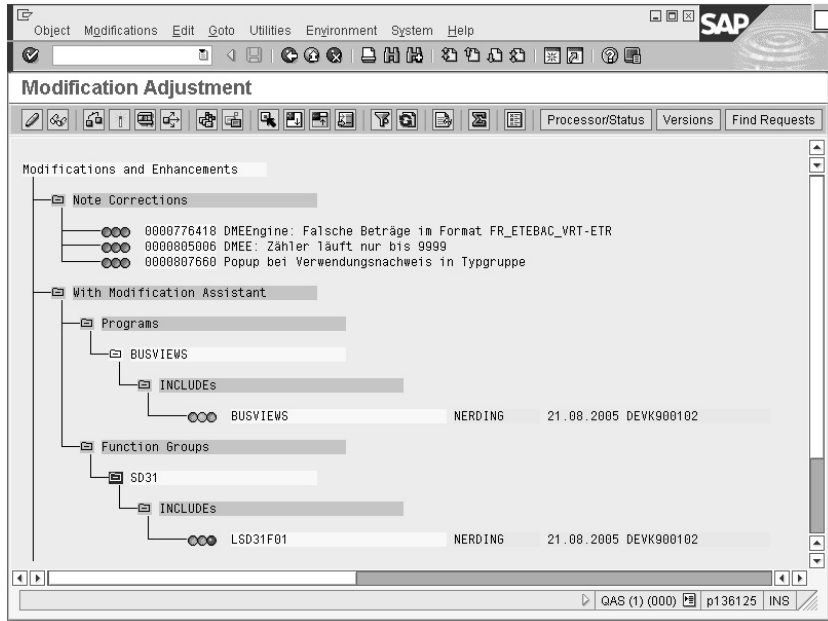


Figure 17.11 Post-Processing Support Packages in Transaction SPAU

After you import a Support Package, you must execute the modification adjustment using Transaction SPAU as shown in Figures 17.11 and 17.12. The scenarios that can arise are as follows.

Correction implemented via a Note and contained in the Support Package (traffic light icon with no colors)

1. When a Support Package is imported, the system automatically checks whether you have previously implemented individual corrections from this Support Package in the form of Notes. In the modification adjustment function (Transaction SPAU), these Notes are displayed with a traffic light icon with no colors and are therefore marked as obsolete. You must reset the objects they contain to their original SAP status. You can do this in one of the following ways:

- Click on the traffic light icon.
- Position the cursor on the Note number. Choose **RESET TO ORIGINAL**.

A dialog box opens. In this box, confirm that you want to reset the Note correction to the original status.

If you have selected multiple Notes corrections, you can choose **RESET ALL**, and the dialog box does not open.

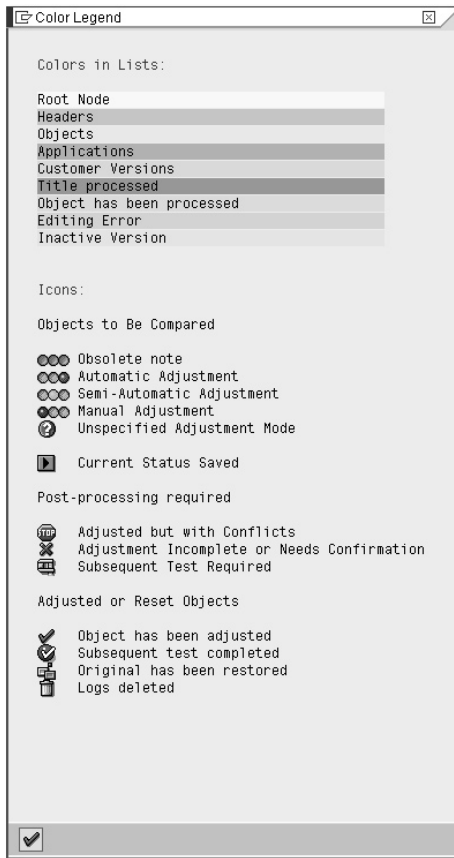


Figure 1712 Color Legend in Transaction SPAU

- The system checks whether corrections that you have previously implemented via a Note have been overwritten by a Support Package that did not contain these corrections. If this is the case, you will have to reimplement these Note corrections. The system displays these Notes in the modification adjustment (Transaction SPAU) with a yellow traffic light.

Note implemented, but not contained in Support Package (yellow traffic light icon)

Click on the traffic light to start the reimplement process for the Note.

These Notes are also displayed in your worklist with the status INCONSISTENT, which mean they have to be reimplemented. To start the reimport, choose IMPLEMENT SAP NOTE.

- Correction implemented via a Note and contained in the Support Package, but Note version is different (yellow traffic light icon)
3. The system checks whether you have previously implemented individual corrections from the Support Package into your system via Notes. If the Note version in the Support Package is more current than the Note that was implemented in your system using the Note Assistant, the modification adjustment function cannot reset the objects in the Note to their original status. The system displays this Note with a yellow traffic light.
- In this case, proceed as follows:
- ▶ Call the Note Assistant.
 - ▶ Download the latest version of all Notes.
 - ▶ Recalculate the adjustment modes in the modification adjustment. Then choose **GoTo • DETERMINE ADJUSTMENT MODE**.
- If SAP has not changed the Note, its traffic light icon has no colors. You can reset it to its original status as described in step 1.
- If SAP has changed the Note, its traffic light icon is yellow. In this case, proceed as described in step 2.
- Note has been implemented, although parts of it are contained in the Support Package (green traffic light icon)
4. An example of this scenario would be a Note that contains several correction instructions, each of which has a different validity period. This can have the following effect: When a Support Package is imported, one correction instruction may become obsolete, whereas another may still be valid. In such cases—which are, admittedly, rare—the Note has a green traffic light icon.
- If you click on the icon, correction instructions that are no longer relevant are reset to their original status.
- Adjustment mode for Note implementation unspecified (green question mark)
5. The adjustment modes for Notes corrections are calculated in a background process after a Support Package is imported. However, if for some reason this process is not started, or if errors occur, a green question mark is displayed in front of the object in the hierarchy display. Click on the question mark to restart the process. This process can take a few minutes to complete.
- [+]** If an object contains your own modifications and Note corrections, you must first process the Note corrections in the modification adjustment function (SPAU), and then adjust your own modifications.

The system does not support modification adjustments in the WITH MODIFICATION ASSISTANT subtree if the object is contained in Note corrections that have not yet been adjusted, or reset to their original status.

In all cases, in a modification adjustment—or when correction instructions are reset to their original status—the objects contained in the Note are placed into transport requests. This ensures that they are transported to the downstream systems.

17.2.3 Implementation Status and Processing Status of Notes

The Note display in the Note Assistant contains two statuses: IMPLEMENTATION STATUS and PROCESSING STATUS. The implementation status of a Note is determined by the system, based on existing information. The processing status is specified by the user.

You should note that the system checks whether the processing status you specify is consistent with the implementation status of the correction instructions.

For example, you may set the processing status to COMPLETED only if all relevant corrections have been implemented (implementation status COMPLETELY IMPLEMENTED OR CANNOT BE IMPLEMENTED).

If the implementation status changes afterwards and if it is no longer consistent with the processing status (for example, after a Support Package is imported), the system marks this Note as INCONSISTENT in the Note overview.

Implementation Status

If a Note contains correction instructions, the implementation status indicates whether all relevant correction instructions of the Note have been implemented in the system.

The system automatically sets the implementation status. The possible values are as follows (see Figure 17.13):

► Incompletely implemented

Not all relevant correction instructions have been implemented, or a particular correction instruction has not been implemented completely.

The objects in question are therefore considered to be in an inconsistent state, and you should reimplement the relevant Note.

► **Obsolete version implemented**

SAP has corrected a Note that contained errors. Reimplement the Note in your system.

► **Can be implemented**

The Note contains correction instructions you can implement in your system, if necessary.

► **Completely implemented**

The corrections in the Note have been fully implemented in your system. In this case, you don't have to take any action.

► **Cannot be implemented**

The Note does not contain any correction instructions you can implement in your system. In this case, you do not have to take action.

► **Obsolete**

After you implemented the corrections in the Note, you imported a Support Package that also contains these corrections. The error has therefore been resolved completely.

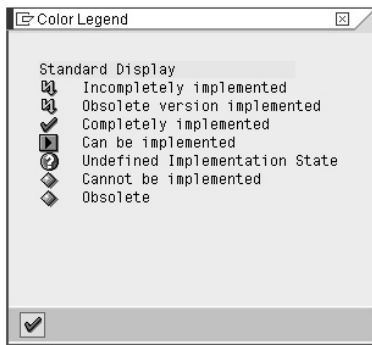


Figure 1713 Possible Implementation Statuses of a Note

Processing Status

The processor of a Note sets its processing status. This status tells other users and the system whether this Note has already been processed and if so, to what extent. This status is set in the Note Assistant and can be one of the following:

► **New**

The Note has been loaded into your system but has not yet been processed.

► **In processing**

The Note is being processed.

► **Completed**

The instructions in the Note have been executed and any corrections have been implemented in the system. Therefore, processing is completed.

► **Not relevant**

The Note has been read and classified as not relevant. A possible reason for this is that it pertains to a function that you do not use.

17.3 ABAP Support Packages

SAP regularly publishes Support Packages for different types of program correction and updates, both for ABAP and Java.

Support Packages can be downloaded from the SAP Service Marketplace under the Quick Link `/swdc`. SAP also provides collections of Support Packages on CD-ROM. You can order these Support Packages from the SAP Software Shop at <http://service.sap.com/softwarecat>.

SAP provides a range of tools that make it easy and convenient for you to obtain Support Packages and import them automatically.

The new reporting tool for *side effects of SAP Notes* helps you avoid any undesirable side effects of Support Packages after you import them. This tool discovers whether the SAP Notes in a Support Package could have side effects on other areas of your SAP system, and outputs a list of additional SAP Notes you should implement to prevent these side effects from happening.

Side effects of
SAP Notes

Support Packages provide the following benefits:

Benefits of
Support
Packages

1. Proactive solution of known problems

Support Packages solve known problems that have occurred in other SAP customers' systems, and thus proactively remove potential problems. This, in turn, leads to better system stability.

2. Prerequisite to problem-solving

In rare cases, a problem can be solved only if a certain Support Package has been imported. In such cases, it is not possible to solve the problem with a series of Notes. If the problem in question occurs, the required Support Package will have to be imported at short notice. The older the Support Package status, the higher the risk becomes.

3. Improved repair and maintenance

If a problem occurs, it is easier to find a solution if the latest Support Package has been imported. This is because you can exclude from the possible solutions all Notes that are contained in the Support Packages that have already been imported.

4. Reduced repair and maintenance

If you import the Support Packages for your system, there is no need to import all of the individual Notes. If the kind of error occurs that necessitates the implementation of a Note, this Note may have several prerequisite Notes that also have to be implemented. If you don't have the latest Support Packages, the list of prerequisite Notes may be very long, thus increasing the amount of time and effort required for error correction.

5. Prerequisite for implementation projects

An up to date Support Package is often a prerequisite for the implementation of new functionality in a system. In such cases, if the Support Package level is not current, the implementation process will have to be put on hold until the appropriate Support Package is imported.

6. Prerequisite for interfaces to other SAP systems

In some cases, it is necessary to import the latest Support Packages so that other SAP systems with newer Support Packages can use interfaces to your system.

7. Statutory changes

Support Packages comply with the latest statutory requirements. This is especially relevant to the HR area, but also to statutory changes in the FI/CO area.

8. Prerequisite for importing Enhancement Packages

SAP ERP 6.0 as well as most applications based on SAP NetWeaver 7.0 provide new functions in Enhancement Packages. These enable the customer to import software innovations more frequently and with little additional effort. Enhancement Packages each require a current Support Package stack.

Support Packages contain quality improvements to the SAP system and make any adjustments that may be necessary (due to statutory changes, for example). They do this by replacing the affected objects in your system.

Every Support Package is valid for one specific release level (but for all databases and operating systems) and has a prerequisite number of predecessors. An upgrade of the next release level or correction level contains all Support Packages for the preceding levels that were available when the upgrade was delivered.

The Support Package Manager ensures that Support Packages are imported only in the predefined order.

Support Package Manager

To prevent problems from occurring, import Support Packages at regular intervals. This is the best way to keep your system landscape up to date.

Java Support Packages contain corrections and updates to Java components. They are delivered in the form of software component archives (SCAs). Unlike ABAP Support Packages, Java Support Packages always contain the full version of the development component in question. It is therefore sufficient to import only the latest one. If dependencies exist between the current Java Support Package and other Java Support Packages, they are described in an SAP Note.

Java Support Packages

Java Support Packages have been delivered since SAP Web Application Server (SAP Web AS) 6.20 and are imported using the Software Deployment Manager (SDM). The SDM is delivered with the SAP Web AS from Version 6.20 on. SAP Note 544244 contains more detailed information on this topic. As of SAP NetWeaver 7.00 you are also provided with the Java Support Package Manager (JSPM). This is a Java-based tool for implementing Java Support Packages, patches, and Support Package stacks. The use of JSPM is similar to the use of SPAM. Java Support Packages and patches are discussed in detail later in this chapter.

17.3.1 Applying ABAP Support Packages

Support Package Manager

The Support Package Manager (SPAM) enables you to import SAP Support Packages into your system easily and efficiently.

You can open the SPAM in one of the following ways:

- ▶ Choose SAP MENU • TOOLS • ABAP WORKBENCH • UTILITIES • MAINTENANCE • SUPPORT PACKAGE MANAGER.
- ▶ Enter Transaction code SPAM.

[+] The SAP Add-on Installation Tool (SAINT) provides functionality that is similar to Transaction SPAM. However, SAINT also lets you implement add-ons and delta upgrades of individual ABAP software components. If you need to upgrade software components with the Support Package stack, Transaction SAINT is frequently used instead of Transaction SPAM. However, using SAINT is similar to using SPAM; therefore, only Transaction SPAM (see Figure 17.14) is described in detail here.

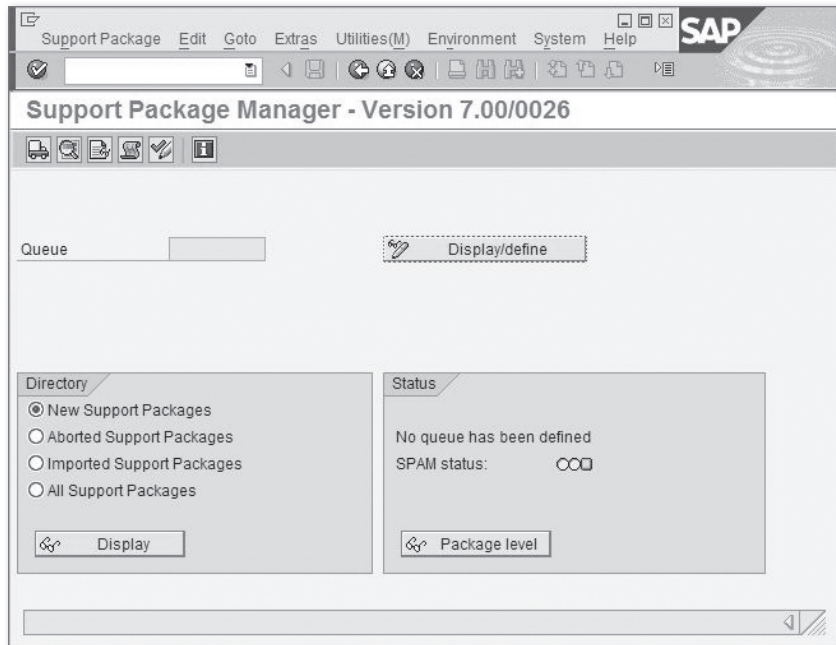


Figure 17.14 The Initial Screen of Transaction SPAM

Features The Support Package Manager has the following features:

▶ **Support Package loading**

You can load Support Packages into your system from the SAP Service Marketplace, the SAPNet-R/3 frontend, or from collection CDs.

► **Restartability**

When the Support Package Manager imports a Support Package into your system, it adheres to a fixed order of steps.

If the import process has to be canceled for any reason, you can resume processing at a later stage from the point that had been reached.

► **Display import status**

You can use the Support Package Manager to identify the current import status of your system.

► **Special import procedure**

A special import procedure minimizes downtime.

► **Start time control**

The individual phases of the Support Package Manager are grouped into modules. This allows you to set the start time of the modules to any time you like.

► **Background processing**

You can also schedule the modules to run in background processing, with predefined start times.

You need the following authorizations to be able to use all of the Support Package Manager functions:

- S_TRANSPRT
- S_CTS_ADMIN

Authorizations

Both authorizations are contained in the S_A.SYSTEM authorization profile.

If you log on to client 000 and your user master contains the relevant authorization profile, you can use all of the Support Package Manager functions. If you log on to another client, or if you don't have the required user profile, you can use only the display functions.

You can only assign this authorization profile to the system administrator. Also, only the system administrator should have authorization for the following actions:

- ▶ Download Support Packages
- ▶ Import Support Packages
- ▶ Confirm successfully imported Support Packages
- ▶ Reset the status of a Support Package

Settings

Choose EXTRAS • SETTINGS to open a dialog box in which you can configure general settings for the Support Package Manager. These settings affect the behavior of the system when loading and importing all types of Support Packages. One exception is SPAM/SAINT updates, which have special predefined settings.

You only have to configure the settings once because they are saved and used every time the Support Package Manager is called. Note that these settings also apply to the SAP Add-On Installation Tool.

An exception to this is the settings for the *Downtime-minimized* import mode: This does not automatically apply to the Add-On Installation Tool.

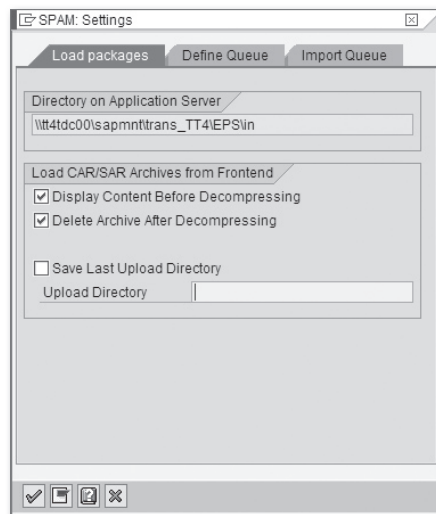


Figure 17.15 Load Packages Tab

On the LOAD PACKAGES tab, you can change or check the following properties (see Figure 17.15):

► **Directory on Application Server**

Shows the application server directory in which the Support Packages are stored.

► **Load CAR/SAR Archives from Frontend**

► **Display Content Before Decompressing**

Allows you to specify whether you want to view a dialog box containing the archive content before the CAR/SAR archive is decompressed. This is selected by default.

► **Delete Archive After Decompressing**

Allows you to specify whether the CAR/SAR archive that was transferred to the application server should be deleted after it is successfully decompressed. This is selected by default.

► **Save Last Upload Directory**

Allows you to specify whether the most recently used upload directory on your frontend computer should be saved. If you select this option, this directory is automatically displayed as the start directory in the archive selection dialog box the next time you use this transaction. You can also enter an upload directory of your choice in the UPLOAD DIRECTORY field. This directory is then displayed as the start directory in the archive selection dialog box.

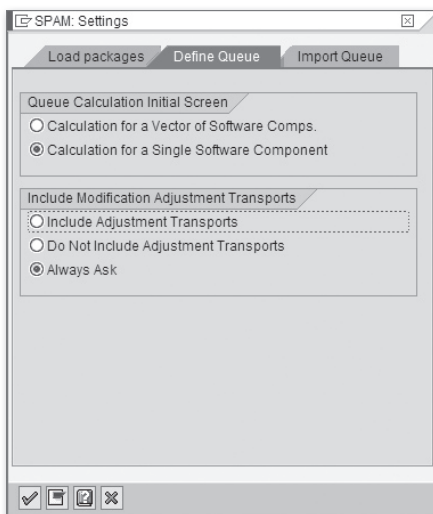


Figure 17.16 Define Queue Tab

On the DEFINE QUEUE tab, you can change or check the following properties (see Figure 17.16):

Define Queue tab

► Queue Calculation Initial Screen

You can specify the queue calculation method you want to be provided with by default when entering the queue definition screen:

► Queue calculation for a Vector of Software Comps (components)

The Support Package queue calculation takes place for multiple software components based on the target Support Package level that has been defined for each software component (see section “Define Queue,” marginal text: “Define queue on the basis of multiple software components”).

► Queue Calculation for a Single Software Component

The Support Package queue calculation is done by selecting one software component and the highest Support Package for this software component (see section “Define Queue,” marginal text: “Define queue on the basis of target Support Package”).

► Include Modification Adjustment Transports

You can specify whether you want to include SPDD and SPAU adjustment transports.

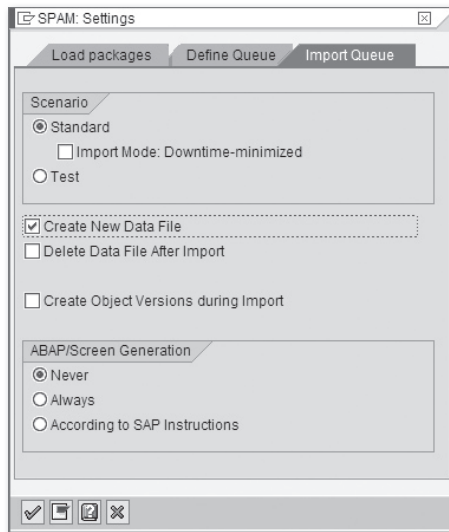


Figure 17.17 Import Queue Tab

On the **IMPORT QUEUE** tab, you can change or check the following properties (see Figure 17.17):

► **Scenario**

Import Queue tab

By selecting the scenario, you determine which actions will be carried out during the import of the Support Package:

► **Standard**

Select the standard scenario if you want to import Support Packages completely and execute all of the steps involved.

► **Import Mode: Downtime-minimized**

If you select the standard scenario, you can also select the downtime-minimized import mode to reduce the downtime. This is not selected by default. If you do not select this option, Support Packages are imported using the conventional method. For more information on this import mode, see the relevant section that follows.

► **Test**

The test scenario lets you determine whether you need to carry out a modification adjustment, or whether conflicts exist that need to be resolved before the import—that is, before the Support Package is imported. No data or objects are imported into your system in the test scenario.

There is no test scenario for SPAM/SAINT updates. Therefore, if you select this option when importing a SPAM/SAINT update, it is ignored.

► **Create New Data File**

This option allows you to specify whether the data files in the EPS packages should be decompressed with every attempted import. It is selected by default.

If you have a multisystem landscape with a shared transport directory, it is best to select this option in only the first system into which you import Support Packages, and to deselect it in the downstream systems. This saves time in the import process because the data files do not need to be created again in the downstream systems.

► **Delete Data File After Import**

This option allows you to specify whether the data files should be deleted after a Support Package is imported. This helps to save disk space and is selected by default.

If you have a multisystem landscape with a shared transport directory, it is best to deselect this option because the data files do not need to be created again in the other systems (see the list item “Create New Data File”).

► **Create Object Versions during Import**

This option does not apply to SPAM/SAINT updates.

It allows you to specify whether versions should be created of the Support Packages' objects during the import process. This option is deselected by default. This is because versioning makes sense only if it is activated for all imports, and also because it can take a long time and takes up a lot of space in the database.

[+]

Note that if version creation is activated in the transport tools' configuration in the Transport Management System (Transaction STMS), you must set the `VERS_AT_IMP` parameter to `ALWAYS`.

► **ABAP/Screen Generation**

These options allow you to specify whether the programs and screens that come with the Support Package should be generated during the import.

They have no effect with SPAM/SAINT updates.

► **Never**

If you select this option, the programs and screens are generated only when they are called for the first time.

► **Always**

If you select this option, the programs and screens are always generated. Note that the generation process can take a very long time to complete, and may cause errors.

► **According to SAP Instructions**

If you select this option, the programs and screens are always generated if the generation option is activated during the import process for these Support Packages.

Import Phases and Modules

All actions the import tools perform run in *phases*. These phases, in turn, are grouped into modules. The modules have the following properties:

- ▶ You can run them individually.
- ▶ You can start them in a background process.
- ▶ You can set the start time of the modules to any time you like.

The import process is subdivided into the following modules:

Description of
import process

▶ **Preparation module**

This module carries out all of the preparation and testing steps (such as a test import and add-on conflict checking). It can run during live operation.

After you have run the Preparation module, you can reset the queue. If you proceed to the Import 1 module and do not reset the queue, the data is changed in the database and you will not be able to reset or delete the queue from this point on.

▶ **Import 1 module**

This module imports and activates Dictionary objects (and carries out a modification adjustment of Dictionary objects, if necessary). Any changes that are made in the process of importing and activating the Dictionary are still in an inactive state in the system. This means that the runtime system cannot "see" these changes yet. If you are sure that manual changes do not need to be made and that no transports will be imported into the system, this module can also run during live operation. This is usually the standard in production systems.

▶ **Import 2 module**

This module carries out the remaining import steps, including the activation of inactive Dictionary nametabs. To avoid inconsistencies, this module cannot run simultaneously with live operations, because it imports changes to various transport objects.

▶ **Clean-Up module**

This module handles all post-import ("clean-up") steps, especially modification adjustment for Repository objects. Live operations can resume after all modifications have been adjusted.

- [+]** Because the package import process can be stopped after every module, it is possible to run the Preparation and Import 1 modules during live operations. After the system has been transferred to non-live operations, the Import 2 module and, if necessary, the modification adjustment can be carried out, after which live operations can resume.
- [+]** Make sure that no company-specific transports, aside from modification adjustment transports, occur when the Import 1 module has been started, and that no manual changes are made to Repository objects (ABAP programs and Dictionary objects). Moreover, the search helps may be inconsistent during the time period between running modules Import 1 and Import 2. This time period should be kept as short as possible.

Import phases The Support Package Manager uses the status bar to indicate which phase is currently being executed. If you want to know which phases are executed for which scenario (test or standard scenario), run program `RSSPAM10`.

SAP Add-on Installation Tool

The SAP Add-on Installation Tool (SAINT) provides functionality that is similar to Transaction SPAM. However, SAINT also lets you implement add-ons and delta upgrades of individual ABAP software components. If you need to upgrade software components with the Support Package stack, you need to use Transaction SAINT instead of Transaction SPAM. Moreover, Transaction SAINT enables you to use multiple parallel processes for the R3trans import and for background processing. However, this is only possible for specific packages that consist of multiple object bills of material, for instance, ERP Enhancement Packages.

Import SPAM/SAINT Update

SPAM/SAINT updates (known as SPAM updates for short) provide you with updates and improvements to the Support Package Manager and the SAP Add-On Installation Tool. Every release comes with a SPAM update, which is then updated as necessary over time. It is stored in the following locations in the system:

- ▶ In the short description; for example, SPAM/SAINT update version <REL>/0001
- ▶ In the package name; for example, *SAPKD<REL>01*

We recommend that you always import the latest version of a SPAM update before importing Support Packages or Installation Packages. **[+]**

A SPAM update can be successfully imported only if the system does not contain any canceled packages. If the system does contain such packages, a dialog box informs you of this fact and you can do one of two things: **Canceled packages**

- ▶ Fully import the queue and then import the SPAM update.
- ▶ Delete the queue, import the SPAM update, and then import the queue.

Note that you can delete the queue only if the Import 1 module has not yet been started (up to phase SCHEDULE_RDDIMPDP).

To import a SPAM update, proceed as follows:

1. Open the Support Package Manager (Transaction SPAM).
2. Check that the SPAM update in question is more up to date than the version that is currently on your system. (The latest version is displayed in the title bar of the Support Package Manager.)
3. To import the latest version, choose SUPPORT PACKAGE • IMPORT SPAM UPDATE. SPAM updates are automatically confirmed after they have been successfully imported.

Loading Support Packages

Before you can import a Support Package, you must load it from the SAP Service Marketplace (see Figure 17.18).

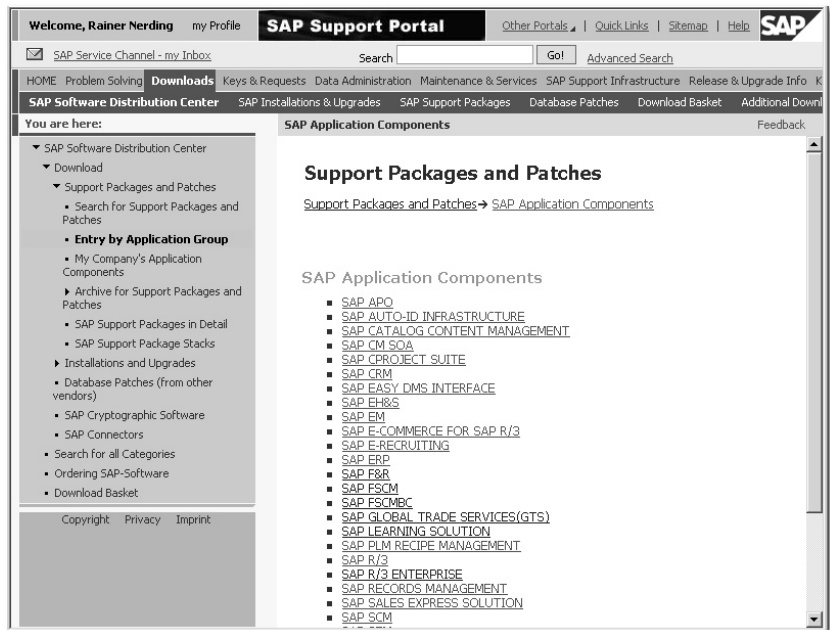


Figure 17.18 Loading Support Packages from the SAP Service Marketplace

Load Support Packages from the SAP Service Marketplace or CD

Support Packages in the SAP Service Marketplace are in compressed format. You therefore have to *decompress* them before using them.

If the archives are located on your frontend computer, you can transfer them directly to the application server from within the Support Package Manager and decompress them there. However, if the archives are larger than 10MB, proceed as follows:

- 1. Load the Support Packages from the SAP Service Marketplace or mount the relevant CD.
- 2. Log on with the following operating system-dependent user:

Operating System	User
Unix	<sid>adm
IBM eServer iSeries	<SID>OFR
Windows	<SID>adm

3. Switch to the following operating system-dependent subdirectory in your system:

Operating System	Subdirectory
Unix and IBM eServer iSeries	trans
Windows	TRANS

4. Use the following operating system-dependent command to decompress the archive that contains the Support Packages:

Operating System	Command
Unix	SAPCAR -xvf /<CD_DIR>/<PATH>/<ARCHIVE>.CAR
IBM eServer iSeries	SAPCAR '-xvf /QOPT/<VOLID>/<PATH>/<ARCHIVE>.CAR'
Windows	SAPCAR -xvf <CD_DRIVE>:\<PATH>\<ARCHIVE>.CAR

The decompressed Support Packages are then automatically placed in the EPS inbox of your transport directory (Unix and IBM eServer iSeries: /usr/sap/trans/EPS/in; Windows: <DRIVE>:\usr\sap\trans\EPS\in).

5. Load the Support Packages into your system using SUPPORT PACKAGE • LOAD PACKAGE • FROM APPLICATION SERVER.

A list of the Support Packages you just uploaded displays. They are now known to the SAP system with all of their attributes and can be handled correctly by the Support Package Manager.

6. Choose BACK to return to the Support Package Manager's initial screen.
7. Define the queue.

If you want to load the archives (*.CAR/*.SAR) from the frontend to the application server, and if the archives are smaller than 10MB, proceed as described in the list of steps that follows. If the archives are greater than 10MB, the procedure described here will not be efficient. In this case, first transfer the Support Packages to the application server—via FTP, for example—and then load them from there.

Load from frontend

1. Open the Support Package Manager (Transaction SPAM).
2. Choose `SUPPORT PACKAGE • LOAD PACKAGES • FROM FRONTEND`. The dialog box for archive selection opens.
3. Select the relevant archive. This archive is transferred to the application server. The archive's table of contents is read and then displayed in a dialog box.
4. Select `DECOMPRESS` to transfer the archive to the application server and decompress it. If you select the `NEW SUPPORT PACKAGES` option and choose `DISPLAY` under `DIRECTORY` in the initial screen, the corresponding package is displayed in the Support Package Manager after the archive has been decompressed.

Define Queue

The queue determines which Support Packages are imported into your system by the Support Package Manager, and in what order. If the queue has not yet been fully defined, you now have to define the queue, making your selection from the available Support Packages. If the queue has been fully defined, it is simply displayed, and you cannot change it. However, you can delete the queue entirely, if required, by choosing `DELETE QUEUE`.

[+] Note that you can delete the queue only if the Import 1 module has not yet been started (up to phase `SCHEDULE_RDDIMPDP`).

The Support Package Manager ensures that only Support Packages that are suitable for your system are displayed in the queue. Support Packages that are intended for another release, or for an add-on that you have not installed, don't appear in the queue, even if you loaded them into your SAP system.

You can define the queue on the basis of either the software components in your system or a target Support Package as shown in figure 17.19.

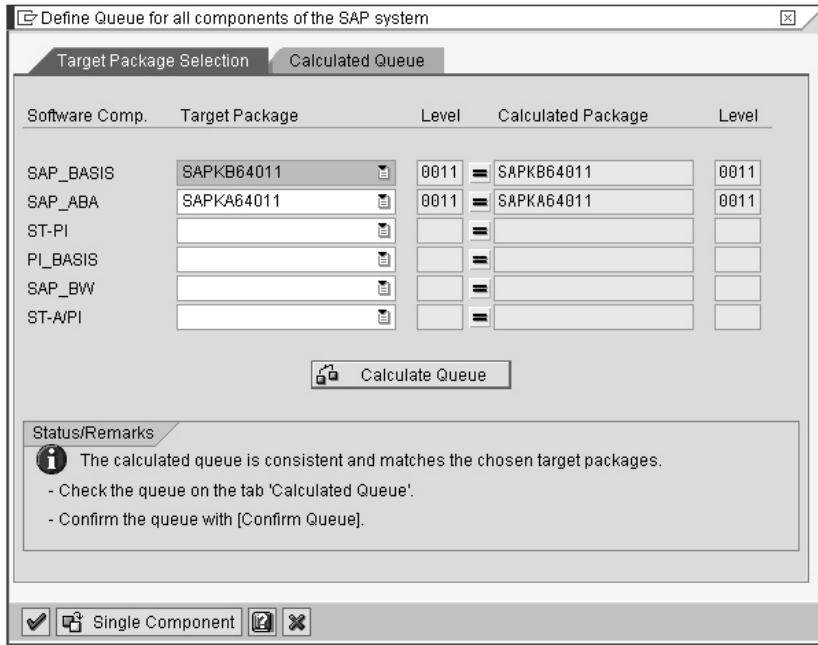


Figure 17.19 Defining the Import Queue

To define a queue on the basis of software components, proceed as follows:

1. Click DISPLAY/DEFINE in the initial screen of the Support Package Manager.
The COMPONENT SELECTION dialog box appears, and the list of installed software components is displayed (such as SAP_BASIS, SAP_HR, SAP_BW).
2. Select the component you want.
Alternatively, you can calculate a common queue for all software components in the system by selecting ALL COMPONENTS.
3. The queue is then displayed. The queue contains the Support Packages available for the selected component(s) in your system, and possibly also any Support Packages required for other components, Conflict Resolution Transports (CRTs), and any associated add-on Support Packages.

Define queue on the basis of software components

If you want to define the queue for another software component, select **NEW COMPONENT**.

4. You now have the following options:

- ▶ If you are happy with the queue as displayed, choose **CONFIRM QUEUE** to confirm and close the dialog box.
- ▶ You can also reduce the queue selection. To do this, select the Support Package you want to be the last in the queue. The queue is then recalculated. You can also explicitly recalculate the queue by selecting **RECALCULATE QUEUE**.

Define queue on the basis of target Support Package

To define the queue on the basis of a target Support Package, proceed as follows:

1. In the initial screen of the Support Package Manager, choose the **NEW SUPPORT PACKAGES** option under **DIRECTORY**.
2. Choose **DISPLAY**. The system displays a list of the Support Packages in the system.
3. Place your cursor on the Support Package you need and click **CALCULATE QUEUE**. The queue is displayed. It contains the Support Packages available in your system for the target Support Package, and possibly also any Support Packages required for other components, Conflict Resolution Transport (CRT), and any associated add-on Support Packages.
4. Proceed as described under Step 4 in the section "Define Queue," marginal text: "Define queue on the basis of software components."

Queue rules

The following rules apply when you create a queue:

- ▶ Support Packages for a selected component are placed in the queue in sequence.
- ▶ If Support Packages in the queue are linked to Support Packages of another component (such as another predecessor relationship or a required CRT), other Support Packages are added to the queue until all predecessor relationships are accounted for.

[+] Note that the Support Package Manager takes into account the configuration of your SAP system and places only the Support Packages your system can accept into the queue.

Import Queue

The Support Package Manager provides the following two scenarios for importing Support Packages or the queue:

The test scenario is used to identify any conflicts or problems (for example, repairs that have not been released) before the actual import process. The test import creates the list of objects to be adjusted in Transactions SPDD and SPAU, and should therefore be run during the project preparation phase.

Test scenario

This scenario allows you to estimate—and, possibly, minimize—the time and effort required to import Support Packages. No data is imported into the system in this scenario, and if errors occur, you can continue the import without having to correct them. You must explicitly select the test scenario.

Note that after the test scenario has run, the queue is empty again and you will have to redefine it. You will then also have to explicitly select the standard scenario.

[+]

In the standard scenario, the Support Packages contained in the queue are fully imported. If errors occur, you can continue and complete the import only after you have removed or resolved them.

Standard scenario

After you have selected the standard scenario, you can choose between the conventional import mode and the *downtime-minimized* import mode. The latter reduces the downtime.

Proceed as follows to import the queue in the standard scenario:

1. To set the standard scenario, select EXTRAS • SETTINGS.
2. On the IMPORT QUEUE tab, select STANDARD and configure the other import settings.
3. Select the import mode you need to use.
4. Select SUPPORT PACKAGE • IMPORT QUEUE. You can also use this function to resume an import procedure that was previously canceled.
5. The dialog box for selecting the start options opens. Specify the required start options and confirm the dialog box.

The Support Package Manager then completes the import, in accordance with the import mode and start options you selected.

**Conventional
import mode**

If you accept the standard start options without changing them, the Support Package Manager handles the entire import process in the dialog box. The status bar provides you with information about the progress of the import and the current phase of the Support Package Manager. Note that your system should no longer be live at this point.

If you selected a start time or `CONTINUE MANUALLY` for the Import 2 module, you can keep the system in productive mode until the Import 2 module starts.

**Downtime-
minimized
import mode**

If you accepted the standard start options without changing them, you can keep the system in live mode for the time being, because the Support Package Manager will explicitly ask you to stop live operations when the time comes.

As usual, the Support Package Manager carries out all of the preparatory and checking steps (Preparation module). It then imports the inactive objects (Import 1 module), during which process the system can stay live.

The development environment is locked when the Import 1 module starts, so that objects are not unintentionally modified. Therefore, the consistency of the system is not jeopardized when objects are accessed by this module.

The Support Package Manager then notifies you in a dialog box that you have to stop productive operations for the next import module (Import 2).

- Click on `CANCEL` to do this in an orderly manner.

Close any background jobs that are running. Request all users to close any transactions they are running and to log themselves off from the SAP system.

- Click on `CONTINUE` to continue the import.

The Import 2 module activates the objects that were previously imported in an inactive state and imports the remaining objects from the Support Packages in the queue.

After this module has finished, the Support Package Manager informs you that you can resume live operations in the system, provided that no changes, or at most only small changes, were made to SAP objects.

- If you made changes to SAP objects, the Support Package Manager instructs you to finish the modification adjustment process.

If you have to adjust Dictionary objects (Transaction SPDD), you must do this immediately, whereas with Repository objects (Transaction SPAU), you can adjust the objects immediately, at a later point, or in parallel with the clean-up steps after importing a Support Package. To do this, proceed as described in Chapter 18, Section 18.3.

- To complete the import process, select `IMPORT QUEUE` again.

The clean-up steps are carried out on the next import module (Clean Up), and the import process is completed and closed.

You can define the start options for the individual modules according to your system requirements. If you confirm the dialog box without configuring any specific settings of your own, the import tool uses the standard settings of the selected import mode. You can store any settings you configure as a template for future import procedures.

Defines start options

The tabs in the `START OPTIONS FOR THE QUEUE` dialog box (see Figure 17.20) allow you to select the options you need for every module:

- **Start in dialog immediately**

Select this option if you want this module to start running immediately in the dialog box. If you select this option for multiple modules, they are executed immediately, one after the other. The mode remains blocked for the duration of the import.

- **Start in background immediately**

Select this option if you want this module to start running immediately in the background. If you select this option for multiple modules, they are executed immediately, one after the other.

- **Start in background later**

Select this option if you want this module to start running in the background at a later time. Specify the start date and start time in the input fields. The `NO START AFTER` option lets you specify that this

module should run only during the period between PLANNED START and NO START AFTER. If no background process is available in this time period, this module is not started.

► **Manual Start/Continue Manually**

Select this option if you want to manually start processing of this module. The import tool stops the processing process after the previous module has finished.

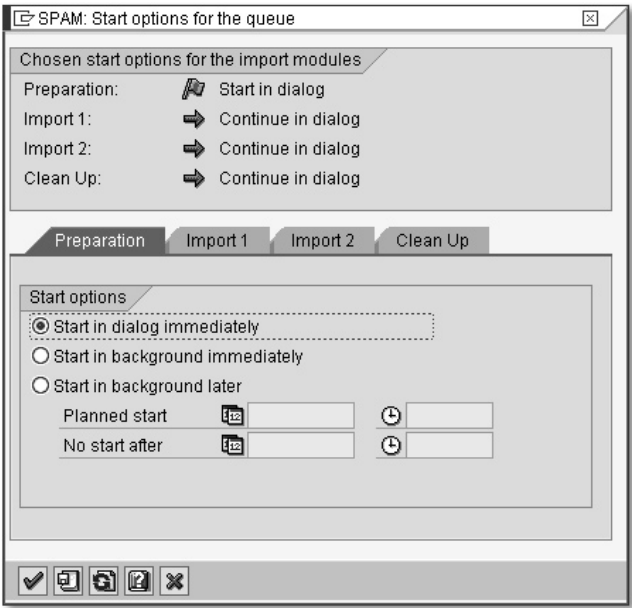


Figure 17.20 Defining the Start Options

Standard settings if conventional import mode is used in unchanged form

If you selected the conventional import procedure (DOWNTIME-MINIMIZED is not activated), the following standard settings apply:

Module	Option
Preparation	Start in dialog immediately
Import 1	Continue in dialog immediately
Import 2	Continue in dialog immediately
Clean Up	Continue in dialog immediately

If you have selected the downtime-minimized import mode, the following standard settings apply:

Standard settings if Downtime-minimized import mode is used in unchanged form

Module	Option
Preparation	Start in dialog immediately
Import 1	Continue in dialog immediately
Import 2	Continue manually
Clean Up	Continue manually

Downtime-minimized Import Mode

As a rule, the process of importing the latest OCS packages (Support Packages, Add-on Installation Packages, and add-on upgrades) requires a relatively long system downtime due to the size and scope of these packages. Although the system is not restarted in the import process, it should still not be used for live operations during this process. This restriction is a distinct disadvantage in many live systems.

Therefore, the downtime-minimized import mode was developed to reduce the downtime required for package imports. This mode enables you to import the majority of import objects while keeping the system live. The objects in question are program code and program texts. Therefore, downtime can be reduced greatly if a package contains a high proportion of program code and texts. (This figure is approximately 70-80% for SAP Basis and SAP R/3 Support Packages.)

In downtime-minimized import mode, the objects are imported into the database in an inactive state and are mostly “invisible” to the system. The system can continue to stay live.

Inactive objects

This procedure contains new actions (activation of inactive objects) and more organizational steps than the previous mode, which means that the import process takes longer. The efficiency and time-savings in the non-live phase of this mode, as compared to conventional mode, depend on two things: the proportion of inactively imported objects of the overall volume of imported data, and the amount of time consumed by additional actions that have to be carried out during the downtime (such as the handling of after-import methods and XPRAs).

- [+]** Import the packages in queues that are as large as possible. Ideally, put all packages in one queue.

Note, however, that in some cases Support Packages cannot be imported in one queue using the Support Package Manager. Consult the relevant SAP Note in your release for more information.

Because the inactively imported objects are stored in the database at the same time as the active versions, more space is temporarily required in the database.

Activating the objects

The objects are activated later by a predefined process that is provided by the import tool (Support Package Manager/SAP Add-On Installation Tool). Nevertheless, inactive objects are not fully isolated from the system, which means that parallel changes can cause unwanted activations and therefore system inconsistencies.

During the import, you should ensure the following:

- ▶ That there is enough free storage space in the database
- ▶ That there are no simultaneous imports of transport requests
- ▶ That the development environment is not in live use

Use downtime-minimized import mode in the following situations:

- ▶ In live systems
- ▶ In test systems, if you want to test the expected downtime in the live system

During the import process, you should treat the systems like live systems (no manual changes to program objects, and no parallel imports of other transport requests).

Do not use downtime-minimized import mode in the following situations:

- ▶ In development systems or in systems into which a lot of regular imports are made (such as QA or test systems)

System consistency cannot be guaranteed during the import if manual changes are made to program objects, or if other transport requests are imported at the same time.

- To import Support Packages to BBP/CRM systems

The additional preparation and clean-up steps required by the special Support Package Manager for BBP/CRM mean, in effect, that the entire import process takes place during downtime.

- To import preconfigured systems (SAP Best Practices) using the Add-On Installation Tool

Importing Support Packages into a System Landscape

Support Packages can be imported in groups or individually. If you have multiple SAP ERP systems, you must import Support Packages into each of these systems.

You can use the previously discussed procedure to import Support Packages into your landscape's development system, but the procedure is different for the other SAP ERP systems in your landscape, especially if you have to carry out a modification adjustment. Figure 17.21 shows an example of how Support Packages can be distributed in a three-system landscape.

Three-system
landscape

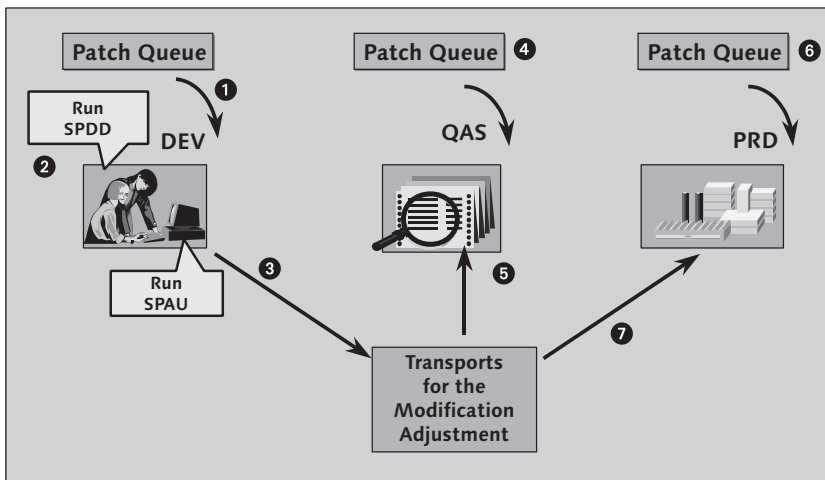


Figure 17.21 Distribution of Support Packages in a Three-System Landscape

Ideally, all SAP ERP systems have the same release level, as is the case after they are installed, after an SAP ERP release upgrade, or after the roll-

out in the implementation phase. If this is the case, you can import one or more Support Packages the same way you import change requests:

1. Import the Support Packages into the development system. The system adjusts all objects that were imported with the Support Package and that have been modified by the customer:
 - ▶ You may need to carry out a modification adjustment for the Dictionary objects using Transaction SPDD in the development system. The changes that result from the adjustment can then be included in a change request. This change request can be used to transport the modification adjustment of the ABAP Dictionary objects to other systems.
 - ▶ You may need to carry out a modification adjustment for the ERP Repository objects using Transaction SPAU. The changes that result from the adjustment can then be included in a change request. This request can be used to transport the modification adjustment of the Repository objects to other systems. If enhancements were used to make changes to the SAP ERP system (see Chapter 2), there is no need for an adjustment because enhancements don't result in modifications.
2. Import the Support Packages into the quality assurance system.
3. Import the change requests with the changes from the modification adjustments (if any) into the QA system.
4. Verify the Support Package using operational validation tests. If changes have to be made due to Support Package imports, make the changes in the development system and then test them in the QA system.
5. After you have tested and verified the Support Packages, import them into the live system, along with all transport requests associated with the Support Packages.

It is a prerequisite of this process that no change requests for the import are waiting to be processed in the QA or in the live system. In other words, the SAP systems—especially the QA and live systems—must all have the same release level. The validation process in the QA system ensures that the Support Package and all of the change requests that result from the modification adjustment can be imported into the live system.

Support Packages and Development Projects

It is more difficult to schedule Support Package imports if large development projects are ongoing in your system landscape. This is because you are not supposed to make transports between systems with different Support Package levels. Therefore, development projects cannot be imported into the live system until the Support Packages have been imported into all systems in the landscape.

Despite efforts to keep this "code freeze" period as short as possible, experience shows that one to two weeks have to be allotted for the SPAU adjustment in the development system, and approximately two to four weeks must be scheduled for the integration test in the QA system that follows. Of course, these time periods are average values and will vary from system to system.

The time and effort required for the SPAU adjustment increases as the number of modified and customer-specific objects increases. In addition to the objects listed in SPAU, any customer-specific objects that access standard SAP code also have to be checked. The SAP Code Inspector (Transaction SCI) is an automated tool for performing this task, and lets you carry out an extended syntax check for all customer-specific objects.

SAP Code
Inspector

The time and effort required for this check depends on the number of business processes in use. The SAP system administrator has to decide whether to test only the most important business processes, or whether more minor processes should also be included in the test. Therefore, it is necessary to categorize the business processes according to their importance (ABC analysis) in advance. A well-organized test management process and the ready availability of automated test cases (eCATT) reduce the time and effort required for the test, and thus shorten the duration of the code freeze period.

Before Support Packages are imported into the development system, any open change requests should be released and imported to the downstream systems. After the Support Packages have been imported into the development system and the SPAU adjustment is complete, you may be able to resume development work in the development system. However,

it's still possible that errors detected in the Support Package tests may be difficult to solve in the development system because the development system may have a more up to date software release. The safer option is therefore to resume work in the development system only if the Support Packages have been tested and found to be error-free. In all cases, all transports in the QA system must be suspended for the duration of the integration test.

Because of these effects on development projects, the timing of Support Package imports must be carefully planned and coordinated with the development project teams.

Some SAP customers first test Support Package imports and the SPAU adjustment in a sandbox environment, to minimize the code freeze period. Initial unit tests can also be carried out in the sandbox system.

You can also use the latest Support Package level for the relevant development projects, and then transport the changes along with the Support Packages through the maintenance landscape. This has the advantage that only one test is required for Support Packages and development projects. Note that this approach requires a phase-based system landscape, as described in Section 3.6.2.

17.3.2 Modification Adjustment

If Support Packages include objects that have been modified in the customer system, you need to implement a modification adjustment. Here, you have the following options: keep the modified version, accept the new standard SAP version, or adjust the two versions manually. The new standard SAP version remains active unless an adjustment has been carried out. Ideally, the modification adjustment needs to be implemented only in the development system. The resulting SPDD and SPAU transports can be integrated in the Support Package queue for the downstream systems.

Chapter 18, Section 18.3 deals with the topic of modification adjustment in greater detail. Thus, we will not discuss it further at this point.

17.4 Java Corrections

ABAP corrections are delivered via SAP Notes or Support Packages. SAP Notes contain correction instructions that can be used to insert selected code lines into existing code. This lets you correct errors individually and in an isolated manner. In Java systems, these isolated changes are not possible, and you need to at least update the entire development component.

Figure 17.22 shows the SAP component model. Products consists of multiple software components, which comprise multiple packages (ABAP) or development components (Java). These, in turn, are containers for individual development objects that belong together logically and are interdependent.

SAP component model

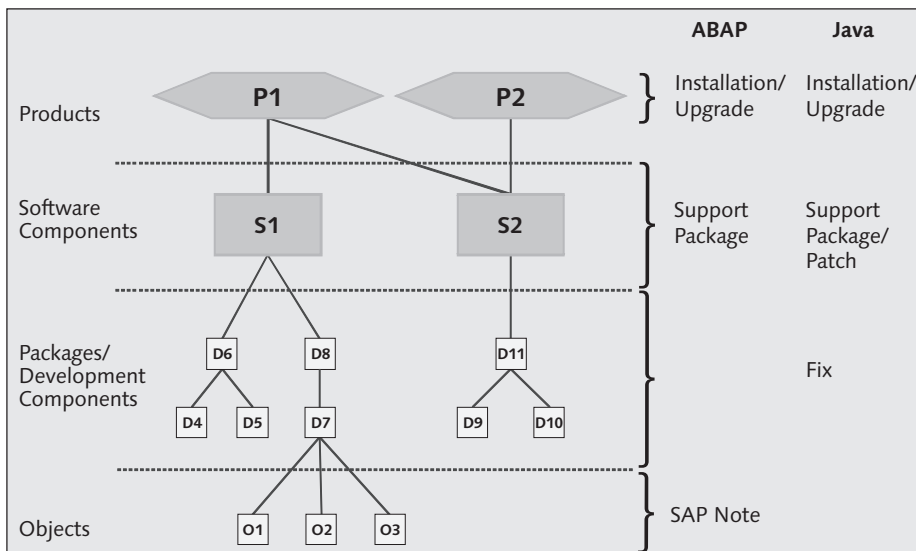


Figure 17.22 SAP Component Model

17.4.1 Java Correction Types

Software maintenance is available for products, software components, and development components. Products are installed or upgrades to a higher release level are implemented. A release consists of multiple software components that contain new functions and improvements.

Support Packages

JSPM In contrast to ABAP, a Support Package does not just contain the changed objects, but all objects of a software component. Therefore, in Java, you only have to import the last Support Package; in ABAP, you have to import all predecessors in the correct sequence. This means that Java Support Packages are cumulative. The common file format is SCA, which is implemented using the Java Support Package Manager (JSPM).

Fixes

Fixes are full deliveries of a development component. In other words, they contain all objects of this particular development component. A fix is the smallest delivery unit of corrections and usually solves one specific problem. Fixes are provided only in emergency cases if an urgent preliminary correction is required before the next Support Package is available. They are not offered on the SAP Service Marketplace by default, but are instead delivered to individual customers on demand as a support message or in an SAP Note. If the error correction is of general interest, a patch is published on the SAP Service Marketplace (see the next section).

The import of fixes carries a certain risk because it may be possible that dependencies exist to other development components that will stop functioning after the fix has been imported. You should therefore implement fixes only in coordination with SAP Support. Fixes are delivered in SDA file format.

Patches

A patch is a modified Support Package. It contains the last regular Support Package and also all important and generally valid fixes that have been compiled since the release of the last Support Package. Just like a Support Package, a patch is a full delivery of a complete software component. The common file format is SCA. Patches are created by SAP on request and are published in the SAP Service Marketplace, for instance, if serious problems have emerged. Usually, patches are created only for the latest Support Packages.

You can download both Support Packages and patches from the SAP Service Marketplace under the Quick Link <http://service.sap.com/swdc> (see

Figure 17.24). You must decide whether you want to import the last Support Package or also integrate the latest patch. Under the INFO link of a patch you can find a list of Notes available for the patch. If these Notes are relevant for your system, you should integrate the patch. If you click on the INFO link of a Support Package, you are provided with a summary that describes all corrections in a Support Package.

Figure 17.23 shows the three different Java correction types: Support Packages, Fixes and Patches.

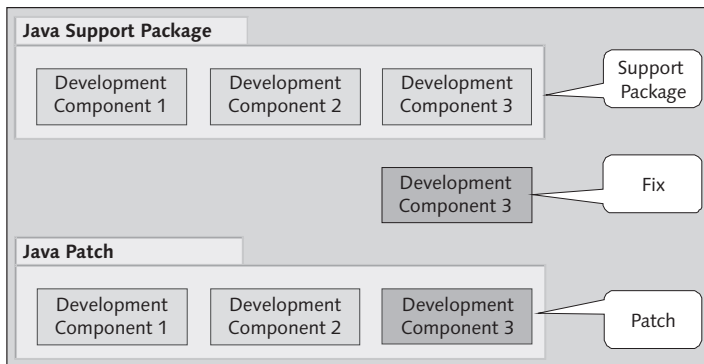


Figure 17.23 Java Support Packages, Fixes, and Patches

SAP Support Portal							
SAP Software Distribution Center							
<input type="checkbox"/>	i	SCA	SAPJEECOR08_0-10003466.SCA	SP08 for SAP J2EE ENGINE CORE 7.00	0	Info	37783 09.06.2006
<input type="checkbox"/>	i	SCA	SAPJEECOR08P_6-10003466.SCA	Patch for SAP J2EE ENGINE CORE 7.00 SP08	6	Info	37792 15.12.2006
<input type="checkbox"/>	i	SCA	SAPJEECOR09_0-10003466.SCA	SP09 for SAP J2EE ENGINE CORE 7.00	0	Info	37853 21.08.2006
<input type="checkbox"/>	i	SCA	SAPJEECOR09P_10-10003466.SCA	Patch for SAP J2EE ENGINE CORE 7.00 SP09	10	Info	37869 09.01.2007
<input type="checkbox"/>	i	SCA	SAPJEECOR10_0-10003466.SCA	SP10 for SAP J2EE ENGINE CORE 7.00	0	Info	38302 27.10.2006
<input type="checkbox"/>	i	SCA	SAPJEECOR10P_6-10003466.SCA	Patch for SAP J2EE ENGINE CORE 7.00 SP10	6	Info	38310 09.01.2007

Buttons at the bottom: Add to Download Basket, Maintain Download Basket, Select All, Deselect All

Figure 17.24 Java Support Packages and Patches in the SAP Service Marketplace

17.4.2 Version Information of a Java System

You can view the version information of a Java-based system on the component information page. The URL is *http://<hostname>:<port>/sap/monitoring/ComponentInfo* (see Figure 17.25).

http://<hostname>:<port>/sap/monitoring/ComponentInfo

Address: <http://twd0333.wdf.sap.corp:50000/sap/monitoring/ComponentInfo>

System TT4

Vendor	Name	Version	Provider	Location	Applied
sap.com	SAP-JEE	7.00 SP10 (1000.7.00.10.1.20061227195659)	SAP AG	SAP AG	20061227195659
sap.com	CAF	7.00 SP10 (1000.7.00.10.1.20061227195659)	SAP AG	SAP AG	20061227195659
sap.com	LM-SERVICE	7.00 SP10 (1000.7.00.10.2.20061221123500)	SAP AG	SAP AG	20061221123500
sap.com	JLOGVIEW	7.00 SP10 (1000.7.00.10.0.20061022041000)	SAP AG	SAP AG	20061227195359
sap.com	SAP-JEECOR	7.00 SP10 (1000.7.00.10.3.20061213114200)	SAP AG	SAP AG	20061227200444
sap.com	BASSETABLES	7.00 SP10 (1000.7.00.10.0.20061022040500)	SAP AG	SAP AG	20061227195036
sap.com	SAP_JTECHF	7.00 SP10 (1000.7.00.10.0.20061022040800)	SAP AG	SAP AG	20061227200848
sap.com	SAP_JTECHS	7.00 SP10 (1000.7.00.10.2.20061210034400)	SAP AG	SAP AG	20061227215201
sap.com	KM-KW_JIKS	7.00 SP10 (1000.7.00.10.0.20061022041300)	SAP AG	SAP AG	20061227213322
sap.com	CORE-TOOLS	7.00 SP10 (1000.7.00.10.0.20061026144400)	SAP AG	SAP AG	20061227195302
sap.com	UMEADMIN	7.00 SP10 (1000.7.00.10.0.20061025062309)	SAP AG	MAIN_APL70VAL_C	20061227230339
sap.com	JSPM	7.00 SP10 (1000.7.00.10.1.20061205154100)	SAP AG	SAP AG	20061227193221
sap.com	LM-TOOLS	7.00 SP10 (1000.7.00.10.0.20061025062327)	SAP AG	MAIN_APL70VAL_C	20061227230131
sap.com	ADSSAP	7.00 SP10 (1000.7.00.10.0.20061022041500)	SAP AG	SAP AG	20061227213015
sap.com	BI_MMR	7.00 SP10 (1000.7.00.10.0.20061021201000)	SAP AG	SAP AG	20061227213156
sap.com	BI_LDI	7.00 SP10 (1000.7.00.10.0.20061021205400)	SAP AG	SAP AG	20061227215350
sap.com	CAF-UM	7.00 SP10 (1000.7.00.10.0.20061025062315)	SAP AG	MAIN_APL70VAL_C	20061227213306

Release 7.00
SP Level 10
Patch 1

Vendor	Name	Version	Provider	Location	Applied	Software Component
sap.com	activation	null (7.0010.20061026114315.0000)	SAP AG	SAP AG	20061227195708	null/null
sap.com	adminadapter	null (7.0010.20061026114315.0000)	SAP AG	SAP AG	20061227195714	null/null
com.adobe	AdobeDocumentServices	null (705.20060620101936.310918)	Adobe Systems	Adobe Systems	20061027173842	null/null
com.adobe	AdobeDocumentServicesEjbClientLibrary	null (705.20060407121920.289077)	Adobe Systems	Adobe Systems	20061027153711	null/null
sap.com	antr	null (7.0010.20061002105223.0000)	SAP AG	SAP AG	20061227195720	null/null
sap.com	appclient	null (7.0010.20061026114315.0000)	SAP AG	SAP AG	20061227195724	null/null
sap.com	appcontext_api	null (7.0010.20061026114315.0000)	SAP AG	SAP AG	20061227195726	null/null

Figure 17.25 Version Information of a Java System

For each software component, the version information indicates the release level, the Support Package level, and the patch level.

- SCA Java Support Packages are delivered in *Software Component Archive* (SCA) format. A software component archive comprises the following attributes:

- ▶ Vendor
The manufacturer of the software, for example, sap.com.
- ▶ Name
The name of the software component, for example, SAP-JEE. Vendor and name form a unique key for the software component. Components with identical names and different manufacturers are considered to be different.
- ▶ Release
- ▶ Support Package level
- ▶ Patch level
- ▶ Counter
The counter includes the release, Support Package level, patch level, and time stamp, for example, 1000.7.00.2.0.20050524093600. In this example, 7.00 is the release, 2 the Support Package level, 0 the patch level, and 20050524093600 the time stamp.
- ▶ Provider
The provider who created the software component, for example, SAP AG.

17.4.3 Java Support Package Manager (JSPM)

The Java Support Package Manager (see Figure 17.26) was implemented in SAP NetWeaver 7.0 to facilitate the import of Java Support Packages. In previous releases, Java Support Packages had to be imported using the Software Deployment Manager (SDM). The JSPM can also be used to import new software components or business packages. In addition, the JSPM identifies software components that have been modified and provides a modification adjustment in connection with the SAP NetWeaver Development Infrastructure (NWDI).

The JSPM is a Java-based program whose user interface is called at the operating system level. The script is go.bat and it is stored in the directory, `\usr\sap\<SID>\<Instance>\j2ee\JSPM\`. The structure of the JSPM is similar to Transaction SPAM in ABAP systems and provides similar functions.

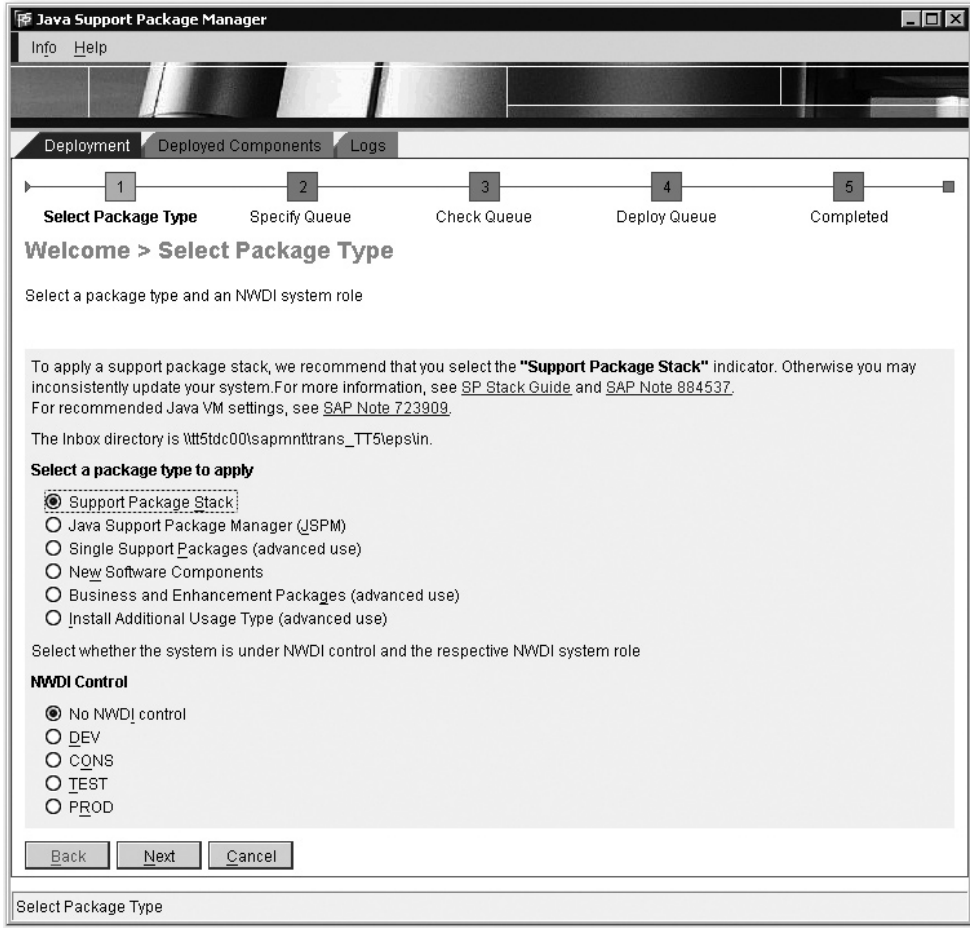


Figure 17.26 Java Support Package Manager

The JSPM establishes a connection with the Software Deployment Manager (SDM) to import Support Packages and new software components. The SDM implements additional validation steps for the packages and imports them into the Java application after the check has completed successfully.

Advantages of JSPM

SAP continuously provides new technologies and applications based on SAP NetWeaver Applications Server Java (AS Java). It is therefore important that these innovations can be imported safely and easily. JSPM was developed to address this issue and has the following advantages:

► **Improved user interface**

The JSPM has a graphical user interface whose structure is similar to the installation and upgrade tools SAPinst and SAPJup. Its functions and operating elements are extensively adapted to the proven ABAP Support Package Manager (Transaction SPAM), and the status of the import can be monitored. The import process is logged comprehensively and can be restarted if an error occurs. The JSPM also informs you if a restart of the J2EE Engine is necessary during the import process.

► **Check for Support Package prerequisites**

Prior to the import, the JSPM checks whether all prerequisites are met for importing the Support Packages—in particular, whether dependencies to other software components and their Support Packages exist.

► **Update of the SAP kernel and additional operating system files**

The JSPM can update both the software component within the Java Application Server and the associated operating system files, for instance, the SAP kernel or the Internet Graphics Server (IGS). These files can also be distributed in a high-availability cluster environment.

Prior to importing the actual update, the JSPM can update itself and the Software Deployment Manager (SDM).

As a result, the JSPM automates the import of updates extensively and carries out many steps that previously had to be implemented as additional manual steps.

► **Import of a complete Support Package stack**

The JSPM can import a complete Support Package stack, including the appropriate SAP kernel, into the system. During this process, the stack configuration file, which was created when the stack was downloaded from the SAP Service Marketplace, is evaluated. You can set restrictions to a specific system usage type. You can also integrate patches that are more up to date than the stack to be imported if these patches have previously been downloaded to the Support Package inbox.

► **Modification adaptation in connection with the NWDI**

In some scenarios, SAP provides the Java source code which can then be modified by the customer—for example, in the SAP ERP scenarios

ESS/MSS or Biller Direct. During the import of Support Packages, the modifications are supposed to remain unchanged and not be overwritten by the SAP standard. This is provided by the JSPM in connection with the SAP NetWeaver Development Infrastructure (NWDI). First, the new Support Package is imported in NWDI where the modification adjustment takes place. Then, the modified archive is imported into the runtime system.

**Software
shipment
units**

The following shipment units can be imported using the JSPM:

► **Support Package stacks**

Support Package stacks are coordinated combinations of Support Packages for all components of an application. They were introduced to reduce the wide range of possible software versions in customer systems. Moreover, the Support Package stacks are already tested intensively at SAP. For more information about Support Package stacks refer to Section 17.5. A Support Package stack may contain the following packages:

- Archives for different software components (SCA). These archives can be both Support Packages and patches, which means that you can integrate the latest patches with the Support Package stack. After the corresponding software components have been modified, you can implement an adjustment using the NWDI.
- Update for the Software Deployment Manager (SDMkit.jar)
- SAP kernel (SAPEXE.SAR and SAPEXEDB.SAR)
- Archives for the Internet Graphics Server (IGS)
- Configuration file of type XML that contains a description of the stack's software components as well as the corresponding support package and patch level

► **Individual Support Packages and patches**

SAP provides Support Packages for every software component. If dependencies exist between the current Support Package of different software components, they are described in an SAP Note.

In addition, you can import "patched" Support Packages or patches. For example, patch 2 of Support Package 3 contains fixes that were created after the Support Package had already been released.

The file format of Support Packages is SCA, JAR, or SAR. Using the NWDI, you can only modify Support Packages of type SCA.

Java Support Packages always contain all objects of a software component. Therefore, you only have to import the latest Support Package and not all predecessors in the correct sequence, as is the case in ABAP. This is the major difference in the software logistics of ABAP and Java systems.

► **New software components**

New software components of SAP and SAP partners.

► **Business packages for SAP Business Suite applications**

Business packages for applications of SAP Business Suite are new Java-based applications that are integrated with the SAP Business Suite applications. For example, business packages exist for the ESS/MSS scenario. These contain applications and user interfaces in the Portal that are integrated with the new business processes in the SAP ERP backend. Usually, the version of the business packages must be coordinated with the version of the backend application.

17.4.4 Importing Java Support Packages

This section provides guidelines and tips on how you should import Support Packages into the Java stack. The links provided are valid for Release SAP NetWeaver 7.0. Similar links exist for other releases.

Step 1 — Planning

From the SAP Service Marketplace, download the latest Support Package Stack Guide for your Support Package level, which can be found under <http://service.sap.com/maintenanceNW70>. The latest information is provided in the Notes, which can be found under <http://service.sap.com/sapnotesNW70>. The most important SAP Notes are as follows:

- 724452: Central Note for SAP NetWeaver Java Server 04/2004s
- 852008: Release Restrictions for SAP NetWeaver 7.0
- 879289: Support Package Stack Guide — SAP NetWeaver 7.0
- 891983: JSPM: Central SAP Note SAP NetWeaver 2004s AS Java

Consult the SAP online help to get additional information about enhancements and changes that are imported with the new stack. The online help can be found under <http://help.sap.com/NW70>. Click on the RELEASE NOTES link and select your Support Package stack.

Cluster environments	In certain cases, the JSPM stops the system or individual instances and restarts them again after a specific period of time. This is necessary for replacing the SAP kernel, for example. If you use a high-availability cluster solution, you must switch it off during the import process so that the JSPM can exclusively stop and start the instances.
JDK update	In some cases, it is necessary to renew the Java Development Kit (JDK) before you can import Support Packages. This is described in SAP Note 718901. Note that the JVM path may change. In this case, you must adapt the new path on all dialog instances.
Integrate patches	Check whether the SAP Service Marketplace provides you with patches for the Support Package stack to be imported. These can be found under http://service.sap.com/swdc • Download • Support Packages and Patches. Click the INFO button of the respective patch to view the corrections contained in it. In general, SAP does not recommend integrating the latest patches because they may not be tested in the context of the Support Package stack and may cause new problems. However, if the corrections are relevant for your system, you should integrate the patches. SAP Note 1080821 describes how patches are imported with a single step using the Support Package stack option. This is possible as of JSPM 7.0 Support Package 14.

Step 2 — Preparation

First, create a backup of the Java system and the database.

Download the required Support Packages from the SAP Service Marketplace. The files can be found under <http://service.sap.com/sp-stacks>. For all systems based on NetWeaver 7.0, you must download the files using the Maintenance Optimizer of the SAP Solution Manager. During the download, a stack definition file of type XML is created. Copy the Support Pack stack files and stack definition file to your JSPM inbox directory.

Ensure that the JSPM inbox is configured correctly. Usually, the path is: `/usr/sap/trans/EPS/in`. This path must be set in the instance profile (Parameter `DIR_EPS_ROOT`) and in the JSPM configuration file (`usr\sap\<SID>\SYS\j2ee\JSPM\param\jspm_config.txt`). There, the parameter `/jspm/inbox` must indicate this path. The operating system user, `<sid>adm`, requires read access to the JSPM inbox.

Refer to the SAP online help and the respective Support Package Stack Guide for more detailed instructions. These can be found under <http://service.sap.com/maintenance NW70>.

Step 3 — Perform Update

Log on to the central instance as `<sid>adm`. The J2EE Engine and the SDM server must be running. No application may be connected to the SDM server because only one connection may be established to this server. If, for example, a user is connected to the SDM server via the SDM GUI, the JSPM cannot establish a connection with the server at the same time. Start the JSPM and enter your SDM password. Proceed as described in the Support Package Stack Guide. After the import has been completed successfully, you can fill in the feedback form.

17.5 Support Package Stacks

In 2003, SAP added *Support Package stacks* (SP stacks) to its Support Package strategy for some product versions. This new strategy supports the import procedure for most customers and Support Packages, improves quality and service, and thus reduces ongoing operating costs.

The increasing range and complexity of components within individual product versions makes it necessary to improve the transparency of Support Packages and patches, and to clearly specify the recommended or permitted combinations. Therefore, a new SP stack is compiled for every product version that is updated via the new strategy, usually on a quarterly basis. This stack contains the optimal combination of Support Package and patch levels for the individual components at the time of the stack release.

Therefore, SP stacks are combinations defined by SAP for each product version. SAP recommends that you import these stacks on a regular basis. Although the underlying technology of the individual Support Packages and patches does not change with this stack approach, an SP stack should be regarded as a whole. In other words, although you should take into account any minimum requirements of or dependencies between the individual components, the Support Packages and patches contained in the stack must be imported together.

Benefits By reducing the range of theoretically possible combinations to practical, real-world combinations, several benefits result for the customer:

- ▶ The quality of the individual Support Packages is improved because other associated components are maintained to a known minimum level. As a result, corrections are less complex and of a higher quality.
- ▶ Quality and compatibility within the set combinations are improved because SAP's own tests can focus more on these combinations.
- ▶ Download pages that are tailored to SP stacks make it easier to download required Support Packages and patches.
- ▶ Import instructions can also be tailored to the combination to be imported, reducing the time and effort required for the import process.
- ▶ The general level of knowledge about any restrictions, and transparency about side effects and their solutions, are better overall for SP stacks than for individual combinations. Potential problems can be prevented and, when they occur, solved more effectively. This, in turn, reduces operating costs.

Reducing TCO SP stacks support the requirements of customers with live applications for regular Support Package and patch recommendations, and their need for minimum total cost of ownership (TCO). For customers with upgrade or implementation projects, the minimum requirements may involve other (higher) recommendations than the most recent SP stacks.

Implementing SP stacks leads to a reduction in complexity, increased quality, improved transparency, and simplified repair and maintenance. SP stacks further reduce the risks to live operations and help expedite

the resolution of problems. They are another step toward reducing total cost of ownership (TCO).

After an SP stack is released, details of the relevant information and download site are available from the SAP Service Marketplace via the Quick Link */sp-stacks*, as shown in Figure 17.27. Download

Additional information on specific SP stacks is available from the relevant Release and Information Note (RIN), which is available via a link on the previously mentioned page.

SAP NETWEAVER 7.0

Step 1 of 3 - Choose your Source and Target Stack

Please choose the Source Stack and then the Target Stack
Remark: The Source Stack is not mandatory so if you do not know it, leave the field empty

Target Stack: SAP NETWEAVER 7.0-16 (07/2008) Show Stack Information

Source Stack: 14 (01/2008) Show Stack Information

☒ **Restrict according to Usage**

Usage Selection

<input type="checkbox"/> Development Infrastructure	<input type="checkbox"/> Application Server Java	Select All
<input checked="" type="checkbox"/> Application Server ABAP	<input type="checkbox"/> Mobile Infrastructure	Deselect All
<input type="checkbox"/> Process Integration (XI)	<input type="checkbox"/> EP Core	
<input type="checkbox"/> Enterprise Portal	<input checked="" type="checkbox"/> Business Intelligence	

Next Step

Additional Information

Figure 17.27 Downloading Support Package Stacks from the SAP Service Marketplace

17.5.1 SP Stack Strategy with the Usual Import Procedure

It has been established that most customers carry out planned maintenance for each live application between one and four times a year, and that this maintenance process usually covers all of the components of each application.

In practice, the frequency of planned maintenance operations depends on many factors. These include the following:

- ▶ The customer's specific situation (projects, live status, etc.)
- ▶ The product in question (technical factors, statutory changes, etc.)
- ▶ The benefits of having the latest release when support is required
- ▶ The customer's assessment of the risk of encountering known errors (and therefore, of incurring unnecessary costs and having to react at short notice)
- ▶ The expected costs of a planned maintenance operation

As a result, a standard rule for calculating the optimal time and frequency of planned maintenance operations does not exist. Customers decide on the optimal conditions, taking into account their individual circumstances. However, SAP recommends that customers run a planned maintenance operation at least once a year, and preferably two to four times a year, regardless of whether problems have arisen. This keeps the risks previously outlined manageable. SAP assumes that the latest SP stack will be imported as part of a planned maintenance operation, and that the SP stacks in use in a system landscape are not retained beyond one year. As mentioned before, if problems occur, SAP can instruct customers to import the latest Support Packages or patches, independently of the SP stack cycle.

Unexpected problems

Unexpected problems can occur at any time, regardless of planned maintenance operations. They have to be fixed as quickly and straightforward as possible. A range of different mechanisms is available for this purpose, and the decision which device to use depends on the affected component and the actual problem. These mechanisms include correction instructions for ABAP-based tracks (which can solve problems relatively localized, and in a targeted way) and Java Support Packages (which, for technical reasons, usually contain other problem solutions and whose effects are therefore not as restricted to the local environment as ABAP-based tracks are).

The SP Stacks strategy goes hand in hand with the general combination of planned maintenance and specific corrections that are provided in the meantime:

- ▶ The frequency with which SAP provides Support Package stacks depends on the age and maturity of the product. For new releases, new Support Package stacks are delivered every two months. For older releases, SP stacks are provided only twice per year.

- ▶ The frequency of SP stack deliveries is intended to complement the frequency of planned maintenance operations. This does not mean, however, that planned maintenance must be carried out at the SP stack interval. Based on your assessment of the previously discussed factors, you can temporarily postpone the import of an SP stack, provided that your system does not contain any errors that necessitate the import of up to date Support Packages or patches. You can catch up with any Support Packages you postpone when you import the next SP stack.
- ▶ SP stacks contain Support Package combinations that you should change only in exceptional cases; for example, if a problem has occurred that can be solved only by a change. In such cases, you should keep the modification as small and as local as possible. Of course, you can also import new Support Packages or patches as a preventative measure if circumstances in the system indicate that the error in question is likely to occur. However, in many cases, you will be able to make a local correction via the correction instruction in a Note, for example.
- ▶ Components of an SP stack that are not in use, or not in live use, in a system landscape do not have to be patched when an SP stack is imported, provided they have no technical or logical dependencies with any components that are in active use. You should note, however, that the Support Package or patch levels of components that are in use cannot be lower than the levels of the combination set in the SP stack.

If unexpected problems are identified in an SP stack, they will usually affect only a few customers. Therefore, it is not necessary to change the general recommendation for the planned maintenance processes.

Instead, a Release and Information Note (RIN) is used to inform all customers of the general release of an SP stack, possibly including information about potential problems. As discussed previously, notification of critical errors is communicated via HotNews Notes. A special reporting tool in the SAP Service Marketplace can be used to find out about known side effects of all types of Support Packages (Quick Link <http://service.sap.com/side-effects>).

**Release and
Information Note**

Any differences between Support Package levels or patch levels and the relevant SP stack should be documented in Notes. This approach is used only for problems or other special cases (such as statutory changes or for customers' project or implementation phases). This also applies to Support Packages or patches that have been created since the last SP stack, and that will be part of subsequent SP stacks.

It is also possible that Support Packages or patches may exist that are more up to date than those contained in the last SP stack. Nevertheless, as long as your system is not experiencing any problems, the general recommendation is that you use the combination contained in the latest SP stack. Any Support Packages or patches that are created in the interim are reserved for the special cases mentioned previously.

Full-stack approach

The full-stack approach applies to Java-based systems in particular. This means that you always have to import the complete stack. Deviating combinations have not been tested and frequently cause problems. Individual Support Packages should only be imported in coordination with the SAP support team.

17.5.2 Cross-System Support Package Stacks

In some cases, it may be necessary to import the same Support Package stack across the system, for instance, if the ESS/MSS scenario runs on an ERP backend system and in an external Portal. In this case, the Support Package levels of the Web Dynpro sources that are imported into the portal must match with the Support Package levels in the SAP ERP backend. At the same time, they are also part of the Portal stack so that the entire Support Package stack in SAP NetWeaver Portal must correspond to the Support Package stack in the SAP ERP backend. A similar situation applies to Web Reporting in SAP NetWeaver BI 7.0.

17.5.3 Details of the Components in SAP Support Package Stacks

Based on one "leading" application component, SP stacks represent a combination of preset or recommended Support Package levels and patch levels of product version's other components. Dependencies are defined step-by-step in a "top-down" fashion (see the example that follows).

For some components such as the SAP GUI, stacks specify one level for each possible release. Other components may be optional; that is, the relevant Support Package or patch level must be fulfilled only if the component in question will be in use in a production system (for example, an SAP ERP Enterprise Extension).

The basic rule is that the other components must have at least the specified level for you to be able to import a Support Package for the leading component. Also, a higher level is recommended for most components only for problems where a local correction (such as a correction instruction) or a workaround does not exist.

An SP stack can consist of the following:

Components

- ▶ A Support Package level of a leading application component (such as SAP_APPL 4.6C), which serves as the name of the SP stack.
- ▶ A Support Package level of the application basis (such as SAP ABA 4.6C) that is a prerequisite for the previously mentioned application Support Package and that would not usually be overwritten until the next SP stack.
- ▶ A Support Package level of the basis layer (such as SAP Basis 4.6C) that is a prerequisite for the previously mentioned ABAP Support Package and that would not usually be overwritten until the next SP stack.
- ▶ A recommended kernel patch level (such as SAP KERNEL 4.6D) that would not usually be overwritten until the next SP stack, provided that there are no problems. This kernel patch level is intended for use on the operational level and can be higher than the upgrade level for the release in question (in this case, follow the instructions in the upgrade documentation or the relevant Notes).
- ▶ A minimum patch level for every possible SAP GUI release (such as 4.6D/6.20 for Windows, and 6.20/6.30 for Java). Note that the releases in this case should initially be regarded as alternatives and that each patch level is a minimum requirement that can be overwritten at any time. This minimum requirement within an SP stack will be increased only in exceptional cases. However, because the SAP GUI is a component of almost all SAP products, the requirements of the SP stacks of different products that are used in parallel must be coordinated with each other. In this case, it is the maximum required SAP

17.6 Side Effects

The SAP Service Marketplace has a reporting tool that helps you avoid unwanted side effects. Side effects can occur in rare cases after a Support Package or an SAP Note has been imported. The tool enables SAP customers to reduce their internal support costs and increase the stability of their SAP solution.

SAP Support Packages consist of several SAP Notes, each of which contains software corrections. Importing Support Packages and Notes increases system stability and protects the system from known problems. Nonetheless, it can still happen that a Note that is intended to solve one problem can actually cause another problem. To solve this new problem, a new Note is created that is linked to the first Note.

This tool is intended to make these dependencies easier to handle. If you're importing a Support Package or an SAP Note, you can search for any known side effects and correct these, if necessary. The tool enables you to proactively prevent problems that could occur after an import.

Information about side effects is defined in the Note attributes. The reporting tool identifies all side effects that will be caused by the Notes contained in the Support Package. Therefore, to protect your system from unwanted side effects, import these Notes after you import the Support Package.

The Quick Link <http://service.sap.com/notes> in the SAP Service Marketplace provides information about known side effects of individual SAP Notes (see Figure 17.29).

Side effects of an individual Note

To obtain a list of all of the side effects of a Support Package or an SP stack, use the reporting tool in the SAP Service Marketplace (Quick Link: <http://service.sap.com/side-effects>.)

Side effects of Support Package queues

Use this tool just before you import a Support Package to see the most up to date list of side effects.

Side effects that have already been eliminated by other Support Packages in the same queue are automatically removed from the results list. This list is tailored to your Support Package queue. It is sorted by application component, so that you can easily skip Notes that belong to applications you do not use.

Code correction for Service order Hilfe

SAP-Hinweisnummer >> Hinweissprache Version

<< **Verwandte Hinweise** Attribute Anlagen Ursachen - Nebeneffekte Actionlog

Mit diesem Hinweis berichtigte Hinweise / Patches

Keine Einträge vorhanden

Folgende Hinweise berichtigen diesen Hinweis / Patch

Hinweisursache	Version von	Version bis	Hinweislösung	Version	Support Package
0000611200			0000608603		
0000611200			0000608671		

Figure 17.29 Side Effects of an Individual Note

Note that it can take several hours to create the results list. The system sends you an email when the list is complete. Figure 17.30 shows the beginning of a side-effect report.

SAP began side-effect reporting in July 2003. Complete information on the side effects of earlier Notes is not available.

Report on Side-Effects of SAP Notes Hilfe

This report provides an overview of currently known side-effects of Notes contained in a Support Package. The list also includes pointers to other notes, which are able to resolve undesired side-effects.

You have requested the side-effects notes for the following:

Product:	SAP R/3 ENTERPRISE		
Product version:	SAP R/3 ENTERPRISE 47X110		
Component:	EA-APPL 110	Support packages:	SAPKGPAA17 to SAPKGPAA19
Component:	EA-IPPE 110	Support packages:	SAPKGPJA16 to SAPKGPJA18
Component:	PI 2003_1_470	Support packages:	SAPKIPZH58 to SAPKIPZH59
Component:	PI_BASIS 2003_1_620	Support packages:	SAPKIPYH57 to SAPKIPYH57
Component:	SAP ABA 6.20	Support packages:	SAPKA62036 to SAPKA62041
Component:	SAP APPL 4.70	Support packages:	SAPKH47019 to SAPKH47022
Component:	SAP BASIS 6.20	Support packages:	SAPKB62036 to SAPKB62041

Results:

Appl. Area	Note Number	Note Version (s)	In Support Package	Note Version	Appl. Area	Solving Note Number	Note Version
AC-INT	0000561175	0001 to 9999	SAPKH47022	0020	AC-INT	0000794974	0001
AP-MD-BP-UI	0000736239	0001 to 9999	SAPKA62041	0002	AP-MD-BP-UI	0000856200	0002

Figure 17.30 Side Effects of Support Package Queues

17.7 Questions

1. **What are the benefits of importing SAP Support Packages?**
 - A. Proactive solution of known problems
 - B. Functional extensions to SAP software
 - C. Improved ease of maintenance and reduced time and effort for repairs and maintenance
2. **Which of the following statements are true with regard to the SAP Note Assistant?**
 - A. It simplifies the maintenance of programs in the customer namespace.
 - B. It enables you to import Notes that contain code corrections.
 - C. It simplifies the process of making changes to Data Dictionary objects.
 - D. It identifies dependencies between SAP Notes.
 - E. It can replace the process of importing Support Packages.
3. **Which of the following statements are true with regard to Support Packages?**
 - A. They change the SAP standard of your SAP system before the next release upgrade.
 - B. You can import all types of Support Packages into all SAP systems, regardless of the components installed in the target system.
 - C. Support Packages are available only to customers who are taking part in the ramp-up.
 - D. Different types of Support Packages may be required for SAP systems with different components.
4. **Which of the following statements are true with regard to the SAP Patch Manager?**
 - A. The Patch Manager ensures that Support Packages are imported in the correct order.
 - B. The SAP Patch Manager does not check whether the type of Support Package you want to import is suitable for your SAP ERP installation. You have to determine whether you need a particular Conflict Resolution Transport, for example.

- C. The SAP Patch Manager does not allow you to protect SAP objects you have modified. These objects are automatically overwritten.
 - D. The SAP Patch Manager automatically opens Transactions SPDD and SPAU for the modification adjustment process, if required.
- 5. Which of the following statements are true with regard to Support Package stacks?**
- A. Support Package stacks are combinations of Support Packages that are recommended by SAP.
 - B. Support Package stacks should be imported only if an urgent problem is preventing an import from being carried out.
 - C. Support Package stacks are Support Package combinations that have been particularly well tested by SAP.
 - D. The SAPGUI version also must be upgraded to the latest level with every Support Package stack upgrade.
- 6. Which of the following statements are true with regard to ABAP and Java corrections?**
- A. An ABAP Support Package always overwrites all objects of a software component.
 - B. A Java Support Package always overwrites all objects of a software component.
 - C. An individual ABAP program can be changed using an SAP Note that contains a correction instruction.
 - D. An individual Java program can be changed using the Software Deployment Archive (SDA).
- 7. Where can you find version information about a Java system?**
- A. Under *http://<hostname>:<port>/sap/monitoring/ComponentInfo*
 - B. In the SAP System Landscape Directory (SLD)
 - C. In the system status information of the ABAP stack (only for dual-stack systems)
 - C. In Transaction SPAM of the ABAP stack (only for dual-stack systems)

Index

5-1-2 maintenance strategy, 720
/TMWFLOW/CMSCONF, 840

A

ABAP, 905
ABAP Dictionary, 35, 905
ABAP Editor, 905
ABAP programs, 563
ABAP software components, 765
ABAP Workbench, 36, 54, 905
 ABAP Dictionary Maintenance, 54
 ABAP Editor, 54
 Function Builder, 54
 Menu Painter, 54
 Screen Painter, 54
 Tools, 347
ABC analysis, 695
Action log file, 515
Activation, 906
Activation of the enqueue definitions, 545
Activity, 605, 608
Activity group, 906
Add-on patch, 905
Adjustment transport, 742
Administrative change, 838
ADO, 905
ADO import, 545
ALE, 906
 Customizing distribution, 906
Alert Monitor, 906
API, 907
Appends, 57
Application data, 41, 312, 907
 Eliminate, 160
 Master data, 41
 Transaction data, 41
Application Link Enabling (ALE), 127, 906
 Customizing Distribution, 128
 Scenario, 128

Application server, 907
Application Specific Upgrade (ASU), 725, 907
 Toolbox, 725
ArchiveLink, 907
Archiving object, 907
Assembly, 577, 578
Assembly line, 70
Assign S-User, 853
Authorizations
 NWDI, 597
Automatic recording of changes, 907
Automatic transport, 433

B

Background
 Jobs, 243
 Work processes, 244
Background processing, 915
Backup domain controller, 249, 264, 908
 Activation, 266
 Definition, 265
BAPI, 908
Batch input, 908
Build
 Incremental, 610
 Process, 578
 Space, 610
Business Configuration Sets (BC Sets), 104, 448, 908
Business functions, 861
Business partner, 836
Business process, 915
Business Server Pages, 573
Business validation, 197
 Test cycle, 198
 Testing procedures, 197
 Test plan, 198
Business validation period
 Tests, 169

Button, 912
Byte code, 576

C

CATT, 201, 909
CBS, 910
CCMS, 909
Central User Administration, 132
Change Advisory Board, 825
Change Analysis, 802, 842, 906
Change and Transport Organizer (CTO), 123, 239, 909
 Initialization, 239
Change and Transport System, 122, 909
Change groups, 845
Change list, 605
Change Management Service, 581, 909
 Create domain, 602
 Create track, 602
Change Management Work Center, 833
Change manager, 825, 909
Change of release, 719
 Process, 724
 With additional development system, 749
Change option
 Client-dependent, 75
 Client-independent, 77
Change request, 110, 834, 906
 Action log, 457
 Additional users, 417
 Add users, 369
 Change owner, 369, 418
 Create, 367
 Default settings, 368
 Document, 456
 Documentation, 174
 Export, 177, 180, 455
 Forward, 502
 Identify, 427
 IMG setup, 174
 Import, 154, 181, 487, 534
 Import all, 182
 Into multiple clients, 511
 Local, 363
 Manage, 172
 Merge, 466
 Multiple object lists, 375
 Object list, 372
 Owner, 178
 Preliminary import, 183
 Protect, 370
 Record SAP ERP Repository objects, 370
 Release, 177, 455, 465, 467
 Repository object checks, 178
 Strategy, 148
 Target client, 496
 Task, 363
 Technical representation, 112
 Transport, 179
 Transportable, 362
 Transport all objects, 375
 Types, 110
 Unit testing, 175
 View, 364
Change Request Management (ChaRM), 201, 821, 909
Change Request Management Workflow, 824
Changes, 110
 Automatic, 421
 Automatic recording, 145
 Client-independent, 112
 Copy with Transaction SCC1, 459
 Export, 116
 Import, 117
 Manual, 422
 Promote, 114
 Release, 116
Change tracking, 839
Change types, 836, 845
Client, 918
 Change option, 308
 Compare, 305, 919
 Copy, 134
 Create, 142
 Customizing differences, 444
 Customizing settings, 437
 Export, 155, 317
 ID, 305
 Import, 319

- Logical system name, 305*
- Name, 305*
- Protection, 305, 308*
- Restrictions, 309*
- Role, 305, 307*
- Settings, 919*
- System resources, 329*
- Transport, 919*
- Client change option, 144
 - Settings, 144*
- Client comparison
 - Display results, 440*
- Client copy, 43, 135, 305, 919
 - According to a transport request, 919*
 - Background scheduling, 329*
 - Local, 315*
 - Monitor, 323*
 - Profile, 919*
 - Remote, 315*
 - Restart in case of termination, 326*
 - Table delivery classes, 331*
 - Tool, 135*
 - Tools, 310, 327*
 - Verify, 323*
- Client copy strategy
 - Import sequence, 156*
- Client-dependent, 918
- Client-dependent change option, 305
- Client-dependent customizing data, 312
- Client entry, 302
 - Create, 302*
 - Delete, 304*
 - Maintain, 304*
- Client-independent, 919
- Client-independent change option, 305
- Client-independent customizing data, 312
- Client role, 71
 - critical, 68*
 - distribution, 83*
- Client/server architecture, 32
 - application service, 32*
 - data base service, 32*
 - presentation service, 32*
- Client/server technology, 31
 - example, 33*
- Client setting, 305
 - City, 305*
 - Restrictions, 305*
 - Standard currency, 305*
- Client-specific transport route, 918
- Client tool, 301
 - authorization profile, 341*
- Client transport, 317
 - Advantages, 310*
 - Special transaction, 326*
- Close coupling, 621, 633, 913
- Cluster environment, 706
- CMS, 909
- CMS domain, 602
- CMS user, 597
- Code freeze, 695, 741, 747
- Code Inspector, 695
- Code page, 769
- Combined Unicode & Upgrade
- Conversion (CU&UC), 774, 775, 910
- Common Information Model, 593
- Compare transport requests, 840
- Comparison runs , 813
- Component Build Service, 581, 910
- Component model, 697
- Computer Aided Test Tool (CATT), 129, 201, 909
- ConfigStore, 848
- Configuration and File Reporting, 848
- Configuration process
 - Technical aspects, 270*
- Conflict Resolution Transport (CRT), 910
- Consolidation
 - Route, 917*
 - System, 917*
- Consolidation route, 252
- Container (J2EE), 577
- Control file, 926
- Copy from client, 461
- Correction, 917
- Correction instruction, 653
 - Validity, 661*
- Correction task, 364
- CPI-C, 910
- Create a J2EE application, 607
- Create customer development class, 351, 386, 387
- Create domain in the CMS, 602

- Create track in the CMS, 602
 - Critical object, 507
 - CRMD_ORDER , 831
 - Cross-system tool, 104
 - CTO, 123
 - CTS, 122
 - CTS+, 910
 - CTS project, 827, 910
 - Current settings, 435, 917
 - Customizing activities*, 436
 - CUST, 69
 - Customer development, 913
 - Customizing, 46, 48, 69, 98, 910
 - Change request*, 172
 - Client-dependent*, 77, 458
 - Client-independent*, 77
 - Implementation Guide (IMG)*, 45, 48
 - Prerequisites*, 409
 - SAP ERP Reference Model*, 47
 - User authorizations*, 410
 - Customizing activity
 - Client-independent*, 429
 - Logging*, 338, 921
 - Nonstandard*, 429
 - Customizing-and-development client (CUST), 69
 - Customizing change request, 111, 413, 910
 - Create*, 415
 - Default settings*, 416
 - Display*, 414
 - Object list*, 424
 - Customizing changes
 - Manage*, 409
 - Record*, 421
 - Transport*, 109
 - Customizing Cross-System Viewer, 104, 436, 439, 910
 - Customizing data, 40
 - Customizing Distribution, 805, 806, 911
 - Procedure*, 809
 - Requirements*, 807
 - Customizing management
 - Project IMG*, 410
 - Customizing objects, 420
 - Client-dependent*, 427
 - Lock in target system*, 807
 - Predefined*, 807
 - Customizing Organizer (CO), 123, 911
 - Customizing requests, 427
 - Customizing Scout, 806, 811, 911
 - Customizing Synchronization, 805
 - Customizing tools, 436
 - Business Configuration Sets (BC Sets)*, 436
 - Customizing Transfer Assistant*, 437
 - Table comparison*, 436
 - View comparison*, 436
 - Customizing Transfer Assistant, 449, 911
- ## D
-
- Data
 - Application data*, 36
 - Client-dependent*, 31
 - Client-independent*, 32
 - Customizing data*, 36
 - User master data*, 36
 - Data archiving, 911
 - Database, 911
 - Copy*, 911
 - Instance*, 911
 - Server*, 911
 - Database copy, 158
 - Database management system
 - Relational*, 37
 - Database parameter
 - dbhost*, 232
 - dbname*, 232
 - Data changes
 - Log*, 336
 - Data components, 39
 - Data file, 911
 - Data selection
 - Profiles*, 312
 - Data transfer, 124
 - Data Transfer Workbench, 126
 - DBA, 912
 - Dbhost, 232
 - Dbname, 232
 - Default change request
 - Set*, 423

- Delivery class, 907
- Delivery route, 253, 908
- Delta Customizing, 912
- Deployment descriptor, 578
- Design Time Repository, 581, 912
 - Check-in*, 608
 - Structure*, 610
- Detail Viewer , 847
- Development, 53
 - ABAP Workbench*, 45
 - Class*, 400
 - In multiple systems*, 359
 - Prerequisites*, 347
 - SSCR key*, 348
 - system enhancements*, 53
 - Task*, 364
- Development changes, 347
 - Development prerequisites*, 347
 - Manage*, 347
 - Transport*, 109
- Development class, 914
- Development component, 601
- Development configuration, 600, 604, 605
- Development configuration pool, 600
- Development database, 480
- Development object, 601
- Development system, 82, 141, 914
 - Additional clients*, 185
 - Setting up*, 139
- Development track, 602
- Development without Release, 830
- Development with Release, 830
- Dialog box, 912
- Dialog work process, 912
- Dictionary activation, 545
- Dictionary import, 545
- DIR_TRANS, 234
 - Windows*, 235
- DISCOVERY, 786
- Dispatcher, 912
- Display profiles, 314
- Display transport errors at logon, 478
- Distribution, 545
- Distribution status, 269

- Documentation
 - Change*, 456
 - Create*, 456
- Documentation requirements, 383
- Domain controller, 620
 - Setup*, 255
- Domain links, 522
- Download basket, 851
- Downtime-minimized, 691, 796
- Downtime-minimized import mode, 691
- DTR, 912
- Dual-stack system, 618, 628, 637, 781, 912

E

- EarlyWatch, 42
- eCATT, 791, 912
- Eclipse, 580, 913
- EDI, 913
- eLearning, 792
- Emergency Correction, 830
- Emergency production fixes, 193
- End mark, 497, 531, 913
 - Move*, 504
- End of Import queue, 531
- End user training, 792
- End-user training client, 74, 83
- Enhanced Change and Transport System (CTS+), 617, 619
 - Combined applications*, 638
 - Configuration*, 627
 - Deploy Web Service*, 620
 - Export Client*, 620
 - Transport landscape*, 635
- Enhancement, 56, 927
- Enhancement Framework, 384
- Enhancement Package (EhP), 754, 852, 861, 913
 - Import*, 670
- Enhancement Package Installer (EhPI), 766, 767
- Enqueue, 914
- Enqueue conversion, 545

- Enterprise application, 608
- Enterprise Extension, 205
- Enterprise IMG, 411, 930
- Enterprise Java Beans, 577, 608
- ERP Solution Browser, 787
- Evaluation, 786
- Exception analysis, 802
- Explicit enhancement points, 384, 386
- Explicit enhancement sections, 384
- Export, 914
- Export log file, 476
- Export process, 116, 455, 472
- Extended transport control, 503, 914
 - Target groups*, 290
- Extension Index, 397
- Extension Sets, 914
- External system, 914
- External transport directory, 519
- Extractor Framework, 850

F

- Firewall, 915
- Fix, 698
- Food and Drug Administration, 823
- Forms, 460
- Four-system landscape, 89, 99
- Full-stack approach, 712

G

- General Availability (GA), 915
- Generation flag, 400
- Generation of ABAP programs and screens, 545
- Global system change option, 240
- Global system landscape, Customizing, 103
- Global template, 101
- GoingLive, 42
- Graphical editor, 283
- GUI, 915
- guided procedure , 851

H

- Hierarchical list editor, 281
- High availability, 915
- HotNews, 916

I

- ICNV phase, 732
- IDoc type, 916
- IMG, 48
 - Enterprise IMG*, 50
 - Project IMG*, 50, 51
- IMG project , 826
- IMG tree structure, 49
- Implementation Guide (IMG), 913
- Implementation phase, 168
 - Going live*, 190
- Implementation plan, 168
 - Persons*, 169
- Implementation project, 822
 - Management*, 170
 - Project team*, 173
 - Responsibilities*, 173
- Implement software, 45
- Implicit enhancement points, 384
- Import, 916
 - All*, 497
 - Buffer*, 487, 916
 - Expert mode*, 498
 - Intervals*, 187
 - Into multiple clients*, 510, 536
 - Logs*, 188
 - Monitor*, 513
 - Needs*, 495
 - Options*, 534, 916
 - Overview*, 488
 - Perform*, 495
 - Phases*, 538
 - Problem*, 549
 - Queue*, 530, 916
 - Schedule*, 509
 - Start*, 497
 - Steps*, 538, 540
 - Tools*, 187

- Import buffer, 530
 - Import change requests*, 533
 - Indicator*, 536
 - tp command*, 532
- Import process, 117
- Import Project All, 823
- Import queue, 118, 487
 - Add change request*, 504
 - Changes*, 191
 - Check*, 505
 - Close*, 497
 - Consistency check*, 506
 - Delete change request*, 503
 - Display*, 490
 - Import*, 512
 - Inconsistencies*, 122
 - Manage*, 502
 - Manipulate*, 121
 - Refresh*, 494
 - Sequence*, 120
 - Significance*, 120
 - Status information*, 490
 - Transport tool check*, 506
- Import service, 621
- Import SPAM/SAINT update, 680
- Industry Solution (IS), 908
- Installation
 - System ID*, 213
 - Transport directory*, 214
- Instance, 916
- Integrate patches, 706
- Integration system, 916
- Integration testing, 146, 917
- Interface technology, 127
- Internet Transaction Server (ITS), 917
- IT Infrastructure Library (ITIL), 824, 917

J

- J2EE Engine, 917
- J2EE Engine components, 574
- J2EE Explorer, 607
- Java
 - Applets*, 577
 - Archive*, 578

- Development process*, 575
- Development scenarios*, 585
- Servlets*, 577
- Java corrections, 697
- Java correction types, 697
- Java Development Kit (JDK), 706
- Java Enterprise Beans, 574
- Java Enterprise Runtime, 574
- Java Server Pages, 573, 574, 577, 607
- Java software components, 763
- Java Software Development Kit (J2SDK), 578
- Java Support Package, 671, 698
 - Import*, 705
- Java Support Package Manager (JSPM), 671, 698, 701, 860, 917
- Java upgrade, 780
- Java Virtual Machine (JVM), 576

K

- Kernel, 35

L

- LAN, 917
- Layered development, 592
- Legacy system, 906
- Legacy System Migration Workbench, 126
- Local change request, 918
- Local objects, 918
- Locks, 926
- Log files
 - Evaluate*, 543
 - Generic*, 543
 - Single step*, 543
- Logical component, 826
- Logical system, 918
- Logical system names
 - Application Link Enabling (ALE)*, 305
 - SAP Business Workflow*, 306
- Loose coupling, 621, 633, 918

M

Main import, 545
 Maintenance cycle, 831, 931
 Maintenance Optimizer, 803, 918
 Maintenance Optimizer BC Set, 853
 Maintenance procedure, 855
 Maintenance process
 Implementation phases, 168
 Maintenance strategy, 720
 Manual transports, 433, 919
 Master data, 125, 926
 Import, 126
 Template, 128
 Transfer, 126
 MDMP, 919
 Mode, 920
 Modification, 59, 378, 381, 919
 Make, 382
 Recommended, 61
 SSCR, 62
 SSCR key, 382
 Modification adjustment, 60, 735, 736, 920
 Data dictionary objects, 737
 During release changes, 739
 During the import of Support Packages, 742
 Programs, 738
 Tables, 738
 Modification Assistant, 61, 379, 745, 920
 Modification Browser, 381, 919
 Modification-free enhancement, 384
 Move nametabs, 545
 Multiple-client concept, 79
 Multiple-client operations
 limitations, 79
 protective measures, 81
 Multiple Display Multiple Processing (MDMP), 769, 919

N

Name range, 242, 920
 Namespace, 103, 242, 920

Nametab, 920
 Naming convention
 Actlog, 557
 Buffer, 558
 Cofiles, 558
 Data, 558
 Define, 359
 Log, 558
 Sapnames, 557
 New BADIs, 384, 388
 Non-ABAP system, 619, 627, 635, 920
 Notification of imports, 189
 No transport, 434
 Number ranges, 332

O

Object
 Checks, 921
 List, 920
 Object attributes, 400
 Object checks, 468
 Object Directory, 398, 920
 Object directory entry
 Change, 401
 Display, 401
 Object list, 424
 Add, 374
 Change, 376
 Display, 372
 Lock objects, 377
 Unlock objects, 377
 Object locking, 371
 OCS, 921
 One-system landscape, 86
 Original language, 400
 Original object, 921
 Original system, 378, 400
 OS/DB migrations, 770

P

Parameter type
 Database-specific, 229
 Global, 229

- Operating system-specific*, 229
- SAP ERP system-specific*, 229
- Patch, 698
- Performance, 921
- Person responsible for object, 400
- Phased system landscape, 94
 - Customizing*, 98
 - Development*, 98
 - Final quality assurance system*, 95
 - Production support system*, 95
 - Realization*, 96
 - Requirements*, 95
 - Standard client role*, 96
- Portal content, 763
- Portal Content Studio, 622
- Post-import issues, 188
- Post-import processing, 509
- Post-installation processing, 140
 - Industry solution*, 140
 - Language*, 140
 - Support Packages*, 140
- Preliminary import, 499, 931
 - Expert mode*, 500
 - Multiple change requests*, 500
- Preliminary import option u0, 536
- PREPARE, 724, 775, 921
 - Phase*, 730
- Presentation server, 35, 921
- Processing status, 442
- PROD, 70
- Product, 601
 - Create*, 600
- Production client, 69, 70
 - Customizing*, 435
- Production environment
 - Validation*, 161
- Production system, 82, 921
 - Import*, 190
 - Lifecycle*, 719
 - Setup*, 146
- Production systems, multiple, 90
 - Customizing*, 94
 - Development*, 94
- Profile Generator, 921
- Project Cycles, 828

- Project IMG, 51, 921
 - Customizing*, 418
 - Tree structure*, 418

Q

- QA Approval Process, 193
- QTST, 70
- Quality assurance, 193
 - System copy*, 159
- Quality assurance client, 69, 70, 115
- Quality assurance procedure, 151, 922
- Quality assurance system, 82, 114, 134, 921
 - Setup*, 146
- Quality assurance test client, 148
- Quick Sizer, 789

R

- R/3, 922
 - System*, 922
 - System service*, 922
- R3load, 773
- R3trans, 122, 123, 560, 922
- r3transpath, 236
- Ramp-up, 922
- Ramp-up procedure, 721
- RDBMS, 922
- RDDIMPDP, 922
- Recipient system, 908
- Regression testing, 129
- Regular correction, 822, 836
- Release, 601, 915
 - Error*, 462, 467
 - Process*, 455
- Release and Information Note, 711
- Release change
 - With five systems*, 750
- Release Customizing, 922
- Release Management, 828
- Release strategy, 720
- Release upgrade, 852
- Relocation transports, 930

- Remote client copy
 - Advantages, 311*
 - Remove change documents, 340
 - Repair, 364, 378, 923, 924, 925
 - Repair flag, 379, 400, 923
 - Report, 461
 - Variants, 461*
 - Repository, 922
 - Object, 923*
 - Switch, 923*
 - Repository Browser, 923
 - Repository object, 35, 102
 - create, 53*
 - Version management, 480*
 - Repository object, customer-developed
 - customer development class, 56*
 - customer name range, 56*
 - namespace, 56*
 - Repository switch, 729
 - Resource constraints, 334
 - Restricting customer object names, 358
 - Return code, 546, 923
 - RFC, 923
 - RFC connections, 271
 - RFC system check, 317
 - Roadmap, 923
 - Roles
 - NWDI, 597*
 - Root cause analysis, 802, 843
 - Runtime environment, 917
- S**
-
- SAINT, 643, 672, 680, 765, 860, 923
 - Sample transaction data, 129
 - Create, 129*
 - Sandbox client, 74, 83, 115
 - SAP Add-on Installation Manager, 643
 - SAP Add-on Installation Tool, 672, 680
 - SAP client, 301
 - Create, 302*
 - Data, 309*
 - Delete, 333*
 - Set up, 301*
 - Test run, 334*
 - SAP component model, 600, 697
 - SAP ERP buffer synchronization, 554
 - SAP ERP change request
 - Transport, 213*
 - SAP ERP client, 31, 37
 - definition, 74*
 - SAP ERP client roles, 68
 - SAP ERP database, 31, 35
 - customer data, 36*
 - SAP ERP data components, 31*
 - SAP ERP Repository, 35*
 - SAP ERP Repository, 31
 - ABAP Dictionary, 35*
 - container, 31*
 - SAP ERP Repository object
 - Changes, 347*
 - SAP ERP Repository object, customer-developed, 55
 - SAP ERP Solution Browser, 788
 - SAP ERP system
 - Copy, 134*
 - Customizing, 32*
 - implementation, 32*
 - SAP ERP system administration
 - optimization, 31*
 - performance, 31*
 - SAP ERP system landscape, 67
 - Manage, 109*
 - Sapevt, 560
 - SAP Going Live Functional Upgrade Check, 790
 - SAP GUI, 924
 - SAP HotNews, 644
 - SAP J2EE Engine, 574
 - SAP Java Support Package Installation Manager, 643
 - SAPjup, 780, 925
 - SAP Maintenance Optimizer, 205, 758, 851, 861
 - SAP NetWeaver Developer Studio (NWDS), 580, 924
 - Setup, 599*
 - SAP NetWeaver Development Infrastructure (NWDI), 573, 580, 618, 924
 - Configuration, 584, 592*
 - Hardware requirement, 585*

- SAP Note, 644, 923
 - Area of validity of correction instruction*, 661
 - Classify*, 652
 - Download*, 652
 - Implement*, 647
 - Implementation status*, 667
 - Implement correction instruction*, 653
 - Load*, 651
 - Log file*, 662
 - Process*, 649
 - Processing status*, 668
 - Queue*, 656
 - Register manually implemented*, 648
 - Search*, 650
 - Side effects*, 715
 - Update*, 663
 - Upload*, 652
- SAP Note Assistant, 643, 644, 647, 924
- SAP Note Browser, 650, 651
- SAP object, enhance
 - dynpro exits*, 57
 - field exits*, 57
 - menu exits*, 56
 - program exits*, 56
 - table append*, 57
 - text enhancements*, 57
 - user exits*, 56
- SAP Patch Manager, 643, 924
- SAP Reference IMG, 923
- SAP release upgrade, 207
- SA_PROJECT_UPGRADE, 870
- SAProuter, 924
- SAPscript, 460
 - Styles*, 460
- SAP Service Marketplace, 924
- SAP Software Change Registration (SSCR), 348, 924
- SAP Solution Manager, 201, 619
 - Business process*, 804
 - system landscape*, 803
- SAP Solution Manager , 801
- SAP standard, 45
- SAP Switch and Enhancement Framework, 754
- SAP System Switch Upgrade, 728
- SAP testing tools, 199
- SAP TopNotes, 646
- SAP Transaction code, 899
- SAP transport layer, 253
- SAP Tutor, 792
- SAPup, 726, 737, 780, 875, 925
- SAP Upgrade Experience Database, 788
- Sarbanes-Oxley Act (SOX) , 823
- SCC1, 460
 - Log file*, 460
- SCDT_GROUPS, 821
- SCDT_MAPPING, 819
- SCI, 695
- SDAD, 838
- SDDV, 831
- SDHF, 838
- SDMJ, 836
- SDMN, 831
- SDTM, 838
- Secure Network Communication (SNC), 272
- Self-Services, 763
- Server, 925
- Servlets, 574
- Session Manager, 925
- Set a default Project IMG, 419
- SFW5, 759, 760
- SGEN, 797
- Shadow instance, 726
- Shared memory, 925
- SID, 37, 213, 925
- Side effects, 715, 925
- Sign-off process, 192
- Single comparison, 443
- Single step log file, 515, 544
- SLD, 924
- SLD bridge, 595
- SMSY, 875, 925
- SNOTE, 643, 647
- Software Change Management, 592
- Software component, 601
 - Create*, 600
- Software component model, 582
- Software Deployment Manager (SDM), 582, 671, 701, 925
- Software Lifecycle Management, 594
- Software Lifecycle Manager, 852, 854
- Software logistics, 925

- SOLAR01, 870
- SOLAR02, 870
- SOLAR_EVAL, 870, 871
- SOLAR_LEARNING_MAP, 874
- SOLAR_PROJECT_ADMIN, 865, 870, 872
- SOLMAN_WORK CENTER, 865
- Solution, 805, 918
- SOLUTION_MANAGER, 843
- Solution Manager Key, 875
- Solution Manager project, 804, 826, 925
- Solution Manager work center, 865
- Sort and compress, 471
- Sources of errors, detect, 553
- SPAM, 643, 860
- SPAM Update, 926
- SPAU, 664, 735, 736, 739, 743, 773
- SPAU_ENH, 397
- SPDD, 731, 736, 739, 742, 773
 - Adjustment*, 731
- Specialized development client, 73
- Split-Screen Editor, 658
- SPUM4, 773, 775
- SPUMG, 773, 774, 775
- SQL, 926
- SSCR, 55
- Stabilize production period, 169
- Stack configuration file, 852
- Standard client, 69, 142
- Standard configuration
 - Activate*, 280
 - Distribute*, 280
- Standard currency, 306
- Standard maintenance, 720
- Standard request, 634, 926
- Standard SAP ERP Clients, 42
- Standard SAP object, modification, 54
- Standard SAP systems, 82
- Standard transport layer, 252, 926
- Stopmark, 531, 537, 926
- Structure conversion, 545
- SUMG, 774
- Support, 202
- Support Package, 205, 669, 851, 926
 - Authorizations*, 673
 - Benefits*, 669
 - Collection*, 926
 - Define queue*, 684
 - Downtime-minimized import mode*, 691
 - Implementation cycle*, 695
 - Import*, 671, 854
 - Import into a system landscape*, 693
 - Import queue*, 687
 - Java*, 671, 698, 705
 - Load*, 681
 - Post-process*, 663
 - Side effects*, 715
 - Stack*, 927
 - Types*, 671
- Support Package Manager, 671, 737
 - Import phases*, 680
- Support Package stack (SP stack), 205, 707
 - Calendar*, 714
 - Components*, 712
 - Cross-system*, 712
- Switch, 727
- Switch and Enhancement Framework, 927
- Synchronization objects, 807, 811, 927
 - Create*, 819
 - Load*, 821
- Synchronized upgrade, 781
- System
 - Change option*, 927
 - Copy*, 927
 - Landscape*, 928
- System change option, 103, 112
- System copy, 134, 158
 - Strategy*, 158
- System identification, 37
- System ID (SID), 112, 213
- System landscape, 139
 - alternatives*, 86
 - complex*, 89
 - global*, 100
 - Maintenance*, 167
 - multiple production*, 90
 - Release change*, 747
- System Landscape Directory (SLD), 582, 924
 - Configuration*, 593

- System landscape setup
 - Methods*, 162
 - Verify*, 294
- System name, 528
- System status, 266
- System switch, 728, 730
- System switch upgrade, 927

T

- TABIM_UPG, 734
- Table log analysis, 337
- Table logging, 145, 335, 928
- Target client
 - Set*, 495
- Target group, 931
- Task, 907
 - Release*, 462
 - Types*, 363
- Task list , 832
- TCP/IP, 928
- Technical upgrade, 724, 793
- Technical usage, 861
- Technical usage, 757
- Test imports, 474
- Test messages , 838
- Test Workbench, 200, 791
- Three-system landscape, 82
- TMS, 123
- TMS authorization, 523
- TMS communication system, 620
- TMS setup
 - Issues*, 548
 - Verify*, 295
- TMS Trusted Services, 274
- tp, 122, 528, 560
 - And ABAP programs*, 564
 - Authorization*, 529
 - Commands*, 530
 - Command syntax*, 529
 - Performing imports*, 533
 - Prerequisites*, 528
 - Processing sequence*, 538
 - Return codes*, 547
- tp system log, 514
- Trace analysis, 802
- Transaction code, 928
- Transaction data, 128, 908
 - Interfaces*, 130
- transdir, 233
- Transfer Assistant, 104
- Transport, 928
 - Adjust*, 517
 - Between transport domains*, 517
 - Between transport groups*, 515
 - Control information*, 530
 - Control program*, 929
 - Directory*, 929
 - Domain*, 928
 - Domain controller*, 928
 - Group*, 928
 - Java*, 611
 - Java projects*, 611
 - Layer*, 929
 - Log*, 188, 929
 - Management*, 179
 - Process*, 179
 - Profile*, 929
 - Request*, 928
 - Route*, 930
- Transportable change request, 929
- Transport capability
 - Configuration*, 238
- Transport control
 - Extended*, 185
- Transport control program, 122, 528
- Transport directory, 214, 620
 - Bin*, 218
 - Buffer*, 218
 - Clean up*, 558
 - Cofiles*, 218
 - Common*, 223
 - Ctlog*, 219
 - Data*, 218
 - Eps*, 219
 - In heterogeneous operating systems*, 224
 - Log*, 219
 - Naming conventions*, 556
 - Olddata*, 219
 - On AS/400*, 223
 - Prerequisites*, 220
 - Sapnames*, 219

- Setup*, 219
- Structure*, 217
- Tmp*, 219
- Unix*, 221
- Windows*, 221
- With Windows and Unix*, 224
- Transport domain, 248
 - Changes*, 264
 - Complement external system*, 262
 - Configuration*, 519
 - Controller*, 249
 - Extension*, 257
 - Setup*, 254
 - Verify*, 266
- Transport group, 215, 217, 250, 257
- Transport layer
 - Client-specific*, 292
- Transport log, 476
 - Manage*, 478
- Transport Management System (TMS), 123, 929
 - Alert monitor*, 297
 - Concepts*, 247
 - Initialize*, 255
 - Setup*, 141, 147, 247
 - Terminology*, 247
- Transport non-ABAP objects, 617
- Transport object, 403
- Transport of copies, 837
- Transport Organizer (TO), 123, 403, 929
- Transport Organizer Web UI, 620, 623, 929
- Transport parameter
 - abapntfmode*, 881
 - alllog*, 882
 - allow_rc4*, 882
 - buffreset*, 882
 - bufreftime*, 882
 - c_import*, 883
 - cofilelifetime*, 883
 - communication_system*, 883
 - ctc*, 884
 - datalifetime*, 884
 - dbcodepage*, 884
 - dbconfpath*, 885
 - dbhost*, 885
 - dblibpath*, 885
 - dblogicalname*, 886
 - dbname*, 886
 - dbswpath*, 886
 - dbtype*, 887
 - dummy*, 887
 - exporttoascii*, 888
 - impmon_mode*, 888
 - informixdir*, 889
 - informix_server*, 888
 - informix_serveralias*, 888
 - informixsqlhost*, 889
 - k_import*, 889
 - language*, 889
 - loglifetime*, 890
 - mssql_passwd*, 890
 - mssql_user*, 890
 - nbufform*, 891
 - new_sapnames*, 891
 - non_abap_system*, 891
 - olddatalifetime*, 892
 - opticonnect*, 892
 - r3transpath*, 892
 - recclient*, 893
 - repeatonerror*, 893
 - setunicodeflag*, 893
 - sourcesystems*, 894
 - stopimmediately*, 894
 - stoponerror*, 894
 - syslog*, 895
 - targetsystems*, 895
 - testimport*, 896
 - testsystems*, 896
 - t_import*, 895
 - tp_version*, 897
 - transdir*, 897
 - vers_at_imp*, 897
 - w_import*, 898
- Transport process
 - Technical aspects*, 122
- Transport profile, 225
 - Configuration*, 225
 - Database parameter*, 231
 - Parameter*, 225
 - Parameter type*, 229, 230
 - Path-specific parameter*, 232

- Predefined variables*, 230
- Profile syntax*, 228
- R/3 Release 4.5*, 225
- Transport profile parameter, 881
- Transport request
 - CTS+*, 634
 - Non-ABAP*, 623
- Transport route, 251
 - Client-specific*, 115, 289
 - Configuration*, 276
 - Create*, 277
 - Define*, 114
 - Standard configuration*, 277
- Transport route configuration
 - Change*, 281
 - Extend*, 281
 - Extended transport control*, 288
 - Verify*, 296
 - Version control*, 288
- Transport tools, 560
 - Interactions*, 561
- TU&UC, 774, 776
- Twin Unicode & Upgrade Conversion (TU&UC), 930
- Two-system landscape, 87

U

- UCCHECK, 772, 776
- Unconditional mode, 534
- Unicode, 768, 930
 - Hardware requirements*, 777
- Unit test client, 71, 83, 143
- Unit testing, 71, 116, 458, 915
- Upgrade, 781
 - Method*, 796
 - Project*, 794
 - Tests*, 796
- Upgrade Assistant, 930
- Upgrade Customizing, 930
- Upgrade Roadmap, 866
- Upgrade Support, 865
- Upgrade Weekend Support, 793
- Urgent correction, 822, 838, 912
- User data, 312

- User Management Engine (UME), 574
- User master data, 41, 131, 908
- Users
 - NWDI*, 597

V

- Variants, 312
- VBAP, 39
- Version
 - Database*, 480
 - Management*, 481
- Version database, 930
- Version information
 - Java*, 700
- Version management, 545
- View, 930
 - Customizing*, 420
- View table logs, 337
- Virtual system, 261, 930
 - Create*, 261
 - Replace*, 262
- Vocabulary, 773

W

- WAN, 931
- Web Service Deploy Proxy, 629
- Web Service Navigator, 629
- Workbench change requests, 111, 361, 931
- Workbench Organizer (WBO), 112, 123, 931
- Work center, 833, 865, 931
- Workload analysis, 802
- Write accesses, 272

X

- XI/PI content, 762
- XPRA, 734
- XPRA execution, 545
- XSS, 763