SAP NetWeaver Business Client (NWBC)



NWBC V3.0



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Icons in Body Text

lcon	Meaning
Δ	Caution
8 8 0	Example
	Note
1	Recommendation
\Diamond	Syntax

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Typographic Conventions

Type Style	Description
Example text	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options.
	Cross-references to other documentation.
Example text	Emphasized words or phrases in body text, graphic titles, and table titles.
EXAMPLE TEXT	Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.
Example text	Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
Example text	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
<example text=""></example>	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
EXAMPLE TEXT	Keys on the keyboard, for example, F2 or ENTER.

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SAP NetWeaver Business Client

The **SAP NetWeaver Business Client (NWBC)** is a new SAP UI, presenting end users with a seamless integration of classic SAP GUI-based transactions and newer Web Dynpro-based applications. In the desktop variant a high–fidelity UI is offered to improve user experience. Thus the NWBC provides typical modern desktop-based user experience. In the following sections the SAP NetWeaver Business Client will be documented.



(PLM example)

References

You can find additional information about the NWBC in SAP note 900000.

Further release restrictions are listed in SAP note <u>1029940</u>.

1 Overview

The **SAP NetWeaver Business Client** (**NWBC**) is a rich UI client that offers a single point of entry to SAP applications, especially harmonizing access to existing SAP GUI transactions and newly developed applications based on Web Dynpro. NWBC itself is a high fidelity shell that aims at harmonizing the user experience over different UI technologies.

NWBC comes in two flavors:

- **NWBC for HTML** is a browser-based shell (available only against ABAP systems) for casual use scenarios. Within this environment, all SAP GUI transactions will be rendered using the SAP GUI for HTML rendering engine.
- **NWBC for Desktop** is a .NET based application that targets the power user. In this scenario, the SAP GUI itself is used as rendering engine if installed. NWBC effectively "replaces" SAP GUI as main entry point to SAP applications; however, it does use SAP GUI to run existing applications.

NWBC for HTML as a 'light' version is only supported against ABAP systems, using established roles from PFCG. NWBC for Desktop can also run against single ABAP systems with the PFCG as role repository, or against a SAP NetWeaver Portal using the PCD as role repository.



(NWBC for Desktop and NWBC for HTML)

Both flavors of NWBC implement the same design (with slight variations to further improve performance depending on rendering technology). On a first view, the two flavours look and feel the same, with also the interaction model aligned.

This chapter will look at different general aspects of NWBC:

- <u>1.1 Business Client History</u> [Page 11]: Lists the different versions of NWBC that have been shipped to date.
- <u>1.2 Technology Block Diagram</u> [Page 12]: Provides an overview of NWBC central components. The role repository of PFCG in ABAP systems is contrasted with the PCD in the portal. Besides, the session tab paradigm of NWBC v.1 is compared with the multi window approach of NWBC v.3.

Notes

The graphics in the following documentation are examples of prototypes only. The design of the Business Client is developing continually. For this reason, the UIs may vary from one Business Client version to the next.

1.1 Business Client Versions

The initial version of NWBC, SAP NetWeaver Business Client for ERP (NWBC v1.0), was released in 2007 specifically only for SAP Business All-in-One and the SAP Business Suite. It was soon followed by NWBC v2.0 based on new Microsoft .NET technology with the new Signature Design supporting a multi-window paradigm. Given the complexity of targeting a new client with a new design, this version was limited for usage only with SAP Business ByDesign. The latest version of NWBC, the v3.0 version, builds on the Signature Design, adding back SAP GUI support and will be made available for all SAP business lines as one product providing a harmonized access to SAP applications. With NWBC v3.0, a light-weight HTML based version is also made available specifically for single Web AS/ABAP system scenarios.

Version	Backend Prerequisite*	Business Line	Highlights
NWBC v1.0	SAP NetWeaver 7.00 SP14 SAP NetWeaver 7.01	SAP Business All- in-One, SAP Business Suite	SAP GUI & HTML for Web Dynpro
NWBC v2.0	SAP NetWeaver 7.11 SP05	SAP Business ByDesign	Signature Design, Multi-Windows HTML for Web Dynpro
NWBC v3.0 (for SAP Business All-in- One) For more information and relevant prerequisites, see SAP note <u>1368177</u> and <u>1353538</u> .	SAP NetWeaver 7.00 SP21 SAP NetWeaver 7.01 SP06	SAP Business All- in-One	Signature Design, Multi Windows SAP GUI & HTML for Web Dynpro SAP GUI for HTML

Version	Backend Prerequisite*	Business Line	Highlights
NWBC v3.0 for Desktop	SAP NetWeaver 7.02 SP03	General	Signature Design, Multi Windows
Apply on top SAP note <u>1353538</u> .			SAP GUI & HTML for Web Dynpro
NWBC v3.0 for HTML		Limited to single	SAP GUI for
Apply on top SAP note <u>1353538</u> .	SAP NetWeaver 7.02 SP03	Web AS/ABAP use cases	HTML & HTML for Web Dynpro

* Note that the release specified here refers to SAP_BASIS.

1.2 Technology Block Diagram

NWBC can be broken down into effectively a shell and a canvas area. In addition, it is possible to have a number of open windows, each with its own canvas. The shell itself has the main goal to enable the navigation through business processes based on the roles assigned to the user. It is possible to load these roles from either an ABAP role repository (PFCG) or a portal role repository (PCD) via a set of web services. Once the roles are loaded, they are presented to the user in a top level navigation area (for the first hierarchy level) and a detailed navigation area on the left. Furthermore, the shell imbeds one canvas that is typically used for overview type of applications.

Additionally, the shell can open any number of application windows. Each of these windows encompasses a canvas as well, typically used to run a specific transaction as part of a business process. (NWBC v3.0, as opposed to NWBC v1.0, supports a more modern multi-window paradigm, allowing a number of applications to be run side by side.)



(Technology overview diagram)

The canvas can display applications that are based on different types of technology, according to the required business process. For the end user, the canvas is the main area where they can see the actual work that needs to be done.

Type of Canvas	Type of Communication	
SAP GUI		
SAP GUI for HTML		
Web Dynpro (HTML)	HTML/HTTP	
Web Dynpro	HTTP	
Microsoft Internet Explorer (Browser)	HTML/HTTP	

With this approach, NWBC as shell harmonizes the different application technologies by reconciling various canvas types. Thus NWBC weaves a net between SAP's SAP GUI heritage to a more newer world based on Web Dynpro.

2 Using NetWeaver Business Client

This chapter will look at different aspects concerning the usage of NetWeaver Business Client (NWBC). Typical end-user steps are described.

- <u>2.1 Starting NWBC</u> [Page 14]: Explains the use of the desktop icon, steps of the logon sequence as well as the reuse of the last selected connection.
- <u>2.2 Shell Overview</u> [Page 16]: Describes in general terms design, menus, navigation area, search area and about menu.
- <u>2.3 Navigation</u> [Page 19]: Goes into depth on top level navigation, left navigation panel and quick navigation features.
- <u>2.4 Canvas Types</u> [Page 21]: Compares the canvas types browser and SAP GUI and describes that different kinds of applications can have different rendering engines.
- <u>2.5 Multi-Windows</u> [Page 21]: Illustrates the concept of multi-windows and the difference between simple navigation clicks and shift+click.
- <u>2.6 Menus</u> [Page 22]: Explains the menu structure and menu items offered in Favorites, Personalize and Help.
- <u>2.7 Search</u> [Page 24]: Comments on the different search options like Enterprise search, external search and desktop search.
- <u>2.8 Quick Launch</u> [Page 25]: Outlines the additional quick navigation function which allows fast searching and selecting of any navigation entry.
- <u>2.9 Logging Off</u> [Page 28]: Illustrates how to log off or use the red X which closes all windows, terminates existing sessions and closes applications.
- <u>2.10 Connecting to Different Systems</u> [Page 28]: Mentions how to connect to a different or a new system.
- <u>2.11 Extended Supportability</u> [Page 28]: Describes the troubleshooting functions available via control click on the help menu.
- <u>2.12 NWBC for HTML</u> [Page 32]: Compares functions of NWBC for Desktop with limited functions of NWBC for HTML.

\mathbf{P}

The images in the following documentation are from a first released version. The design of the Business Client is developing continually. For this reason, the UIs may vary from one Business Client version to the next. The components and user interfaces in your Business Client may differ depending on how your system administrator configures the system.

2.1 Starting NWBC

To log on to and use NWBC, you need to have an NWBC shortcut on your desktop. Once your system administrator has installed the Business Client on your machine, you can make your own settings and start performing your daily tasks. You also need to change your password the first time you log on, and at regular intervals thereafter.

Open NWBC when you start working. To start NWBC, double-click the shortcut icon on your desktop:



NWBC starts and displays either a logon dialog or a system selection dialog or it starts your application directly.

Logon Dialog

If you have already configured a system connection and have not changed the default setting for an active *Auto Logon*, then the logon screen is displayed the first time you open NWBC, or NWBC opens directly with the roles configured for your user.



Note that with an active <u>Auto Logon</u> [Page 43] setting, NWBC **always** uses the last used/active system connection which you have defined in your <u>system configuration</u> [Page 37].

Recent Favoritas Personalize Help	Search For:	Search (
	SAP NetWeaver System: B20 Clent * 000 User: * Password * Language: English Change Password Change Password	
	Copyright © 2007 SAP A.G. All rights reserved.	Log On to '820_4'
	SAP	

(Example of Logon Screen)

This is the logon screen provided by the generic logon application [External]. Enter your user name and password, and choose *Log On*. NWBC opens.

System Selection Dialog

With a deactivated Auto Logon [Page 43] setting, the system selection dialog is displayed.

Name	Description	Server
820		http://uscib20.wdf.sap.corp:50021/nwbc/
B20 Load Balancer		http://uscib20.wdf.sap.corp:8154/nwbc/
CRM test system	CRM latest release	http://vmw2917.wdf.sap.corp:50030/nwbc
Y12		http://ldciyi2.wdf.sap.corp:50026/nwbc
YI3		http://ldciyi3.wdf.sap.corp:50033/nwbc

(Example of System Selection)

On this system selection dialog, the last active connection is highlighted. You can easily access the system connection you need by selecting the corresponding entry in the list and choosing *Log On*. The following additional options are available:

- To create a new system connection, choose the icon (*New*). The usual system connection dialog is displayed where you can make your entries for a new system connection. For more information, see <u>3.4.1 Configuring Connections</u> [Page 37].
- To change an existing system connection, select the corresponding connection and

choose the icon <u>*Lfill*</u> (*Edit*). The usual system connection dialog is displayed where you can change the entries for a given system connection.

• To delete an existing system connection, select the corresponding connection and

choose the icon (*Delete*). A confirmation popup is displayed. If you choose *Delete*, then the system connection is deleted from the system selection dialog as well as from the system configuration dialog.

2.2 Shell Overview

NWBC consists of a **shell** and a **canvas** which is in the center and can contain different kinds of content. The shell is the frame consisting of the horizontal bar above and the vertical bar to the left of the canvas. Thus the shell is the inverted L-shape above and to the left of the canvas. It provides a wide range of functions such as <u>role-based navigation</u> [Page 19], <u>search functions</u> [Page 24], help, desktop integration, <u>menus</u> [Page 22] and branding (customer logo).

At the top of the screen is the menu bar where the extended functionality is placed, for example, a list of recently used transactions. Another example could be the access of online help from the menu. Search functionality is also centrally available to quickly find specific data of interest.

Chall	Personalize Help
STIEII arch Fo	r: In: All Content Search Advanced Log Off
Test Suite #1	Single Top Level Demo Product Data Account Management
Applications Web Dy	pro ABAP SidePanel Suggestion News Collaboration Performance
Sales Order	Sales Order
Employee Services	Frank Williams Classification: A-Customer Escalation Walldorf Web Page: www.megalowparts.com
Purchase Order CRM PCUI (mockup)	Pricing information Save Close
User Maintenance	Product Customer Contact
Work Process Overview	Product: 5878 Name of Customer: Frank Williams
Link Collection	Description: Pump shaft Telephone no.: +49(6227)7300
www.sap.com	Quantity: 100,000 ST E-Mail Address: frank.williams@
Sales Order with HTML	Price: 2.700,00 EUR Premium Customer:
Sales Order with Smart C	Delivery Date: 09.07.2009 Delivery Date: 15%
Customer logo	Supplier Name: Test 0815 GmbH, Freiburg Alternative Supplier Delivery Time: 004 Day Name: Test 4711 lnc, D Name of Contact: Manfred Maier Delivery Time: 004 Day Telephone no.: (123) 458-7890 Telephone no.: (776)678-9456 Fax number: (123) 458-7891 E-Mail Address: nicole miller@ter
	SAP

(Example of NWBC Shell)

In more detail, the shell presents the first two navigation levels at the top and then uses the left panel for additional levels of navigation. For more information, see <u>2.3 Navigation</u> [Page 19].

Search	r: [In: All Cont	tent	Search Adv	anced Log Off		
Test Suite #1	Single Top Level	Demo Product	Data	Account Management	- [▶ 4 35	 1st level navigation
Applications Web Dy	npro ABAP SidePar	el Suggestion	News	Collaboration Perfor	mance		 2nd level navigatio
Sales Order	Sales (Drder			Help A		
Employee Services Opportunities Purchase Order CRM PCUI (mockup)	Frank William Walldorf Pricing information	ns Classification: Web Page: on Save Close	A-Cust www.r	omer negalowparts.com	Escalation		
User Maintenance	Product			Customer Contact			
Work Process Overview	Product	5878		Name of Customer:	Frank Williams		
Link Collection	Description: Quantity: Price:	Pump shaft 100,000 ST 2.700.00 EUR		Telephone no.: E-Mail Address: Premium Customer:	+49(6227)7300 frank.williams@		
Sales Order with HTML					1		

3rd level navigation

(Example of navigation levels)

The visual design of NWBC is called the **signature design**. It has two main goals: it harmonizes the look and feel over all SAP products and it enables a modern desktop UI that provides a high-fidelity user experience. The overall design is similar to that of a picture frame. Each application is similar to a picture in its frame. This is primarily achieved with a **clasp** on both sides of the screen around the canvas area. Modern concepts such as rounded corners on the desktop are used to achieve a more natural look-and-feel and trigger a positive emotional response. The left-side clasp is extended to accommodate the more detailed levels of navigation. It can be resized and collapsed to provide more space for the canvas.

Search For:	:	In: All Content	Search Advanced	Log O
Test Suite #1 Si	ingle Top Level	Product Data A	Account Management	
pplications Web Dyn	pro ABAP SidePanel	Suggestion News C	Collaboration Performance	
Sales Order	Sales Or	der		Help A
Employee Services	Frank Williams Walldorf	Classification: A-Custom Web Page: www.meg	er E galowparts.com	scalation
Purchase Order	Pricing information	Save Close		
CRM PCUI (mockup)				
User Maintenance	Product		Customer Contact	
Work Process Overview	Product: 5	878	Name of Customer: Frank	Williams
		· - 100000000	<u> </u>	
Recent Favorites	Personalize Help			
Concernation of the second sec	renewing the second			
Caurch For		In: All Content	Court Advanced	Los O
Search For:		In: All Content	Search Advanced	Log Of
Search For:		In: All Content	Search Advanced	Log Of
Search For:		In: All Content	Search Advanced	Log Of
Search For: Test Suite #1	Single Top Level	In: All Content	Search Advanced Account Management	Log Of
Search For: Test Suite #1	Single Top Level	In: All Content	Search Advanced Account Management Collaboration Perform	Log Of
Search For: Test Suite #1	Single Top Level	In: All Content	Search Advanced Account Management Collaboration Perform Help Additional Inform	Log Of nance
Search For: Test Sulle #1 Applications Well Sales O Frank Williams	Single Top Level b Dynpro ABAP SideP rder classification: A	In: All Content	Search Advanced Account Management Collaboration Perform Help Additional Inform Escalation Status: Crit	Log Of nance ation ical
Search For: Test Suite #1 Sales O Frank Williams Walldorf	Single Top Level b Dynpro ABAP SideP rder s Classification: A- Web Page: w	In: All Content	Search Advanced Account Management Collaboration Perform Help Additional inform Escalation Status: Crit	Log Of nance ation ical
Search For: Test Suite #1 Sales O Frank Williams Walldorf Pricing information	Single Top Level b Dynpro ABAP SideP Inder s Classification: A Web Page: W 1 Save Close	In: All Content	Search Advanced Account Management Collaboration Perform Help Additional inform Escalation Status: Crit	Log Of nance ical
Search For: Test Suite #1 Sales O Frank Williams Walldorf Pricing information	Single Top Level b Dynpro ABAP SideP rder s Classification: A- Web Page: W 1 Save Close	In: All Content	Search Advanced Account Management Collaboration Perfore Help Additional Inform Escalation Status: Crit	Log Of nance ation ical
Search For: Test Suite #1 Sales O Frank Williams Walldorf Pricing information	Single Top Level b Dynpro ABAP SideP rder S Classification: A Web Page: W Save Close	In: All Content	Search Advanced Account Management Collaboration Perform Help Additional Inform Escalation Status: Crit	Log Of nance ation ical
Search For: Test Suite #1 Sales O Frank Williams Walldorf Pricing information Product	Single Top Level b Dynpro ABAP SideP rder S Classification: A Web Page: W Save Close	In: All Content Demo Product Data anel Suggestion News Customer ww.megalowparts.com	Search Advanced	Log Of nance ation ical
Search For: Test Suite #1 Sales O Frank Williams Walldorf Pricing information Product Product Product	Single Top Level b Dynpro ABAP SideP rder s Classification: A- Web Page: W b Save Close	In: All Content	Search Advanced Account Management Collaboration Perfore Help Additional Inform Escalation Status: Crit Frank Williams +49(6227)730000	Log Of nance ation ical
Search For: Test Suite #1 Test Suite #1 Sales O Frank Williams Walldorf Pricing information Product Product Description: Quantity	Single Top Level b Dynpro ABAP SideP Inder s Classification: A Web Page: W 1 Save Close 5878 Pump shaft 100.000 ST	In: All Content Demo Product Data anel Suggestion News Customer ww.megalowparts.com Customer Contact Name of Customer. Telephone no.: E-Mail Address	Search Advanced Account Management Collaboration Perform Help Additional Inform Escalation Status: Crit Frank Williams +49(6227)730000 frank williams@megalowd	Log Of mance ation ical
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(Clasp example)

The solid visual appearance of this area, which can also be collapsed and resized, draws the user attention to a more important navigation aspect, the **SAP home icon**. It takes the well-known home icon a step further by integrating the visual appearance of a modern office building into the look-and-feel of the software environment. Clicking on the home icon will navigate you to the home area.

Clicking on the logo on the bottom of the screen an about dialog is shown, displaying the current version of the client and the user name with which one is logged on.



(Example of About)

2.3 Navigation

At the top part of the shell all work centers are shown. The first work center is the home work center, symbolized with a modern office symbol. Here you find functionality that is more associated with the user in the specific business processes.



Overview Reports (Example of home work center)

The navigation controls for the work centers are situated within the right clasp. It is possible to scroll the list of work centers or see a complete list of available work centers.

	Search For:	[In:	 Search Log
	E	E	E	E
Project Management	Portfolio and Project	Portfolio Management	My Portfolio Objects	Resource Manageme

(Example of top-level navigation scrolling)

A selected work center is visualized by an open folder, similar to a real folder that has been opened on the desktop to work with.



(Example of open folder)

To navigate quickly to a specific entry inside the work center you can use the quick navigation within each work center. Just click on the arrow symbol.



(Example of quick navigation)

The left navigation panel allows a more detailed navigation for the specific work center.

Recent	Favorites	Personalize
	Search	For:
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Overview	Reports	
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Control F	lans	
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Vacant R	oles	
User Sett	tings	

(Example of left navigation)

The lower section (*Services* in the example) contains a collection of typical tasks that are common for the specific work center. Click on any of these entries to start the task. An animation is shown when NWBC is waiting for a server response. A click on an entry in the lower left section always opens a new window.

NWBC remembers the size and position of windows that have been opened previously. This way, when the same application window is opened again, it will be repositioned to the same spot as it had been occupied the previous time.

You can also open a second application window to look at the different data in parallel using shift+click on the application in question. Thus multiple windows can be displayed.

2.4 Canvas Types

NWBC can display different types of content inside its canvas area. Thus the canvas is the area that hosts the applications. It provides a unified environment with embedded rendering engines for the different types of applications. The signature design as frame forces these different technologies into a harmonized user experience.

All sorts of different applications run in the canvas, such as classical dynpros, Web Dynpro applications, Business Server Pages (BSP) applications, BI applications, etc. There are several rendering engines, one for each type of application that can run in the canvas:

Application	Rendering Engine
dynpro	SAP GUI or SAP GUI for HTML [External]
Web Dynpro	browser
BSP	browser
BI	browser
other	browser

2.5 Multi-Windows

By default new applications are loaded in the main window canvas. With a simple click the transaction itself is started. With shift+click on a menu item an application can also be started in a separate NWBC window, as in the browser. NWBC thus fully supports a multi-window paradigm.

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(Click and Shift+click)

You can open several separate windows. If you have activated the <u>Window Manager</u> [Page 43] option, the window manager helps you find your way in that it controls the appearance and placement of the different NWBC windows. Choose **P** Help \rightarrow Open Window Manager **4**.

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	WDR_TEST_HELP [Web Dynpro for ABAP]	IT05 (without Pattern Component)	SAP - SAP - Business Management Softwa

(Window manager example)

2.6 Menus

The Business Client menu allows quick and easy access to NWBC screens. The structure and content of the various menu entries can vary slightly depending on the product as well as on the configuration settings.



Favorites

In the *Favorites* menu there are functions for adding, displaying, renaming, and deleting entries of your favorites list. In addition, under *_Recent*, you can see a list of the last objects accessed by the user. By clicking on an item you can navigate to it quickly.

Favorites Personalize Help		-
Add to Favorites		
_Favorites		
Project User Groups	Portfolio and Project Administration > Overview	20
Portfolio Structure	Portfolio Management > Overview	My P
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Projects	Project Management > Overview	
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Projects	Project Management > Overview	tesponsit
Overview	Project Management	

(Example of Favorites menu)

Menu Entry	Action	
Add to Favorites	Adds the screen currently displayed in the application content area to the favorites list	
	Alphabetical list of screens that you have saved as favorites. You can carry out the following actions for each entry:	
Favorites list	Call: Click the required favorite to call it	
	• Rename: Choose the edit icon next to the name of a favorite to rename it	
	 Delete: Choose the delete icon next to the name of a favorite to delete it from the list of favorites 	

The rename and delete icons in the favorites list only appear when you pass the mouse pointer over the entry you want to change.

The favorites are stored in NWBC.fav in the file system on your local PC:

- Microsoft Windows XP: Documents and Settings\<user id>\Application Data\SAP\NWBC\NWBC.fav
- Microsoft Windows Vista and Microsoft Windows 7: <drive>:\Users\<user id>\AppData\Roaming\SAP\NWBC\NWBC.fav

Personalize

Personalize	Help		
Options	Ŀ	1 m. 1 m.	
Customize Pa	anels •	 Show Navigation Panels 	
E	ť	Use QuickLaunch instead of Searchbar	(Personalize)

In the menu entry *Options...* of the *Personalize* menu, you can make global configuration settings for the client. For more information, see <u>3.4 End-User Configuration</u> [Page 37] and <u>3.5</u> <u>Administrator Configuration</u> [Page 44].

In the menu entry *Customize Panels* you can specify that navigation panels are shown and that the <u>Quick Launch</u> [Page 25] is displayed instead of the search bar.

If you have specified your own menu entries for the *Personalize* menu, they will appear merged with the predefined standard entries. For more information, see <u>5.8 Menu</u> [Page 81].

Help

Po Open Help Center Show NWBC Documentation Show Shortcuts Show Shortcuts • Open Window Manager Alt+W P Enter Quick Launch Ctrl+Alt+N	ize	Help
Show NWBC Documentation Show Shortcuts Open Window Manager Alt+W P Enter Quick Launch Ctrl+Alt+N	n Fo	Open Help Center
Show Shortcuts Open Window Manager Alt+W P Enter Quick Launch Ctrl+Alt+N		Show NWBC Documentation
Open Window Manager Alt+W P Enter Quick Launch Ctrl+Alt+N		Show Shortcuts
P Enter Quick Launch Ctrl+Alt+N		Open Window Manager Alt+W
	Р	Enter Quick Launch Ctrl+Alt+N
About NetWeaver Business Client	5000	About NetWeaver Business Client

(Example of Help menu)

In the menu entry Help you can access the help system.

Menu Entry	Action
Open Help Center	Opens a window with the side panel in which you can call up the help center with the Knowledge Warehouse documentation for the application. For more information on the help center, see <u>Utilizing the Help Center for SAP</u> <u>Business Suite Applications</u> [External] and <u>Making the Help Center</u> <u>Available for SAP Applications</u> [External].
Show NWBC Documentation	Opens the complete NWBC documentation (PDF file)
Show Shortcuts	Lists all shortcuts (plus the corresponding functions) that are available
Open Window Manager	Only visible if you've activated the window manager. For more information, see <u>2.5 Multi-Windows</u> [Page 21].
Enter Quick Launch	Activate Quick Launch [Page 25] for one quick navigation
About NetWeaver Business Client	The same information about NWBC version, user name and backend system that is displayed if you click on the SAP logo at the bottom of the screen. For more information, see <u>2.2 Shell Overview</u> [Page 16].

If you have specified your own menu entries for the *Help* menu, they will appear merged with the predefined standard entries. For more information, see <u>5.8 Menu</u> [Page 81].

2.7 Search

Recent Fav	vorites Personalize	Help						
	Search For: SAP		In:	All Content	¥	Search	Advanced	Log Off

(Example of Search)

A search function is always available in the top area of the Business Client. There are three types of search:

- Enterprise search: Integration of SAP Enterprise Search, if configured (available from SAP NetWeaver 7.02 onwards).
- External search: Search providers that have been configured in advance via the <u>search</u> provider [Page 40] settings for the client or in PFCG (<u>5.8 Menu</u> [Page 81]) for the server.
- **Desktop search**: Standard Microsoft search option that is always available with Microsoft Vista and that is an optional installation component of Microsoft XP with service pack 2.

In Search For: enter the search term and choose Search. To further refine the search, select a category where the search should be carried out via the F4 help on the *In*: field. Then the text search is carried out in the category specified.

If you just choose *Search* without entering a search string, then the search dialog is displayed in a separate window.

The categories that are shown have been configured for the client in the <u>search provider</u> [Page 40] settings and for the server in PFCG (<u>5.8 Menu</u> [Page 81]). You can either select an entry in the dropdown list for the categories, or use the keyboard to enter a search term. For example, if you type in a b, the first entry that starts with B is automatically selected. The search results are listed in the separate search/results window. In the results window you can see the status of the search, the search query URL as well as further information on the separate search results.

Advanced Search		Basic
Search For: SAP	Category: All Content	
To search for a specific object type, select a query f	form. Query Form:	
Search Clear Save Query Saved Query:	Colors Courses	Hide Query
Results in All Content (~99.505)		Search URL Search Status
Narrow Down To FAQs - new (B20CLNT000) (~3) KW	(content 6 (B20CLNT000) (~99.502)	
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Identifier: 1	Application (HTML): CRM_LEAD Rele	ase (HTML): 676
Industry Release (HTML): 500	MIME type:	

(Example enterprise search results)

2.8 Navigation Panels and Quick Launch

You might prefer to have all the shell, i.e. the navigation structure, left navigation as well as toplevel navigation, be blended away, so that the canvas area will have more space. To achieve this choose \blacktriangleright *Personalize* \rightarrow *Customize Panels* **4** and uncheck *Show Navigation Panels*.

In addition, there is a new feature to allow a quick navigation. This second form of navigation is optional and can be used either as enhancement of the normal navigation or as replacement of the normal navigation (for power users). You can display a **quick launch** where you can trigger a search and you can quickly navigate within NWBC. To achieve this choose Personalize \rightarrow Customize Panels and check Use Quick Launch instead of Search Bar.

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Favo Narig	rites Personalis pate: fling flin	Help Help Finish: 31 122010 RFancts: Search Op Project Number Project Number Project Number	Periodi Monto Periodi Monto Periodi Monto Open Salected Open Sal	Net: Hour Total for Penod S9,00 36,91 22,09 C S S S S S S S S S S S S S	Overview > • Aegyry skcutars - 55,00 6,00 36,91 0,00 36,91 0,00 36,91 0,00 3 - 3 -	Staff Show / FEB 10 0,00 0,00	Ing All Periods MAR 10 0,00 0,00	Favorit APR 10 0,00 0,00	es: Show MAY 10 0,00 0,00	L = 44 - 44 - 44 - 44 - 44 - 44 - 44 - 4	JUL

(Example of NWBC with and without navigation panels and quick launch)

The basic idea is that for power users there is an input field where a type-ahead input can be done to find any entry within the navigation tree. Type in a query string in the quick launch and all matches in all roles are displayed. You can now start a search in all categories that have been configured or, in case of a transaction in an ABAP system, start the transaction in the ABAP system directly, or you can navigate to the work center listed below.

Note that in quick launch the search for transactions is **case-sensitive**. If you are not sure whether the transaction you are looking for begins with an upper case letter or not, you could always begin your search with the second letter in lower case. Usually, this will lead to the results you require. For example, when searching for Infosatz (ME11), you could search for nfosatz instead, and the result will be ME11 or Infosatz hinzufügen. In this context, note that the search in the normal navigation tree is not case-sensitive, but camel case is supported.

The sort order of the quick launch is as follows: In the first section you can navigate to an URL directly via *Navigate to Web Address* if you've typed in an URL in the format www.xyz.com:



In the next section you can start a search in your pre-defined search providers. Then all transactions are displayed. You can start every transaction in the ABAP system directly. The second section shows the recently opened and favorite entries. And after that every match is ordered alphabetically. With a click on the matching item you can open the corresponding application.

Also a breadcrumb-like navigation is available that shows the path to the actual canvas and enables relative navigation at any level (press on the > button to select another sibling).

Navigate:	por	N > Portfolio Management > 0	verview > F	Portfolio Structure	e Log
	Navigate to Web Address	48.			
	Q. Search for 'por' in		-	F	
ortfolio Management My	b Start Transaction 'por'	ane (jane) Sensystem (sensus prime Parikas	and Project	Transactions	
verview Reports	Favorites and Recent Items				
4	Portfolio Structure	Portfolio Management > Overview			
Portfolio Structure	Portfolio Initiatives	Portfolio Management > Overview			
Decification Hierarchier	Portfolio Items	Portfolio Management > Overview			
Portfolio Items	Portfolio Items	My Portfolio Objects > Overview			
Portfolio Initiatives	Standard Navigation Items				in the lines
Reviews	Portfolio and Project Adm	inistration			
Collections	Portfolio Initiatives	My Portfolio Objects > Overview			
conections	Portfolio Initiatives	Portfolio Management > Overview		Canacity	
Services	Portfolio Items	My Portfolio Objects > Overview	Capacity	Period	Status
Jser Settings	Portfolio Items	Portfolio Management > Overview	1	Breakdown	
Search	Portfolio Management Ter	mplate Portfolio and Project Administration > Overview	Days	Monthly	Active
subsulutes	Dortfolio Management	183 HANDAS 16 16 2006 55 20 16 Monitory	Days	Monthly	Active
	Portfolio Structure	Portfolio and Project Administration > Overview	Days	Monthly	Active
	Portfolio Structure	Portfolio Management > Overview	Days	Monthly	Active
	Portfolios	Portfolio and Project Administration > Overview	Days	Monthly	Active
	My Portfolio Objects	10036786 CELU2006CR3.52.44 - Rockey	Days	Monthly	Active
	 Reports 	Applications	Days	Quarterly	Active
	 Reports 	Portfolio Management			
	ABAP Transactions				
	B /EACC/DOC_REPORT - Do	ocument Display			
Sand Control and Control Contro	/EACC/JOURNAL_REPORT	- Journal Report			Þ
	/ISDFPS/PORT_SWITCH -	Switch Ports for ALE Partner Profile			
	b /osp/tr_tp_report - L	ist of Reports Scheduled for TP			
	WebDympro Applications				
	PORTALHC APPLICATION	I - Help Center			
	/RPM/PORT_STRUCTURE	CHART - Portfolio Structure Chart			
	CONFIGURE COMPONEN	T OLD - Old version of the transport connection			
	A FOU FNC MU TRANSPOL	T Medelling III: Transport Management			

(Quick launch example in PLM with query string por)

Special Features

There are a few special features in quick launch that can help to improve productivity even more:

- It is possible to use the same /n or /o sequence from SAP GUI to launch a SAP GUI transaction, for example /oME21 is possible.
- It is possible to start directly a new web page from quick launch by just typing in the address, for example www.sap.com or http://www.sap.com.
- Within quick launch, a **normal click** starts the selected application into the main window, whereas a **shift-click** opens a new window.

2.9 Logging Off

When you have finished working with NWBC, log off by choosing *Log Off* or the *X* icon in the top right-hand corner of the screen.



This will close all active windows, terminate all sessions and close all applications in NWBC.

2.10 Connecting to Different Systems

When starting NWBC, it always uses the system connection from the last time you used it. For more information, see <u>3.4.1 Configuring Connections</u> [Page 37].

If you need to connect to a different system, note that the current system connection will be closed. To connect to a different system, proceed as follows:

- 1. Choose Personalize \rightarrow Options \blacktriangleleft .
- 2. On tab *Connections* select the system you wish to connect to and choose *Connect* (*Restart*). NWBC is started with the new system connection.



It is only possible to connect to **one** server at any time. Should the connection be changed to a different system, then NWBC will also do a complete new authentication step and load all relevant shall data new.

2.11 Extended Supportability

With a control click on the *Help* menu you are offered functions for extended supportability. These functions are intended for administrator users and support specialists. They are not relevant for normal use and are therefore not documented in further detail. However, just as an example of the type of functionality provided a few entries are highlighted and explained here.

Help	
Open Help Center Show shortcuts Open Window Manager Alt+W Show QuickLaunch Ctrl+Alt+N	Search Advanced Log 0
About SAP About NetWeaver Business Client	Web Dynpro ABAP
Extended Supportability	Create Support Report
and download an enrollment form. Display your salary statement.	Client Information Server Information Statistics
ITS - Transport Organizer Tools Transport Organizer Test PDE	Show Canvas in External Browser Start Shell in External Browser
User Maintenance Homepage Object Navipator	Clean-up Check Installation
 Object wavigator 	Special Switches

Create Support Report

All the information from the menu items described below plus some optional explanatory text will be gathered together, so that it can be sent to a support person per e-mail or stored in a zip file and attached to a problem ticket.

reate Support Report	
Select the support items to include in the report	1
✓ Overview	
Client Information	
Loaded Navigation Tree	
Runtime Traces	
Shell Traces	
✓ Statistics	
I ABAP Troubleshoot Information	
P (♥) Windows	
Additional notes	
1	1
	Send E-Mail Save to Disk Cancel

(Create Support Report)

Client Information

A huge amount of client data displayed which will help with support issues. You can store this information in a zip file and attach it to a problem ticket.

erver Information	
perating System	
Name	Value
Description:	Windows Vista Service Pack 1 v6.0.600
BuildNumber:	6001
OSCSDVersion:	Service Pack 1
OSMajorVersion:	6
OSMinorVersion:	0
OSPlatformId:	Win32NT
OSPlatformIdString:	Windows NT
OSVersionString:	Windows Vista
Platform:	3
ProductType:	1
SuiteMask:	256
Version:	6. 0. 6001
VersionString:	6. 0. 6001
ocess imory ocess Time addd Libraries (179, Total M	em Load: 184MB) and other important modules
ouded cloraties (175, Total in	en coad. Towno) and other important modules
nvironment Variables	
ystem Parameters	
isolay Configuration (96dpi)	

(Example of client information)

Server Information

All relevant server-related data is displayed in a separate window which will help with support issues. This information is also stored in the supportability zip file. For more information, see 4.7 <u>~test Page</u> [Page 62].

Show Canvas in External Browser and Start Shell in External Browser

These two functions help with troubleshooting. They reduce complexity with attempts to reproduce errors without requiring a specific version of NWBC to be installed. Thus support groups within SAP are enabled to faster reproduce errors. If the NWBC shell and canvas can be displayed in any browser stand-alone, then the probablity is high that a possible error is not an NWBC but an application error.

Recent Favorites Personalize	Help
Search For:	In: All Content Search Advanced
Extended Supportal	bility 🗁 🖆
Top WorkCenter Folde	New Product Data Demo
* Transactions Show Cany	ras in External Browser
Class Buik er	¥
Object Na igator Role Main enance	Fop WorkCenter Folder - Windows Internet Explorer
> Programs 0	Google Search
You Can Alse	😭 🛠 🛃 Top WorkCenter Folder 👘 🖓 👻 🗟 👻 🖶 🔹 🔂 Page 🕶
User Maintena ice	
	Transactions Programs Reports • Transport Organizer • Google • SAP
	Class Builder WDA Test IT05 Object Navigator
	Role Maintenance
	Cocal intranet Protected Mode: Off
	External Browser
	Top work-enter Polaer - windows internet explorer
	★ ★ Top WorkCenter Folder
	SAP BUSINESS CLIENT
	Top WorkCenter Folder Top2 NEW HOME New Product Data Demo
	Top WorkCenter Folder
	> Transactions
	> Programs
	Transactions Programs Reports • Transport Organizer • Google • SAP
	Class Builder WDA.Test IT05 Object Navigator
	Role Maintenance
	🗣 Local intranet Protected Mode: Off 🖉 100% 👻

Examples of starting shell and canvas in external browser)

2.12 NWBC for HTML

NetWeaver Business Client for HTML (NWBC for HTML) is a light-weight version of NWBC with zero footprint. It is aimed for casual users of NWBC and offers a subset of functionality for the desktop.

The look and feel of NWBC for HTML is very similar to NWBC for Desktop. Thus, the functions available to the individual users also depend on the PFCG roles that are assigned to the users. As with NWBC for Desktop both shell and canvas are available, but with no quick navigation, no menu entries, no QuickLaunch, etc.

NWBC for HTML is ABAP only. It uses exactly the same URL as NWBC for Desktop. See also <u>4.8 ~launch Page</u> [Page 63] and <u>4.9 Transaction NWBC</u> [Page 64].



(NWBC for HTML)

3 Installation and Client Configuration

To ensure that the NetWeaver Business Client (NWBC) functions smoothly in an ABAP or a portal environment, a number of installation and configuration steps need to be performed.

This chapter will look at all aspects concerning the installation of NWBC, either stand-alone or together with SAP GUI. In addition, the typical end-user configuration steps are described.

- <u>3.1 Desktop Installation</u> [Page 33]
- <u>3.2 Installation together with SAP GUI</u> [Page 34]
- <u>3.3 Windows Terminal Server Installation</u> [Page 36]
- <u>3.4 End-User Configuration</u> [Page 37]
- <u>3.5 Administrator Configuration</u> [Page 44]
- <u>3.6 Using NWBC with a Load Balancer</u> [Page 46]

3.1 Desktop Installation

Prerequisites

Operating System

The NWBC is currently only available for the following Microsoft Windows platforms:

- Microsoft Windows XP SP3
- Microsoft Windows Vista
- Microsoft Windows 7

Hardware

• If you want to use the NWBC, the hardware prerequisites are the same as for the SAP GUI.

You can find more information at \blacksquare <u>http://service.sap.com/instguidesnw70</u> \rightarrow SAP NetWeaver 7.0 (2004s) \rightarrow Installation \rightarrow Installation - Clients \rightarrow SAP Frontend Installation Guide \P .

See also SAP Note 26417.

- We recommend the same hardware requirements as for Microsoft Windows Presentation Foundation (WPF) applications. For more information, see http://windowsclient.net/.
- We recommend at least 1 GB memory. The actual memory consumption depends on the number of windows open.
- We recommend a minimum screen size of 1024x768, though your screen should preferably be larger.

Software

- SAP GUI 7.10 (and higher) with at least Patch Level 15
- Microsoft .Net 3.0 at a minimum, highly recommend Microsoft Net 3.5 SP1.
- If you use Microsoft Windows XP, you need to install Microsoft Hotfix 919477 [Page 118].
- If you intend to use the Web Dynpro ABAP UI elements <u>Network</u> [External] and <u>Gantt</u> [External], you need the Java Runtime Environment (JRE) 1.6.11 (see <u>http://www.java.com/downloads</u>).

Note that 64-bit JDK is **not** supported.

Keep in mind the security issues described in Security Aspects [Page 116].

If you have already installed an older NWBC version, we recommend you deinstall it using Add or Remove Programs (in Windows Control Panel), and then install the current version. Although not recommended, it is possible to have NWBCv1.0 and v3.0 installed in parallel.

All users who want to run applications in the NetWeaver Business Client (NWBC) need to have an NWBC installation on their computer, or access to a Windows Terminal Server with a Business Client installed.

Proceed as follows to install the NWBC on your computer.

- 1. Close all open front-end applications.
- 2. Open the setup file by double-clicking it in the installation folder.

The installation wizard opens.

- 3. Follow the on-screen instructions to complete the installation.
- 4. Your desktop now has a shortcut for starting NWBC on your computer:



3.2 Installation together with SAP GUI

Apart from the method of having every end-user installing the NWBC on their computer, there is also the possibility of installing the NWBC without end-user interaction, namely by installing the NWBC front-end in an automated process. Thus, the NWBC can be added to an existing 7.10 SAP GUI installation server.

This unified procedure allows the administrator to collect many SAP front-end components (or front-end products) on an installation server, and then perform installations, updates or un-installations on workstations via a network.

Proceed as follows:

 To create an installation server on your computer, take a SAP GUI 7.10 CD and start setup\NwCreateInstServer.exe.
 The SAP NetWeaver Installation Server wizard starts.



(installation wizard)

- 2. Follow the steps outlined in the wizard and choose an adequate directory on your computer, for example, C:\TestServer.
- 3. Take the xNwBc.exe which you can download from the SAP Service Marketplace and start xNwBC.exe /CreateServer to add the contents of the xNwBC to the existing SAP GUI 7.10 installation server.
- 4. Follow the steps outlined in the subsequent dialogs.
- 5. Enter C:\TestServer in the folder path dialog.
- 6. Start C:\TestServer\SetupAll.exe to see that NWBC is now part of the installation source.



(NWBC as part of SAP GUI installation)

7. Select the option for the SAP NetWeaver Business Client and follow the steps in the installation wizard.

More Information

For further information about adding the NWBC to the installation server, see *Front-End Installation Guide*, which is stored in the Docu directory on the CD as well as the guide *NetWeaver SAPSetup – SAP's Front-End Software Deployment Tool* (Workstation Installation Help.chm).

3.3 Windows Terminal Server Installation

Prerequisites

- You need local administrator rights on the WTS to perform any installation.
- To prevent possible screen flicker issues on WTS, it is absolutely required to install and apply the Microsoft hotfix 955692. For more information, see http://support.microsoft.com/kb/955692/en-us. The equivalent Citrix hotfix reference is CTX121354.

It is also possible to install NWBC centrally on Windows Terminal Server (WTS) farms which endusers can access.

You have to log on to the WTS as local administrator to perform the installation. The installation is always done in **install mode**. If you switch the WTS into install mode additional registry entries will be maintained during the installation process, and the environment will be prepared for multiuser environments. For more information, see

http://www.msterminalservices.org/articles/Managing-User-Specific-Application-Configuration-Data-Terminal-Service-Environment.html

For end-users the NWBC works only after a **domain user** has logged on as administrator via Independent Computing Architecture (ICA) and has started the NWBC in install mode at least once. Usually, the local administrator can do this. It is also possible to install NWBC via Remote Desktop Protocol (RDP) as administrator.

The number of NWBC sessions that can be supported on a WTS server is very dependent on the typical usage pattern, for example whether SAP GUI or Web Dynpro applications are run, and the number of open windows. NWBC is also an application with an extensive use of graphics, which could cause an additional load on the WTS servers.

After having installed the NWBC, the administrator performs configuration settings. For more information, see <u>Administrator Configuration</u> [Page 44].
3.4 End-User Configuration

You must configure NWBC on your client for the first logon.

- Start NWBC by double-clicking the appropriate icon on your desktop. This automatically connects the NWBC with the default connection. If you need to log on, for example when logging on to the Business Client initially, a small logon screen appears in this dialog box. This is the logon dialog box for the generic <u>system logon</u> [External].
- 2. Enter the necessary logon data.

The dialog box closes automatically once the logon process is complete and the content has been fetched. The Business Client starts.

- You select the current system and configure systems in a configuration dialog box that you reach using the menu in the NWBC. Choose
 Personalize → *Options... Personalize* → *Options... Personalize Personalize* → *Options... Personalize Personalize Personalize Personalize Personalize Personalize Personalize Personalize Poptions... Personalize Personalize*
 - o <u>3.4.1 Configuring Connections</u> [Page 37]
 - o <u>3.4.2 Configuring Search Providers</u> [Page 40]
 - o <u>3.4.3 Configuring Support Information</u> [Page 41]
 - o <u>3.4.4 Configuring Personalize Settings</u> [Page 43]

You can specify that a certain setting will be taken as default setting via Set as Default in the context menu.

3.4.1 Configuring Connections

NWBC can have one or more connections defined to different servers. A connection contains all relevant data that is required to communicate to a server to retrieve all the relevant roles for a user. As NWBC, as shell, uses HTTP connections for its server communications, the connection data itself is also defined as an URL.

Although it is possible to define a number of connections, it is only possible to have **one** connection active at the same time. If a new connection is started to a different system, then NWBC will also be restarted to clear all cookies that are stored in process.

The connection data is usually provided by the system administrator and should just be configured.

You select the current system and configure systems in a configuration dialog box that you reach using the menu in the NWBC.

Choose \blacksquare Personalize \rightarrow Options... \P . The configuration dialog box opens.

B20	- Name:	CRM test system
CRM test system		
Y12 V13	URL:	http://vmw2917.wdf.sap.corp:50030/nwbc
	Type:	ABAP
	Client:	
	Language:	
	SAP GUI Logon System:	SYS [PUBLIC]
	Comment:	CRM latest release
	Assistance Panel Url	[

(Example of System Connection)

Setting	Description
Name	A symbolic name for the connection. The name must be unique over all connections.
	This is the HTTP URL that is needed to connect to the server.
URL	The server name must include a fully qualified domain part as well. The complete syntax for the URL is:
	http(s):// <server>.<domain>.<ext>:<port>/<path></path></port></ext></domain></server>
	The protocol is either http://or https://. For the server name, the complete domain and extension must be provided, for example, for a server at SAP, the complete string would be theServer.sap.com. Optionally a port can be defined if the default port of 80 for HTTP and 443 for HTTPS is not used.
	The path is usually either /sap/bc/nwbc for an ABAP-based connection, or /irj/portal for a portal-based connection.
Туре	It is possible to connect with NWBC either directly to a single ABAP server (connection type <i>ABAP</i>) or to a portal server (connection type <i>Portal</i>).
Client	Only visible for a connection to an ABAP system. This is the 3-digit client to which should be connected, for example 000.
Language	Language of the UI of NWBC.
SAP GUI Logon System	Only visible for a connection to an ABAP system. This is the system description as defined in SAP Logon. Note that this must correspond exactly to what is specified in SAP Logon. The value of this entry must be 100% identical to the name used in SAP Logon, otherwise settings cannot be found and used by NWBC.

Setting	Description			
	Configure and test this system description via double click in SAP Logon. If it does not work in SAP Logon, it can never work in NWBC.			
	For example, if you have an entry SYS [PUBLIC] in SAP Logon, and if you configure this entry just like this here, then the corresponding SAP Logon settings are used for NWBC connections. This setting causes all SAP GUI sessions to be processed with the configured SAP Logon settings, like SAProuter, group selection, etc. For information on SAP Logon configuration, press F1 on the SAP Logon window and the documentation will be displayed.			
	Thus, features like group selection (load balancing) or SAProuter are also possible. For more information on load balancing, see <u>3.6 Using NWBC with a Load Balancer</u> [Page 46]. All the SAP Logon settings will work for NWBC with the exception of <i>Secure Network Settings</i> .			
	Another example would be if you have specified the NWBC connection via the SAP Logon entry XYZ [PUBLIC] and this entry XYZ [PUBLIC] is configured to work with SNC in SAP Logon, then this setting will force SNC Logon instead of SSO2 Logon.			
	Shortcuts Systems Description System Description Back Documentation Developm B20 [PUBLIC] NVW 8.0 Basis Tools Developm B28 [PUBLIC] SAP Basis Developments B28 [PUBLIC] SAP Envolution B28 [PUBLIC] SAP Basis Developments B28 [PUBLIC] SAP Envolution B28 [PUBLIC] SAP Envolution B28 [PUBLIC] SAP Envolution SYS [PUBLIC] SAP Envolution SYS [PUBLIC] SAP Basis Developments SYS [PUBLIC] ISP ERP2005 DB2 -Produ SYS [PUBLIC] NW 7.0 Consolidation 7.0t SY12 [PUBLIC] NW 7.0 Consolidation 7.0t SY12 [PUBLIC] SAP_BASIS 7.31 System Systems Image Item Change Item Image Item Event Item Image Item For help, press F1 (Example of SAP Logon)			
Comment	A user-defined comment that can contain any textual information. This is typically used to write a few descriptive words about the system.			
Assistance Panel Url	for further enhancements			

3.4.2 Configuring Search Providers

By default NWBC will load a list of search engines from the server if configured (see chapter <u>5.8</u> <u>Menu</u> [Page 81]). However, it is also possible to locally configure additional search engines that can then be used exactly in the same way as the other search engines integrated (for example the desktop search). For each search provider, it is only possible to define the startup URL that should be called with the query string. Such a search engine will then be started in a new window.

	tome.	SHP
	Anemonic:	a
S	earch URL:	http://www.sap.com/search/index.epx?q1={0}

(Example of Search Providers)

Name	Description
Name	The name of the search engine that is integrated. This is the name that will be displayed in the list of all search providers.
Mnemonic	Shorthand symbol that can be selected as search location in Quick Launch.
Search URL	The URL that is used to start the query on the search engine. It must be the full URL as it would usually also be entered in a browser to start a query. Use the sequence {0} within the URL to mark the position where the search string should be placed. For example: http://www.sap.com/search/index.epx?q1={0}

In the Business Client menu your search providers are integrated in the standard search menu.

Search For: In:	All Content	▼ 5	earch	
Data Demo Product Data	All Content Help Center (test) Help Pages (test) Products Google Wikipedia Yahoo Desktop Search		thasing	
	SAP			

Navigate:	se80	>
	Navigate to Web Address	
	Q, Search 'se80' in +	All Content
Top WorkCenter Fol.	B Start Transaction 'se80'	Help Center (test)
		Help Pages (test)
		Products
		Google
		Wikipedia
		Yahoo
		Desktop Search [d]

3.4.3 Configuring Support Information

This tab contains diverse settings that can help in trouble shooting situations.

Choose \blacksquare Personalize \rightarrow Options... \P and then Support.

Trace Level:	Error
Trace Components:	☑ Runtime
	✓ Shell ✓ CCTS
	Veb Dynpro Cli
	 ✓ Network ✓ Scripting
Enable Protocol Optimization:	V
Enable Delta Optimization:	•
Ignore Invalid Server Certificates:	
Warn Before Running Script:	V

(Example of Support settings)

Name	Description
Trace Level	A trace file contains information about errors occurring during NWBC runtime. Depending on the trace level set, the trace file also contains additional information that can help developers isolate a specific problem.

Name	Description
	Set the required trace level. Error is the default setting.
	Trace files are saved in a subdirectory of the personal files directory on the computer of the logged-on user under C:\Documents and Settings\ <user name="">\My Documents\SAP\NWBC\. Trace files are all called NWBC*, for example, NWBCClient.trc.</user>
	Possible settings are:
	Verbose: Highest trace level
	Details: Information about internal processes
	Information: general information
	• Error: only errors (default setting)
Trace Components	You can select or deselect the trace components which ought to be included in a trace.
Enable Protocol Optimization	This protocol optimization refers very specifically to the XML data stream that is used by Web Dynpro to drive the native rendering engine within NWBC. With this option, very specific caching features are enabled, allowing both the client and the server to systematically start to cache parts of XML communication to improve the bandwidth usage.
	It is recommended to leave this setting by default on, unless asked to turn it off in case of unexpected side effects.
Enable Delta Optimization	This option helps to improve performance and is activated by default. Delta optimization refers to view-based delta rendering that improves performance of user interaction in complex applications when only a part (view) of the displayed page has to be updated. Only the view that has been changed is newly rendered. If several views have been changed, the view rendered is the one containing the changed views and any views beneath it, which means that only a certain part of the page is replaced. For more information, see <u>Delta</u> <u>Rendering in Web Dynpro ABAP</u> [External].
lgnore Invalid Server Certificates	Part of the HTTPS connection setup, is the exchange of digital certificates between the server and the client. It can happen that the client receives a certificate from the server that can't be accepted, because it has expired or because it can't be validated. The user is informed to make a final decision on whether to continue with connection establishment or to break off the connection. With this checkbox it is possible to instruct NWBC to always continue with a HTTPS connection, even if the certificate should be invalid. By default, this checkbox is not set. Only set it for a trouble shooting analysis to eliminate possible certificate-related issues for trouble shooting connection related problems.
Warn Before Running Script	Activate that a warning message will be displayed when starting NWBC via a Visual Basic script.

3.4.4 Configuring Personalize Settings

You can make different configuration settings which help you personalize the design of the Business Client. Choose Personalize \rightarrow Options Personalize.

		- I - offeri			
Theme:	Standard		-]		
Font Size:	Smaller -	100 %	Large	ar	
Animated Focus:	•				
Window Manager:					
Accessibility:					
Auto Logon:					

(Example of Personalize)

Name	Description
Theme	
Font Size	Use the slider to increase or decrease the font size.
Animated Focus	This option improves the display of the active focus. A red frame is displayed around the focussed screen element. When the tab button is pressed, the focus and the red frame moves to the next element.

Name	Description
Window Manager	In the Business Client <i>Help</i> menu a window manager is offered which helps the user to control the placement and appearance of Business Client windows. The user can access the window manager via \blacksquare <i>Help</i> \rightarrow <i>Open Window Manager</i> \clubsuit . The window manager shows all open windows and lets you change the appearance and placements of the windows.
Accessibility	Use this option for accessibility mode enabling. Accessibility mode means that the rendered HTML pages contain additional HTML coding which provide input for screen readers.
Auto Logon	This option is activated per default. With this option activated, NWBC automatically logs on to the last used/active system connection. For information on system configuration, see <u>3.4.1 Configuring Connections</u> [Page 37]. If you deactivate this option, NWBC displays a system selection screen, just like the normal logon screen, where you can choose between all systems that have been configured. In addition, on the system selection screen you can change or delete existing connections or create new ones. For more information, see <u>2.1</u> <u>Starting NWBC</u> [Page 14].

3.5 Administrator Configuration

You can carry out every configuration setting in the administrator mode.

Fixed settings can be specified in the administrator mode, which the end user cannot change. For example, an administrator may specify a fixed set of possible system connections or search providers that the end user cannot delete or overwrite.

Registry Entries

All configuration settings for the system connections are stored in the registry. Individual user settings are in HKEY_CURRENT_USER under the following path:

HKEY_CURRENT_USER\Software\SAP\NWBC\Settings\Pages\RuntimeConnections\

Configuration settings which have been set up by an administrator for a group of users are under HKEY_LOCAL_MACHINE under the following path:

HKEY_LOCAL_MACHINE\Software\SAP\NWBC\Settings\Pages\RuntimeConnections\

For 64 bit machines the path is thus:

 $\label{eq:hkey_local_MACHINE\Software\Wow6432Node\SAP\NWBC\Settings\Pages\Runt imeConnections\$

You can only save information in HKEY_LOCAL_MACHINE if you have administrator authorization. Values here take precedence over user values.

Each connection entry follows the naming convention: BAG_<unique id>.

Example:

HKEY_CURRENT_USER\Software\SAP\NWBC\Settings\Pages\RuntimeConnections\BA G_1AF211CD4109FC4383EDBCACB947431A

>-iii Hewlett-Packard ▲ >-iii Intel ▲ >-iii Macromedia >-iii Microsoft >-iii Network Associates >-iii ODEC	Name (Default ab) COMMI ab) NAME ab) URL	Type) REG_SZ ENT REG_SZ REG \$Z REG_SZ REG_SZ REG_SZ	Data (value Anoth Test2 http://	: not set) eer test //dciyi2.wdf.sap.corp:500	26/nwbc/	
Policies ACF Converter Dougles General Dougles Tremplate	Optio	ns - Administrator Mode Connections Sea	rch Providers	Support Persona	lize	iø
ITSConverter WVBC Settings Bages MumeConnections BAG 037E58360108F54A55EA1809A7384615 BAG 08CD802F45F4FC4FA48899A6666E417F		Lest2 Test3		URL: Type: Client: Language:	http://ldcivi2.wdf.sap.corp:50026/nwbc/ ABAP	00 • 00
AG-9887EE70CDE7784DAAAF48F82FE57947	< \Ru			SAP Logon System: Comment: Assistance Panel Url	Another test	න න න

(BAG example in HKEY_LOCAL_MACHINE)

Basic connections can be rolled out as part of the build (SAPSetup) by an administrator, so that after the installation of the software registry entries with the basic connection details are distributed. For this an administrator has to define installation packages on an installation server and then define event scripts for the installation packages. He can then set the keys there. For more information, see the chapter on *Configuring Packages and Scripting Events* (page 23) in the SAP GUI 7.10 Installation Guide.

How to Switch to Administrator Mode

- 1. Open the NWBC.
- 2. Press CTRL and select Personalize \rightarrow Administrator Options... \P .

Note that this menu item appears only if you press the CTRL button.

- Configure the settings you want to preset for all users. Proceed as described under <u>3.4</u> <u>End-User Configuration</u> [Page 37].
- 4. Save your settings.

In the administrator mode you can see a *Define* button for several settings, for the *Support* settings, for example. With this button an administrator can determine a certain setting which can then no longer be changed by the end-user. After a setting has been defined, an undo icon is displayed next to the setting control. With this undo icon the setting can be restored to the previous value.

Prerequisites

You need to have administrator rights in order to switch to the administrator mode.

3.6 Using NWBC with a Load Balancer

If a load balancer is available within the network, then it can be used directly with NWBC. Instead of configuring a direct URL on a specific application server, change the URL that NWBC is configured to use, to be directly that of the load balancer. On startup, NWBC will trigger a first HTTP request to the load balancer that will then redirect to an application server. For the duration of the NWBC session, it will communicate only with this specific application server. All applications started, will be against the assigned application server. (This is similar to a typical SAP GUI session that will stay on the same assigned application server and start all new windows against the same server.)

Specifically in the case of NWBC for Desktop, the caching of navigation data is done against an ABAP system (AS ABAP), and not against a specific application server. As such, should the load balancer on a next start of NWBC for Desktop assign a different application server, it will not invalidate the cached data.

It is **highly recommended** to use **SAP Web Dispatcher** as load balancer, as it also has intrinsic information about HTTP traffic that can be used to better route all subsequent HTTP requests onto the same application server.

B20	Name:	B20 Load Balancer
B20 Load Balancer CRM test system	URL:	http://uscib20.wdf.sap.corp:8154/nwbc/
¥13	Client: Language: SAP GUI Logon S Comment: Assistance Panel	Load Balancer URL

(Load Balancer Example)

Transaction <u>NWBC</u> [Page 64] will by default start NWBC for HTML or the <u>~launch</u> [Page 63] page against the same AS ABAP application server. However, the transaction NWBC will also consider all information available about an external Web Dispatchers, or message server used as load balancer, if configured within the HTTPURLLOC table. Within the HTTPURLLOC table, configure an entry for application = /NWBC/* to explicitly influence the URL generation of NWBC. With such an entry configured, the startup URL will be changed to reference directly to the configured load balancer.

• _	- 4 🗉 © છ	S -
Data Brows	er: Table HTTPURLLO	C 1 Hits
🗅 🖉 🗞 😒 🕻	Der val	И () () () () () () () () () (
MANDT SORT	KEY PROTOCOL APPLICATN F	OR_DOMAIN HOST PORT
000 123	HTTP /NWBC/*	USCIB20.WDF.SAP.CORP 8154
	Columna .	Outlints
	Column	Contents
	MANDT	000
	MANDT SORT_KEY	000 123
	MANDT SORT_KEY PROTOCOL	000 123 HTTP
	ANDT SORT_KEY PROTOCOL APPLICATN	000 123 HTTP /NWBC/*
	MANDT SORT_KEY PROTOCOL APPLICATN HOST	000 123 HTTP /NWBC/* USCIB20.WDF.SAP.CO

(Example entry in table HTTPURLLOC)

Note that you can also use load balancing settings of the SAP GUI if you enter the corresponding system name **exactly** as it is in the SAP Logon in *SAP Logon System*. Thus for each newly created session (some sessions are being reused) you will be routed to another server. For more information, see <u>3.4.1 Configuring Connections</u> [Page 37]. In the example below a SAP GUI session is started the same as it would be by double-clicking on the corresponding entry in SAP Logon, and the same load balancing settings will be used.

	enders sopport resource		
B20	Name:	820	
CRM test system	URL:	http://uscib20.wdf.sap.corp:50021/nwbc/	
Y12	Type:	ABAP	
	Client:	000	
	Language:	DE	
	SAP GUI Logon System:	B20 [PUBLIC]	
	Comment: Assistance Panel Url	Use this field only in cases where SAP Logon setting for example SAP Router settings, should be used. This field is optional and should only be filled in exc Value must match exactly the SAP Logon Description	s, eptio n/Na
		SAP Log 1710 Shortcu Systems Description System Description Log Callo PUBLIC Decumentation Devel	0n
		B20 (PUBLIC) NW 8.0 Basis Tools D Bar (FOBLIC) SAF NW 7.2L Dev Sys B88 (PUBLIC) SAP Basis Development	Log
		BOE (PUBLIC) NW 7.1 EhP 3.00 Basi CSS (PUBLIC) CSS - Customer Servi GTP (PUBLIC) GTP NW7.0 Global Te ISP (PUBLIC) ISP ERP2005 DB2-Pr ISIA (PUBLIC) EhP 7.02 SAP Basis ISVS (PUBLIC) Basis Consolidation S ISVS (PUBLIC) Basis Consolidation	/
		A DEVICE AND REAL MEDIA AND A DEVICE AND A D	tons
		SY12 [PUBLIC] 7.02 Supportpackage	tem.
		VI2 (PUBLIC) 7.02 Supportpackage New Y13 (PUBLIC) 7.02 Supportpackage Change Ch	e Iter

(SAP GUI Logon System and SAP Logon)

More Information

- <u>SAP Web Dispatcher</u> [External]
- Monitor the Message Server from the Browser [External]
- SAP Note <u>1040325</u>: HTTP load balancing: Message Server or Web Dispatcher
- URL Generation in an AS-ABAP Web Dispatcher Configuration [External] and Configuration Table HTTPURLLOC [External]

4 Server Configuration

You need to maintain connection parameters to your backend system in your locally installed Business Client via Personalize \Rightarrow Options.... \clubsuit . For this the following settings are necessary in your backend system:

- <u>4.1 HTTP/HTTPS Settings in the ICM</u> [Page 50]: Explains that at least one HTTP or HTTPS port needs to be configured and active.
- <u>4.2 Active Services in the ICF</u> [Page 51]: Describes active service nodes for NWBC in the SICF service tree
- <u>4.3 Settings for Fully Qualified Domain Names (FQDN)</u> [Page 54]: Expounds the importance of fully qualified domain names as well as host name conventions
- <u>4.4 System Security Settings</u> [Page 56]: Sketches how HTTPS settings can be set up and SSO2 cookies can be configured
- <u>4.5 Cockpits</u> [Page 57]: Gives an introduction into cockpits and their role for NWBC and explains how to set up a new cockpit
- <u>4.6 Configuration via Table NWBC_CFG</u> [Page 59]: Lists the name-value pairs of possible settings in table NWBC_CFG and describes their effects on the UI
- <u>4.7 ~test Page</u> [Page 62]: Introduces the importance of the ~test page for troubleshooting and describes the content of this page
- <u>4.8 ~launch Page</u> [Page 63]: Sketches how the ~launch page offers and overview over all available cockpits
- <u>4.9 Transaction NWBC</u> [Page 64]: Expains the use of transaction NWBC as a central starting point for cockpits, ~test and ~launch page and display option of cockpits in NWBC for HTML and NWBC for Desktop

Prerequisites

You have installed the following:

- The SAP NetWeaver Business Client on your local machine
- The Application Server ABAP (AS ABAP) with SAP NetWeaver of one of the following releases:
 - o SAP NetWeaver 7.00 starting SP21
 - SAP NetWeaver 7.01 starting SP6
 - o SAP NetWeaver 7.02 upwards and 7.20 upwards

You can find information about AS ABAP configuration in the SAP Reference IMG (Implementation Guide) under Application Server or in the SAP Solution Manager (Business Suite 2008) under Business Process Repository (transaction SOLAR_LIBRARY): Solutions →Basic Configuration →Configuration Structures →SAP NetWeaver 7.0 for SAP NetWeaver 7.1 and Usage Type AS ABAP.

• The relevant SAP Business Suite system

For system administration purposes, you need the role SAP_BC_BASIS_ADMIN in your backend system.

For this the following settings are necessary in your backend system:

- <u>4.1 HTTP/HTTPS Settings in the ICM</u> [Page 50]: Explains that at least one HTTP or HTTPS port needs to be configured and active.
- <u>4.2 Active Services in the ICF</u> [Page 51]: Describes active service nodes for NWBC in the SICF service tree
- <u>4.3 Settings for Fully Qualified Domain Names (FQDN)</u> [Page 54]: Expounds the importance of fully qualified domain names as well as host name conventions
- <u>4.4 System Security Settings</u> [Page 56]: Sketches how HTTPS settings can be set up and SSO2 cookies can be configured
- <u>4.5 Cockpits</u> [Page 57]: Gives an introduction into cockpits and their role for NWBC and explains how to set up a new cockpit
- <u>4.6 Configuration via Table NWBC_CFG</u> [Page 59]: Lists the name-value pairs of possible settings in table NWBC_CFG and describes their effects on the UI
- <u>4.7 ~test Page</u> [Page 62]: Introduces the importance of the ~test page for troubleshooting and describes the content of this page
- <u>4.8 ~launch Page</u> [Page 63]: Sketches how the ~launch page offers and overview over all available cockpits
- <u>4.9 Transaction NWBC</u> [Page 64]: Explains the use of transaction NWBC as a central starting point for cockpits, ~test and ~launch page and display option of cockpits in NWBC for HTML and NWBC for Desktop

4.1 HTTP/HTTPS Settings in the ICM

The Internet Communication Manager (ICM) enables communication between your SAP system and the Internet using the HTTP or HTTPS protocols for the Business Client applications.

NWBC (both the shell and most canvas types) uses HTTP to access an ABAP server. It is important that at a minimum one HTTP or HTTPS port is configured and active.

ICI	M Mo	nitor - Service	Display						
3	o i E	8 🗈 🗛 🛡 7	3 <u>Z</u> 🐙 -(5 🖪 T	۵. 🎟 🖷 📲 🚺	4	M			
Act	tive Se	ervices							
Act	tive Se No. P	ervices Protocol	Service Name/Port	Host Name	Keep Alive	Proc.Timeo	Acti	External	Bind

(Example of services in SMICM)

- If the HTTP or HTTPS service does not yet exist or you would like to make changes, you can create or edit a service via Service →Create or Service →Change in the menu.
- 3. Enable / modify the HTTP or HTTPS port settings, if necessary.
- 4. Make sure your HTTP or HTTPS service is active via ▶ Service → Activate ◀.

\mathbb{A}

Note that any changes you make here are lost when you restart. If you want to create or change a service permanently, you must do this using the profile parameter icm/server_port_<xx>.

SAP Web Dispatcher

A Web Dispatcher can be placed before the AS ABAP system(s) to function as a reverse proxy. In such cases, it is typical that the Web Dispatcher is configured to the one option only to access the server via HTTPS (for higher security) and to forward all data to the server via HTTP (for higher performance). In these scenarios, pay special attention to the configuration of the HTTPURLLOC table in accordance with the information in <u>URL Generation in an AS-ABAP - Web Dispatcher Configuration</u> [External].

More Information

Using the ICM Monitor [External]

Displaying and Changing Services [External]

icm/server port <xx> [External]

Maintaining Profiles [External]

4.2 Active Services in the ICF

The Internet Communication Framework (ICF) allows you to communicate with the SAP system using Internet standard protocols (HTTP, HTTPS and SMTP). Within the ICF tree, the NWBC runtime also has a node, by default on the path /sap/bc/nwbc. This node must be active to enable any NWBC client to access the server.

Below the nwbc node, there are a number of nodes, all of the format nwbc_*, that are used to limit access to specific services of NWBC. Detailed information on when these nodes should be active is provided in section <u>7.6 ICF Configuration</u> [Page 126].

In addition, the various cockpits are configured within the ICF. Each cockpit is defined as a subnode under /sap/bc/nwbc, for example /sap/bc/nwbc/solman.

ICF NWBC Nodes			
Node	Representation in Browser	Description	
		Transaction <u>NWBC</u> [Page 64] (started in the SAP GUI via /nNWBC) will display a launch page with a complete list of all available cockpits and all roles that the user has assigned via this cockpit. Effectively, the transaction just starts directly the nwbc_launch node of the NWBC.	
nwbc_launch	/sap/bc/nwbc/~launch	For security reasons, the <u>~launch</u> [Page 63] page is controlled via the nwbc_launch node in the ICF tree and can be deactivated here.	
		If this node is deactivated , then transaction NWBC will just start directly the NWBC for HTML client without allowing the user to select a specific cockpit; the access will be over all roles.	
		This is an access channel that dumps in raw format all relevant trouble shooting information that could help in resolving a problem.	
		The information from <u>~test</u> [Page 62] includes the complete NWBC configuration, all roles assigned and a large number of user relevant information.	
nwbc_test	/sap/bc/nwbc/~test	When the NWBC creates a support ZIP file, it will also include all this information, i available.	
		This node can be selectively disabled.	
		Activate this node in systems of low security, as the additional trouble shooting information from the server can help extensively. For high security systems or systems directly exposed to the internet, it is recommended to disable this node.	
nwbc_testcanvas	/sap/bc/nwbc/~testca nvas	This node is used for internal development only. Therefore, it should be disabled on all productive systems.	

A subnode must be active so that the cockpit can work.

ICF NWBC Nodes				
Node	Representation in Browser	Description		
		This is a test canvas which is loaded into the NWBC shell with a test role to test different APIs.		
nwbc_debug	/sap/bc/nwbc/~debug	This node is used for internal development only. Therefore, it should be disabled on all productive systems. This allows you to run an alternative \$TMP runtime for quick troubleshooting purposes.		
exprt_sapportal	/sap/bc/nwbc/~sappor tal	This node controls the activation of an API that can be used by the SAP NetWeaver Portal (>= SAP NetWeaver 7.02) to fetch role information for using dynamically in an enterprise portal. For more information, see <u>6.5 HTTP REST Based APIs</u> [Page 109] and the portal documentation on <u>NavigationTreeRequest</u> [External].		

Customer Paths

It is best that application groups and customers do **not** work under the path /sap/bc. In such cases you can also create new paths: /myCustomer/.../nwbc/myCockpit.

For NWBC nodes, the CL_NWBC_HTTP runtime handler must be configured. Here also, access over the myCockpit node is monitored – it must be available and active.

In addition, the <u>system logon</u> [External] must be configured. See also <u>Namespaces and Naming</u> <u>Conventions</u> [External].

BSP and Web Dynpro ABAP

For BSP or Web Dynpro ABAP applications in the Business Client, the relevant BSP/Web Dynpro ABAP-specific nodes must be active in the ICF service tree.

- For more information on BSP settings, see *Prerequisites* in <u>Administration of Business</u> <u>Server Pages</u> [External]
- For more information on Web Dynpro ABAP settings, see *Initial Configuration Settings* in <u>Web Dynpro ABAP Configuration</u> [External] and <u>Active Services in SICF</u> [External].

Activities

- 1. From the backend system, call transaction SICF.
- 2. Set the *Hierarchy Type* to *SERVICE* and click *Execute* (F8).
- 3. Expand the nodes under the default_host.

The cockpit subnode for the Business Client can be accessed by navigating down to the following service tree: default_host/sap/bc/nwbc

Virtuelle Hosts / Services	Documentation
▼ 10 default_host	
🔻 🚱 sap	SAP NAMESPACE; SAP IS OBLIGED NOT TO DELIVER ANY SERVICES OF THE HTTP FRAMEWORK
🕶 🞯 bc	
O nwbc O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O	NetWeaver Business Client
 · · ·	Export navigation tree to SAP Enterprise Portal
 · · ·	Debug handler to run alternative (\$TMP) versions of NWBC for debugging
 · · ·	A special launch page that shows all available cockpits and the assign roles for the user.
 · · ·	Extracts extensive information for testing of NWBC runtime.
 · · ·	Test canvas that can be used to test NWBC.

(Standard ICF service tree)

4. Select the relevant service node(s) and choose \blacksquare Service/Host \rightarrow Activate \P .

More Information

Business Client and Cockpits [Page 57]

ICF Configuration [Page 126]

Active Services in SICF for Web Dynpro ABAP [External]

Internet Communication Framework [External]

4.3 Settings for Fully Qualified Domain Names (FQDN)

Fully qualified domain names are strictly required to ensure that the Business Client runs smoothly, as is also the case for BSP and Web Dynpro ABAP.

FQDNs are necessary for the following reasons:

- One domain is required with which cookies can be set domain-wide, for instance, MYSAPSSO2 cookies
- Domain relaxation code is required for cross-frame JavaScript
- In an HTTPS environment, client and server names must correspond to each other for certificates and for the SSL protocol

Note that the domain in which the AS ABAP is run is not necessarily the FQDN used to access the AS ABAP from the browser. A typical example is an AS ABAP that runs both in the Intranet and in the Internet. In a case like this, the FQDN is determined by the position of the browser relative to the AS ABAP and not by the AS ABAP itself.

Activities

1. Go to transaction RZ10 and select the profile for the application server instance.

You will need to modify the profile in the *Extended maintenance* mode.

mal

(Example of RZ10 entry)

2. Configure the <u>icm/host_name_full</u> [External] parameter with the fully qualified host name for the server.

Maintain Profile 'B20_D21_PWDF6391' Version '000019'				
Copy 🦻 🛃 Line 🔺 PARAM+ 🔻 PARAM-				
Parameter name:	Status	Seq. no.		
icm/host_name_full	Active	98		
Parameter val.:				
5(SAPLOCALHOST).wdf.sap.corp				
Unsubstituted standard value:				
\$(SAPLOCALHOST).wdf.sap.corp				
Substituted standard value:				
pwdf6391.wdf.sap.corp				
Example of iom/hoot name full				

- (Example of icm/host_name_full)
- 3. Save your settings.
- 4. Restart your system, as all parameter changes will require a restart of the system before taking effect.
- 5. Open the following test page through a browser to verify that the fully qualified name is working properly:

http://<FQDN>:<PORT>

Host Name Conventions

If authentication using single sign-on or stateful applications are not working, it is often because the host and/or domain names do not reflect standard naming.

There are Internet standards that define the naming conventions for domain names. It often comes down to a question of how strictly your browser implements the rules.

Summary of the rules:

• Domains with the extensions com, edu, net, org, gov, mil, or int must contain at least one additional domain part. This is normally the name of the company or organization.

• Domains with other extensions, including national top-level domains such as de, uk, or fr, must have at least two additional domain parts.

In the case of top-level domains for countries, browsers often accept domains with just one additional domain part. However, for other, non-standard top-level domains, two additional domain parts are required.

 \wedge

Note that underscores (_) are not supported for host names.

More Information

Fully Qualified Domain Names (FQDN) [External]

SAP Note <u>654982</u>

4.4 System Security Settings

It is recommended to activate HTTPS connections for higher security, especially when data traverses unsecure zones. The second aspect is activating logon tickets. This is required for NWBC to work. See also <u>7 Security Aspects</u> [Page 116].

HTTPS Settings (SSL)

- 1. Install and configure SAPCRYPTOLIB. See <u>Installing the SAP Cryptographic Library on</u> the AS ABAP [External].
- 2. Configure SSL in transaction STRUST. See <u>Trust Manager</u> [External] and <u>Creating the</u> <u>SSL Server PSE</u> [External].
- 3. Run the following test calls through a browser to verify that the HTTPS settings are configured correctly:

https://<server>:<port>/

If your system is configured correctly, all of the service nodes should have a green light next to the application server name.



SSO2 Cookies

The NetWeaver Business Client uses SSO2 cookies for authentication purposes. In order for the client to connect to the backend, SSO2 cookies must be configured and activated in the system.

Enable SSO2 cookies by configuring the following profile parameters:

- login/accept_sso2_ticket = 1
- login/create_sso2_ticket =2

Activities

- 1. Go to transaction RZ10 and select the profile for the application server instance. You will need to modify the profile in the *Extended maintenance* mode.
- 2. Configure the parameters as explained above.

Parameter Name	Parameter value
login/accept_sso2_ticket	1
login/create_sso2_ticket	2
. (login/accept_sso2_ticket and login/create_sso2_tick	ket):

- 3. Save your settings.
- 4. Restart your system, as all parameter changes will require a restart of the system before taking effect.

To be able to accept logon tickets from other servers, execute Transaction SSO2, which you can use to activate the use of the logon tickets.

The application's own logon tickets are accepted without the need for any further settings.

More Information

Security Aspects [Page 116]

Configuring the System for Issuing Logon Tickets [External]

Installing the SAP Cryptographic Library on the AS ABAP [External]

4.5 Cockpits

When a user logs on to an AS ABAP system, he sees all the roles that are assigned to his user name in the system. This is also the expected default behavior when the user logs on to the Business Client. However, in many cases, the user wants the Business Client to display a mini-application consisting of a small number of roles.

This mini-application should only display the roles belonging to its application (the roles that are tailored to the specific task and that are tested and documented together). The new development of a solution management process can serve as an example here: All of the roles can be given an indicator specifying that they belong to a certain cockpit.

As soon as the user now accesses the system using the Business Client cockpit, only the roles assigned to that cockpit are sent to the client and displayed. This means that the user only has a restricted view of the specific roles that belong to the displayed application. For more information, see *Menu Options* in <u>5.4 Navigation Tree</u> [Page 72].

From a **symbolic** point of view, a cockpit is simply the name of an application that consists of one or more roles.

From a **technical** point of view, a cockpit is defined as a node in the ICF service tree.

This is the central point of access to the application and to AS ABAP. As soon as a request for a cockpit is received, all roles that are assigned to the current user run through a filter. Only a small subset of roles that are assigned to the specific cockpit are output. On the other hand, if no special roles are assigned, a general cockpit is displayed. In this case, all roles that are assigned to no specific cockpit are made available on the client. This gives the user a generic view of all roles that are usually visible, without the roles of the mini-application. For more information, see <u>Creating and Configuring an ICF Service</u> [External].

From a **security** point of view, cockpits have an extremely important role. A cockpit is a central point through which an application within AS ABAP can be accessed depending on whether it is active or inactive.

The ICF node of the relevant cockpit must be active to enable access to AS ABAP using the cockpit path. This technology is similar to the procedure for BSP applications or Web Dynpro ABAP applications. The cockpit node in the ICF service tree has to be active for the logical application with which the cockpit is associated to be active. For more information, see <u>Activating and Deactivating ICF Services</u> [External].

In **summary**, a cockpit can be seen as a logical application that filters all roles assigned to the user so that only the roles that belong to the application remain.

Activities

Make sure that the following activities are carried out for cockpits.

- 1. Define new cockpits by creating a new ICF node beneath your handler node in the ICF service tree. For more information, see <u>Creating a Service</u> [External]. Example path specifications for SAP cockpits: /sap/hcm/nwbc/ess
- 2. All cockpits are logical entries that have to be activated (see above).
- 3. Define all roles that belong to each cockpit and provide them with indicators accordingly (see above).

Setting Up a New Cockpit

1. Define the access path to your cockpit in the HTTP service tree. The path must take the form .../nwbc/<cockpit name>.

For example: /sap/erp/nwbc/mycockpit

- 1. Create the path in transaction SICF.
- 2. Configure the CL_NWBC_HTTP handler for the nwbc node.
- 3. Activate the <u>System Logon</u> [External] for the nwbc node.
- 2. Assign roles to users [External].

4.6 Configuration via Table NWBC_CFG

For minimal configuration of NWBC, there is a configuration table NWBC_CFG that can be used to set minimal flags. The table is used only for customization, and is local to the current system.

The table can be maintained via transaction SE16, as it is basically a sequence of names-value pairs that are configured either globally, or for a specific cockpit. The table has the following general structure:

Name	Required /Optional	Description
CLIENT	required	It is the system client to which the configuration belongs.
IDX	required	A unique number that has no other purpose than to set a sort sequence and function as key. The actual value of the number is irrelevant.
COCKPIT	optional	Use either the wildcard * character to have this setting apply to all cockpits, or enter here the name of a cockpit to limit the settings to the specific cockpit.
NAME	required	The name of the configuration parameter. See below.
LANG	depends on NAME	If the parameter can also have a language-dependent string, then set here the ISO language code. Or use the wildcard * character to apply to all languages.
DISPLAY	depends on NAME	The actual natural language string that will be displayed to the user.
COCKPIT_PATH	optional	It is possible that the same cockpit name can actually exist in different parts of the ICF tree. The name itself is not unique, it becomes only unique when the full path from the root is specified, for example, for myCockpit, the full path could be /sap/bc/nwbc/myCockpit. Thus, optionally specify the complete cockpit path to ensure absolute uniqueness. If specified, this string will also be used in addition to validate whether this configuration row belongs to the current cockpit.

Each parameter will be one entry in the table. The following parameters are supported:

Name	Language Field	Occurrence	Description
CACHE_DISCRIMINATOR	not used	once	NWBC for Desktop will cache the complete navigation tree for the end- user locally on the desktop indefinitely. Only when a role is changed, will a new navigation tree be downloaded. However, there can be specific reasons where one would like to force all desktop clients to dynamically reload their caches. The

Name	Language Field	Occurrence	Description		
			approach taken is to encode this random configuration string into the cache key. As long as the string is not configured or stably configured, it will have no influence on the caching of NWBC for Desktop. As soon as the string gets any new and different random string, it will change the cache key, causing NWBC for Desktop to reload the caches anew. This parameter is not needed in productive use, unless explicitly so requested from a support process to resolve specific types of problems. It can be any character string, recommended is to use three digit numbers.		
INSTALL_DIRECTORY	required	once	A link that is displayed and rendered on the ~launch page to allow users to quickly get a reference to a location from where NWBC for Desktop can be installed from. This link could point to a Wiki, a file share even into the mime repository on the local server. It is recommended that the URL itself refers to an HTML page, as it is started in a browser window.		
BUSINESS_LINE	not used	once	This entry just controls the icon that is displayed within NWBC to refer to one of SAP's business lines. Possible values are: • BUSINESS_SUITE • BUSINESS_All-in-One or BAIO • BUSINESS_BYDESIGN If the parameter is not defined, the usual SAP icon is displayed with NWBC. Note specifically for the SAP Business Suite, no separate logo is displayed at the moment, the SAP logo itself is also applied.		
BRANDING_IMAGE	not used	once	A branding image will typically be a corporate logo that NWBC will		

Name	Language Field	Occurrence	Description
			display on the lower part of the left navigation panel (when visible). This can be a small PNG or JPG image. The value field is an URL that points directly onto the image. It must be ensured that the image can be loaded without authorization having been required.
BRANDING_URL	not used	once	If this parameter is configured, then the branding image will be clickable, and a click on the branding image will navigate to this URL. The value is the URL that must be started. This can typically be the corporate portal page of the company which is then loaded.
COCKPIT_TITLE	not used	once	This parameter is only used in rare cases where a cockpit wishes to create a "product" approach. In such cases, this parameter can be used to configure a string that is displayed on the shell, limited at the moment to NWBC for HTML.
LOGOFF_URL	not used	once	This parameter is specifically for NWBC for HTML. After a logoff sequence, if a logoff URL is specified, the browser will navigate to this page. NWBC for Desktop has the typical desktop application behavior where a logoff will cause the application to terminate.

An example configuration could be:

B	MANDT	IDX	COCKPIT	NAME	LANG	DISPLAY	VALUE	COCKPIT_PATH
	000	131	•	CACHE_DISCRIMINATOR			41b	
	000	501	•	INSTALL_DIRECTORY	E	Install NWBC v3.0 Beta from our Wiki!	http://nwbc:1080/dl	
	000	502	•	INSTALL_DIRECTORY	D	NWBC v3.0 Beta auf unserer Wiki-Seite!	http://nwbc:1080/dl	
	000	998	•	BUSINESS_LINE			Business All-In-One	
	000	B01	TESTCOCKPIT	BRANDING_IMAGE			\\ns0009\nwuif\nwbc\neo.png	
	000	B02	TESTCOCKPIT	BRANDING_URL			\\ns0009\nwuifnwbc\index.html	
	000	C01	TESTCOCKPIT	COCKPIT_TITLE	*	Test Cockpit		/MY/TEST123/NWBC/TESTCOCKPIT/
	000	L01	TESTCOCKPIT	LOGOFF_URL			http://www.sap.com	

(NWBC_CFG example)

For SAP Developers Only

There are cases where it could be required to ship specific parameters that are predefined for a specific cockpit. This becomes especially of interest where a cockpit is used to define a small "product". For example, assume that SRM would like to define a new cockpit, and pre-configure a title, a custom search engine and a help link for this use case. The approach would be then to define a new cockpit that can be used to group relevant roles and to which the configuration can

be tied. In these cases, use the table NWBC_CFG_SAP to configure a set of parameters for the cockpit that can be transported.

⚠

Note that this table is client-independent. It uses only a three character index to obtain unique keys. Please contact the NWBC development team just to reserve a set of numbers.

4.7 ~test Page

The /sap/bc/nwbc/nwbc_test (/sap/bc/nwbc/~test) page shows all cockpits and their associated roles. This page is critical when resolving possible problems. It provides an "untainted" view of all data that is gathered by the NWBC runtime before sending to the client. Thus it is a direct output of the data, which is exactly the same data as will be sent to the client. The ~test page allows you to isolate whether errors are already on the server, or only later at the client.

Access to the ~test page is controlled via the ICF node <u>nwbc_test</u> [Page 126]. In addition, clients will read this page (if active and available) to include all server-relevant information in a zip file when gathering information for a problem ticket.

Trouble shooting information:	User information, HTTP information, single sign-on, PFCG, roles, local configuration
System information:	Runtime version, base URL, fully qualified base URL, fully qualified domain name, etc.
User information:	User settings in SU01
Configuration information:	Entries in Table NWBC CFG and NWBC CFG SAP [Page 59]
Cockpits information:	Names and paths of the different cockpits
Roles information:	Roles assigned in PFCG
Navigation tree	
OBN targets	
Cockpits with roles	

The ~test page contains the following information:

\wedge

The ~test does gather extensive server side information to help in trouble shooting. In high secure productive systems or systems attached directly to the internet, we recommend to disable this node. If in doubt, disable.

4.8 ~launch Page

The ~launch page which is started with transaction NWBC [Page 64] shows all available cockpits and all roles that the user has assigned via this cockpit. Thus this ~launch page allows a user to get an overview of the available cockpits (that are active in <u>LCF</u> [Page 126]) with the specific roles that can be reached via each cockpit. Note that the availability of ~launch is controlled via the ICF node nwbc_launch. If this node is disabled in the ICF service tree, then transaction NWBC directly starts NWBC for HTML.

The launch page also offers the option to start either NWBC for Desktop for NWBC for HTML. The first icon (or the link with the leading slash) will start NWBC for HTML:



The second icon (or the link without leading slash) will start NWBC for the Desktop:



In addition, the launch page can have an optional link that can be customized to tell the user from where to install NWBC for Desktop. This optional link corresponds to the entry in table <u>NWBC_CFG</u> [Page 59] for INSTALL_DIRECTORY. The entry could look like this in NWBC_CFG:

Name	Language	Display	Value
INSTALL_DIRECTORY	EN	Install NWBC v3.0 from our Wiki!	http://nwbc:1080/dl

This corresponds to the following output in the browser:



(Launch link)

4.9 Transaction NWBC

⊡ <u>M</u> enu <u>E</u> dit	<u>F</u> avorites E <u>x</u> tras S <u>v</u> stem	<u>H</u> elp
Ø /nNWBC		

In each AS ABAP system you can call up a transaction code called nwbc. You can just start it with /nNWBC in the command prompt field.

This transaction code will start the \sim launch URL in the browser, that is, a separate browser instance is started.

🏉 http://uscib20.wdf.sa	p.corp:500	121/nwbc/~launch/ - Windows Internet Explorer
🔾 - 🔁 http:/	/uscib20.	wdf.sap.corp:50021/nwbc/~launch/ 🔸 🐓 🗙 Google Search 🖉 🗸
🚖 🏘 🛃 http://u	scib20.wd	f.sap.corp:50021/nwbc/~launch/ 🔄 🍖 🔻 🔝 🔻 🖶 👻 Page 👻 🎲 Tools 👻
Launch N	NetV	Veaver Business Client
🖹 <u> /nwbc</u>	All Roles	Translator role, NetWeaver Businss Client Demo Role #1, NWBC Demo Rolle, This is a small demo role we just use for minor demos and testing., Testing a composite role relative to targetSys, Test SM50 in BCE, Runs SM50 locally, Test SM50 in WDA,
📓 <u> testCockpit</u>		NWBC Test Role for Technical Aspects and Validation
Example of tran	sactio	n NWBC)

The benefit of this function is that you do not have to look up HTTP ports, etc. Within the launch page, all configured cockpits on this system with the list of associated roles are displayed. All cockpits for which the user has no roles are filtered.

- The first icon (or the link with the leading slash) will start NWBC for HTML
- The second icon (or the link without leading slash) will start NWBC for the Desktop

The transaction NWBC uses the class CL_GUI_HTML_VIEWER to start the URL in the browser. This class will always start the URL with the Microsoft Internet Explorer (IE) installed, even if another browser is defined as the default browser. The reason for this is that the class contains additional logic to inject authentication information from the running SAP GUI session into the Internet Explorer (IE) instance when started, so that by default the browser will run with the same user name and client as the active SAP GUI session.

More information: <u>~launch</u> [Page 63], <u>~test</u> [Page 62] and <u>ICF Configuration</u> [Page 126]

5 Role Maintenance in PFCG

The Business Client enables information to be displayed on the client. The information is mapped to the client using the system role maintenance (transaction PFCG). For this purpose the PFCG, which is the central store for all system roles, has been enhanced with additional functions.

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· · · · · · · · · · · · · · · · · · ·			Search	h For:		Inc	[▼ 50	arch Log
PFCG	Top WorkCenter Fol	p2	NEW HK	DME Pur	thesing	Test Suite #	1 Dem	Product	Data
	Applications Web Dynpro A8	BAP	SidePanel	Suggestion	News	Collabora	stion Perfo	mance OBN	
	Sales Order	Орро	ortunities	W.					
	Employee Services Opportunities		Select Crea	ate Save Dele	te Print	Send Run Filt	er 🕨		
	Purchase Order	Air	rine F	light Number	Date		Airfar	e Airline Currenc	6
	CRM PCUI (modkup)	AA	4 O	064	04.0	3.2005	422,9	4 EUR	8.3
	User Maintenance	AZ	z 0	064	04.0	3.2005	422,9	4 EUR	8.3
	Work Process Overview	DL	. 0	064	04.0	3.2005	422,9	4 EUR	8.
	T Link Collection		0	004	04.0	3.2005	422,9	e EUR	0.7
	www.sap.com	-		-	04.0	0.2000	766,5	* LUN	
	Sales Order with HTML	Pa	rtner ID	Company N	ime	Legal Form	Fr	st Name	Last Nam
	Sales Order with Smart Cl	00	00000014	AVANIEL African Gol	And Diam	S.A.	De	homa	Lawla
		00	00000017	Alpine Syste	ms	AG	Jo	seph	Gschwa
		00	00000020	Anav Ideon		Ltd.	Th	eodor	Monathy
		00	00000038	Angeré		SARL	At	nélie	Troyat
		s	iales	Sales Team	Goals	Products	Valuation	Competitors	Sales As
-			Sales Order	D	Order Ty	oe Seler D	Buver	D Total	Gross Amoun
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		and the second second							

Mapping of PFCG Roles to the Business Client Structure

Information from role maintenance, including some enhancements, is used to set up the menu structure of the Business Client. Possible settings in PFCG are described in the following sections.

- <u>5.1 PFCG Overview</u> [Page 68]: Introduces PFCG and its impact on NWBC. A short description of roles is given, the importance of user settings in SU01 is described, as well as the effects of roles on the easy access menu and the NWBC menu structure.
- <u>5.2 Improvements in PFCG User Interface</u> [Page 69]: Lists the main differences in PFCG between SAP NetWeaver 7.00 SP21+ and 7.01 SP6+ versus SAP NetWeaver 7.02+ systems.
- <u>5.3 Role Description</u> [Page 71]: Provides information on role names, role short text and the *Description* tab
- <u>5.4 Navigation Tree</u> [Page 72]: Explains the settings relevant for NWBC on the *Menu* tab
- <u>5.5 Default Pages and Service Maps</u> [Page 77]: Expounds the two concepts of default pages and service maps which will cause the canvas area to be filled with content
- <u>5.6 Link Collections</u> [Page 79]: Goes into detail about the flag Link Collection
- <u>5.7 Single Top Level</u> [Page 80]: Compares two-level navigation with single top level navigation

- <u>5.8 Menu</u> [Page 81]: Introduces the function of additional menu entries as well as enhanced menu entries
- <u>5.9 Remote Systems</u> [Page 83]: Describes what to do if transactions contained in a role are to be started in a different system
- <u>5.10 Object-Based Navigation (OBN)</u> [Page 86]: Explains the use of OBN for NWBC and how to set it up

More Information

For more information on the tools and function mentioned in the following sections, see:

- Role Maintenance [External] and Role Administration [External]
- <u>Role Administration Functions</u> [External]
- <u>AS ABAP Authorization Concept</u> [External]
- User Administration Functions [External] and Creating and Editing User Master Records
 [External]
- <u>SAP Easy Access</u> [External]
- <u>Maintaining Remote Destinations</u> [External] and <u>Establishing a Connection Using a</u> <u>Destination (SM59)</u> [External]
- Object-based navigation (OBN) documentation links:
 - o SAP Business Objects [External]
 - o Business Object Repository [External]
 - o <u>Maintenance of Object Types</u> [External]
 - o Creating Object Types [External]
 - o Definition of Methods for an Object Type [External]
 - o Definition of Method Parameters [External]

5.1 PFCG Overview

User Last Changed On	H H	03.11.2009 13:5	57:19	Status	Save	t					
Address Logor	n data SNK	C Defaults	Parameters	R	oles P	rofiles					
Reference user for add	itional rights	ole 🖺 Role					SUC)1			
Role Assignments											
St., Role		Type Va	lid From Va	lid to	Name		<u>innan</u>				
			44 0000 04	10.0					_		
Role								C A	P Easy	Acces	
Role	ZNWBC_TEST	_DOCU						34	u casy	ALLES	-
Description	test role for o	documentation							5 🏷 🖉		• •
Target System								•	Favorites		
	SAP Internal	Menu V						• •	New Pro	duct Data	au
Hierarchy P	FCG Data	on 🖌 i 🏊 🖌 i (V				· @ in · Ø U · Ø 0 · Ø S	tro ser Maintenar bject Navigato AP	и
Materials		Favorites Personali	ize Help							-	
▼ G Services	[-		Sear	ch For:)	In:		Search	Log Off
- ♥ Intro - ♥ User - ♥ Objer - ♥ SAP	Maintenanc ct Navigator	New Product Data Overview Material	s Services			NWB	C				2 4 30
			Oppo	rtunitie	5						-
		User Maintenance		Select	Create Sav	e Delete	Print	Send Run	Filter		
		Object Navigator		Airine	Flight Number	Date	Airfare	Airline Curre	ency Plane Type	Max. capacity ec	on.
		• SAP		AA	0064	04.03.2005	422,94	EUR	A310-300		280
				AZ OL	0064	04.03.2005	422,94	EUR	A310-300		280
				л.	0064	04.03.2005	422,94	EUR	A310-300		280
				LH	0064	04.03.2005	422,94	EUR	A310-300	:	280
				ales	Sales Team	Goals	Products	Valuatio	on Competitors	Sales Assista	Int
				Arine	Flight Number	Date 04 03 2005	Airfare 472 P4	8 757 1#	Booking number	Customer Number	FIE
				AA	0064	04.03.2005	422,94	8.757,16	00000002	00004713	EUI
				AA	0064	04.03.2005	422,94	8.757,16	0000003	00004714	EUI
						227					1000

(SU01, PFCG, SAP Easy Access and NWBC in relation)

Within PFCG it is possible to configure **roles**. In real life, a role would effectively be the work that a person does within a company or the position held, for example, a salesman or someone working in support. Within PFCG, roles are defined matching the real life roles that people play within a work situation. Specifically a role within PFCG is a set of transactions that a person within a specific role would need for his daily work. In this example, a sales person could have an own role that have transactions to add new customers, display customer details or to enter a new lead.

Given the existence of roles within PFCG that describe the typical work persona, use transaction SU01 to assign these roles to specific users. A user within the system can have any number of roles assigned, which reflects the real work that the person does within the company.

Given the roles within PFCG, the Easy Access menus are displayed directly after logon with SAP GUI. These are effectively the menu trees as have been expressed in one or more roles for each user. This allows the user to very quickly start the relevant transactions for their daily work.

NWBC builds on this same PFCG infrastructure in the ABAP system. The NWBC runtime will retrieve all roles assigned to a specific user and make it available to the shell. The shell uses exactly the same role information to show the user the possible transactions that could help him with his daily work.

As such, we see that shell in NWBC is in the first instance just another expression of the Easy Access menu, providing roughly the same functionality.

However, the NWBC runtime does also extend the usage of the PFCG to make additional functionality available, or to depict the configured data in a different fashion. This chapter will look at the relevant parts of the PFCG that are used by NWBC and also at the additional features that can be configured within PFCG for NWBC.

In addition to the role name and *Description*, the settings on the following tab pages are relevant for the NWBC:

- Description
- Menu

The other tab pages in PFCG are not particularly relevant for the Business Client at present. Remember, however, that your settings will only be activated once you have assigned a user name on the *User* tab page and saved your settings.

Settings for Role Maintenance

The settings for role maintenance are slightly different in the previous SAP NetWeaver releases. For more information, see <u>5.2 Improvements in PFCG User Interface</u> [Page 69].

5.2 Improvements in PFCG User Interface

While the functions offered in PFCG remain, on the whole, the same in the different releases supported by NWBC, the user interface on the *Menu* tab has been changed so as to offer an enhanced user experience. In SAP NetWeaver 7.00 SP21+, SAP NetWeaver 7.01 SP6+ and SAP NetWeaver 7.02+ a number of changes have been implemented.

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These changes are only available in systems from SAP NetWeaver 7.00 SP21+, SAP NetWeaver 7.01 SP6+ and SAP NetWeaver 7.02+ and cannot be used in lower releases and service packs.

The changed user interface reflects both settings that apply to the role level as well as settings for individual role entries (both folders and nodes). At role level there are the *Menu Options* for very special use cases, whereas for individual role entries there are the *Other Node Details* which differ slightly from one another regarding the details offered, depending on the position in the menu tree, whether they are folders or nodes, etc.

• In 7.00 SP21+ and 7.01 SP6+ systems the settings for the whole role are available with the button *Menu Options* on the bottom right of the screen. In 7.02+ systems these settings are available with the same button *Menu Options* which is situated on the very right of the button bar, next to the *Other Node Details*.

• In 7.00 SP21+ and 7.01 SP6+ systems the settings for individual node entries, be they folders or nodes, are available for each item via the context menu entry *Details for NetWeaver Business Client*. These settings are available in 7.02+ systems via the button *Other Node Details*.



More Information

- <u>5.4 Navigation Tree</u> [Page 72]
- SAP Hinweis <u>1321829</u>

5.3 Role Description

Each role has the following central information:

Role Name

Technical name of the role. This name is unique and is used as the key for tables and for the transport system.

Note that the selection of the role name is limited by <u>namespaces and naming</u> <u>conventions</u> [External].

• Description

Language-dependent short text that can be displayed for the user. We strongly recommend that you always enter a description.

This short text is used, for instance, to display a list of roles available in the dropdown list box for a client, which enables the user to switch from role to role. Another example is a list of roles, from which a power user can assign appropriate roles to other users. This short text is also used as tooltip text.

• Target System

RFC destination of a role in another ABAP system. For more information, see <u>5.9</u> <u>Remote Systems</u> [Page 83].

Role									
Role	ZNWB	C_TEST_DOCU							
Description	test re	ole for documentatio	n						
Target Syste	m	No destination							
QDes	cription Attribut	es 🖌 🗖 Menu	🖉 Authorizations 💦 🖪 User 🛛 🖓 Personalization						
Administrat	ion Information		Transaction Inheritance						
	Created	Changed	Derive from Role						
User	Н	Н							
Date	03.11.2009	03.11.2009							
Time	13:43:49	14:22:13							
Long Text									
XOR) 🗠 🗠 🖬 🕻	8 🗈 🖪							
Test			1						
L									
- All and a second second		U	1, Co 5 Ln 1 - Ln 1 of 1 lines						
			I						

(Role description)

In addition to the role name and short text and a possible target system the entry *Long Text* on the *Description* tab page is important. The long text is always used if detailed information about a role for the user has to be displayed. It can be seen as a mini-help.

5.4 Navigation Tree

The complete menu tree in the NWBC and extra attributes for the NWBC are configured on the *Menu* tab page.

Tree Structure

Create the role menu tree according to the usual PFCG procedures. For more information, see <u>Creating Role Menus</u> [External] and the documentation which is displayed via the

(*i*) button on the *Menu* tab page.

Kole			
Role ZNWBC_TEST_DOCU			
Description test role for documentation			
Target System No destination			
CDescription Attributes 🖸 Menu 🦉 Authorizations 🖸 User 🖉 Personalization			
	Transacti	ion la la 🗐 la 🖓	🚱 🗊 🕲 💽 🚱 🚺 🗞 Conv Menus 🖌 Further Actions 🚽 📴 Further Node Details 🗌 Menu Options
Hierarchy		DUTO	Node Details
Role menu		0. 0. 1. 0.	Type
New Product Date	ata		Diad
I Dervices		Deoudo	- Colect
Overview		Dest Nede	Text
Materials		ROOLMOGE	
			Further Node Details
Root	Node		Node ID
			Alias for Applic.
			Description
			Service Map Symbol
			Target System
			Object-Based Navination
			Method Parameters

(Menu)

The very first node in the tree, labeled *Role menu*, is just a pseudo node that is used to contain the root folder (or folders) as children. This specific node is not part of the navigation tree and is not visualized in NWBC.

A menu tree contains a root folder as the starting point. The root folder is the navigation element at the first level. The root folder will be the first element that is rendered within the client. Usually, there is only one root folder per node, but you can specify several root folders.

Below the root folder a menu tree can contain any number of levels. Each level is represented by a folder in the tree. Recommended is a two or three level menu at the start of your development work. With a two-level menu the first level is in the root folder, and the second level contains the transaction items. Whereas with a three-level menu a second folder level comes after the first level, and the transaction items are on the third level.
	Favorites Personalize	Help								
Role menu Role menu → O New Product Data Level 1 –			Se	sarch For	:		In:		•	Search Log
Materials Services Level 2 -	Overview Materials	Servio	es Onno		•					
O Intro O Iter Maintenance	User Maintenance Object Navigator	ſ		Select	Create Sav	e Delete	Print	Send Run	Fiter	
Object Navigator Level 3 -	· SAP			Airline	Flight Number	Date	Airfare	Airline Curr	ency Plane Type	Max. capacity e
• 🕑 SAP				AA	0064	04.03.2005	422,94	EUR	A310-300	
				AZ	0064	04.03.2005	422,94	EUR	A310-300	
				DL	0064	04.03.2005	422,94	EUR	A310-300	
			228	JL	0064	04.03.2005	422,94	EUR	A310-300	
				LH	0064	04.03.2005	422,94	EUR	A310-300	
			1	Sales	Sales Team	Goals	Products	Valuat	on Competitors	Sales Assis
			1	Airline	Flight Number	Date	Airfare	Total	Booking number	Customer Numbe
			205	AA	0064	04.03.2005	422,94	8.757,16	00000001	00004712
				AA	0064	04.03.2005	422,94	8.757,16	00000002	00004713
			- Protection				Contraction of the local division of the loc			

(Mapping of PFCG menu tree onto NWBC shell)

You can change the sort sequence of folders and individual menu items via the arrow buttons with which you move items up or down:

 Image: Comparison of the state of the s

Use drag and drop to move folders to different positions in the tree. For information on troubleshooting-related functions offered in the button bar, see <u>PFCG.01 Searching for Technical</u> <u>Names</u> [Page 174].

Types of Programs

Diverse objects can be specified as items in the menu tree according to normal PFCG procedures. To do this, choose the appropriate option of the dropdown list of function *Insert node* in change mode. Note that each application has its own attribute screen that is dependent on its application type.

```
(insert mode)
```

Note that you cannot insert applications at level 1 but only folders. For NWBC you can insert the following objects in the menu tree:

- Transaction code
- Web Dynpro ABAP application
- BSP application
- Web address or file
- Generic Web address (URL template)
- WebClient UI Applications (for systems with WEBCUIF 7.02 upwards, e.g. CRM 7.0 EHP1). Note that navigation with NWBC may differ from common look and feel in CRM.

This integration is aimed primarily at occasional users whose applications are not based on WebClient UI with NWBC and need to access only a few WebClient UI applications. For example, you use Financial Accounting in SAP Enterprise Resource Planning (SAP ERP) and, in addition, you wish to use account details of SAP Customer Relationship Management (SAP CRM).

Users who work primarily with WebClient UI applications should continue to use the standalone WebClient UI to have the full set of features available with WebClient UI components and the roles that were designed for the WebClient UI.

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All other menu types **cannot** be displayed in NWBC.

For each folder you can specify a description which will be used as tooltip in NWBC. You can edit the short text by selecting the folder in question and choosing *Change Folder* in the context menu.

If you use **Web Dynpro ABAP** applications, you can also specify additional application parameters. For more information, see <u>Application Parameters and URL Parameters</u> [External].

C YI2(1)/000 Web Dyns	pro Application			>
Web Dynpro Applicat.	wdr_test_it05			
Description	Test			
Protocol	HTTPS			
8				
Parameter				
Name		Value	mannannannan	
WDHELPCENTERDISPI	LAY	SIDE_PANEL		
				-
			4 1	

(Example of inserting a Web Dynpro ABAP application)

Other Node Details

For NWBC, detailed attributes are available in PFCG for each folder or node. These additional attributes are used to achieve very specific runtime effects on the NWBC shell. To maintain these attributes select the relevant folder or node and choose *Other Node Details*. See also <u>5.2</u> Improvements in PFCG User Interface [Page 69].

🖁 🗀 🖪 🔻 📥 🛃 Transaction			py Menus Additional Activities Per Other Node Details	Me
lierarchy	Default P In T O	Node Details		
🔁 Role menu		Туре	Web address or file	
 Avigation Tree 		Object	TNWBC/~TESTCANVAS	
Test Plan	\checkmark	Text	Test Plan	
 Property Test 			× ×	
• Viened		Other Node Details		
• Winden		Node ID	26	
Emphasized		Application Alias		
Oisabled		Description		
 Normal with Tooltip 		Senice Man Icon		-
Deep Tree		Service map icon		
Wide Tree		Target System		
Internationalization		Default Page	Inactive	
Folder Test		Invisible	Highlighted	
Link Collection		1		
 Merging and Duplicates 		Object-Based Navigat	lion	
2 Levels				
External Programs		Method	Parameters	

(Other Node Details)

All folders at root level can have these attributes: *Service Map, Link Collection, Single Top Level* or *Menu*. All other folders can only have attributes: *Service Map* or *Link Collection*. All single entries (nodes) can have the attributes *Hidden, Home Page, Inactive* or *Emphasized*. The chosen format leads to different visualizations on the NWBC shell and canvas.

Name	Where /Levels	Description	
Service Map	Folder / *	Flags this folder to have a special canvas with visualization of the next level navigation entries. For more information, see <u>5.5 Default</u> Pages and Service Maps [Page 77]	
Link Collection	Folder / >1	Flags this folder with its entries to be a collection of links with additional functionality, for example See Also links. For more information, see <u>5.6 Link Collections</u> [Page 79]	
Single Top Level	Folder / =1	Flags this folder to be displayed with the root folder on the top of the shell and second level navigation entries on the left panel of the shell. For more information, see <u>5.7 Single Top Level</u> [Page 80]	
Menu	Folder / =1	Flags this folder to be displayed as additional menu entry in the NWBC menu bar. For more information, see <u>5.8 Menu</u> [Page 81].	
Hidden Folder / *		The link for this application is not displayed in the navigation panel	
Home Page Folder / *		Flags an application to be displayed when the folder is selected. For more information, see <u>5.5 Default Pages and Service Maps</u> [Page 77]	
Disabled	Folder / *	The link for this application is displayed grayed out to indicate that it cannot be clicked by the user	
Emphasized	Folder / *	Displays the link for this application in bold letters in the left navigation panel for more emphasis	

Menu Options

The function *Menu Options* on the *Menu* tab contains several special additional attributes for a given role. A role can also have additional attributes that are only relevant for NWBC. However, these attributes are required for NWBC only for **very specific use cases**. For example, you can assign a role to a specific cockpit using the additional attributes.

(Menu Options)

You can use the additional attributes on this popup for a role in customer systems. These attributes are used to associate specific information with the role, so that the NWBC runtime can make the relevant rendering decisions.

🔄 YI3(1)/000 Menu Options	×
Runtime Filter	
Hide Menu from SAP Easy Access	
Cockpit Filter	
Cockpit	
Cockpit Exclusive	
Relative Sorting	
Sort Index	
Home Role	
	X

Runtime Filter

You can specify that a given role will be filtered out of the menu either in the SAP Easy Access menu or in the NWBC.

- *Hide Menu in SAP Easy Access*: By selecting this check box you specify that this role will be removed from the SAP Easy Access menu.
- *Hide Menu in NWBC*: Flag which causes this specific role to **not** be made visible in NWBC. It is filtered out.

Cockpit Filter

This attribute is used only together with <u>cockpits</u> [Page 57]. If NWBC is accessed in the default mode, all roles are made visible. If NWBC is accessed via a cockpit, only those roles that belong to the cockpit specified via *Cockpit* are made visible. This enables building small mini-scenarios, giving the user a very specific view onto the system. However, it could be that the roles that belong to a cockpit, are very specific only for this scenario, and should not be made available in general. Nevertheless, even if a role is flagged to belong to a specific cockpit, it will still be made visible when NWBC is accessed without a cockpit filter. Here the *Cockpit-exclusive* flag comes into the game.

Cockpit:

If a user should access NWBC via a cockpit (which is defined in ICF as a child node to the NWBC node), then only those roles that "belong" to the cockpit, in this case that are flagged with the cockpit attribute, are displayed. Note that the cockpit name must match the relevant entry in the ICF service tree.

This attribute tags a role to explicitly belong to a specific cockpit. Or differently seen, the cockpit is a filter on all roles, returning only those roles that are actively flagged to belong to the cockpit.

It is theoretically possible to use this attribute more than once per role, to indicate that the role belongs to more than one cockpit.

Cockpit-exclusive:

Set this flag to indicate that this role must **only** be made visible within the context of the cockpit specified above and not when NWBC is accessed without filter. In other words, this role may only be used in the tagged cockpits and not generally.

Relative Sorting

If you want to specify the order in which the roles should be positioned in the NWBC shell, use the following functions:

• Sort Index:

Allows roles to be sorted relative to one another. These numbers do not have to be in sequence. It is recommended to use large steps of 100 to just give the roles a sort index relative to one another.

• Home Role:

This tag flags the role as being special, in that it should be mapped onto the home position, which is the first position on the shell. Effectively, this is equivalent to a *Sort Index* of 1.

5.5 Default Pages and Service Maps

Default pages and service maps are based on the concept that when selecting a folder, the canvas area is filled with content.

A **default page** is a user-defined application that is started when a folder is selected. Usually, the application will provide an overview screen. You can define default pages for each folder at every possible menu level. A default page for a folder means that when the folder is selected, the associated default page is displayed in the canvas area. Within PFCG, a default page for a specific folder is expressed by creating a child entry for the folder and then activating the *Default Page* checkbox. Inversely, if an entry in the navigation tree is flagged as *Default Page*, it will be displayed in the canvas when its parent folder is selected. Default page nodes are filtered out of the navigation tree and not displayed with the navigation tree itself.



(Default page example)

A **service map** generates an overview of the navigation structure of the next levels of the navigation tree, allowing the user to get a better overview of the business process represented by the folder

You can set the flag *Default Page* for a node entry or *Folder OptionAs Service Map* for a folder on the *Menu* tab in PFCG if you select the relevant folder and choose *Other Node Details*.

For service maps you can also specify an icon via *lcon Path*: The icon for the service map is a 48x48px icon that is used to visualize a folder in a service map. At the moment entries with the format ~Pictogram/name are supported. The icon path specifies the position of the icon in the MIME repository. The format of this field is ServiceMap = URL, where URL must be a token from a predefined list of pictograms in exactly this format ~Pictogram/name. For example, configure ServiceMap = ~Pictogram/Train to have this folder represented with a train image in a service map. See also Handling Web Icons [External] for further information on pictograms. If there is only an URL without any keywords, it is used for all cases.



(Service Map example)

5.6 Link Collections

The flag **link collection** in PFCG means that the folder with its entries is rendered as a collection of related links that belongs to the current selected folder and that is displayed below the navigation tree on the left side of the shell.

You can set this flag on the *Menu* tab in PFCG if you select the relevant folder and choose *Other Node Details* and select the option *Link Collection* for *Folder Options*.

Typical names of a link collection are You can Also, See Also, Create New or Services which is then a collection of links with this functionality.

Note that link collections are visualized always on the left panel for the selected folder. When clicking on an entry in a link collection, it is always started in a new window.



(Link Collection example)

A folder which is specified as link collection is always a child folder belonging to a parent folder. A link collection thus belongs to and is displayed for a folder and all entries of this folder. A folder can have multiple link collections.

One speciality of link collections is the way that they are propagated down through the navigation tree. A link collection on a folder at any level of the navigation tree will also then be visible for all children folders. If there is more than one link collection for the same folder with exactly the same display name, the collections will be merged.

5.7 Single Top Level

Usually two levels of navigation entries are placed at the top of the shell. The folders are on the first level, and directly below are the entries for the second level of navigation for the selected folder. If a folder is flagged as **single top level**, then only the root folder is displayed at the top. The second level navigation entries are moved to the left side of the shell. This option is available, because for some types of roles, it is better to place the complete navigation on the left panel and not use a second level top navigation.

			runner Multins	
rarchy	D. U. T. O. C	Node Details		
Role menu		Type	Folder	
🔻 🔁 Top WorkCenter Folder		Object	Top WorkCenter Folder	
Transactions		Text	Top WorkCenter Folder	
Programs Programs				
Top2		Further Node Details		
		Node ID	81	STREET,
		Alias for Applic.		
		Description	This is text for maybe tooltip	
		Service Map Symbol		
		Target System		
		Folder Options	-	
		Single Top Level		
Top Wor	kCenter Fol Top	2 NEW HOME	1.0 Layer Purchasing Test Suite #1	1000 ··································
 Transact Transact Transact Class Obji Robe Program Reports Prour Cautor User Materia 	tions isport Organizer s Builder ect Navigator Maintenance is n Also intenance			

(Single Top Level)

You can set this flag on the *Menu* tab in PFCG if you select the relevant folder and choose *Other Node Details*.

Be aware that the checkbox for Single Top Level is only shown at the root folder level.

5.8 Menu

The flag *Menu* in PFCG means that the folder with its entries is rendered as a separate menu at the top of the shell. The menu will be visible and available at all times, independent of the current running application in the canvas. Such folders representing menus can be configured more than once per role, but only on **root folders**. This is just an alternative way to start a transaction without having to select it via the navigation tree. The folder text is either a freely defined text that will be used as text for the menu or you can use a predefined Id. Entries with predefined Ids will be merged with existing menus.

You can set the *Menu* flag in the *Folder Options* on the *Menu* tab in PFCG if you choose *Other Node Details*, select the relevant folder in the hierarchy and then choose *Menu* as *Folder Options*.



@HELP@ Extensions

(Menu example)

Predefined Id	Description
	Add additional search provider.
@SEARCH@	This entry can be used to define an external search engine that will be made visible in NWBC. This is used typically to incorporate external search engines into all desktop clients. The entry text of each folder node is shown within the list of search engines on the client. The application will be started when used. Use the character sequence $\{0\}$ to mark the place in the URL where the query parameter needs to be replaced, for example $http://www.sap.com/search/index.epx?ql=\{0\}$. With this approach, it is also possible to configure different search URLs.
	Extend Help menu.
@HELP@	All help link entries are added in NWBC to the help menu. The display string is shown in the menu, and the value itself is an URL that is started within a browser instance. This can be used to configure company specific help, for

Predefined Id	Description
	example to contact the help desk that is then available in all clients.
@PERSONALIZE@	Extend <i>Personalize</i> menu.

5.9 Remote Systems

For some applications, it could be necessary to be able to define that specific or all entries in one role can be executed against a foreign system. Although the role is defined locally, the actual execution of the entry is done in the remote system.

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The prerequisite is that there is a **trusted relationship** between the relevant systems. To ensure that the same user is used in the target system, the only RFC destinations that are allowed are those created using the trusted system concept. For more information, see <u>7.4 Trusted</u> <u>Relationships</u> [Page 123].

It is possible to configure a target system for each menu entry. If the *Target System* is blank, as is usually the case, no different destination is used. So, the transactions are started in the same system in which the user is logged on. If, however, the *Target System* field is filled with an RFC destination, the menu entries from a role of the system specified via the RFC destination are used for your role.

Note that instead of specifying RFC destinations via transaction SM59, you can also specify a variable that references an RFC destination. Variables are assigned to RFC destinations using transaction SM30_SSM_RFC.

• For the **complete role**, enter the RFC destination in the *Target System* field right underneath the role name and description. If you leave this field blank *No Destination* is displayed.

Role	ZNWBC_TEST_EN
Description	Test role
Target System	No destination

No RFC destination)

• For **individual role entries** from another system, leave the upper *Target System* field blank, navigate to the role menu folder/node and enter the RFC destination for this folder/node on the right side of the screen in the area *Other Node Details* in field *Target System*.



(RFC destination field for individual role entries)

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Note that you can only edit/change a node entry in the navigation tree, if there are **no** entries within the tree for which a target system is specified.

If the target remote transaction or Web Dynpro application does not exist in the local system, you **cannot** add it directly to the PFCG role or edit/change it directly. Instead you need to insert it to a role of the target system and import it by means of *Copy Menus* \rightarrow *From Another Role* \rightarrow *Target System* \blacktriangleleft . In the case of editing/changing a remote transaction or Web Dynpro application, you need to re-import it. As prerequisite, a PFCG role with the transaction or Web Dynpro application must be maintained in the target system. It is recommended to choose the PFCG role which is assigned to the user in the remote system. After the import, the field *Target System* is automatically filled with the used SM59 connection.

Target System Names

The system names must be the same as specified in transaction SM59. For more information, see <u>Displaying</u>, <u>Maintaining</u>, and <u>Testing Destinations</u> [External].

However, SM59 aliases are only of one specific type. It is not possible to define both SAP GUI and HTTP connections under one alias. This could be needed in cases where either a SAP GUI or Web GUI entry is needed for the same transaction. The current approach taken by NWBC is to have multiple SM59 entries that have the same (base) name with an extension (_RFC, _HTTP, _HTTPS) attached to the name to distinguish between the different types of connections. For example, if the system name is XYZ, then the different destination names should be thus:

- SM59 name resolving sequence for SAP GUI aliases:XYZ_RFC, XYZ
- SM59 name resolving sequence for HTTP aliases: XYZ_HTTPS, XYZ_HTTP, XYZ

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The SM59 alias name which you enter in the *Target System* field can be of any of these XYZ_* sequences; however, recommended is XYZ. At runtime, all possible name permutations are tested to find the "strongest" matching name to the connection type that is required.

It is also possible to configure proxy data for the _HTTP and _HTTPS entries within SM59. If an HTTP proxy is detected in the network (the incoming HTTP request contains the Web Dispatcher HTTP header x-sap-webdisp-ap that describes the proxy access points), then the proxy configured data will be used to construct an URL, instead of the configured host and port.

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Note that in addition to the — at least — one RFC destination of type 3 (ABAP connection) you need at least one corresponding RFC connection of type H (HTTP connection).

Role Import from Remote System

If the transactions you want to use in your role are **not** all locally available, the recommended approach is to first define a role in the remote system that contains all relevant transactions and then to import the role into the system where it is required. For this you use the function \blacktriangleright Copy Menus \rightarrow From Other Role \rightarrow Target System \blacktriangleleft .

Let us take as an example an ERP and a CRM system. In one system called QOM our user is assigned to role ZSHELL_ROLE in PFCG. The role menu consists of several entries.



(Example CRM role)

We wish to transfer this role to another system, Q00 where we usually work and build our applications. In order to do this, we need to maintain some RFC destinations in transaction SM59. So, on our home system Q00 we define the following RFC destinations:

• We define an ABAP connection (Type 3) to QOM system for the PFCG role import.

RFC Destination	Туре	
Q0MCLNT558	3	(ABAP connection)

• Similarly, we define HTTP or HTTPS connections of *Type* H to QOM for the NWBC runtime. NWBC needs the HTTP or HTTPS destinations to build URLs.

RFC Destination	Туре	
Q0MCLNT558_HTTP	Н	
Q0MCLNT558_HTTPS	н	
		(F

(HTTP connections)

To import the role from system QOM into QOO, proceed as follows:

- 1. Log on to system Q00.
- 2. In transaction PFCG enter your role and switch to the Menu tab.
- 3. Choose \blacktriangleright Copy Menus \rightarrow From Other Role \rightarrow In Remote System \blacktriangleleft .
- 4. You can enter either an RFC destination or a variable which points to an RFC destination as target system. In this example, choose *Select RFC Destination* and then *Continue* (*Enter*).
- 5. In the following table select the entry for RFC destination *Q0MCLNT558* and choose *Copy*. A list of all available roles in *Q0M* is displayed.
- 6. Select <code>ZSHELL_ROLE</code> and choose Copy. The menu tree of <code>ZSHELL_ROLE</code> is displayed.
- 7. Choose those transaction from the ZSHELL_ROLE menu which you want to import into Q00 by selecting the check boxes in front of the relevant role entries. Then add the selected menu nodes via *Add*. The role menu tree in Q00 is updated automatically with the entries you selected. In the check boxes next to the imported menu items you can also see the check mark indicating that these menu entries belong to a separate target system. In addition, the *Target System* field on the right is automatically filled with the RFC destination for Q0M.

		Copy M	Ienus _ Further Actions _ 🖳 Further Node Details
Hierarchy	D. I. T.	Node Details	
🔁 Role menu		Туре	WebClient Application
▼		Object	SAPROLE=SALESPRO&CRM-LOGICAL-LINK=MD-BP-S
Sales : Accounts Search	2	Text	Sales : Accounts Search
 Enhance Applications 			
Salespro : Home Page Channel Management : Home Page		Further Node Details	
Marketing : Segments		Node ID	ZHTEST:4
Analytics : OLTP Reports Overview	$\overline{\mathbb{V}}$	Alias f. Application	
OLTP Report Create	$\overline{\mathbf{V}}$	Description	
Txn Launcher : Billing Documents	\checkmark	Icon Path	
Girect Links		Target System	Q6MCLNT558
Sales Contract Create		- /	

(Example of imported role entries)

5.10 Object-Based Navigation (OBN)

Object-based navigation (OBN) is a form of loosely coupled communication via indirection, where the caller does not know what will be the final transaction executed. For instance, if we have a list of sales orders and the user clicks on one entry to display the sales order itself, the listed

application could trigger an OBN to, for example, destination SalesOrder.Display with the parameter number=59. Via the PFCG, it is then possible to configure the exact transaction that should be called to handle this navigation. This target transaction could for example be different for different users or in different locations which would be expressed via the assignment of specific roles to the user.

In this example the following two concepts are important: the **indirect navigation** and the **handling of parameters**.

In the following chapters OBN will be explained in detail:

- <u>5.10.1 OBN Overview</u> [Page 87]: Provides a general overview on different OBN features.
- <u>5.10.2 Determining the OBN Interface</u> [Page 88]: Explains the use of objects from the Business Object Repository (BOR).
- <u>5.10.3 Defining an OBN Target</u> [Page 89]: Describes the procedure to set up an OBN navigation target in PFCG.
- <u>5.10.4 Parameter Mapping</u> [Page 90]: Lists the rules for parameter mapping and gives an example of inbound parameters, mapping table and outbound parameters.
- <u>5.10.5 Determining Parameters for Transactions</u> [Page 91]: Specifies important aspects regarding parameter mapping for classic ABAP transactions.
- •

5.10.1 OBN Overview



(OBN overview)

For the indirect navigation, the symbolic object SalesOrder is introduced with the symbolic method Display. This sequence SalesOrder.Display is in the first instance a pure agreement that states that the application will always call the symbolic name SalesOrder.Display, which can then be mapped in the PFCG onto any target application

within a role that is then assigned to the user. At runtime, the roles assigned to the user are then all loaded and scanned for a transaction that is associated with the symbolic name SalesOrder.Display.

The parameter handling is slightly more complex. At the time that the calling application is developed, there is no information available about the target application that will at runtime be selected to handle the call. The calling application knows only that there is a symbolic name SalesOrder.Display available. In addition, to this symbolic method call is now introduced a symbolic parameter nr of the sales order that must be displayed. The calling application can just set the symbolic parameter.

This introduces the concept of a symbolic interface that is effectively a description of the abstract method that is called with the defined parameters as they should be set for the call. For this example, the symbolic interface is SalesOrder.Display(nr:integer). The calling application will call SalesOrder.Display(nr = 59). Note that in the first instance, the symbolic interface is purely a documented agreement that is not enforced.

In the last step, a new target application must be defined to handle this symbolic interface. The target application could have any number of parameters which could even have different names. For example, we wish to call the target application TransactionX(id:integer , mode:string). Now, during the configuration, a parameter mapping must be done. In this case, we would like to express that the id parameter must be filled from the symbolic parameter nr, achieved with the notation id = {nr}. In addition, we need to hard-code the mode parameter. The complete mapping would then be: SalesOrder.Display(nr:integer) - > TransactionX(id = {nr}, mode = Display).

A final remark: although the complete process seems to be rather complex to explain, the two separate halves are each relatively simple. Once the interface is defined, the one half is only the sequence to actually call the symbolic interface. The second half is simply the step to map the symbolic interface onto a concrete application.

5.10.2 Determining the OBN Interface

One approach, supported by the PFCG integration, could be to use business objects from the Business Object Repository (BOR) for the definition of the OBN interfaces. The object model of the BOR provides a description of all business objects, their methods, and their parameters. Use transaction SW01 to look up the relevant information required. For more information, see the relevant links listed at <u>5 Role Maintenance in PFCG</u> [Page 66]. In the context of NWBC, the calling application needs to know the interface and the names and possible values of the parameters. This is achieved by directly referencing BOR objects. Note: the BOR objects are only a design time construct to define the symbolic interfaces. At runtime there is no BOR involvement. Here the BOR business objects are purely used as a help in aligning onto standardized interfaces.

The use of BOR objects is optional; it is just a convenient repository of predefined interfaces that also includes parameter mapping. Alternatively, it is possible within PFCG just to configure a predefined set of values that have no relationship to an actual BOR object. The agreement on the specific symbolic interface to use is then handled within the development team and must only be documented. In this case, the following data must be known: the object name, the method name and the list of parameters with their value ranges. This information is then used to define the mapping onto the target application that must be called.

5.10.3 Defining an OBN Target

The process to map one OBN onto a target application starts by selecting the target application and then configuring that this application can handle a specific OBN call. We assume from the above steps that the OBN data is now known.



(OBN maintenance in PFCG)

- 1. In the PFCG *Menu* tab select the item you want for the target application, and choose *Other Node Details*.
- 2. In the *Object-Based Navigation* section choose the icon for *Insert Method*, enter the name of the business object and the required method, and confirm your entries. The object can either be selected from the Business Object Repository, or can be freely defined. Both the object type as key and the description (the actual key that is used) must be defined. For example define SLSORDER as object type and SalesOrder as description. Similarly, for the method, if a BOR object is referenced, the method can be selected, otherwise it must also be freely defined. Again, both the key and the description are needed. For our example, we could define DISPLAY as key and Display as method description.
- 3. Assign a priority, specify whether the OBN call should be displayed in a separate window or in the same window, and under *Mapping of Parameters* choose the icon for *Insert Parameter*. Priority values are used in the final OBN resolving in cases where more than one application is available for the same OBN target. In this case, the target application with the highest priority is selected. Priority is defined in descending order, with the highest number being the highest value.

- 4. Now you can insert as many parameters as you want, and assign them values for the mapping. Within the table, the left column contains the parameter names of the target application. These are the parameters that will be used to start the application and thus must be exactly the list of parameters that the application is expecting. In the right column the values are listed that will be set for each parameter. Each value can either be directly set or be taken from the parameters supplied for the OBN call. In this second case, use for the value of the OBN parameter name in curly brackets, the actual value will then at runtime be taken from the value supplied in the OBN call.
- 5. Save your entries. Your entries are listed in a table under the *Object-Based Navigation* section. Here you can display entries individually, insert additional methods, and delete entries from the list.

Hierarchy	D. I. 1	OBN	Node Details				
- 🔁 Role menu			Туре	Transaction			
MyMenu			Object	SU01			
New Product Data			Text	Display Sales Order			
Overview							
Materials Genices			Other Node Details			inana ana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'	
	2		Node ID	7			
 Display Sales Order 		V	Application Alias	10			
· O Object Wavigator			Description				
• 🕑 SAP			Service Map Icon				
QHELP@			Target System	10	188		
O OPERSONALIZEO			Default Page		Inactive		
, El Grenoureneg			Invisible		Highlighted		
			SAP GUI erzwingen				
			Object-Based Navigation	1			
			Method	Parame	eters		
			SalesOrder Display	ID=(NR	3&Mode=Display		

(OBN maintained in PFCG)

5.10.4 Parameter Mapping

For the parameter mapping itself, there are a few rules that are to be followed.

- 1. The starting point is the set of parameters that should be mapped.
 - 1. All those parameters that have a mapping are filled.
 - 2. Parameters for which no input value is supplied, are stripped.
 - 3. All static parameters are automatically forwarded.
- 2. In the second step, the incoming parameters are evaluated.
 - 1. All parameters used for mapping are discarded.
 - 2. For all incoming parameters where already a new value exists, the incoming parameter is dropped.
 - 3. The rest of the parameters are transparently forwarded.

Example	Example				
Inbound Parameters	Mapping Table	Outbound Parameters	Comment		
A=1	X={A}	X=1	\boldsymbol{x} is filled with the value of $\boldsymbol{A},$ \boldsymbol{A} is discard from the input set.		
B=2		B=2	B is not referenced and mapped through transparently.		
	¥=3	Y=3	$\ensuremath{\mathtt{Y}}$ is statically defined in the mapping and automatically used as outbound parameter.		
Z=99	Z=4	Z=4	z gets a new value from the mapping which is used as outbound parameter. The original inbound parameter is discarded.		
	Q={KLM}	(Q=)	For Q no value is supplied, it is discard (effectively set as outbound parameter with no value).		

Note that the parameter mapping is done on string values, no processing is done to change the data format or representation of the parameters.

5.10.5 Determining Parameters for Transactions

When an OBN call is mapped onto a transaction, parameter mapping is still possible. Use the technical information to determine the screen field names (as is usually used for batch input) for the startup screen of the target application. If all fields are available, the start screen fields are filled and the transaction sprints to the next field.

For example, assume that we wish to start transaction SU01 to show the information for the user ANZEIGER. As a first step, start the transaction in SAP GUI and determine the screen field name. In this example, we see that the value is USR02-BNAME.

2	🔄 YI3(2)/000 Techni	cal Information	
ER F1	Screen Data		
	Program Name	SAPLSUU5	
Performanc Assistant	Screen Number	0050	
	GUI Data		
	Program Name	SAPLSUU5	
ser Name in User	Status	START	
	Field Data		
	Table Name	USR02	
	Table category	Transparent table	
	Field Name	BNAME	
	Search Help	USER_COMP	
	Data Element	XUBNAME	
	Parameter ID	XUS	
	Field Description for	Batch Input	
	Screen Field	USR02-BNAME	

As a next step, the OKCode for the next screen must be determined. The simplest approach is via the menu path \blacksquare System \rightarrow Status... \P and then double click on the GUI Status field. This will lead to a status editor that will show all the OKCodes possible on this specific dynpro under *Function Keys*.

⊡ Users Edit	Goto Information E	Environment	System Help					
0	- 4 🔳	000	Create Session	I	🔞 🖪			
			En <u>d</u> Session					
User Mainten	nance: Initial Sci	reen	User Profile	•	<u>ndigilija</u>			
00000	l 🖴 💰		Services	•				
			Unines					
			Lisj Coniece for Object	,				
lass annia			Services for Object					
User anzeig			My Opecial Designation	,				
Miae			Own Spool Requests					
1105			Own Jobs					
			Otobus					
			Status					
			rogoit					
YI3(2)/00 System:	Status			×				
Usage data								
Client 000	Pre	vious logon	11.03.2010 14:	53:09				
User	Log	pon	177 777 7777 1777	and the second second				
SNC name p	0=SAP-AG	C=DE						
Language EN	Sys	tem time	🖌 Display Statu	s START,	Interface	SAPLSU	U5	
			4 + 42 B	i 🙆 🕴 🖻		g 📖 🚇	A + H	• •
SAP data								
Repositor data		SAP Syster	ser Interface	SAPLSUU5			Active	
Transaction	SU01	Componer	tenu Bar	🛛 🗖 🗖	Maintain	Users		
Program (screen)	SAPLSUU5							
Screen number	50	Installation	oplication Toolba	m 🔁 🚹				991911-1010
Program (GUI)	SAPLSUU5	Ligense ex	Function Keys	🛯 🔁 🚺	Maintain	User		1000000
GUI status	START	Unicode S)	Standard Toolbar					
			CHECK UPD	BACK	N	CANC	-	
			Ø 🔒	C	0			尚
Host data		Database						
Operating system	Linux	Database	Recommended Functi	on Key Sett	ings	0.000		
Machine type	x86_64	Release	F2 F9		SU02	Maintain I	profiles	3
Server name	1001913_113_33	Name	Shift-F2		DELE	Delete		1
Platform ID	Chesteron And Bolton Based And Based	Host	Shift-F4					
	000		ISh1ft-F5		COPY	Copy		m
		Owner	Shift-F5		COPY	Сору		
		Owner	Freely Assigned Fu	nction Keys	COPY	Copy	profile	
		Owner	Shift-F5 Freely Assigned Fu F5 F6	nction Keys	COPY ACTG SPRA	Copy Edit task	profile	
	,	Owner	Shift-F5 Freely Assigned Fu F5 F6 F7	nction Keys	ACTG SPRA SHOW	Copy Edit task Licence D Display	profile ata	

(Function Keys)

It is recommended to test the screen field names with values using the SAP GUI for HTML. The startup URL of the SAP GUI for HTML has the following format:

http://server:port/sap/bc/gui/sap/its/webgui?~transaction=*<TCODE><
SPACE><P1>=<V1>;<P2>=<V2>;<P3>=<V3>;DYNP_OKCODE=<CODE>

For this example, we could test with the following URL (using %20 as URL encoding of a space character):

http://server:port/sap/bc/gui/sap/its/webgui?~transaction=*SU01%20U
SR02-BNAME=ANZEIGER;DYNP_OKCODE=SHOW

	the damage free har and a state of the set o	
Display U	ser	
Menu 🖌	Back Cancel Exit System Display/Change Details	
lser .ast Changed On	ANZEIGER [15.01.2010] 15:54:31 Status Saved	
Address Person	Logon data SNC Defaults Parameters Roles Profiles	
Title Last name First name	ANZEIGER	
Academic Title		
Format	ANZEIGER	

With this data, it is now easily possible to define an OBN target onto a transaction. Let us assume that the OBN interface User.Display(username:string) has to be mapped. For the Dynpro OKCode a normal static parameter is added in the OBN mapping. This parameter will then automatically be added to the startup parameters for the transaction.

User.Display(username:string) -> SU01(USR02-BNAME={username} DYNP_OKCODE=SHOW)

		Copy Me	Additional Activitie	S A RED Other Node Detai	
erarchy	D. L.	T. O. Folder Option	Node Details		
🔁 Role menu			Туре	Transaction	
MyMenu Menu MyMenu Mew Product Data		Menu	Object	SU01	
Overview	Parameter Ass	signment			
Materials Generation	Object-Based Navigation				
· O Intro	Obj. Type	User			
 Display Sales Order 	Method	Display 12			
 Ø User Maintenance 	Priority				
 Object Navigator 	OBN Call In a New Window 👻				
• 🕑 SAP	Skip Selection Screen	n			
	a Marian				
	Parameter A	Assignment			
	Transaction SU01		Value User Display		
	USR02-BNAME		{anzeiger}		
	DYNP_OKCODE	Ø	SHOW		
	Annual				

(parameter mapping)

\wedge

For an OBN call onto a transaction, in all cases always define the transaction as a **transaction code**. Do not specify directly an SAP GUI for HTML URL! For the OBN parameter mapping, in all cases we use **standard URL encoding formats**. The NWBC runtime will transform the standard URL formats into the specialized format required by the SAP GUI for HTML.

6 Programming Aspects

This chapter will look at different aspects concerning programming aspects which play a role with regard to applications in NWBC. In addition to the information mentioned below, the following concepts are described:

- <u>6.1 Generating an External Startup URL for NWBC</u> [Page 94]: Outlines possible startup sequences for an NWBC shell.
- <u>6.2 Creating an NWBC Desktop Icon</u> [Page 102]: Explains the practical use and how to set up an icon with a startup URL for NWBC.
- <u>6.3 High-Level Architecture</u> [Page 104]: Provides an overview over the central classes and interfaces of the NWBC runtime.
- <u>6.4 ABAP-Based APIs</u> [Page 105]: Describes interface IF_NWBC_RUNTIME and class CL_NWBC.
- <u>6.5 HTTP REST Based APIs</u> [Page 109]: Lists the most prominent web services which are provided by NWBC runtime.
- <u>6.6 NWBC Application Context</u> [Page 114]: Highlights that the NWBC context can show which window is active, so that the application can use this information to decide whether a CLOSE/END button might be needed on the canvas.

6.1 Generating an External Startup URL for NWBC

There are times when you need to generate a startup URL for NWBC that can be started from other applications or locations. Typical examples could be a CAD program that wishes to start a specific transaction to review the bill of materials, or a special startup URL. It is highly recommended, and where possible, not to hand-code these NWBC startup URLs, but to generate them with the supplied API (see method CL_NWBC=>URL_CONSTRUCT).

In the following sections, you can find detailed information on these aspects of URL generation:

- 6.1.1 Short Form of URL [Page 94]
- 6.1.2 Long Form of URL [Page 96]
- <u>6.1.3 URL Construction</u> [Page 100]

6.1.1 Short Form of URL

The short variant of the URL described in the table below can be used to start NWBC with just a shell. The long variant of the URL described in <u>6.1.2 Long Form of URL</u> [Page 96] can load any type of content on startup.

By merging the different URL elements, the complete URL will look as follows:

```
[optional protocol handler://][optional authentication sequence@]<server sequence>/<ICF path>/[optional cockpit/]
```

Short URL						
Element	Optional	Only Desktop Client	URL	Description		
Email bootstrap	yes		url:	This element is available specifically for NWBC for Desktop: If the startup URL is to be embedded within an email, add the additional url: prefix, to signal to Microsoft Outlook that this is a startable link and that Outlook should treat this as a link that can be clicked.		
Protocol handler for desktop client	yes	yes	sap-nwbc://	The protocol handler is an extension added into Windows to allow NWBC to be started similar to a normal URL. When this "URL" starting with NWBC is used within a browser or from a startup icon, the NWBC shell itself will be started to handle the URL. This protocol handler is only needed if you intend to start NWBC for Desktop. If NWBC for HTML is to be started, the protocol handler must not be specified.		
Authentication	yes	yes	<name>:<password>[optional connection parameters]@optional connection parameters ;connection=ABAP portal ;proxy=<server>.<domain>. <ext>:<port> ;proxy- secure=<server>.<domain>.<e xt>:<port> ;proxy- authentication=<name>:<pass word></pass </name></port></e </domain></server></port></ext></domain></server></password></name>	Similar to ftp:// <name>.<password>@<server > to imbed authentication into the URL. Only supported with NWBC for Desktop. The connection is used to determine the type of server that will be connected to, the default is an ABAP server. The proxy parameters can be employed to optionally specify a proxy that should be used to set up the connection. Keep in mind that it is needed to usually specify both an HTTP proxy (<i>iproxy</i> sequence) and a proxy for HTTPS (<i>iproxy</i>-secure sequence). If needed, also supply the proxy authentication information (<i>iproxy</i>- authentication sequence). If a proxy configuration is specified, NWBC will change the Internet Explorer settings to use the proxy settings (for the current process) and will restore the original settings when terminated.</server </password></name>		
Server address			<pre>http(s)://<server>.<domain> .<ext>[:<port>]</port></ext></domain></server></pre>	For the server address, use the regular http(s):// sequence with a fully qualified domain name (FQDN).		
NWBC handler path			/nwbc /sap/bc/nwbc	This is the path within the ICF service tree to the NWBC handler. By default use /sap/bc/nwbc, or, if available, the		

Short URL					
Element	Optional	Only Desktop Client	URL	Description	
			/ <mycompany>/nwbc</mycompany>	shorter /nwbc alias. It is also possible to have a different ICF path specified within the ICF service tree.	
Cockpit	yes		/ <mycockpit> /<role_name></role_name></mycockpit>	Optional cockpit that is a filter onto the role repository. Alternatively, it is possible to use directly the name of a role that is then used similarly as a cockpit, namely, only this role will be displayed.	
Trailing slash /			/	The extra slash / is needed to lock the previous segment.	

Examples

A very simple link to start NWBC for HTML could be:

https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc

Similarly, a simple link to start NWBC for Desktop could be:

sap-nwbc://https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc

When the link is to be triggered from an email, add the url: prefix:

url:sap-nwbc://https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc

A more complex example (only relevant for NWBC for Desktop) that includes authentication information and also information to traverse a proxy, could be:

sap-nwbc://user:password;proxy=proxy.domain.corp:8080;proxysecure=proxy-domain.corp:8083;proxy-authentication=p-user:ppassword@https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc

6.1.2 Long Form of URL

For the long URL the first part consists of the short URL as described in <u>6.1.1 Short Form of URL</u> [Page 94], plus the following elements:

```
.../~canvas/<canvas type>/<client_type>/<canvas relevant
sequence>/[?parameter sequence][sap parameters]
```

Long URL	Long URL					
Element	Optional	URL	Description			
Canvas delimiter and options		/~canvas[;window=ma in app embedded]	<pre>If this is an URL that loads a specific canvas, then this ~canvas sequence must be available. Windowing qualifiers are optional. window=main: starts a shell window with both top and left navigation. window=app: starts an application window without navigation elements. window=embedded: starts the shell in rendered format that is embedded in foreign portals; only relevant for NWBC for HTML. Example: http://<server>.<domain>.<ext>:<port>/sap/nwbc/~c anvas;window=app/wda/myApplication/</port></ext></domain></server></pre>			
Target- specific description		<pre>/transaction/<trans action_code> [;client_type=aut o] ;client_type=sapg ui ;client_type=webg ui /wda/[<namespace>/] <name> [;client_type=aut o] ;client_type=html /url/<segment>/ /roleEntry/<role_na me>:<id> /sitemap /obn/<object>.<meth od> /applicationAlias/< alias></meth </object></id></role_na </segment></name></namespace></trans </pre>	 Segment that describes the type of canvas to load. These strings describe the possible canvases that can be used. transaction: This form is used to define that a specific (SAP GUI-based) transaction should be started. It is similar to starting a transaction within the OK-field in SAP GUI. By default, NWBC for Desktop will use SAP GUI to start the transaction, and NWBC for HTML will use SAP GUI to start the transaction, and NWBC for HTML will use SAP GUI to start the transaction, and NWBC for HTML will use SAP GUI to start the transaction, and NWBC for HTML will use SAP GUI for HTML. Use the client_type qualifier to force a specific rendering engine. This is specifically of interest when using NWBC for HTML, but needing the transaction to be executed in SAP GUI. For the transaction-specific sequence, specify the transaction that needs to be started. wda: Use this form to start a Web Dynpro ABAP (WDA) application. By default all Web Dynpro ABAP applications are started with an HTML-based rendering client. The client_type qualifier is here just used for possible future enhancements. For the specific sequence, specify the name of the Web Dynpro ABAP application. This could include an optional namespace if the application is not in the default SAP namespace. url: Defines an absolute URL on the server that must be started. Note that this is an URL relative to the server against which NWBC is started. For the url-specific sequence, specify the server absolute URL with any number of segments, each separated in the usual form by a / character. roleEntry: Use this entry to start a very specific entry in a very specific role. This is an absolute form of addressing. Here the name of the role is directly used, and within the role, the assigned numeric id. This number can be seen 			

Long URL				
Element	Optional	URL	Description	
			within PFCG on the <i>Menu</i> tab when <i>Other Node Details</i> is turned on (for more information, see <u>5.4 Navigation Tree</u> [Page 72] and <u>PFCG.01 Searching for Technical Names</u> [Page 174]). For the roleEntry specific sequence, specify the name of the role and the id (numeric number) for the specific entry in the role.	
			• sitemap : Use the sitemap sequence to embed a complete set of roles to an external portal. It is also possible to only imbed one role by specifying the role as optional part of the URL directly after the /nwbc sequence (see chapter <u>6.1.1</u> <u>Short Form of URL</u> [Page 94]). Typical use case would be to imbed a complete Employee Self Service scenario (for example, expressed via the role SAP_ESS) into a Microsoft SharePoint portal. With this one link a service map is embedded into the external portal that represents the complete role and can be used to start any transaction contained within the role.	
			• obn : Specifies that for the startup application much be determined by resolving the OBN call. This is a very good way to start a specific type of symbolic transaction, without knowing at that moment what the real transaction is that is mapped into the user's role. For example, assume the call sequence/obn/process.Monitor. Then for a normal user, a role could be assigned where this entry maps onto a monitoring application for his specific work area, whereas the area supervisor can have a different role which maps this OBN call in his assigned role onto a special application that gives an overall view over all work areas. For this obn-specific sequence, both the object and method must be specified.	
			• applicationAlias : Using an application alias is another form to start an application via a symbolic name. Within the role (in transaction PFCG), it is possible to assign symbolic names to role entries. For the PFCG this is just a user-defined string without any further meaning. This symbolic name can be used to enable NWBC at runtime to resolve the specific application that must be started.	
Trailing slash /		/	The extra slash / is needed to lock the previous segment and allow page-relative URLs to work.	
			The query string is passed as-is to the called application. It does not, and should not, contain any NWBC-relevant parameters or options.	
Query string	yes	?name=value&name=va lue&	If a transaction is to be started, the startup parameters must still be specified as normal URL parameters (in the format &name=value). At runtime, the parameters will be correctly transformed into the format required by SAP GUI for HTML.	

Long URL	Long URL						
Element	Optional	URL	Description				
		&sap-client= <nnn></nnn>					
SAP parameter	yes	&sap-user= <user name></user 	Note that an additional sap-client is always added to ensure an HTML URL always runs back into the correct client.				
		&sap-language= <xx></xx>					

Examples

For example, to start directly transaction ME21 in NWBC, use the sequence:

https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc/~canvas/transaction/ME21/

To force-start the same transaction in SAP GUI while using NWBC for HTML, add the client_type qualifier:

https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc/~canvas/transaction;c lient_type=sapgui/ME21/

To start the Web Dynpro ABAP application IT00, shipped by SAP in the default namespace, use:

https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc/~canvas/wda/IT00/

However, if the Web Dynpro ABAP application was developed in a specific namespace, it must also be specified. For example, to start /SRM/Inbox, use:

https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc/~canvas/wda/SRM/Inbox/

The start URL of a Web Dynpro ABAP application with certain Web Dynpro ABAP specific parameters can look as follows:

https://uxai5q35.wdf.sap.corp:44321/sap/bc/nwbc/~canvas;window=app/w
da/hress_a_persinfo/?WDCONFIGURATIONID=HRESS_AC_PERSINFO&sapclient=004&sap-language=EN

For example, assume we wish to specify a BSP application myApp that needs to be started, then use the url sequence and specify the complete URL to start.

```
https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc/~canvas/url/sap/bc/bs
p/sap/myApp/default.htm
```

To start a very specific entry in a role, without knowing what the entry is, use the roleEntry sequence. For example, given the role PROCESS_MONITOR, start entry 27 with this sequence:

https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc/~canvas/roleEntry/PRO CESS_MONITOR:27/

To embed all roles in an external portal, you can use for example an NWBC for HTML link that shows a service map for all roles:

```
https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc/~canvas;window=embedd ed/sitemap/
```

To embed one complete role in an external portal, you can use for example an NWBC for HTML link that selects a complete role and shows a service map for the role:

```
https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc/SAP_ESS/~canvas;window
=embedded/sitemap/
```

To use a symbolic call, consider to use an OBN call that is only resolved at runtime via the specific assigned roles. For example, to start a process monitor application, map the OBN sequence process.Monitor in the assigned role and use this startup URL:

https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc/~canvas/obn/process.Monitor/

To start an overview application, assuming the application alias OVERVIEW_APP has been defined for a specific entry within the user-assigned roles, use:

```
https://ldcibqi.wdf.sap.corp:44376/sap/bc/nwbc/~canvas/applicationAl ias/OVERVIEW_APP/
```

6.1.3 URL Construction

It is highly recommended to use the method cl_nwbc=>url_construct to create the startup URLs. The more interesting parameters of this method are as follows:

url_construct Parameters						
Parameter Name	Туре	Associated Type	Default Value	Description		
FOR_USE_IN_EMAIL	Importing	ABAP_BOOL	ABAP_ FALSE	Prefix sap-nwbc:// with url: for use in (MS Outlook) emails.		
HTML_CLIENT	Importing	ABAP_BOOL	ABAP_ TRUE	Use HTML Client ==> NWBC HTML		
SERVER	Importing	IF_HTTP_SERV ER [External]		Use for determining proxies in network		
COCKPIT	Importing	CSEQUENCE		Optional cockpit to activate		
ROLE	Importing	CSEQUENCE		Optional role that can be defined as "cockpit" to filter and show only the content of this		

url_construct Parameters				
Parameter Name	Туре	Associated Type	Default Value	Description
				specific role.
CANVAS_WDA	Importing	CSEQUENCE		Canvas = WDA: Web Dynpro ABAP ([/namespace/]name)
CANVAS_TRANSACTION	Importing	CSEQUENCE		Transaction code to start
CANVAS_URL	Importing	CSEQUENCE		Canvas = URL: must be server absolute URL! (start with /)
CANVAS_SITEMAP	Importing	ABAP_BOOL		A sitemap for the user-assigned role(s) is generated into the canvas.
CANVAS_ROLE_ENTRY	Importing	CSEQUENCE		Canvas = RoleEntry: role:object_id
CANVAS_OBN	Importing	CSEQUENCE		Canvas = OBN: object.method
CANVAS_WDACLIENT_ TYPE	Importing	String	auto	Client type of the canvas. Possible values: auto html
CANVAS_TRANSACTION_ _CLNT_TYPE	Importing	String	auto	Client type of the canvas. Possible values: auto sapgui webgui
QUERY_STRING	Importing	CSEQUENCE		Query string name=value format, already URL encoded
URL	Returning	String		Server absolute URL

See the API of the method for a complete overview of all parameters in the system.

When using url_construct, note that you need to place transaction parameters as normal query string parameters. Example to start a transaction with a parameter:

```
DATA: url TYPE string,
    query TYPE string.
CONCATENATE 'S_UNAME-LOW=' sy-uname '&abc=123' INTO query.
url = cl_nwbc=>url_construct(
    canvas_transaction = 'ST22'
    query_string = query ).
cl_nwbc=>url_launch( url ).
```

For a use case of startup URLs, see 6.2 Creating an NWBC Desktop Icon [Page 102].

6.2 Creating an NWBC Desktop Icon

You might want to always work with a specific role and not with all roles that are assigned to your user name. This can easily be achieved using the startup URL functionality as described in the previous section.

- 1. Create a startup URL that specifically targets NWBC for Desktop (sap-nwbc://).
- 2. Create a new desktop icon. This can typically be done via the context menu entries on your desktop ▶ New → Shortcut ◀.
- 3. Type in the startup URL and choose Next.
- 4. Type a name for the new shortcut and choose *Finish*.

The new shortcut appears on your desktop with the specified name. Note that URLs

starting with sap-nwbc are always assigned the NWBC shortcut icon: [[] (NWBC shortcut)

Examples

You might have several roles assigned in a certain ABAP system. In transaction SU01 you can see, for example, the following roles assigned to your user name: SAP_BPR_PPM, SAP_QAP_CFX_ADMINISTRATOR, SAP_QAP_XRPM_USER, and also ZNWBC_TEST. Now you can specify a startup URL for, say, SAP_BPR_PPM only and another one for ZNWBC_TEST only:

Example	
Role	Startup URL
SAP_BPR_PPM	<pre>sap- nwbc://https://mycompany.com:12345/sap/bc/nwbc/SAP_BPR_ ppm (BPR_PPM role)</pre>

Example	
Role	Startup URL
Role	Startup UKL sap- nwbc://https://mycompany.com:12345/sap/bc/nwbc/ZNWBC_TE ST image: sap- nwbc://https://mycompany.com:12345/sap/bc/nwbc/ZNWBC_TE image: sap- image: sap- sap- image: sap- image: sap- sap- image: sap- image: sap- image: sap- sap- image: sap- sap- image: sap- sap- image: sap- sap- image: sap- sap- image: sap- sap- image: sap- sap- image: sap- sap- sap- image: sap- sap- sap- sap- sap- sap- sap- sap-
	(ZNWBC_TEST)

Another example, to bootstrap a good demo, start with no roles assigned and start PFCG directly from such a "bootstrap" URL.

sap-

nwbc://https://myCompany.com:12345/sap/bc/nwbc/~canvas/transaction/pfcg/

	Personalize nelp			
	Search For:	In: All Content	Search Advanced L	og Off
op WorkCenter Fol	Top2 N	EW HOME New Product Data D	emo Product Data	▶
More 😵	n	- 4 🗉 😋 🚱 🛛 🖬 🕻	🔒 🖪 🕂 Transactions 📮	**
Role Maintei	nance			
ole		🗖 🖉 🚱 🚺 Single Role	Comp. Role	
ame				
💁 Views 🖌 🍞 🕻	😴 🛐 i 🦳 Show Do	cumentation		

6.3 High-Level Architecture

This section provides a high-level overview of the main components of NWBC runtime.



Architecture Block Diagram

The NWBC runtime is deeply rooted in the Internet Communication Framework ICF. You can find the NWBC HTTP handler class CL_NWBC_HTTP on the path /sap/bc/nwbc. The ICF node manages the following important aspects: authentication is configured here and it also makes NWBC available as HTTP service, the system logon can be configured here, etc. It is also possible to have the handler somewhere else in the tree. For more information, see <u>7.6 ICF</u> <u>Configuration</u> [Page 126].

Class CL_NWBC_HTTP manages all HTTP-related aspects for NWBC. In the first instance, it is responsible for parsing the rest of the entry URL to determine the required service (see also <u>6.5</u> <u>HTTP-Based APIs</u> [Page 109]). Once the service is determined, the specific ABAP-based service is called, and the returned data is handed to the HTTP response. The second important aspect of class CL_NWBC_HTTP is to manage and enforce security; specific services are only available/possible if the corresponding ICF nodes are active (see <u>4.2 Active Services in the ICF</u> [Page 51]).

All NWBC runtime code is implemented within the class CL_NWBC_RUNTIME. The NWBC API available on ABAP is defined on the interface IF_NWBC_RUNTIME, which declares all API calls (see <u>6.4 ABAP-Based APIs</u> [Page 105]). In addition, there is a low-level API, IF_NWBC_RUNTIME_CORE, that is not publicly exposed, but only used within the runtime. For specific exits, the enhancement interface (BAdl calls), IF_NWBC_RUNTIME_EXTENSIONS,

contains methods that are called at critical times from the runtime to allow collected information to be adapted or influenced.

Class CL_URL requires special mentioning. Although not strictly part of NWBC, it was developed together with the goal to have one unified place within the system where different types of URLs can be generated while taking into consideration the complexities of possible SM59 destinations to be resolved and possible configured proxies in the network.

Class CL_NWBC_HTML contains the complete code of NWBC for HTML. This class contains the HTML rendering engine itself, as well as all required MIME objects (CSS and JavaScript).

Class CL_NWBC is a general static utility class that contains calls for applications to use, mostly to generate NWBC-relevant URLs. For more information, see <u>6.4 ABAP-Based APIs</u> [Page 105] and <u>6.1 Generating an External Startup URL for NWBC</u> [Page 94].

Finally, transaction code NWBC uses class CL_NWBC to start NWBC for HTML in a browser. For more information, see <u>4.9 Transaction NWBC</u> [Page 64], <u>4.8 ~launch Page</u> [Page 63] and <u>7.6 ICF</u> <u>Configuration</u> [Page 126].

6.4 ABAP-Based APIs

NWBC provides an ABAP-based API (defined in the interface IF_NWBC_RUNTIME) that can be used directly within an ABAP session. This is the API that is used by NWBC for HTML directly and it is also the same API that is exposed via HTTP (see <u>6.5 HTTP-Based APIs</u> [Page 109]).

An instance of the runtime can be obtained by calling the method CL_NWBC_RUNTIME=>GET. The GET method will also run one singleton of the runtime that has been configured for the specific set of parameters. The following parameters can be specified.

GET Parameters			
Parameter	Optional	Description	
COCKPIT	yes	Filters the user roles to show only those roles that should be visible for the specific cockpit.	
ROLE_FILTER	yes	Alternatively, makes only this specified role visible within the NWBC runtime.	
SERVER	yes	ICF server object that can be used as the runtime for URL generation. This object is specifically of interest in cases where there are proxies in the network, as the URL generation code can determine from the server object all relevant settings.	
ICF_BASE_URL	yes	Direct path the NWBC HTTP handler within the ICF tree, by default /sap/bc/nwbc. For more information, see <u>7.6 ICF</u> <u>Configuration</u> [Page 126]	
BASE_URL	yes	The actual ICF path, which can be an alias, that was used to access NWBC, typically $/{\tt nwbc}.$	
FULL_QUALIFIED_BASE_URL	yes	The base url with server name and port. Used in cases where a fully qualified URL needs to be generated onto the NWBC runtime.	

For example, the minimal call to obtain an instance of the runtime would be:

DATA: nwbc_runtime TYPE REF TO if_nwbc_runtime.

nwbc_runtime = cl_nwbc_runtime=>get().

IF_NWBC_RUNTIME Methods			
Method	Description		
GET_CONFIGURATION	Returns all configuration data in one easy-to-use structure (IF_NWBC_RUNTIME=>T_CONFIGURATION). This is typically information on the system, such as system host and URL data.		
GET_SYSTEM_INFO	Returns all system-relevant information that is important for NWBC.		
GET_USER_INFO	Returns a small set of user information. This can be used to render a welcome string.		
GET_COCKPITS	Retrieves the list of configured cockpits that are available. These are the child nodes that have been configured within the ICF tree.		
GET_COCKPITS_WITH_ROLES	For all the cockpits configured, compute also the list of roles that are visible via each cockpit. This is specifically of interest to present to the user the cockpits and the typical applications that are within the cockpit for selection. See the <u>~launch</u> [Page 63] page as an example of usage of this API call.		
GET_ROLES	Returns all roles that are available for this user with the current instance of the NWBC runtime.		
GET_NAVIGATION_TREE	Returns a list of all menus configured over all roles for this instance of the NWBC runtime. This is the navigation tree that is presented to the user.		
GET_OBN_TARGETS	Returns the complete set of possible OBN targets for all roles that are visible within the instance of the NWBC runtime.		
RESOLVE_NAVIGATION	API call to resolve an OBN request.		
GET_ALL_RUNTIME_INFO	Exports all NWBC runtime data in one call. This method has only real value in cases of testing or exporting of a specific complete set of runtime information.		
GET_TROUBLE_SHOOTING_INFO	Gathers as much troubleshooting information as possible that can be used to answer specific questions on the system configured. This enables you to detect possible error situations.		

All API methods will return structures and internal tables that are defined and commented within the interface IF_NWBC_RUNTIME (see public section). Most of the names are self-explaining and are thus not further documented here. However, the three main structures are quickly highlighted.

IF_NWBC_RUNTIME=>T_ROLE			
Parameter	Туре	Description	
agr_name	agr_name	The role name (30 character key) as specific within PFCG.	
change_date	dats	Date on which the role was changed the last time.	
change_time	tims	Time on which the role was changed the last time.	
sort_index	i	Relative sort index of this role. Allows roles to be positioned relative to one another. This is just an integer number that can have any value on which will be sorted. The numbers do not have to be in sequence.	
home_role	abap_bool	Indicates that this role should be sorted to the front (where the home icon is), effectively sort_index = 1.	
name	string	User displayed name of the role.	
description	string	A long description string for the role.	
attributes	t_attributes	A freely defined set of attributes for the role (that could be used for further enhancements).	

IF_NWBC_RUNTIME=>T_OBN_TARGET			
Parameter	Туре	Description	
agr_name	agr_name	Role name in which OBN is configured.	
object_id	string	Specific role entry to which this OBN points.	
object_type	swo_objtyp	Key to business object, for example, SFLIGHT.	
object_name	string	User-friendly name for the business object, e.g. Flight.	
method	swo_verb	Key to the method, for example, DISPLAY.	
method_name	string	User-friendly method name, for example, Display.	
priority	i	If more than one OBN is available within the same set of roles, the priority is used to decide on which OBN entry to use. The highest priority (= highest number) is used.	
description	string	Descriptive text that describes the OBN mapping; not used at runtime.	
parms	string	List of name and value pairs for the OBN parameter mapping, stored URL-encoded.	

IF_NWBC_RUNTIME=>T_NAVIGATION_ENTRY			
Parameter	Туре	Description	
object_id	string	Node id: entry of the node over all selected roles.	
unique_id	string	Unique id that is computed to be "stable" for use in NWBC (sum of role name and origin_id)	
parent_id	string	Parent node id.	
sort_order	i	Sort sequence of the tree level.	
target_system	string	If this application must be started on a different server, this is the corresponding SM59 reference. For more information, see <u>5.9 Remote Systems</u> [Page 83].	
url	string	Application URL.	
is_hidden	abap_bool	This entry is not shown in the navigation tree. For more information, see <u>5.4 Navigation Tree</u> [Page 72].	
is_disabled	abap_bool	The entry is visible in the navigation tree, but disabled. For more information, see 5.4 Navigation Tree [Page 72].	
is_emphasized	abap_bool	The entry should be visualized more prominent in the navigation tree. For more information, see <u>5.4</u> <u>Navigation Tree</u> [Page 72].	
force_sapgui	abap_bool	Enable native SAP GUI rendering in the browser.	
is_home_page	abap_bool	Home page of the parent folder. For more information, see <u>5.5 Default Pages and Service Maps</u> [Page 77].	
is_service_map	abap_bool	This folder requires a service map. For more information, see <u>5.5 Default Pages and Service Maps</u> [Page 77].	
link_collection	abap_bool	This folder is part of link collections. For more information, see <u>5.6 Link Collections</u> [Page 79].	
single_top_level	abap_bool	Display only one top-level entry, the rest on the left panel. For more information, see <u>5.7 Single Top Level</u> [Page 80].	
menu_entry	abap_bool	These entries belong in the top menu. For more information, see <u>5.8 Menu</u> [Page 81].	
text	string	Display text.	
description	string	Tooltip text.	
icon	string	icon is only relevant for folder root nodes (level=1) when visualized on the shell.	
IF_NWBC_RUNTIME=>T_NAVIGATION_ENTRY			
-------------------------------------	-----------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--
Parameter Type Description		Description	
icon_for_service_ map	string	icon_for_service_map is only relevant for folders when displayed in a service map (48x48), format ~Pictogram/name. For more information, see <u>5.5</u> <u>Default Pages and Service Maps</u> [Page 77].	
is_top_level	abap_bool	Flag to indicate that the node is a top-level node.	
has_children	abap_bool	This flag is set if the node has children.	
application_alias	string	A string with no further meaning that applications can configure in PFCG to recognize entries again during a BAdI call.	

Class CL_NWBC

Class CL_NWBC contains external functionality for NWBC. The two central methods are listed below.

CL_NWBC Methods		
Method	Description	
URL_CONSTRUCT	Contructs an NWBC URL onto a shell: It is possible to specify directly the relevant application to load in the canvas.	
URL_LAUNCH	Launches an NWBC URL: NWBC for HTML is launched in a browser, NWBC for Desktop is launched directly as application.	

6.5 HTTP REST Based APIs

The NWBC runtime provides three different sets of HTTP REST APIs. For external usage, the ATOM APIs are recommended. They provide a high-level export of all roles with entry points to start any of these roles within an NWBC shell that can be embedded in a foreign environment. Typical use case would be to consume all roles for a specific user and make them available in another type of "portal". For more information, see <u>6.5.1 ATOM Based APIs</u> [Page 110].

The other APIs are mainly used internally. One set of APIs are used by NWBC for Desktop to interact at a fine granular level with the NWBC runtime (see section <u>6.5.2 APIs to Export Detailed</u> <u>Information</u> [Page 113]), the second set similarly used by SAP Enterprise Portal (see section <u>6.5.3 APIs to Export Content to SAP Enterprise Portal</u> [Page 114]) to retrieve role information from the NWBC runtime.

6.5.1 ATOM Based APIs

Within the internet, the **Atom** standard is used do describe "feeds" of information. This is typically used by, for example, by news web sites, to publish a list a of new articles that are available for reading. It is a simple XML-based format that is loaded via an HTTP request.

The NetWeaver Business Client runtime exports the OData format (which is an extension of the Atom Syndication Format, see also <u>http://www.odata.org/developers/protocols/atom-format</u>) for publishing role information in a standard way that is understandable for other software. The base URL for accessing atom services is:

```
http://<server>/nwbc/~atom
```

At the root level, a service catalogue is rendered, containing a list of services currently active for publishing. Example of NWBC root atom catalogue:

```
</service>
```

Explanation of the Atom Response		
Entity	Occurrence	Description
service	1	Service root node.
xml:base attribute	1	Service base address.
workspace	1	Corresponds to the catalogue root node.
atom:title	1 Title of the catalogue and service / or emberservice catalogue names.	
collection	1	Corresponds to every available service or service catalogue
href attribute (in collection)	11	Relative URL for services or embedded catalogues (relative to xml:base).

For navigation to published services or other catalogues just use xml:base and href. For the roles services, the URL would be:

```
https://<server>/nwbc/~atom/roles
```

Roles Services Catalogue

Roles services catalogue is similar to the root catalogue listing the roles services as containing a collection list.

Example of a roles services catalogue:

```
</service>
```

From within the roles services, use xml:base and href to access the role list. The URL is as follows:

https://<server>/nwbc/~atom/roles/list

Roles List Service

The roles list service exports the list of roles assigned to each user with a high-level entry that can be imbedded into any HTML page to visualize this specific role.

As a result of the service call, you get a feed document containing OData entries, where one entry represents a specific role. The request is for the specific user currently logged, so the feed contains only the entries for roles assigned to the user.

If for testing such a service URL is called directly within a newer browser (for example, Firefox, Opera, Microsoft Internet Explorer 7 and higher), the browser itself will recognize the atom format and will display an HTML-rendered page for the content. To see the real XML representation of the data, use the *View Source* function of the browser.

Example of the response of roles list service:

Explanation of the Atom Response			
Entity	Occurrence	Description	
food		Root service node.	
xml:base attribute	1	Base URL of the service catalogue (not a service!).	
title node		Name of the service.	
id node	1	Id of the service, containing the absolute	
updated node	1	service URL.	
link rel="self"	1	Timestamp of the last role list change.	
node		Relative link to a service, from catalogue base url.	
entry node		Entry nodes corresponding to every role assigned to the user.	
title node	0N	Role name.	
id node	1	Unique ID of the role entry, which can be used	
updated node	1		
link role="edit"	1	I imestamp of the last role modification to this role.	
node	1	Obligatory node for direct access to role	
link	1	modification. Currently not supported.	
role="alternate" node		Node with absolute link (attribute href) to a role service map.	

The URL itself gives a sitemap for one specific role. For URL formats and generation, see chapter <u>6.1 Generating an External Startup URL for NWBC</u> [Page 94]. . See also chapter <u>8.1 How To</u> <u>Integrate NWBC into a Microsoft SharePoint Portal</u> [Page 133] on background information on integrating NWBC for HTML into different portals, for example Microsoft SharePoint.

6.5.2 APIs to Export Detailed Information

The NWBC runtime exposes some of the API calls available on the interface IF_NWBC_RUNTIME also as HTTP REST based API calls. Each of the HTTP based API calls just wraps the internal ABAP API call. All calls have effectively the same URL format:

../nwbc/~api/method?parameters. The following methods are provided.

Web Service	Maps to	Description
/nwbc/~api/Ge tSystemInfo	IF_NWBC_RUNTIME=>GET_CONFIGUR ATION and IF_NWBC_RUNTIME=>GET_USER_INF O	The call has no input parameters. It returns an XML response of the <u>GET_CONFIGURATION</u> [Page 105] and GET_USER_INFO calls together in one structure. The XML format follows the normal ABAP identify transformation.
/nwbc/~api/Ge tNavigationTree	IF_NWBC_RUNTIME=>GET_NAVIGATI ON_TREE	The call has no input parameters. It returns an XML response of the <u>GET_NAVIGATION_TREE</u> [Page 105] call. The XML format follows the normal ABAP identify transformation.
/nwbc/~api/Re solveNavigation	IF_NWBC_RUNTIME=> RESOLVE_NAVIGATION	The call returns an XML response of the <u>RESOLVE_NAVIGATION</u> [Page 105] call. The XML format follows the normal ABAP identify transformation. This API call accepts a number of incoming parameters that are mapped onto the ABAP- internal API call. The HTTP exposed parameters are: SOURCE, SOURCE_ROLE, etc

For a quick test of the REST based APIs, call the URL .../nwbc/~api directly.

6.5.3 APIs to Export Content to SAP Enterprise Portal

For communication with an enterprise portal several APIs are available.



The portal APIs are protected in the following ways:

- The ICF service /sap/bc/nwbc/exprt_sapportal needs to be activated explicitely. For more information on ICF configuration, see <u>7.6 ICF Configuration</u> [Page 126].
- The authority object S_NWBC must have the following settings for its authorization fields:

Field	Value
ACTVT	33
AUTH_VALUE	NWBC_EXPORT_SAPPORTAL

The following methods are provided:

Method	Description	
<pre>/nwbc/~sapportal/RoleAssi gnment?user=<use r=""></use></pre>	This method lists the roles that have been assigned to the user. This corresponds to the information provided by <u>GET_ROLES</u> [Page 105]. Information can be queued for one as well as for several user names.	
<pre>/nwbc/~sapportal/RoleInfo rmation?role=<role1>&&rol e=<rolen></rolen></role1></pre>	For each role, this method lists detailed information about the role itself, as well as the navigation tree for the role. This corresponds to the information provided by a combination of GET_ROLES and GET_NAVIGATION_TREE.	
/nwbc/~sapportal/RoleModi fiedSince?role= <role>&&ro le=<rolen>[&from= YYYYMMDDhhmmss]</rolen></role>	For a given set of roles, this method returns only those roles that have been updated since the supplied timestamp. This corresponds roughly to the information provided by GET_ROLES.	
/nwbc/~sapportal/	Test page for interactive test of ~sapportal methods. In contrast to a direct call, method parameters are limited to one user name / role name, respectively.	

6.6 NWBC Application Context

When NWBC starts an application, it will provide on the URL a startup parameter sap-nwbccontext (CL_NWBC=>CONTEXT_HTTP_FORM_FIELD) that tells the application some information about the context in which the application was started. NWBC itself does not require the information, it is only of relevance if the started application has an interest in this information. All applications (or application frameworks) can retrieve this context and within the started session supply the startup context to NWBC with the method CL_NWBC=>CONTEXT_SET_FROM_HTTP_REQUEST. The context string is stored statically within the session and can then be retrieved at any time. Note, if the application is running stateless, the application should take care to preserve the context string over roundtrips and re-initialize the string each time to NWBC (if this context information is required). For <u>Web Dynpro ABAP</u> [External], these steps are already completed automatically by the Web Dynpro ABAP runtime, making the startup context available within the session for the application to reference.

The NWBC context can be retrieved at any time with the CL_NWBC=>CONTEXT_GET call. This method will return a structure with all relevant context information. (Note that in future the structure can be extended to contain more information.) Most important, directly after the context has been retrieved, the application should validate that a valid context actually does exist.

Example:

```
DATA: nwbc_context TYPE CL_NWBC=>T_CONTEXT.
nwbc_context = CL_NWBC=>CONTEXT_GET( ).
IF nwbc_context-valid = abap_true.
    ... here the rest of context can be referenced ...
```

ENDIF.

At the moment the following information is returned in the context:

Name	Туре	Description	
valid	abap_ bool	Set to abap_true if the NWBC context has been initialized for this ABAP session.	
runtime_version	string	The value of the current ABAP runtime (if_nwbc_runtime=>version).	
role_name	string	The name of the role that contains the application.	
role_id	string	The ID of the entry within the role.	
nwbc_shell	string	The current flavour of active NWBC : either NWBC for Desktop (CL_NWBC=>FOR_DESKTOP) or NWBC for HTML (CL_NWBC=>FOR_HTML).	
canvas_window	string	Indicates the type of window in which the application has been started: main shell window (CL_NWBC=>CANVASWINDOWMAIN), an application window (CL_NWBC=>CANVASWINDOWAPP) or an embedded window in an external portal (CL_NWBC=>CANVASWINDOWEMBEDDED).	

7 Security Aspects

This chapter contains an overview of security aspects and recommendations relevant to using NetWeaver Business Client (NWBC). As security is a wide ranging, but important aspect that affects the server and the client, all security relevant aspects are described together here in this chapter. After the most basic recommendation to always use HTTPS for communications, the most interesting aspect is that of authentication. A large part of the chapter will be dedicated to draw parallels between the standard authentication processes which are available in any browser-based access to an SAP server and the authentication process as is supported by NWBC. This will include looking at: first authentication needed when each new application is started. On a small scale, the use of the Internet Communication Framework (ICF) to control access to NWBC services on the server is discussed.

This chapter will describe security concepts just at a high-level as far as they are relevant to NWBC. However, for detailed discussion of how specific security concepts are implemented in SAP servers, and especially their configuration, a reference will each time be made to the relevant documentation that covers that topic in depth.

In detail, this chapter has the following sections

- <u>7.1 NWBC and Authentication</u> [Page 117]: Describes in general the authentication process from NWBC to the server. This section is important to understand that in principle the authentication process in NWBC is exactly equivalent to the authentication process as is managed in a browser.
- <u>7.2 Use of Digital Certificates</u> [Page 118]: Goes into depth on how single sign-on can be achieved with the use of digital certificates.
- <u>7.3 Logon Tickets</u> [Page 121]: Explains the prerequisite of logon tickets (MYSAPSSO2 cookies) to be available to handle the re-authentication process when starting a new application in the canvas.
- <u>7.4 Trusted Relationships</u> [Page 123]: Extends the authentication process over multiple servers.
- <u>7.5 Configuring Authentication on the Server</u> [Page 124]: Groups all relevant server configuration information. This is mostly a set of references to other relevant information for in-depth information.
- <u>7.6 ICF Configuration</u> [Page 126]: Describes the use of ICF to control HTTP access to NWBC runtime.
- <u>7.7 Certificate Error Popups in the Browser</u> [Page 127]: Very specifically highlights problems around the use of digital certificates that typically are perceived as error situations, although they are usually just different variations of invalid certificates.

When using HTTPS, it is highly recommended to read at a minimum section 7.2 around the prerequisite of installing Microsoft hotfix 919477.

7.1 NWBC and Authentication

The Business Client instantiates and uses a normal Internet browser for the authentication process. The same authentication process is used in the Business Client as in the browser. The advantage of this is that all different types of authentication processes supported in the browser are also supported in the Business Client, including the use of digital certificates or other browser-based authentication systems.

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Since NWBC uses a Microsoft Internet Explorer browser to render all HTML-based canvases, **all** (security) settings from the Microsoft Internet Explorer also apply to all HTML content that is rendered with NWBC.

In more detail, the NWBC's approach to authentication is to load a very specific URL from the server. As a first step, a popup window is displayed that hosts an Internet Explorer (IE) control. The IE is set to load a page called ticket issuer. The first request to the server on this URL (in the browser instance) will cause the server to trigger the authentication process. There can be any number of browser-based steps to complete the authentication process, using any authentication process that the server supports for browser-based login, for example, basic authentication forms-based authentication or authentication based on digital certificates.

Once the user is authenticated, a MYSAPSSO2 cookie (logon ticket) is set by the server and the ticket issuer page is loaded. The logon ticket is absolutely required, for all further steps, as the way that NWBC will pass authentication information to all applications started. The ticket issuer page itself is just a simple page so that NWBC can recognize that the authentication process is completed and a logon ticket has been issued.

In summary, for authentication, NWBC will use a browser instance to load a simple URL. This is only done to trigger the server-configured authentication process to complete authentication itself and obtain a logon ticket. From this logon process comes the statement that NWBC supports all authentication processes that run in a browser against the server.

To test this authentication process in a browser against an ABAP server, just load this URL into the browser:

Example: https://<server>.<domain>.<ext>:<port>/sap/bc/nwbc/TicketIssuer

Observer that any form of authentication process is triggered and thereafter a simple XML page is displayed. With any HTTP trace tool it should be possible to see the logon tickets (MYSAPSSO2 cookie) within one of the last HTTP responses. Similarly, against a portal server, the ticket issuer URL is as follows:

Example: http://<server>.<domain>.<ext>:<port>/TicketIssuer/TicketIssuer

NWBC does not store or persist any authentication data in any form.

Because NWBC uses a standard Internet Explorer control to run the standard browser-based logon, the logon screen in the browser and in the NWBC look exactly the same:

🟉 Logon - '	Windows Internet Explorer			
00.	ttps://pwdf6391.wdf.sap.corp:44321/sap/bc/n	wbc/nwbc_l 🔻 🔒 🐓 🗙 Google Search	۶ -	
🚖 🎪	🖅 Logon	🚹 • 🗟 • 🖨 •	r 🔂 Page 🔻 🥥 Tools 👻 🥍	
		SAP NetWeaver System: B20 Client: * 000 User: * Password: * Language: English		
	Recent Exurcities Derencelities Hein	Change Password		
	Recenic Pavonites Personalize Help	c		
		Search For:	Search	•
Done		SAP NetWeave	▶ ■ sibility	c
		Copyright © 2007 SAP A.G. All rights r	reserved. Log On to '820	_4'

(Same logon windows in the browser and NWBC)

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It is the responsibility of customers to make whatever security settings are necessary in the browser. Pay particular attention to your proxy settings. Business Client uses the security settings from the customer's browser. NWBC does not store or persist any authentication data in any form.

7.2 Use of Digital Certificates

Under the expression "Single Sign-On" (SSO), there are often different aspects that are used interwoven. Of importance is first the aspect of digital certificates that can be used for an initial authentication against a server. In this case digital certificates are just an alternative

authentication, instead of the more typical basic authentication or form-based authentication. The use of digital certificates for authentication has a very high set of prerequisites, the most important being (a) the configuration and usage of HTTPS and (b) installing the digital certificates into the secure store on each client. The single sign-on problem that digital certificates solve is only that of the initial authentication.

The second aspect after an initial authentication, is that authentication is required for each application that is started. How can the user-supplied authentication from the initial authentication cycle be reused when starting each new application? In this case, the user also expects a single sign-on working mode, where applications can be started with a new authentication cycle. This aspect is handled with logon tickets (MYSAPSSO2 cookies). After the initial authentication, the server will issue such a cookie, which is effectively just the user's name digitally signed in such a way that whenever the cookie is presented again at the server, it will be accepted as a form of authentication. For all subsequent requests, also when new applications are started, this logon ticket is part of the request to the server, thus carrying the authenticated user name.

Within the web context, digital certificates always refer to X.509 certificates. A digital certificate binds a public key to a distinguished name that is issued by a certificate authority. The important aspect here is that a certificate is so constructed (digitally signed by a certificate authority) that the receiving party can again validate the distinguished name. The distinguished name itself is usually of the form C=<country> O=<company> CN=<certificate_name> and can include other attributes that uniquely name a person. There are standard procedures whereby a company can obtain and issue such certificates to each employee. The first step is to import the certificate into the browser. With this, the browser now has our identity in a digital format that can be verified again by the server. The next step is to update the ABAP server be able to map the distinguished name onto a user name. This mapping can be configured with transaction SM30, in the table VUSREXTID. The external ID is the distinguished name from the digital certificate and must be entered exactly the same into the table, including the preservation of case and spaces.

The browser must now send the certificate to the server: The moment the protocol is switched from HTTP to HTTPS, the certificate is automatically sent as part of the encryption layer used to secure the HTTPS connection. No further work is required.

The switching from HTTP to HTTPS is triggered by the logon application that is configured within the ICF tree for the NWBC node. This logon application will (in its default configuration) as a first step in the authentication process do a protocol switch (only if HTTPS is available on the server). If then a digital certificate is provided that can be mapped onto a user, the authentication process is completed automatically.

As the configuration of HTTPS, the use of digital certificates and logon tickets are very closely related, all relevant documentation links to the security documentation will be provided in <u>Configuring Authentication on the Server</u> [Page 124].

For detailed information in configuring SAP's servers to use digital certificates, refer to referenced documentation. However, a few small topics that are very relevant for NWBC when using digital certificates we wish to highlight here. These are the option of using SAP's Passport service to obtain digital certificates, the prerequisite to Microsoft hotfix 919477 when using digital certificates and a highlight of how certificate mapping needs to be configured on the server.

Using SAP as Supplier of Digital Certificates

Customers can use SAP Trust Center Services for issuing SAP Passports. Here the ABAP system functions as Registration Authority (RA) and SAP acts as Certification Authority (CA).

In this case, the SAP Trust Center is used to obtain certificates for both the server and all the clients. This is one way to set up a system landscape where digital certificates can be used to achieve single sign-on. For more information, see <u>Using SAP Passports Provided by the SAP</u>

<u>Trust Center Service</u> [External]. You can find more information on SAP Trust Center Services and the certificate policy of the SAP Passport under <u>http://service.sap.com/~form/sapnet? SHORTKEY=01100035870000437021&SCENARIO=0110</u> 003587000000202& .

Prerequisite Microsoft Hotfix 919477

During the setup of an HTTPS connection, the server and the client will optionally exchange digital certificates to identify the client to the server. The server has the option to request such a certificate and the client has the option to either send one or not to send one.

Specifically, the client needs to either select a certificate to send to the server or must inform the server that it has no acceptable certificate available which the server can validate. In these cases, the client will signal its decision with an API call to the underlying Microsoft Window's HTTP stack. For using these API calls under Windows XP, service pack SP01 and SP02, an additional hotfix is required and mandatory. Without this hotfix, it is not possible to use digital certificates.

When using **Microsoft Windows XP**, request and install Microsoft hotfix KB919477. When using **Microsoft Vista**, the API calls already have the correct functionality and no hotfix is required.

Another aspect that is resolved with this hotfix, is that the certificate selection dialog is not displayed if not needed. If there is only one matching certificate, it will automatically be used.

WBC Certificate Selection	ion at server test0482.me.san.com.
Issued by	Friendly name
🕮 DO_NOT_TRUST_FiddlerRoot	None
BO_NOT_TRUST_FiddlerRoot	None
🚟 SAP Passport CA	SAP Trust Community ID von S0004
🚟 SAP Passport CA	None
BO_NOT_TRUST_FiddlerRoot	None
BO NOT TRUST FiddlerRoot	None
ОК	Cancel <u>V</u> iew Certificate

(Example of certificate selection dialog without hotfix)

An alternative solution would be to disable the usage of digital certificates with HTTPS traffic. This will still result in the secure encrypted communication with HTTP, but will require the user to do a manual authentication (logon) step. This can be configured on AS Java, AS ABAP, or SAP Web Dispatcher by setting the profile parameter icm/HTTPS/verify_client=0. With this setting, the server will not request any digital certificate from the client, enabling the client to use a HTTPS connection without using the certificate APIs.

For more information, see <u>http://support.microsoft.com/kb/919477</u> and <u>icm/HTTPS/verify_client</u> [External].

Certificate Mapping

There are standard procedures whereby a company can obtain and issue such certificates to each employee. It is outside the scope of this documentation to describe different companies that provide digital certificates. One idea could be to use SAP's Passport service as described previously.

- On the client, Import the certificate into the browser, typically via ▶ Internet options
 →Certificates... ↓
 With this, the browser now has the user's identity in a digital format that can be verified by the server.
- 2. For each user on the ABAP server, map the distinguished name onto a user name via transaction SM30.
 - 1. Start transaction SM30.
 - 2. In Table/View enter VUSREXTID and choose Maintain.
 - 3. Select DN as *Work Area* and choose *Enter*. Ensure there is an entry for assignment of external IDs to user names. The external ID is the distinguished name from the X.509 certificate and must be entered exactly the same into the table, including the preservation of case and spaces. The user name is the AS ABAP user name.
 - 4. Ensure that the checkbox Active is checked.
 - 5. Save your settings.

For more information, see Configuring the System for Using X.509 Client Certificates [External].

Testing Single Sign-On

Testing single sign-on is relatively easy, in that you must test just that there is no authentication step. In a browser, just start any URL against the server and validate that the application is started directly without authentication. Similarly in NWBC, verify that no authentication step is required.

7.3 Logon Tickets

Single Sign-On (SSO) allows users to authenticate themselves once, and then log on to all of those systems that operate in the Single Sign-On environment without further intervention. This is based on the use of an HTTP cookie (MYSAPSSO2 cookie or logon ticket) which stores the user's identity.

Once the user has been authenticated, and if the server is so configured, it will set a logon ticket that is typically valid for the complete domain. The server can also be configured to set the cookie to be returned only to the specific server. Now, on all subsequent HTTP requests, the browser will send the cookie with the HTTP request. The targeted server then can use the information within the cookie as credentials to authenticate the user.

The SAP NetWeaver Business Client (NWBC) is a shell that is able to start different canvasses, based on different UI technologies, for example SAP GUI or HTML. Each of these canvas types has their own communication channel to the underlying server and needs authentication information to access the server. To pass authentication information in a secure fashion from the shell to the different canvas types, you must configure the server to use **logon tickets** (MYSAPSS02 cookies). Logon tickets also enable the NWBC to start applications against multiple systems.

\wedge

The activation and correct configuration of logon tickets is an absolute prerequisite for using the NWBC against any server.

Testing Logon Tickets with a Browser

Log on to a test system with a browser. If logon tickets are incorrectly configured, the following error message appears, which means that there is still a configuration error.

Lo	igon				
(A SSO logon not possible; browser logon ticket cannot be accepted				
l	Choose "Logon" to continue A dialog box appears in which you can enter your user and password				
	System	USB			
	Client *	200			
	User	Via Popup			
	Password	Via Popup			
	Language	English 🔻			
		Accessibility			
		Log On			
()	Change Password				

(SSO logon not possible; browser logon ticket cannot be accepted)

Testing Logon Tickets with the NWBC

Log on to a test system with the NWBC. The usual logon screen appears.

Recent	Favorites	Personalize	Help	
			Logon System USB Clent* 200 User* Password* Language English Change Password	
				Log On to 'USB'
			SAP	

(Example of NWBC logon dialog)

Enter your user name and password and choose *Log On*. If logon tickets are incorrectly configured, the following error message appears:

Connect	ing to 'X3T' failed
0	The backend of connection 'X3T' returned a fatal error: unauthorized (401)
	Please check your SSO2 configuration according to SAP note 900000.
	Close
(Example	e of NWBC SSO2 error message)

7.4 Trusted Relationships

The second main use of logon tickets are to authenticate the user against other systems. When accessing another system, the foreign system must also validate the digital signature and if correct, extract the user name from the cookie. For this to work, the two systems must be in a **trusted relationship** with one another. Effectively, both systems have information about the digital certificates of the other system which allows them to verify signed information from the other system.

For a trusted relationship, all relevant systems must be configured to accept the logon ticket of the other system. For more information, see <u>Maintaining Trust Relationships between SAP</u> <u>Systems</u> [External].

Note that the SAP user ID must be the same on all systems.

Testing Trusted Relationships in the Browser

1. Log on to test system A with this URL, for example:

http://pwdf6391.wdf.sap.corp:50021/sap/bc/bsp/sap/it00

Now you have the logon ticket.

2. Change the URL in the browser, directly at the top in the address field, to be against test system B, for example:

http://us4184.wdf.sap.corp:1080/sap/bc/bsp/sap/it00

If the two systems were in a trusted relationship, this second link onto the second system would have started the application **without** asking again for authentication.

To confirm this test, use any HTTP tracing tool, for example HttpWatch (see <u>http://www.httpwatch.com</u>) or Fiddler (see <u>http://www.fiddler2.com</u>), and then look at the cookies exchanged:

MYSAPSSO2 Sent AjEx...

What this shows is that the browser sends to the second system the logon ticket it has.

This basic test has to work successfully if the systems are in a trusted relationship.

7.5 Configuring Authentication on the Server

Authentication against an ABAP System

To access a Web application, AS ABAP uses the HTTP framework from the Internet Communication Manager (ICF), which provides functions for <u>Defining the Logon Procedure</u> [External].

A simple process is available for configuring the <u>system logon</u> [External] (ICF system logon application). In addition, you can <u>customize the logon information</u> [External] according to your needs, for example, system ID, client, language, system messages, logon and system information.

Important for NWBC is that all users must be **dialog** users which can be configured in transaction SU01. This is a prerequisite for NWBC to enable the HTTP framework to issue a logon ticket and to enable NWBC to display SAP GUI based transactions. For more information, see <u>User Types</u> [External] and <u>Logon Tickets</u> [Page 121].

With this, authentication against an ABAP system reduces to the normal authentication process as is standard for all Web-based applications on an ABAP stack, for example, BSP and Web Dynpro ABAP.

Settings for the Configuration for SSL support are particularly important for <u>Security with AS</u> <u>ABAP</u> [External]. The logon ticket cache function is provided for increasing performance when there are multiple logons.

More information:

- Network and Communication Security [External]
- <u>SAP NetWeaver Application Server ABAP Security Guide</u> [External]
- Using the Secure Sockets Layer Protocol with the AS ABAP [External]
- Authentication and Single Sign-On [External]
- Configuring the AS ABAP for Supporting SSL [External]
- Using Logon Tickets [External]
 - o <u>Configuring the System for Issuing Logon Tickets</u> [External]
 - o Configuring the System to Accept Logon Tickets [External]
 - o https://wiki.sdn.sap.com/wiki/display/BSP/Cookie+Problems
 - o SAP notes <u>1302734</u> and <u>1257108</u>
- <u>Security Issues in Web Dynpro for ABAP</u> [External]

Authentication against a Portal System

The Business Client uses the **Ticket Issuer** to log on to the J2EE server. The logon must be property configured in the J2EE engine for this to work correctly.

- 1. Call the SAP NetWeaver Administrator.
- 2. Go to Configuration Management.

- 3. Choose Authentication.
- 4. Select the sap.com/tc~sec~sso~app*ticketissuer component.
- 5. Enter the following as the assigned *login modules*:

EvaluateTicketLoginModule	SUFFICIENT
ClientCertLoginModule	OPTIONAL
CreateTicketLoginModule	SUFFICIENT
BasicPasswordLoginModule	REQUISITE
CreateTicketLoginModule	OPTIONAL

6. This may appear as follows:

Authentication: Au	thentic Home History, Back Forward Personalize, Help Log Off						
	Components Login Modules						
Authentication	Type: Vame: ticketissuer Edit Save Revert Refresh						
Related Tasks	Search Clear Form Advanced Search						
Trusted Systems	Components						
	Component Policy Configurations						
	Add Remove						
	Name Used Template Type						
	sap.com/tc~sec~sso~app*ticketissuer Web						
	Details for selected component						
	Component Name: sap.com/tc~sec~sso~app*ticketissuer Component Type: Web						
	Referenced Authentication Template:						
	Login Modules						
	Add Remove Move Up Move Down						
	Login Module Name *Flag						
	EvaluateTicketLoginModule SUFFICIENT						
	ClientCertLoginModule OPTIONAL						
	CreateTicketLoginModule SUFFICIENT						
	BasicPasswordLoginModule REQUISITE						
	CreateTicketLoginModule OPTIONAL						

(Ticket Issuer)

More information:

- Portal Security Guide [External]
- AS Java Security [External]
- SAP NetWeaver Application Server Java Security Guide [External]
- Configuring the Use of SSL on the J2EE Engine [External]
- Using Logon Tickets [External]

7.6 ICF Configuration

As NWBC is an HTTP-based application framework, it also supports the usual security concepts as they are offered in the Internet Communication Framework (ICF). For more information, see <u>ICF Scenarios</u> [External].

Whenever NWBC (as a shell, not the canvases) accesses the ABAP server, this is handled by the **NWBC HTTP handler** CL_NWBC_HTTP. You can find this handler in the ICF service tree (transaction SICF), under /sap/bc/nwbc. To allow the NWBC to access the server, the corresponding node has to be active in the ICF tree. For more information, see <u>4.2 Active Service</u> Nodes in the ICF [Page 51].

In addition, there is also an **external alias** /nwbc defined and shipped that points directly onto the ICF path /sap/bc/nwbc. This alias can also be security relevant, but not for access control. For more information, see <u>External Aliases</u> [External].

For security reasons, the only services that should be active in the HTTP service tree are those services that are really needed. If you activate nodes at a higher level, this means that the whole part of the service tree below this level also active and accessible via HTTP. For more information, see <u>Activating and Deactivating Services</u> [External].

The second security-relevant aspect of the ICF nodes are all logon configurations that are handled via the ICF layer. For more information, see <u>Defining the Logon Procedure</u> [External].

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Note that this ICF node node only controls access of the NWBC shell to the server, it does **not** control or enforce any access that an application might need to have to run. This is controlled by the different relevant frameworks.

For example, for Web Dynpro ABAP applications a large number of additional ICF nodes need to be activated. For more information, see <u>Active Services in SICF for WDA</u> [External]. Similarly, if other types of applications, such as BSPs or BI are loaded, their relevant ICF nodes also need to be active.

Below the nwbc node in the ICF tree are some special nodes which are explained in detail in <u>4.2</u> <u>Active Service Nodes in the ICF</u> [Page 51]. From a security viewpoint, the following nodes play a role:

Node	Security-Relevance				
/sap/bc/nwbc	Must be active to use productively.				
/nwbc	Should be available to use productively.				
/sap/bc/nwbc/nwbc_launch	We recommend to deactivate this node.				
/sap/bc/nwbc/nwbc_test	We highly recommend to deactivate this node.				
/sap/bc/nwbc/nwbc_testcanvas	We highly recommend to deactivate this node.				
/sap/bc/nwbc/nwbc_debug	We highly recommend to deactivate this node.				
/sap/bc/nwbc/exprt_sapportal	We recommend to deactivate this node, unless the functionality is explicitly used with an enterprise portal in your system landscape.				

7.7 Certificate Error Popups in the Browser

Certificates only work if the server and client both have certificates that have a common root signing. Often it happens that the server and the browser have certificates which are not mutually accepted, or that a certificate has expired.

For an example of how a certificate error behaves in a browser, log on to a test system with a browser, assuming this system has an erroneous certificate. If certificates are incorrectly configured, the error message Certificate Error: Navigation Blocked appears.



(Example of certificate error message in the browser)

Choose *Continue to this website (not recommended)* to see a security report of the certificate error.

Choose Certificate Error (Security Report) and then View certificates for more information.



(Certificate information in the browser)

Similarly, when calling the same URL in the NWBC a corresponding error message will be displayed. For example, log on to a test system with the NWBC. If certificates are incorrect, a security alert appears. You can display further information about the certificates via *View Certificates*.

Security A	lert		×
	Information you exchange with this site cannot be v changed by others. However, there is a problem wi security certificate. The security certificate was issued by a comp not chosen to trust. View the certificate to del you want to trust the certifying authority. The security certificate date is valid. The security certificate has a valid name mate of the page you are trying to view. Do you want to proceed? Yes No View Certificate	iewed or h the site's ACertificate any you emine v General Details Certification General Details Certification Certificate Information This CA Root certificate Authorities store. Issued to: uxalSo Issued by: uxalSo Valid from 10/29/ Learn more about certificate	an Path prmation te is not trusted. To enable trust, in the Trusted Root Certification qu5.wdf.sap.corp qu5.wdf.sap.corp (2008 to 1/1/2038 (Install Certificate) Issuer Statement

(Certificate information in NWBC)

There are a number of possible reasons for a certificate failure. Here is a brief summary of the common causes.

Problem	Description	Possible Solution
The browser did not trust the certificate issued by the server and required the user to intervene and determine if trust should be established or not.The certificate has not beenSAP system with their browser, a security alert appears indicating that the user does not trust the certificate issued by the server.		Install the server certificate. Refer to your browser documentation for details. Alternatively, if you are using self-signed certificates, consider using a certification authority (CA) signed certificate. This prevents the situation where all users must face this alert. More information : <u>Protecting the</u> <u>Application Server's Keys</u> [External]
The certificate has expired	The server certificate has expired. The browser did not trust the certificate issued by the server and required the user to intervene and determine if trust should be established or not.	It is recommended to obtain a new valid certificate. The exact procedure to use depends on the CA. For the SAP CA, follow the instructions provided by the SAP Trust Center Service at <u>https://service.sap.com/tcs</u> .

Problem	Description	Possible Solution
The name on the certificate does not match the name in the URL.	The browser has determined that the subject of the certificate issued by the server does not match the name used in the URL. This requires the user to intervene and determine if the user still wants to connect to the target system.	 Make sure the name in the certificate subject and the name in the URL match. Change the URL that took the user to your server. Use the correct domain name, which appears in the subject of the certificate. If this is not possible, install a new certificate with the correct domain name in the subject.

In summary, certificate errors in NWBC will be similarly observed when a browser is started against the same URL. Such errors are **not** related to NWBC, but they are problems in the configuration of the underlying digital certificate infrastructure (either server or client side).

8 Performance Aspects

To understand the performance profile for NWBC, one needs to take a look at the architecture first:

- 1. At startup NWBC runs the **log in** procedure and authenticates the user at the backend (depicted in green).
- 2. The **shell** reads role-related information from the PFCG store to provide navigation means between different SAP applications (depicted in blue).
- 3. The user interface(s) of each of these applications is embedded in a **canvas** running inside NWBC. These canvasses are reading and writing application data (depicted in orange).



(architecture)

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NWBC does **not** change the performance behavior of the contained applications. The shell adds some additional performance on top but this happens in a constant way and does not relate to the performance behavior of the application. The application footprint is the same as if it were running in a stand-alone scenario.

This chapter will look at different performance aspects of NWBC:

- <u>8.1 Performance Analysis</u> [Page 131]: Explains performance issues of NWBC and the backend system and how the backend system affects NWBC performance.
- <u>8.2 Measuring Performance</u> [Page 132]: Describes different tools which can help you with performance measurements.

8.1 Performance Analysis

Log In

Desktop Shell

NWBC for Desktop is a program running completely on the local client computer. On startup, it retrieves the navigation tree from the PFCG store with a few HTTP requests. Thereafter, the shell has no further contact to the server, but caches the complete navigation tree on the client.

Performance Footprint				
Client	The program running on the desktop consumes main memory in the magnitude of 100 MB.			
Network	2 HTTP requests with a payload of typically 50 KB (this depends on the role setup).			
Server	1 ABAP session with a lifetime of 15 seconds and main memory consumption of approximately 3 MB.			

Conclusion: The performance footprint on the network and server can be neglected as they only account for the startup. Only the client footprint is of relevance for the desktop shell.

HTML Shell

NWBC for HTML is running inside a browser on the client. Each shell interaction triggers a roundtrip to the server to render the next view of the shell. This impacts both the network and server.

Performance Footprint				
Client	Browsers need minimal resources to render the HTML representation of the navigation tree. This can be neglected.			
Network	Each interaction step: 1 HTTP request with a payload of typically 20 KB.			
Server	Each interaction step: 1 ABAP session with a lifetime of 15 seconds and main memory consumption of approximately 3 MB.			

Conclusion: The HTML shell creates a continuous but low performance footprint on both network and server.

Canvasses

NWBC does not change the performance profile of the contained canvasses / applications.

As to the SAP GUI canvas, NWBC just starts a normal SAP GUI to run any specific transaction. NWBC does have a slightly higher overhead to start the SAP GUI canvas and start the transaction inside the new SAP GUI canvas. However, once the SAP GUI canvas is running, we have a normal SAP GUI running with the transaction, giving exactly the same performance footprint as when the transaction is running stand-alone.

Similarly, when starting any Web Dynpro ABAP application, NWBC will just host a browser control in which the Web Dynpro ABAP application is running. It is exactly the same application running in the same browser as runs stand-alone. Again the performance impact of the application in an NWBC canvas is similar to that of the application running stand-alone.

8.2 Measuring Performance

Use these tools when measuring performance for NWBC.

• Client

The Microsoft Windows *Task Manager* shows you the memory consumption on the client side. For NWBC for Desktop the relevant task is called NWBC.exe. For NWBC for HTML the browser process is relevant.

- Network
 - With HTTP sniffers you can measure the performance footprint on your network. A standard HTTP sniffer is, for example, Fiddler. For more information, see <u>http://www.fiddler2.com</u>.
 - HTTP requests for the shell:
 - All HTTP requests for the shell start with the prefix /nwbc
 - Do not measure those requests for JavaScript and image files as they are cached by your browser anyway.
- SAP server

Use transaction SM04 to get additional information on the server-side ABAP session serving the requests for the shell.

Do not mix measurements of the log in procedure with measurements for the shell and canvasses. During a typical user session the log in happens only once while the shell and the canvasses are executed many times.

9 How-To Guides

This section focuses on different user tasks, not on features. Users can be administrators, developers or business end users. The sequence in which users need to perform steps or tasks is described. The tasks are written from an end-to-end perspective.

The following how-to guides concentrate on these tasks:

- <u>9.1 How To Integrate NWBC into a Microsoft SharePoint Portal [Page 133]</u>
- <u>9.2 How to Integrate NWBC into an IBM WebSphere Portal</u> [Page 137]
- <u>9.3 How To Integrate CRM WebClient into NWBC</u> [Page 156]

9.1 How To Integrate NWBC into a Microsoft SharePoint Portal

In this example we want to show how the NWBC for HTML can be integrated into Microsoft SharePoint 2007 using the standard tools and components that are delivered by MS SharePoint 2007 out of the box. We will create a small site hierarchy using shared left-hand navigation. Each role can thereby be accessed using its own link that is always visible since appropriate site navigation settings have been chosen.

Home			
斜 SAP			All Sites
Home Document Cen View All Site Content Documents	ter News • Reports Search S Home > SAP Announcements	Sites SAP - Demo - Employee Self Services Manager Self Services	
Shared Documents Lists Calendar	Get Started with Windows Shar by SAP_ALL\D041615	rePoint Services! I NOW 3/24/2010 6:36 PM	
• Tasks Discussions	Add new announcement Calendar		
Team Discussion Sites People and Groups	There are currently no upcoming ev Add new event	vents. To add a new event, click "Add new event" below.	
Employee Self Services Manager Self Services			
Recycle Bin			

We will start the process by creating a site that will contain sub sites for each SAP role. Each sub site shows the service map of the respective role.

- 1. Create a new site.
- 2. Create a sub site under the new site.
- 3. Add a page viewer web part in the site ESS.

4. Customize the web part properties so that it displays the content of the service map of the role using NWBC for HTML.

Step 1: Create a New Site

- 1. In the *Site Actions* menu select *Create Site*. In the following dialogue you have to enter some mandatory values.
- 2. In the *Title and Description* section enter a title for your site, for example SAP.
- 3. In the *Web Site Address* section, enter a name for the new subweb that will be part of the URL for your site. In this example we also choose the value SAP.
- 4. In the *Template Selection* section select the template you want. In our example we choose a *Team Site* template.
- 5. Maintain all other settings as needed. In our example we leave the default values unchanged.
- 6. Choose Create.
- 7. In the Site Actions menu select Site Settings.
- 8. Under *Look and Feel* choose *Navigation*. In the following dialogue we want to change some settings, so that the left-hand navigation contains the links to all SAP subsites.
- 9. In the Subsites and Pages section activate the checkbox Show subsites.

Step 2: Create a Sub Site under the New Site

- 1. Make sure that you are at the location on the site that you have created in Step 1.
- 2. In the Site Actions menu select Create Site.
- 3. Under *Web Pages* select *Sites and Workspaces*. In the following dialogue you have to enter some mandatory values.
- 4. In the *Title and Description* section enter a title for your site, for example Employee Self Services.
- 5. In the *Web Site Address* section, enter a name for the new subweb that will be part of the URL for your site. Here we choose the value ESS since the URL should be short.
- 6. In the *Template Selection* section select the template you want. In our example we choose a *Blank Site* template.
- 7. Maintain all other settings as needed. In our example we leave the default values unchanged.
- 8. Choose Create.
- 9. In the Site Actions menu select Site Settings.
- 10. Under *Look and Feel* select *Navigation*. In the following dialogue we want to change some settings, so that the left-hand navigation contains the links to all SAP sites.
- 11. In the *Current Navigation* section select the radio button *Display the same navigation items as the parent site.*

Home			Welcome N	IWBC Demo 🔹 My Site My Links 👻 🐧
斜 SAP		All Sites	-	Advanced Search
Home Document Cer	nter News • Reports Search Sites SAP Demo •			Site Actions -
View All Site Content	Home > SAP			Add a new library list or web
Documents	Announcements	-		page to this website.
Shared Documents	Get Started with Windows SharePoint Services June 3/24/2010 6:36 PM			Edit Page
Lists	by SAP_ALL\D041615		XX	Parts on this page.
CalendarTasks	Add new announcement		S	Site Settings Manage site settings on this
Discussions	Calendar		Links	ane.
Team Discussion	There are currently no upcoming events. To add a new event, click "Add new event" below.		There are current a new link, click "	tly no favorite links to display. To add Add new link" below.
People and Groups	Add new event		B Add new link	
💿 Recycle Bin				
(Example)	•			

Step 3: Add a Page Viewer Web Part in the Site ESS

- 1. Make sure that you are at the location on the site that we have created in Step 2.
- 2. In the Site Actions menu select Edit Page.
- 3. In the Web Part zone where you want to add the web part, select Add a Web Part.
- 4. In the *Add Web Parts* dialog box, select the checkbox for the *Page Viewer Web Part* that you want to add to the page.
- 5. Choose Add.

Home							Welcome NWBC Demo 🗸 My Site My Links 🖌 🎯
🚧 Employee S	elf Services			All	Sites	•	Advanced Search
Home Document Cent	er News • Reports Search Sites SAP • Demo •						Site Actions -
Version: You are edit	ting the Shared Version of this page						Exit Edit Mode ×
View All Site Content	Home > SAP > Employee Self Services						
Employee Self	Left						Right
Documents	🔍 Add a Web Part						🔍 Add a Web Part
• Lists	Page Viewer Web Part			ed	it •	×	Site Image edit • ×
Discussions Sites	To link to content, open the tool pane and then type a URL in the Link text box		Minimize				
People and Groups		×	Delete		2		Microsoft All
🕑 Recycle Bin		7	Modify Shared Web	Part			SharePoint Services
			Connections	Ch	ange	properti	ies of this shared Web Part. These changes will
			Export	ap	ply t	o all user	s.

(Example)

Step 4: Customize the Web Part Properties so that it Displays the Content of the Service Map of the Role Using NWBC for HTML

- 1. In the Web Part menu of the Page Viewer Web Part choose Edit and then Modify Shared Web Part.
- 2. Enter the link that points to the NWBC for HTML role in the field link.
- 3. Since the *Page Viewer Web Part* does not resize automatically you should choose an appropriate fixed height, for example 700 pixel.
- 4. Change the title from its default value to Employee Self Services.
- 5. Change all other properties you want to maintain. In our example we leave all other default values unchanged.
- 6. Save your changes by closing the tool pane and choosing OK.
- 7. Leave the Edit Mode by clicking on Exit Edit Mode.

Page Viewer 😞	*
Select whether you want to display a file, folder, or Web page in the Page Viewer Web Part.	
 Web Page Folder File 	offloor and
Link To specify a link, type a URL or path. (Test Link)	A 100 COLORIDADES
https://ldciyi3.wdf.sap.co	Concession of the
Title	
Employee Self Services	
leight Should the Web Part have a fixed height?	
• Yes 700 Pixels	
No. Adjust height to fit zone.	
III >	
OK Cancel Apply	

The site does now looks as follows:



You can now add additional sub sites to the site SAP that has been created in step 1 by repeating the steps 2-5. In our sample we have added a second sub site for Manager Self Services. Because of the navigation settings chosen in step 1 the links to the other SAP roles are accessible from all sub sites that reside beneath the site SAP that has been created in step1.

View All Site Content	
Employee Self Services	
Documents	
• Lists	
Discussions	
Sites	
People and Groups	
<u>Manager Self</u> <u>Services</u>	
🕑 Recycle Bin	
	(example)

More Information

For more information on creating sites and the integration of third party content into MS SharePoint, see the SharePoint online help.

9.2 How to Integrate NWBC into an IBM WebSphere Portal

IBM WebSphere offers standard functionality for embedding static URLs. Dynamic URL functionality would require portal-specific development, such as building a new web part based on the standard "Page Viewer" web part. This has the following consequences:

- Technical information about server or port has to be typed in and stored for each integrated Web Dynpro application. Changes to those information cannot be done centrally but have to be updated everywhere.
- Runtime information like logon language or accessibility information cannot be passed dynamically to the integrated Web Dynpro application.

A solution would be to implement a non-SAP portal specific Web Dynpro ABAP application portlet.

Web Dynpro ABAP applications are integrated into this portal by using the Web Clipping portlet. The Web Clipping portlet displays the linked content within an iFrame.

Navigation Between SAP Applications

In general, there are two different ways of navigation: direct and indirect navigation. Indirect navigation should always be the preferred way because it decouples calling from called application. It also makes the calling application more independent of changes – e.g. changing client environment, etc.

Indirect navigation always requires a mediator. A typical mediator is the SAP Portal or the NBWC. Applications using OBN as navigation technology cannot be integrated into non-SAP portals as

is. Embedding them – either directly or indirectly via the Report Launchpad – into the non-SAP portals would disable their navigation capabilities.

Therefore, applications have to navigate either directly (e.g. calling hard-coded URLs) or indirectly via SAP portal independent navigation services.

Single Sign-On

Client Certificates

This approach can be realized using available technology. But it is expensive for customers. They need to set up a Public Key Infrastructure (compare PSE Management at SAP). The customers have to map the client logon user (compare SAP_ALL user at SAP) to the user ID which is used in the ABAP system and the client certificate. The mapping is stored in table USREXTID. The mapping is done manually or automatically (by reports running on regular basis or by user management system).

Tokens

IBM is using the proprietary token format LTAP. SAP ABAP servers don't support proprietary token formats. Token mapping capability is required and has to be developed. The SAP Java stack (portal) offers such LTAP/SAPLogon-Ticket mapping functionality.

Single Sign-Off and Session Management

Currently no single sign off is possible. The user has to close all browser windows manually in order to terminate all backend sessions. Clicking on *Logout* in the non-SAP portals does not end sessions created by SAP applications which were launched in new browser windows.

Compare the behavior of the SAP portal: there the application integrator knows all sessions of opened browser windows and terminates them.

User Management

A user management system is capable of creating e.g. SAP backend users in parallel to the creation of non-SAP portal users. The user management system is also relevant regarding user mapping in case of different user IDs and regarding mapping of client certificates to backend users.

SAP offers Java-based SAP NetWeaver Identity Management. IBM offers Tivoli Identity Manager.

Look and Feel

Style sheet mapping is not possible. The customer has to adapt the SAP style sheets by using the Theme Editor which is currently only available in combination with the SAP portal.

The alternative would be that the SAP style sheet files are directly changed by using an editor.

Steps to Integrate Web Dynpro ABAP into IBM WebSphere Via NWBC

- 1. Create a user group and assign a new user to that group [Page 140]
- 2. <u>Create a portlet pointing to the Web Dynpro ABAP application via NWBC</u> [Page 143]
- 3. Create a portal page including the Web Dynpro ABAP portlet [Page 147]
- 4. Allow a user group to access the portal page and the portlet [Page 153]
- 5. <u>Start the application</u> [Page 156]

Example

ome Applications Search Center NWBC	Log
WBC INWBC Test Page	
NWBC Test Role	
SAP Business Client	Log Off
MyMenu > My Menu Entry 2	
Class Builder: Initial Screen	
Menu a Back Cancel Ext System Syntax Activate Test Use of class / interface Application help. Delete Class/Interface Copy Class/Interface Renam	ne Class/Interface Class Browser
Object type	
	🕨 Y13 🛅 🚬 idelyi3

(Example)



(Example)

More Information

Web Dynpro ABAP [External]

9.2.1 Create a User Group and Assign a New User to That Group

- 1. Log in to the IBM WebSphere Portal as administrator and choose Administration.
- 2. Select *Users and Groups* from the navigation bar on the left-hand side.

	ere Portal 1 All Sources	٩
Welcome		5
Portal User Interface Manage Pages	Manage Users and Groups	•
Themes and Skins Theme Customizer	Search: User groups 💌	
Site Management Portlet Management	Search by: All available Search	
Web Modules Applications	Users and Groups	
Portlets Web Services	* New Group * New User	
Web Clipping 2	Page 1 of 1	
	ID	
Access		
Access Users and Groups	M All Portal User Groups	
Access Users and Groups Resource Permissions	M All Portal User Groups	
Access Users and Groups Resource Permissions User and Group Permissions	M All Portal User Groups M All Authenticated Portal Users	

3. Enter the name of the new user group, e.g. EPM Users and choose OK.

Administration WebSpl	here Portal	9
Welcome		E
Portal User Interface Manage Pages	Manage Users and Groups	
Themes and Skins Theme Customizer	New group	
Site Management	ID:	
Portlet Management	EPM Users	
Web Modules		
Applications	OK Cancer	
Portlets	· · · · · · · · · · · · · · · · · · ·	
Web Services		
Web Clipping		
Access		

4. Choose *New User* to create a new EPM user.

Administration WebSpher	re Portal 📓 All Sources
Welcome Portal User Interface Manage Pages Themes and Skins Theme Customizer Site Management Portlet Management Web Modules Applications Portles	Manage Users and Groups Manage Users and Groups
Web Services Web Clipping Access	Users and Groups
Users and Groups	Page 1 of 1
User and Group Permissions Credential Vault Resource Policies	All Portal User Groups
Portal Settings	🚯 EPM Users

5. Enter a user name, a password and last name and choose *OK* to create a user (e.g. user EPM, password abc123).

V New user enrollmen	Provide the mormation reque	sted below and click OK. Click	Cancer il you do not want to sign	rup acons ome.
EDM				
* Password	- Second			
* Confirm Password:	- Annual Contraction			
	-			
First Name:				
* Last Name:				
EPM Test User	-			
Email:				
Preferred language:				
- Nothing Selected -	•			

(create user)

6. Choose the *EPM Users* user group to assign the newly created user EPM to that user group.

dministration WebSpher	Portal	All Sources	Q
Velcome Portal User Interface Manage Pages Themes and Skins Theme Customizer Site Management Portiet Management Web Modules Applications Bodiets	Manage Users and Groups Search: User groups Search by: All available Search Users and Groups]	
Web Services Web Clipping Incress	ID	Page 1 of 1	
Resource Permissions User and Group Permissions Credential Vault Resource Religion	All Portal User Groups All Authenticated Portal Users Image: EPM Users	# ~ 1	
Portal Settings Global Settings	EPM T	🔛 🖓 🖉 🗊 Page 1 of 1	

7. Choose Add Member.



8. Select *Users* from the *Search* drop down list, enter EPM (user id of the newly created user) into the *Search* input field and choose *Search*. In the result table select the *EPM* user and choose *OK*.

Administration WebSphe	ere Portal	All Sources
Welcome		
Portal User Interface Manage Pages	Manage Users and Groups	
Themes and Skins Theme Customizer	Search: Users 💽 🗲 — 1	2
Portlet Management	Search by: uid	Search: EPM
Web Modules		
Web Modules Applications Portlets		DH Lisses o-default/URE/JaDases/Dealers
Web Modules Applications Portiets Web Services Web Clipping	User groups whose name contains cn=EF check to select members and click OK to a Users,o=defaultWIMFileBasedRealm	PM Users,o=defaultWIMFileBasedRealm - add to cn=EPM
Web Modules Applications Portiets Web Services Web Clipping Access	User groups whose name contains cn=EF check to select members and click OK to a Users,o=defaultWIMFileBasedRealm	PM Users.o=defaultWIMFileBasedRealm - add to cn=EPM
Web Modules Applications Portiets Web Services Web Clipping Access Users and Groups	User groups whose name contains cn=EF check to select members and click OK to a Users,o=defaultWIMFileBasedRealm	PM Users,o=defaultWIMFileBasedRealm - add to cn=EPM Page 1 of 1
Web Modules Applications Portiets Web Services Web Clipping Access Users and Groups Resource Permissions	User groups whose name contains cn=EF check to select members and click OK to a Users,o≃defaultWIMFileBasedRealm	PM Users,o=defaultWIMFileBasedRealm - add to cn=EPM Page 1 of 1
Web Modules Applications Portiets Web Services Web Clipping Access Users and Groups Resource Permissions User and Group Permissions	User groups whose name contains cn=EF check to select members and click OK to a Users,o=defaultWIMFileBasedRealm	PM Users,o=defaultWIMFileBasedRealm - add to cn=EPM Page 1 of 1
Web Modules Applications Portiets Web Services Web Clipping Access Users and Groups Resource Permissions User and Group Permissions Credential Vault	User groups whose name contains cn=EF check to select members and click OK to a Users,o=defaultWIMFileBasedRealm	PM Users,o=defaultWIMFileBasedRealm - add to cn=EPM Page 1 of 1 Page 1 of 1
Web Modules Applications Portiets Web Services Web Clipping Access Users and Groups Resource Permissions User and Group Permissions Credential Vault Resource Policies	User groups whose name contains cn=EF check to select members and click OK to a Users,o=defaultWIMFileBasedRealm	PM Users,o=defaultWIMFileBasedRealm - add to cn=EPM Page 1 of 1 Page 1 of 1
Web Modules Applications Portlets Web Services Web Clipping Access Users and Groups Resource Permissions User and Group Permissions Credential Vault Resource Policies Portal Settings Global Settings	User groups whose name contains cn=EF check to select members and click OK to a Users,o=defaultWIMFileBasedRealm	PM Users,o=defaultWIMFileBasedRealm - add to cn=EPM Page 1 of 1 Page 1 of 1

9.2.2 Create a Portlet Pointing to a WDA Application Via NWBC

- 1. Log in to the IBM WebSphere Portal as administrator and choose Administration.
- 2. Select *Web Clipping* from the navigation bar on the left hand side (section *Portlet Management*) and choose *New Portlet*.

Administration WebSp	here Portal		All Sources	
Welcome			the second s	
Portal User Interface	Web Clipping Ed	tor		•
Themes and Skins Theme Customizer Site Management	Web clipping portlets	Add, edit, and delete Web clipper	S Dana 1	
Portlet Management	Portlet Title	URL	Portlet Description	
Applications	NWBC Test	http://pwdf6391.wdf.sap.corp.5	NWBC Test	
Portiets	2 Table Test Via NWB0	http://pwdf6391.wdf.sap.corp:5	WDA Table Test Application via NWBC	
Web Services	WDA Table Test	http://pwdf6391.wdf.sap.corp:5	WDA Table Test Application	10
Web Clipping			Page 1 d	of 1
Access				

(New Portlet)

3. Enter a default name for the portlet, URL (as specified below) and a description for the portlet. After that choose *Advanced Options*.

Administration WebSpher	re Portal 🔤 All Sources	<u>a</u>
Welcome		Þ
Portal User Interface	Web Clipping Editor	
Manage Pages Themes and Skins	Add a Web clipper	
Theme Customizer	Name and default locale title:	
Site Management	Purchase Orders	
Portlet Management	URL to clip:	
Web Modules	was;window=embedded/wda/sap/bc/webdynpro/sap/s_epm_wd_po_list/	
Applications	Description:	
Portlets	Open EPM Purchase Orders Worklist	
Web Services	I want to set titles and descriptions for other languages	
Web Clipping 👻		
Access	Read timeout (milliseconds):	
Users and Groups	0	
Resource Permissions		
User and Group Permissions	Next Advanced options Cancel	
Credential Vault		
Resource Policies	T	

The URL is specified as follows:

```
cprotocol>://<ABAP host name>:<ABAP
port>./sap/bc/nwbc/~canvas;window=<window type>/wda/<WDA
application>/
```

The following parts have to be replaced like this:

<protocol></protocol>	Protocol; either http or https.
<abap host="" name=""></abap>	Host name of the ABAP system.
<abap port=""></abap>	Port of the ABAP system for to the selected protocol.
----------------------------------	----------------------------------------------------------
<window type=""></window>	Window type can have one of the following values:
main	o main shows full L-shape around the application
app	o app shows only a small header around the application
embedded	o embedded embeds the application without visible header
<wda application></wda 	Relative path to the WDA application.

To start the embedded EPM purchase order worklist you can use this link:

http://ldcibce.wdf.sap.corp:50000/sap/bc/nwbc/~canvas;window=emb
edded/wda/sap/s_epm_wd_po_list/

4. Within the advanced options dialogue choose *Modify display options*.

Administration WebSp	here Portal	All Sources
Welcome		
Portal User Interface	Web Clipping Editor	
Manage Pages Themes and Skins	Modify Web clipper options	
Theme Customizer		
Site Management	Modify clipping type	Select how you will choose the content to clip.
Portlet Management	Modify firewall options	If you use a proxy server to access the content, specify its settings here.
Web Modules	Modify authentication options	If you need a user ID and password to access the content, specify them here.
Applications	Modify rules for URL rewriting	If URLs in the clipped content need special handling, indicate that here.
Portiets	Modify security options	Choose whether to include or remove JavaScript in the clipped content.
Web Services	Modify display options	Choose whether to display content inline or embedded in an IFRAME.
web Capping		
Access Users and Groups Resource Permissions	Next Back Canc	el

5. The Web Dynpro ABAP application has to be embedded within an IFrame. Select *Inside* an *IFRAME* on the portal page, set *Width* to 100 percent, *Height* to 600 pixels for example, select *Allow the browser to access resources directly* and choose *OK*.

WebSphere Portal Home	Administration Applications Search Center More Administrator Edit My	Profile Help
Administration WebSpher	e Portal	<u>a</u>
Welcome ▼ Portal User Interface Manage Pages Themes and Skins Theme Customizer Site Management ♥ Portlet Management Web Modules Applications Portlets Web Services Web Clipping	Web Clipping Editor Modify display options I want the content of this portiet to be displayed O Directly on the portal page Inside an IFRAME on the portal page Width: 100 Percent Height: 600 Pixels	
Access Users and Groups Resource Permissions User and Group Permissions	Border width: 0 💌 Scrolling: auto 💌	
Credential Vault Resource Policies Portal Settings Global Settings URL Mapping Custom Unique Names	If Web content includes other resources (images,applets, etc) Allow the browser to access resources directly Allow the browser to access resource only via the Portal OK Cancel	

(Allow the browser to access resources directly)

- 6. Select *Next* and you will see a preview of your application.
- 7. Choose Finish.

Portar User Interrace	Web Clipping Edit	or						
Manage Pages	Content preview							
Themes and Skins	O This is the cont	ont that will and	ear in the portle	based on vo	ur current	settings		
Theme Customizer	Choose Finish	o save the por	tlet or Cancel to	create a new	portlet with	different		
Site Management	settings.							
Portlet Management								
Web Modules	Selection restricted to	50 hits (413 en	tries found on the	(atabase)				
Applications	-			,				
Portiets								
Web Services	Purchase	Order W	Vorklist					Kiti
Web Clipping								
Access	and the second second	series or being	testi en di anti anti anti	and the state of the	nin haan	Section Sector	Secolation de	
Users and Groups	Query Supplier	-						
Resource Permissions	Show Select Online							
User and Group Permissions	- anow aciect option	-						
Credential Vault	New Edit Actions	1						
Resource Policies	Purchase Order	Bus, Part, D	Company Name	Gross Amt.	Currency	PO Lifecycle	PO Approval	PO
Portal Settings	300001114	100000001	Becker Berlin	2.972.62	EUR	Cancelled	Approved	Can
Global Settings	300001113	100000001	Becker Berlin	2 972 62	EUR	Cancelled	Approved	Initia
URL Mapping	300001112	100000001	Becker Berlin	2 972 62	EUR	Closed	Approved	Con
Custom Unique Names	300001111	100000001	Becker Berlin	2 972 62	EUR	New	Intial	Initia
Supported Markups	300001110	100000001	Becker Berlin	2 972 62	EUR	New	Intial	Initia
Supported Clients	300001109	100000001	Becker Berlin	2 972 62	FUR	New	Initial	Initia
Import XML	300001108	100000001	Becker Berlin	2 972 62	FUR	New	Initial	Initia
Search Administration	300001107	100000001	Becker Berlin	2 972 62	FUR	New	Initial	Inity
Manage Search	300001105	100000001	Backer Berlin	2 972 62	FIID	Naw	Initial	Initia
Portal Analysis	300001105	100000001	Backer Berlin	2 972,62	FIID	New	Initial	Initia
Frequent Users	200001103	10000001	Decker Denin	2.312,02	LOR	INDW	mildi	mine
Enable Tracing								
About IBM WebSphere Portal								
Virtual Portais								
Manage Virtual Portals								
Manage Hillion Onaio								
	View of the second s							
	Areadile and a second second second		and a standard and a stand of the	a and a state of a state of a				

(Finish)

9.2.3 Create a Portal Page Including the WDA Portlet

- 1. Log in to the IBM WebSphere Portal as administrator and choose Administration.
- 2. Select *Manage Pages* from the navigation bar on the left-hand side (section *Portal User Interface*) and choose *Content Root*.

Administration WebSphe	ere Portal		All Sources	a
Welcome				E
Portal User Interface	Manage Pages			-
Manage Pages Themes and Skins Theme Customizer	Q Use the controls below to wor new pages, labels and urls. Activ assign permissions and delete p	k with your pages. Browse or search for pages ate and deactivate pages, re-order, edit propert ages. For more information, click Help.	to work with. Click New to cre ies and layout, move, export,	ate
Site Management Portlet Management	Search by: Title starts with	Search:	Search	
Web Modules Applications	Select Page			
Web Modules Applications Portlets	Select Page My pages Add, Edit, Delete, and	I Reorder pages		
Web Modules Applications Portlets Web Services	Select Page My pages Add, Edit, Delete, and	I Reorder pages	Page 1 of 1	
Web Modules Applications Portiets Web Services Web Clipping	Select Page My pages Add, Edit, Delete, and Title	I Reorder pages Unique name or Identifier	Page 1 of 1 Status	
Web Modules Applications Portiets Web Services Web Clipping Access Users and Groups	Select Page My pages Add, Edit, Delete, and Title	I Reorder pages Unique name or Identifier wps.content.root	Page 1 of 1 Status Active	

(Content Root)

3. To create a top-level navigation entry choose New Label.

dministration WebSpher	re Portal			Ali S	ources			Q
Welcome								6
Portal User Interface	Manage Pages							
Manage Pages								
Themes and Skins	create new pages, labels and	work with your pages. Browse or se urls. Activate and deactivate pages.	re-order.	edit prope	ork with. Inties an	d lavou	vew to	
Theme Customizer	move, export, assign permiss	ions and delete pages. For more in	formation,	click Help).			
Site Management	Search by Title starts with	* Search		Se	arch			
Portlet Management	o contrary and the contrary							
Web Modules	Select Page > Content Root							
Applications								
Portlets	Pages in Content Root Add,	Edit, Delete, and Reorder pages						
Web Services	* New Page * New Lab	el						
Web Clipping		Page 1 o	14 P P	Jump to	page: 1		0	
ACCESS	Title	Linique name or identifier	Ctature					
Linese and Crewes		Chique name of ruennier	Status					
Users and Groups	Silliome	ibm portal Home	Active	Ē			AA	
Users and Groups Resource Permissions	C Home	ibm.portal.Home	Active	B				
Users and Groups Resource Permissions User and Group Permissions Credential Vault	California Contractions	ibm.portal.Home ibm.portal.Administration	Active Active					
Users and Groups Resource Permissions User and Group Permissions Credential Vault Resource Policies	Administration Applications	ibm.portal.Home ibm.portal.Administration ibm.portal.page.Applications	Active Active Active					
Users and Groups Resource Permissions User and Group Permissions Credential Vault Resource Policies Portal Settings	Image: Constraint of the second se	ibm.portal.Home ibm.portal.Administration ibm.portal.page.Applications wps.Login	Active Active Active Active					
Users and Groups Resource Permissions User and Group Permissions Credential Vault Resource Policies Portal Settings Global Settings		ibm.portal.Home ibm.portal.Administration ibm.portal.page.Applications wps.Login ibm.portal.Personalization.Picker	Active Active Active Active Active Active					
Users and Groups Resource Permissions User and Group Permissions Credential Vault Resource Policies Portal Settings Global Settings URL Mapping		ibm.portal.Home ibm.portal.Administration ibm.portal.page.Applications wps.Login ibm.portal.Personalization.Picker ibm.portal.addtostlist	Active Ac					
Users and Groups Resource Permissions User and Group Permissions Credential Vault Resource Policies Portal Settings Global Settings URL Mapping Custom Unique Names		ibm.portal.Personalization.Picker ibm.portal.Page.Applications wps.Login ibm.portal.Personalization.Picker ibm.portal.addtostlist ibm.portal.PolicyEditorCPP	Active Ac					
Users and Groups Resource Permissions User and Group Permissions Credential Vault Resource Policies Portal Settings Global Settings URL Mapping Custom Unique Names Supported Markups		ibm.portal.Administration ibm.portal.Administration ibm.portal.page.Applications wps.Login ibm.portal.Personalization.Picker ibm.portal.addtostlist ibm.portal.PolicyEditorCPP ibm.portal.PolicyEditorCA	Active Ac					
Users and Groups Resource Permissions User and Group Permissions Credential Vault Resource Policies Portal Settings Global Settings URL Mapping Custom Unique Names Supported Markups Supported Clients		ibm.portal.Personalization.Picker ibm.portal.Page.Applications wps.Login ibm.portal.Personalization.Picker ibm.portal.addtostlist ibm.portal.PolicyEditorCPP ibm.portal.PolicyEditorCA ibm.portal.Search	Active Ac					
Users and Groups Resource Permissions User and Group Permissions Credential Vault Resource Policies Portal Settings Global Settings URL Mapping Custom Unique Names Supported Markups Supported Clients Import XML		ibm.portal.Personalization.Picker ibm.portal.Page.Applications wps.Login ibm.portal.Personalization.Picker ibm.portal.addtostlist ibm.portal.PolicyEditorCPP ibm.portal.PolicyEditorCA ibm.portal.Search wps.Selfcare	Active Ac					
Users and Groups Resource Permissions User and Group Permissions Credential Vault Resource Policies Portal Settings Global Settings URL Mapping Custom Unique Names Supported Markups Supported Clients Import XML Search Administration		ibm.portal.Page Applications ibm.portal.page Applications wps.Login ibm.portal.Personalization.Picker ibm.portal.Personalization.Picker ibm.portal.addtostlist ibm.portal.PolicyEditorCPP j ibm.portal.PolicyEditorCA ibm.portal.Search wps.Selfcare Page 1 o	Active Ac					



4. Fill in values for *Title* and *Friendly URL name* and select, for example, *SingleTopNav* as *Theme Style* and choose *OK*.

bSphere Portal	Sven Bernhard	Help	Log Out	-
age Properties				
age Properties				
New label: Content Root				
Title:				
EPM	🚽	and the second second		
Friendly URL name:		-		
epm	<	e-		
Theme: Portal Default Theme 💌 😡 Theme Style (Theme Policy):				
SingleTopNav				
Icon:				
Advanced options	page			
OK Cancel				
				- (

5. Search for the newly created label and click on the title link.



(Title link)

6. Choose *New Page* to create a new page to include the portlet.

Administration WebSpher	e Portal		All Sources
Velcome Portal User Interface Manage Pages Themes and Skins Theme Customizer Site Management Portlet Management Web Modules Applications Portlets Web Services	Manage Pages Q Use the controls with. Click New to cre- order, edit properties more information, cli Search by: Title star Search Select Page > EPM	below to work with your pages. Browse or s eate new pages, labels and urls. Activate an s and layout, move, export, assign permission ck Help. Its with Search: EPM	earch for pages to work ad deactivate pages, re- ons and delete pages. For
Web Clipping Access Users and Groups Resource Permissions User and Group Permissions Credential Vault Resource Policies	Pages in EPM Add.	Edit, Delete, and Reorder pages New Label 🔆 New URL Unique name or Identi to display.	ifier Status

(New Page)

7. Create a page for the purchase order worklist: Fill in values for *Title*, *Unique Name*, *Friendly URL name* and select, for example, *SingleTopNav* as *Theme Style* and choose *OK*.

ebSphere Portal	Sven Bernhard	Help	Log Out	
Page Properties				
Page Properties			•	
New page: EPM QUse the controls below to work with properties. Expand Options to choose page cache options. Title:	your pages to specify your page properties, page type	rpage a, page lay	out, or	
Purchase Orders				
Unique Name:				
purchaseorders				
Note: If the unique name you entered for created or updated.	or this page already exists,	it will not	be	
nurchaseorders				
Theme:	- Participation - Participatio			
underit Parent Themeur V				
Theme Style (Theme Policy):				
SingleTopNay	T 🛻			
Icon:				
[
I want to make this page my privat	e page			
Page Properties				
Type of Page				
Page Cache Options				
OK Cancel				
	***************************************			- (Thomas

8. Choose *Edit Page Layout* for the newly created page.

Administration WebSphere	Portal All Sources	0
Welcome		Þ
Portal User Interface	Manage Pages	
Themes and Skins Theme Customizer Site Management	Q Use the controls below to work with your pages. Browse or search for pages to work with. Click New to create new pages, labels and urls. Activate and deactivate pages, re-order, edit properties and layout, move, export, assign permissions and delete pages. For more information, click Help.	
Portlet Management Web Modules Applications Portlets	Search by Title starts with Search: EPM Search	
Web Services Web Clipping	Pages in EPM Add, Edit, Delete, and Reorder pages	
Access	Page 1 of 1	
Users and Groups Resource Permissions User and Group Permissions	Title Unique name or Identifier Status Purchase Orders purchaseorders Active Image: Content of the status	

(Edit Page Layout)

9. On the *Edit Layout* page you can arrange portlets you want to have embedded into the page. For our purposes we only want to have a single column layout. Click on the single column layout icon and confirm your entries (personalization data get lost) with *OK*. Then choose *Add portlets*.

EJPAE0117I: Layo	ut is switched successfully.			
Edit Layout allows occur as you make the	you to add and arrange porti em.	ets, columns and rows. Y	r'ou can also remove po	rtlets, columns and rows. Modifications
age title: Purchase (rders			
i militaria (m				Show Portlet Rule Mapping
+ Add poglets				

10. Enter the title of the portlet to be added into the *Search* input field and choose *Search*. Select the portlet and choose *OK*.

Search by. Title star	ts with 💽 Search: F	Purchase Orders	Search
		P	Page 1 of 1
Portlet Title Purchase Orde	Description	Unique name I	Remote portlet
Purchase or or	ers open Erm ruichase or	P	age 1 of 1

(Search)

11. Choose *Done* to finalize the association.

9.2.4 Allow the User Group to Access the Portal Page and the Portlet

- 1. Log in to the IBM WebSphere Portal as administrator and choose Administration.
- 2. Select *Manage Pages* from the navigation bar on the left-hand side (section *Portal User Interface*) and search for the label you created in the previous chapter. Choose *Set Page Permission* for the corresponding entry.

Administration WebSpher	re Portal		AJ	I Source	ces	a.
Velcome Portal User Interface Manage Pages Themes and Skins Theme Customizer Site Management Portlet Management Web Modules	Manage Pages Q Use the controls be create new pages, labe export, assign permiss Search by, Title starts Select Page	elow to work with your pages. Browse or search fo els and urls. Activate and deactivate pages, re-ord sions and delete pages. For more information, clic s with Search: EPM	r pages to w ler, edit prope ck Help.	ork with arties a arch	n. Click New to nd layout, move,	
Portlets	Mypages Add, Edit, D	Delete, and Reorder pages				
Web Services					Page 1 of 1	
Access	Title	Unique name or Identifier	Status			
Users and Groups	Market Ma	id:6_MORBJC630GQ520IO9U8J9A30	05 Active			
Resource Permissions User and Group Permissions					Page 1 of 1	

(Set Page Permission)

3. Choose Edit Role of the User role.

Administration			
Resource Permissions			÷
EPM			
			Page 1 of 1
Roles	Allow Propagation	Allow Inheritance	Edit Role
Administrator	4	~	
Security Administrator	4	4	
Delegator	V	V	
Manager	ব	ব	
Editor	v	V	Ø
Privileged User	v	R	Ø
User	v	v	
			Page 1 of 1

(Edit Role)

4. Choose Add.

reosphere Portal		Administrator Help Log Out
Administration		
Resource Permissions		
A EJPAO4008W: No members found in	the role.	
T ADD		
PM ≽ User		
EPM ▶ User Members in the Role	Delete Member from Role	Inherited



5. Search for all User Groups, select the EPM user group and confirm your entries with OK.

earch by:	All available Search	
M + Us	er > Add Role Members	
	Page 1	of 1
1	Users and User Groups	
]	All Authenticated Portal Users	
1	All Portal User Groups	
1	TestGroup	
-	EPM Users	
1.00	WD Test	
1	wpsadmins	
	Page 1	of 1

(EPM Users)

- 6. Select the label's title link (*EPM*) and choose *Done*.
- Select Portlets from the navigation bar on the left-hand side (section Portlet Management) and search for the portlet you created in chapter <u>9.2.2 Create a Portlet</u> <u>Pointing to a WDA Application Via NWBC</u> [Page 143]. Choose Assign access to Portlet for the corresponding entry.

Administration WebS	phere Portal		Al	l Sources	٩
Welcome Portal User Interface Manage Pages	Manage Portlets				
Themes and Skins Theme Customizer Site Manacement	Search by: Title starts with	Search: Purchase Order	s Search		
and a second a second second					
Portlet Management Web Modules	Portlets Click Copy to creater remove the portlet from your	te a duplicate of the portlet. Click Con portal. Click Assign Access to allow o	figure to set titles, descriptions and para others to work with the portlet.	ameters. Click Delete t	to
Portlet Management Web Modules Applications	Portlets Click Copy to creater remove the portlet from your	te a duplicate of the portlet. Click Con portal. Click Assign Access to allow o	figure to set titles, descriptions and para thers to work with the portlet.	Page 1 of 1	to
Portlet Management Web Modules Applications Portlets	Portlets Click Copy to creater remove the portlet from your	te a duplicate of the portlet. Click Con portal. Click Assign Access to allow o API Type Unique name	figure to set titles, descriptions and para others to work with the portlet. Provided Remote portlet Status	ameters. Click Delete t Page 1 of 1	to
Portlet Management Web Modules Applications Portlets Web Services	Portlets Click Copy to creat remove the portlet from your Title Purchase Orders	te a duplicate of the portlet. Click Con portal. Click Assign Access to allow of API Type Unique name IBM API	figure to set titles, descriptions and para there to work with the portiet. Provided Remote portiet Status	Page 1 of 1	to
Portlet Management Web Modules Applications Portlets Web Services Web Clipping	Portlets Click Copy to creat remove the portlet from your Title Purchase Orders	te a duplicate of the portlet. Click Con portal. Click Assign Access to allow of API Type Unique name IBM API	figure to set titles, descriptions and para thers to work with the portiet. Provided Remote portiet Status	Page 1 of 1	to

(Assign access to Portlet)

- 8. Repeat steps 3 to 5 for the currently selected page.
- 9. Click on the portlet's title link (*Purchase Orders*) and choose *Done*.

9.2.5 Start the Application

- 1. Log in to the IBM WebSphere Portal with the user created in chapter <u>9.2.1 Create a User</u> <u>Group and Assign a New User to That Group</u> [Page 140] (EPM, abc123).
- 2. Start the application via top level navigation. Note that depending on the number of entries the EPM label might be hidden below the *More...* top level navigation entry.

3.4		+							NUMBER
Purchase Orde	rs	•						All Sources	
urchase Orders									•
Selection restricted to 50	hits (673 entries fo	und on the database)							
Burchase O	dor Wor	klict							Law Law
Furchase Of	uer worr	KIISL							
									0,
Queens Supplies	_								
actery Cooper	-								
Show Select Options									
Show Select Options New Edit Actions 4									8
Show Select Options New Edit Actions Purchase Order ID	Bus. Part. ID	Company Name	Gross Amt.	Currency	P0 Lifecycle	PO Approval	PO Confirmation	PO Ordering	8
Show Select Options New Edit Actions # Purchase Order ID 300001579	Bus. Part. ID 100000001	Company Name Becker Berlin	Gross Amt. 2.475,63	Currency	P0 Lifecycle Cancelled	PO Approval Approved	PO Confirmation Cancelled	PO Ordering Initial	V
Show Select Options New Edit Actions / Purchase Order ID 300001579 300001578	Bus. Part. ID 100000001 100000001	Company Name Becker Berlin Becker Berlin	Gross Amt. 2.475,63 2.475,63	Currency EUR EUR	PO Lifecycle Cancelled Cancelled	PO Approval Approved Approved	PO Confirmation Cancelled Initial	PO Ordering Initial Initial	
Show Select Options New Edit Actions # Purchase Order ID 300001579 300001578 300001577	Bus. Part. D 10000001 10000001 10000001	Company Name Becker Berlin Becker Berlin Becker Berlin	Gross Amt. 2.475,63 2.475,63 2.475,63	Currency EUR EUR EUR	PO Lifecycle Cancelled Cancelled Closed	PO Approval Approved Approved Approved	PO Confirmation Cancelled Initial Confirmed	PO Ordering Initial Initial Delivered	
 Show Select Options New Edt Actions / Purchase Order ID 200001579 300001578 300001577 200001578 	Bus. Part. D 100000001 100000001 100000001 100000001	Company Name Becker Berlin Becker Berlin Becker Berlin Becker Berlin	Gross Amt. 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63	Currency EUR EUR EUR EUR	PO Lifecycle Cancelled Cancelled Closed New	PO Approval Approved Approved Approved Initial	PO Confirmation Canceled Initial Confirmed Initial	PO Ordering Initial Initial Delivered Initial	•
Show Select Options New Edit Actions a Purchase Order D 300001579 300001572 300001572 300001578 300001578	Bus. Part. D 10000001 10000001 10000001 10000001 1000000	Company Name Becker Berlin Becker Berlin Becker Berlin Becker Berlin	Gross Amt. 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63	Currency EUR EUR EUR EUR EUR	PO Lifecycle Cancelled Cancelled Closed New New	PO Approval Approved Approved Approved Initial	PO Confirmation Canceled Initial Confirmed Initial	PO Ordering Initial Initial Delivered Initial Initial	
Show Select Options New Edit Actions # Purchase Order D 300001579 300001578 300001572 300001578 300001575 300001575 300001575	Bus. Part. D 10000001 100000001 100000001 100000001 1000000	Company Name Becker Berlin Becker Berlin Becker Berlin Becker Berlin Becker Berlin	Gross Amt. 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63	Currency EUR EUR EUR EUR EUR EUR	PO Lifecycle Cancelled Cancelled Closed New New New	PO Approval Approved Approved Approved Initial Initial	PO Confirmation Cancelled Initial Confirmed Initial Initial Initial	PO Ordering Initial Initial Delivered Initial Initial	
 Show Select Options New Edt. Actions / Purchase Order D 300001572 300001578 300001578 300001578 300001575 300001574 300001574 	Bus. Part. D 10000001 10000001 10000001 10000001 1000000	Company Name Becker Berlin Becker Berlin Becker Berlin Becker Berlin Becker Berlin Becker Berlin	Gross Amt. 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63	Currency EUR EUR EUR EUR EUR EUR EUR	PO Lifecycle Cancelled Cancelled Closed New New New New	PO Approval Approved Approved Initial Initial Initial	PO Confirmation Cancelled Initial Confirmed Initial Initial Initial	PO Ordering Initial Initial Delivered Initial Initial Initial	
 Show Select Options New Edt. Actions / Purchase Order D 300001579 300001578 300001578 300001578 300001578 300001574 300001574 300001574 300001572 300001572 	Bus. Part. ID 100000001 100000001 100000001 100000001 1000000	Company Name Becker Berlin Becker Berlin Becker Berlin Becker Berlin Becker Berlin Becker Berlin Becker Berlin	Gross Amt. 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63	Currency EUR EUR EUR EUR EUR EUR EUR EUR	PO Lifecycle Cancelled Cancelled Closed New New New New New New	PO Approval Approved Approved Initial Initial Initial Initial	PO Confirmation Canceled Initial Confirmed Initial Initial Initial Initial	PO Ordering Initial Initial Delivered Initial Initial Initial Initial	
 Show Select Options New Edt. Actions . Purchase Order D 200001572 200001572 200001573 200001574 200001575 200001573 200001573 200001573 200001573 200001573 200001571 	Bus. Part. ID 100000001 100000001 100000001 100000001 1000000	Company Name Becker Berlin Becker Berlin Becker Berlin Becker Berlin Becker Berlin Becker Berlin Becker Berlin Becker Berlin	Gross Amt. 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63 2.475,63	Currency EUR EUR EUR EUR EUR EUR EUR EUR EUR	PO Lifecycle Cancelled Cancelled Closed New New New New New New	PO Approval Approved Approved Approved Initial Initial Initial Initial Initial	PO Confirmation Cancelled Initial Initial Initial Initial Initial Initial Initial Initial Initial	PO Ordering Initial Initial Delivered Initial Initial Initial Initial Initial	

(start application)

9.3 How To Integrate CRM WebClient into NWBC

This section is dealing with the integration of NWBC and CRM WebClient and provides a description of how the CRM WebClient can be called and executed in NWBC.

You need to perform the following steps:

1 Include the URL to SAP CRM WebClient UI in SAP ERP Role

The predefined NWBC roles can be used, if available. in case an SAP Best Practices version supporting NWBC has been installed in the ERP system. Otherwise you can also use an existing standard role, or you may have to create a new role.

1.1 Find out the CRM Object Type you want to link

If you want the user to be able to access a single CRM Object Type such as a Lead or an Opportunity you need to find out the name of the object type first. In case you just want to add a general log-on link to CRM into ERP you can skip this section.

Access the activity using the CRM transaction code BSP_DLC_SDESIGN. In the list you can see the standard Object Types which you can access via URL.

1.2 Add the link from ERP to CRM.

Now you will add the link from ERP to SAP CRM in order to provide the user with system access.

- 1. Access the activity using transaction PFCG.
- 2. In case a new role has to be created, enter a role name in the *Role* field and choose *Create Single Role*. Otherwise enter the name of an existing role and choose *Change*.

In case an SAP Best Practices package has been installed in the ERP system you can use the existing role for the sales person (SAP_BPR_SALESPERSON-E).

- 3. On the *Menu* tab page, choose *Create Folder* and enter a name for the folder. The name of this folder will be the name of the link in the locator in the NWBC.
- 4. In this new folder, create an object by choosing Add other object.
- 5. Select the URL type called Web Address or File.
- 6. Maintain the field parameter *Text*. This given name will be the name of the displayed URL link in the NWBC.
- 8. The URL has the syntax:

```
https://<CRMHostAddress>:<CRMHTTPSPort>/<sap/bc/bsp/sap/crm_ui
_frame?sap-client=<CRMClient>
```

For example:

```
https://vmw2192.wdf.sap.corp:44310/sap/bc/bsp/sap/crm_ui_frame
?sap-client=100
```

9. If you want to provide the user with a link to a specific object type add this syntax to the URL:

```
&crm-object-type=<Object Type>&crm-object-action=<intended
action>
```

The Object Type was found in the previous section 1.1 and the intended action is encoded in this way: A = Search, B = Display, C = Edit, D = Create.

For example (Create Opportunity):

```
https://vmw2192.wdf.sap.corp:44310/sap/bc/bsp/sap/crm_ui_frame
?sap-client=100=&crm-object-type=BT111_OPPT&crm-object-action=D
```

10. Add the users who need to access the SAP CRM system via the SAP NWBC on the User tab page or via user maintenance transaction SU01. In each case, you have to perform a user comparison afterwards on the User tab page of PFCG. Double-clicking on the role in transaction SU01 takes you directly to the role.

2 Set up the Connection Between ERP and CRM

SAP logon tickets can be used in case you want direct access from the ERP application to the SAP CRM WebClient UI inside the SAP NetWeaver Business Client without entering again a logon user and password.

The connection between the ERP system and the CRM system by using SAP NWBC is based on Single Sign-on (SSO) functionality. This means that the certificate of the ERP system needs to be propagated in the CRM system and the user ID has to be identical in the ERP system and in the CRM system.

2.1 Configure the ERP system

- 1. Access the activity using transaction STRUSTSSO2.
- 2. Choose the folder System PSE.
- 3. In the right window in *System PSE / Own Certificate/ Owner*, double-click on the certificate.

Now the certificate should be displayed in the section *Certificate* (Fields: Owner, Issuer, Serial Number, Valid From, to, Check Sum).

- 4. Export the certificate to a file by using the button *Export Certificate*.
- 5. Save the file on local hard disk using file format binary and file ending *.der. (Ensure that the folder path is not too long for example, you can save it directly under C:*.der or C:\Temp*.der).

2.2 Configure the CRM system

- 1. Access the activity using transaction STRUSTSSO2.
- 2. Choose Import Certificate in the Certificate section of the folder System PSE.
- 3. Upload the system certificate of the ERP system that you exported to your hard disk in the previous step, again using binary file format, for example from C:*.der
- 4. Add the certificate to the certificate list using the button *Add to Certificate List* in the section *Certificate*.
- 5. Add the certificate to the access control list (ACL) using the button *Add to ACL* in the section *Certificate*.
- 6. Specify the corresponding system ID (SID) and the client in the following upcoming dialog box and confirm the entry.
- 7. Save your entries.

10 Troubleshooting

When you create problem messages for the Business Client (component BC-WD-CLT-BUS), in addition to describing the steps up to when the error occurred, the following information will make it easier to find the cause of the error, to process the error and to find a solution.

Issues with	Cases					
	SUP.01 What Information should be Included in a Problem Ticket [Page 161]					
	SUP.02 When is an Error an NWBC Error? [Page 162]					
	SUP.03 How to Activate Tracing [Page 164]					
General support	SUP.04 How to Create a Support Report [Page 164]					
	SUP.05 Where are the Trace Files Stored? [Page 165]					
	SUP.06 How to Open an HTTP Connection to a Customer Site [Page 165]					
	SUP.07 Why Do We Need a User with the Correct Roles Assigned? [Page 165]					
	INSTALL.01 SAP GUI Version Information [Page 166]					
	INSTALL.02 How to Obtain the Portal Version [Page 166]					
	INSTALL.03 On which SAP NetWeaver Versions is NWBC v3.0 supported? [Page 167]					
	INSTALL.04 We have NW7.01 SP<06 and can see /sap/bc/nwbc, but [Page 168]					
	INSTALL.05 We have an old version of SAP NetWeaver, can we use <u>NWBC?</u> [Page 168]					
Installation and environment	INSTALL.06 Can We Use NWBC If our SAP NetWeaver Version is Older Than Stated in Note 1368177 [Page 169]					
	INSTALL.07 Internet Explorer and Links that Open New Windows [Page 169]					
	INSTALL.08 NWBC v1.0 Maintenance and Support [Page 170]					
	INSTALL.09 NWBC for Desktop Installation Errors (SAPSetup Errors) [Page 170]					
	INSTALL.10 NWBC for Desktop File Location [Page 170]					
	INSTALL.11 Manually Uninstalling NWBC for Desktop [Page 171]					
	INSTALL.12 Installation Only Extracts Without Installing [Page 172]					
Configuration	CFG.01 Popup Dialog 'Logon to SAP System Failed' [Page 172]					
Configuration	CFG.02 Interactive Option 'GUI Link' for ICF Service Nodes [Page 173]					

Issues with	Cases					
ABAP	ABAP.01 Locks After Short Dumps or Exceptions [Page 174]					
	PFCG.01 Searching for Technical Names [Page 174]					
PFCG	PFCG.02 What Happens If No Roles are Assigned? [Page 176]					
	PFCG.03 Why are Some Strings in Quotes? [Page 177]					
	OBN.01 Object-Based Navigation Errors [Page 178]					
	OBN.02 Failed to Resolve Object-Based Navigation [Page 179]					
OPN	OBN.03 How to Verify OBN Configuration at Database Level [Page 180]					
	OBN.04 How to debug OBN [Page 180]					
	OBN.05 How to Handle Long Portal-Based OBN Targets [Page 181]					
	OBN.99 What to Do If All Else Fails [Page 181]					
Portal	PORTAL.01 The Size of (SAP NetWeaver Portal) iViews is Too Small [Page 181]					
	SEC.01 Security Errors [Page 182]					
	SEC.02 Logon with Different User when Digital Certificates are Active [Page 182]					
	SEC.03 SSO logon not possible; browser logon ticket cannot be accepted [Page 183]					
	SEC.04 SSO Logon not possible; logon tickets not activated on server [Page 184]					
	SEC.05 Possible Number of Active Connections with NWBC [Page 184]					
Security	SEC.06 Can Authentication Information be Shared Between Connections [Page 184]					
	SEC.07 'Logged Off Successfully!' But Not Really Logged Off [Page 185]					
	SEC.08 Security Alert: Security Certificate has Expired or is Not Yet Valid [Page 186]					
	SEC.09 Browser-Based Testing and Authentication [Page 186]					
	SEC.10 Why does NWBC Only Use Basic Authentication Popup for Logon [Page 188]					
	SEC.11 J2EE Overwriting MYSAPSSO2 [Page 189]					
	SEC.12 'Connection to System Failed' [Page 189]					
Creat	CRASH.01 What Exactly does Crash Mean [Page 190]					
Grash	CRASH.02 Microsoft .Net Exception [Page 190]					

Issues with	Cases
	CRASH.03 Crashes in NWBC (While Displaying an HTML Application) [Page 191]
	CRASH.04 CX_NWBC=>NO_COCKPIT [Page 192]
	CRASH.05 CX_NWBC=>INVALID_COMMAND [Page 192]
	CRASH.06 Blue Screen of Death [Page 192]
	CRASH.07 CX_NWBC=>RELEASE_UNSUPPORTED 'NWBC is only supported with NW 7.02 or 7.20 and further releases' [Page 193]

SUP.01 What Information should be Included in a Problem Ticket

When opening a problem ticket, include as much detail as possible. The more information you give us the easier and speedier we will be able to resolve the issue for you.

Che	cklist	
		Name / Client / Language
\checkmark	System:	The system data, especially the name of the system, the client in the system, and the logon language.
	Turne of	ABAP/Portal
\checkmark	System:	If possible, specify whether it is a direct connection to an ABAP system or a portal connection.
		http(s)://
V	URL:	Always include the URL that is used to access the system.
		User/Password
\checkmark	Authentication:	Provide a user name and password if at all possible. The reason is that nearly in all cases problems are related to the roles that have been assigned to the specific user. We do not require (nor request) your personal user. We need just a separate test user that has exactly the same set of roles assigned.
		NWBC for Desktop / NWBC for HTML (if important)
\checkmark	Shell:	Most problems are the same in both flavors of NWBC. However, specifically if the problem is more related to the shell, please include information to indicate whether NWBC for Desktop or NWBC for HTML is being used.

What are the more interesting details that we require?

		To navigate exactly to the problem
\checkmark	Image(s) or Video:	Include at least one screen shot that shows the complete navigation path to the error. If the error is in a separate window, move the window so that we can see the complete shell, we need to know which work center was selected, and within the work center the exactly navigation path to the error location. Draw on the image if needed. Alternatively, create a low- resolution video.
\checkmark	QM:	SAP internal tickets: Provide the name of your QM, as he is the first person that can help us get any stones out of the way to reproduce an error.
		Support report (if NWBC for Desktop is used)
\checkmark	Attachments:	NWBC for Desktop: Always include a support report (see FAQ <u>SUP.04</u> [Page 164]) by using a control-click on the help menu.
		Do write some text to explain the problem as best as possible.
\checkmark	Text:	If possible, include a description of the click stream to the error, of the observed behavior and, where applicable, also the expected behavior. Important for us is to understand what the real problem is.

SUP.02 When is an Error an NWBC Error?

Symptom

Often we get problem tickets of the nature "When doing ... we get a dump ...".

Solution

However, one should clearly first understand what NWBC is, and based on this information, decide whether it is a NWBC error or not. NWBC is effectively a shell that is able to run different types of applications. Problems that occur on the shell belong to NWBC. Any problems that are related to the canvas, effectively belong to the application running in the canvas and usually have nothing to do with NWBC.

Of course, there is no clear and simple rule that will work in most cases. But do consider the following guideline when opening a problem ticket:

Issue	Component for Processing
The problem is directly related to or visible on the shel.	BC-WD-CLT-BUS
The problem occurs in the canvas with a personal object worklist (POWL) running.	BC-MUS-POW
The problem in the canvas is related to the underlying Web Dynpro application.	BC-WD-ABA
The problem in the canvas is related to rendering errors in a SAP GUI transaction.	BC-FES-GUI

Favorites Personalize Help	
Navigate:	> Sales > Customer Cockpit >
Shop Floor Product Maintenance Sales Support Inquiry Additional Or	e IT Administration Investment Manage Engineering Control Panel Foreign Trade Overhead Cost Cont Profit der Proce Scheduling Agreements Complaints Pricing Additional Information Customer Cockpit Outstations Contract
• Customer Codpit	Error when processing your request What has happened? The URL https://uxdrqe.wdf.sap.corp:44326/sap/bc/webdynpro/sap/b2c_oust_codpit_e8_comp was not called due to an error. Note The following error text was processed in the stem RQE : Syntax error in program / IBCWDV/P544IXC7WD8IBHYW9EA9V==CP. The error occurred on the application server are RQE_26 and in the work process 1. The termination have was: PARAY ST The error here on the canvas has usually nothing to do with NWBC. Problem tickets should be opened directly Methor was ended and the specific application. Method: NUT_CONTROLLER of program QL_WDR_INTERFACE_VIEW===CP.

(Error example)



(Another error example)

SUP.03 How to Activate Tracing

When a problem occurs with NWBC for Desktop, it is very helpful that a detailed tracing file is available to be able to very quickly eliminate some root causes and to get a real feeling for the problem. In cases such as these, activate the highest level of tracing possible. The menu path is *Personalize* \rightarrow *Options* \rightarrow *Support* \blacktriangleleft . Set trace level to "*Verbose* and limit tracing to *Runtime* and *Shell*. For more information on *Support* settings, see <u>3.4.3 Configuring Support Information</u> [Page 41].

ptions		×	
Connections Search Provi	ders Support Personalize		
Trace Level:	Verbose 💌	- i i	
Trace Components:	Runtime		
	✓ Shell		
	Web Dynpro Cli		
	Network		
	Scripting		Trace Level

SUP.04 How to Create a Support Report

Especially for NWBC for Desktop, a tool has been integrated to capture as much information as possible about the operating system, client information, server information and all current open applications. This tool can be used to generate a support report, which is basically a ZIP file with all the gathered information. Whenever opening a problem ticket, it is highly recommended to create such a support report and attach the ZIP file to the problem ticket. For more information, see <u>2.11 Extended Supportability</u> [Page 28].

One note concerning sensitive data: the ZIP is neither encoded nor encrypted. This allows that all data can be reviewed first before it is uploaded. If any data is deemed sensitive, it can just be deleted from the ZIP file before uploading the file.

lavigate: Portfolio 01_SN_Main_Clas Switch Portfolio Switch			Show Documer Show Shortcuts Open Window I Enter Quick Lai	ntation s Manager Alt+W unch Ctrl+Alt+N	o Management > Overvi Control-Click on I Extended Sug	iew > Portfo Help to activate oportability	io Str
	List of Bucke	ets /	Nout NetWea	ver Business Client	Graphic		
		E	Extended Supp	ortability •	Create Support Report		
View: [Standard View]		ard View]	▼ Print	Version Export a	Client Information	3	
•	Name	D	Changed Time Stamp		Server Information Statistics	Chosenty Period Streamlown	Statu
	01 SN 81	01_SN_B1	NANDAS	01.10.2009 05:09:3	Show Canvas in External Brow	vser	Activ
	01 SN 83	01_SN_B3	NANDAS	16.10.2009 09:20:1	Show Canvas in External Web	WebDynpro Client	Activ
	Europe	EUR01	D035756	11.11.2009 12:49:3	Start Shell in External Browse	P Werashy	Activ
	France	FR01	D035756	11.11.2009 12:49:5	2	transis -	Activ
	Germany	G01	D035756	11.11.2009 12:50:2	Clean-up Check Installation	Lighteoy 📍	Activ
	Region	R01	D035756	11.11.2009 12:50:4	Check Installation	Usettiv	Activ
	Coain	6001	0035756	10 11 2009 17-57-1	Coordal Switcher	Constant A	Action

(Extended Supportability)

SUP.05 Where are the Trace Files Stored?

All NWBC trace and log files are written into the user local directory. For Microsoft Windows XP, the path is:

C:\Documents and Settings \<user name> Local Settings Application Data SAP NWBC Traces

For Microsoft Windows Vista and Microsoft Windows 7, the path is:

C:\Users\<user name>\AppData\Local\SAP\NWBC\Traces

If the AppData folder is not visible in your folder list, make sure that in the Folder and search options under View and Advanced settings: the entry Hidden files and folders has the active subnode Show hidden files, folders and drives.

If you are requested to attach trace and log files to a problem ticket, just zip the complete content of this directory into one .ZIP file and attach it to the message.

More Information

For more information, see <u>3.4.3 Configuring Support Information</u> [Page 41].

SUP.06 How to Open an HTTP Connection to a Customer Site

Symptom

For support session, an HTTP Connect URLAccess connection (browser) to your systems is required.

Solution

See SAP note 592085 (Installing HTTP Connect service)

SUP.07 Why Do We Need a User with the Correct Roles Assigned?

NWBC is a shell that is driven by the roles assigned to the specific user. It is actually the assigned roles that make the key difference to the applications that are available to be started and the rights assigned to be able to execute the transactions. In addition, the exact assigned roles are critical for resolving of object-based navigation (OBN) targets.

For this reason, it is very important for the resolving of problem tickets that both authentication data (user name and password) is provided and that the correct roles must be assigned to the user to reproduce the problem.

Due to system security settings, it is not possible for us to assign our own roles to a test user. Therefore, when opening a problem ticket, please first forward it to your system administrator, quality manager or test co-ordinator to request that a user be made available with all the correct roles assigned.

This is an **absolute prerequisite** before the problem ticket can be processed.

INSTALL.01 SAP GUI Version Information

Find out which SAP GUI is running in your Business Client:

- 1. From the Start menu choose \mathbb{P} All Programs \rightarrow SAP Front End \rightarrow SAP Logon \P .
- 2. In your SAP logon dialog box open the context menu by choosing the icon on the top left and choose *About SAP Logon....*

SAP Version Info	mation X
SAP N	etWeaver
SAP GUI F	OR WINDOWS
Component:	SAP Logon for Windows
Release:	Final Release 710
File Name:	saplogon.exe
File Version	7100.4.17.1046
Build:	1142184
Patch Level:	17
Copyright © SAF	AG 1993-2010
system promati	on Loaded Lins Save version information

The version number is displayed.

(SAP GUI version)

At a minimum SAP GUI 7.10 patch level 15 must be installed (refer to chapter <u>3 Installation and</u> <u>Client Configuration</u> [Page 33] and to SAP note <u>1029940</u>). If an older version of SAP GUI is installed, NWBC for Desktop will use SAP GUI for HTML to render DYNP-based transactions.

INSTALL.02 How to Obtain the Portal Version

Symptom

Sometimes you need to know the exact version of the NetWeaver portal that is being used.

Solution

One simple approach is to log on to the portal and then to look at the portal version as is set within the browser.

- 1. Start a browser and log on to the relevant portal.
- 2. Enter the string javascript:(window.alert(EPCM.getPortalVersion()))" directly into the browser URL field (explicitly recommended to use MS Internet Explorer).



INSTALL.03 On which SAP NetWeaver Versions is NWBC v3.0 supported?

Symptom

You are not sure which SAP NetWeaver release is necessary to run NWBC v3.0.

Solution

NWBC v3.0 against an ABAP stack with PFCG as role repository requires at a minimum the following SAP NetWeaver releases:

- SAP NetWeaver 7.00 SP21+
- SAP NetWeaver 7.01 SP6+
- SAP NetWeaver 7.02 SP03+

For SAP NetWeaver 7.00 and SAP NetWeaver 7.01, NWBC is only released for limited use cases, as is described in SAP note <u>1368177</u>. For SAP NetWeaver 7.02, NWBC is generally released. This applies to both flavors of NWBC v3.0 (NWBC for Desktop as well as NWBC for HTML).

INSTALL.04 We have NW7.01 SP<06 and can see /sap/bc/nwbc, but ...

Symptom

We have SAP NetWeaver 7.01 SP<06 and can see /sap/bc/nwbc, but it does not work.

Solution

In older versions of SAP NetWeaver, the NWBC runtime was already partially developed. However, this development was not completed, not released and not documented. Thus, it could be quite possible that the ICF node /sap/bc/nwbc does indeed exist, and even partially work. However, the final and completed runtime is only available with those SAP NetWeaver releases as stated in FAQ question <u>INSTALL.03 On which SAP NetWeaver Versions is NWBC v3.0</u> <u>supported?</u> [Page 167].

You can check the specific service pack number by logging on to the system and then starting the menu \blacksquare System \rightarrow Status... \clubsuit . From there look at the version number for the SAP_BASIS component. It must be at a minimum 700.21, 701.06 or 702.02.



(System -> Status)

INSTALL.05 We Have an Old Version of SAP NetWeaver, Can we Use NWBC?

Specifically only for SAP Business All-in-One, NWBC v3.0 is also supported on SAP NetWeaver 7.00 SP18-20 and SAP NetWeaver 7.01 SP04-05 for beta testing purposes only. Refer to SAP note <u>1368177</u> for more detailed information. However, even in this case, at a minimum a version as is described in <u>INSTALL.03 On which SAP NetWeaver Versions is NWBC v3.0 supported?</u> [Page 167] is required for productive usage.

INSTALL.06 Can We Use NWBC If our SAP NetWeaver Version is Older Than Stated in Note 1368177?

Symptom

We have a version of SAP NetWeaver which is older than the versions described in note <u>1368177</u>. Can we use NWBC anyway?

Solution

No, NWBC is only supported for the releases as described in <u>INSTALL.03 On which SAP</u> <u>NetWeaver Versions is NWBC v3.0 supported?</u> [Page 167] and <u>INSTALL.05 We have an old</u> <u>version of SAP NetWeaver, can we use NWBC?</u> [Page 168].

SAP-Internal

For very special use cases that are not for productive usage, refer to SAP note 1400653. This note is released only internally and is only a guide to possible options that can be considered for internal test and demo systems.

INSTALL.07 Internet Explorer and Links that Open New Windows

Symptom

You might encounter the situation that after the installation of the Business Client your Microsoft Internet Explorer will not be able to open a new window or opens empty windows when clicking on a link. Due to install sequences and dependencies, it happens rarely that the Microsoft Internet Explorer libraries are not registered correctly after an install or uninstall.

Solution

This problem can be solved by registering the library shdocvw.dll again:

- 1. Under Windows, start cmd.exe.
- 2. Change the current path to your system32 directory which is located in the /windows directory (for Microsoft Vista).
- 3. Execute the following command:

for MS Internet Explorer 6:	regsvr32 mshtml.dll and regsvr32 shdocvw.dll
for MS Internet Explorer 7:	regsvr32 mshtml.tlb

INSTALL.08 NWBC v1.0 Maintenance and Support

Symptom

How long is the maintenance and support period for NWBC v1.0 and where is the latest version for downloading?

Solution

NWBC v1.0 is in maintenance until 30.06. 2011.

On the SAP Service Marketplace you can find the latest version of NWBC v1.0 under the following path: W www.service.sap.com/patches \rightarrow Support Packages and Patches — Entry by Application Group \rightarrow SAP Frontend Components \rightarrow NETWEAVER BUSINESS CLIENT \rightarrow NWBC NW BUSINESS CLIENT 1.0 \rightarrow Win32 \P .

For more information on the different versions of NWBC, see <u>1.1 Business Client History</u> [Page 11].

INSTALL.09 NWBC for Desktop Installation Errors (SAPSetup Errors)

Symptom

In very exceptional cases, the installation itself will raise an error message.

Solution

Should the installation fail, especially for the installation of any .DLL or .EXE files, it is **not** recommended to continue with running NWBC until the installation errors have been resolved.

For an analysis of the installation problems, the error and log files of the SAPSetup tool are needed. These are (usually) stored in the directory C:\Program Files\SAP\SapSetup\Logs and ..\Errors. Please ZIP together the relevant files from the installation and attach them to a problem ticket. If not sure which error and log files are relevant, just ZIP together the complete content of these two directories.

For an analysis of installation errors, we will route the ticket to BC-FES-INS.

INSTALL.10 NWBC for Desktop File Location

Symptom

I want to find the installation files for NWBC for Desktop on my local computer. Where are they?

Solution

All files for NWBC for Desktop are by default installed into the directory C:\Program Files\SAP\NWBC. Note that this path can be changed during the installation. Especially in cases of installation errors, consider to first uninstall the older version of NWBC for Desktop and then to verify that this directory is empty.

INSTALL.11 Manually Uninstalling NWBC for Desktop

Symptom

How do I manually uninstall NWBC for Desktop?

Solution

It is **not** recommended to manually uninstall the NWBC for Desktop client. Instead, it is recommended to use the Windows process to uninstall applications. However, if it should fail, consider to remove the application by "brute force".

The following steps can be considered:

- 1. Locate the installation directory. For more information, see <u>INSTALL.10 NWBC for</u> <u>Desktop File Location</u> [Page 170].
- 2. Unregister all ActiveX objects.
- 3. Delete all files.
- 4. Remove the NWBC directory.

Here are some commands that can be considered.

 \mathbb{A}

These commands can potentially damage your system. Execute them only at your own risk and if you are comfortable to work in a Window's CMD shell. Especially a DEL * command permanently deletes all files in the current directory. Make sure that this command is only executed in the NWBC directory.

C:

```
CD "\Program Files\SAP\NWBC"

PAUSE "Confirm Directory is \Program Files\SAP\NWBC"

FOR %T IN (*.DLL) DO REGSVR32 /U /S %T

DEL /S /F *

CD ..

RMDIR /S "NWBC"
```

INSTALL.12 Installation Only Extracts Without Installing

Symptom

Although you have administrator rights, the installation of NWBC is started without actually installing NWBC. The files are only extracted and then cleaned up immediately afterwards. No installation is run.

SAP Front-End Installation Self-Extractor	SAP Front-End Installation Self-Extractor
Please wait while the extraction completes	Cleaning up temporary files

(Extracting and Cleaning up files)

Solution

The problem is that sometimes Window's User Access Control (UAC) mechanism prevents the setup application from starting the next phase that does the actual install. To ensure that the setup application is running with the correct rights, just use a right mouse click on the setup executable and select the option *Run as Administrator*. The installation should now run correctly.



(Run as administrator)

CFG.01 Popup Dialog 'Logon to SAP System Failed'

Symptom

NWBC is attempting to start a SAP GUI transaction and then displays an error dialog Logon to SAP System failed. The system description 'XYZ' cannot be found in the system list.

Sapgui	×	
8	Logon to SAP System failed. The system description 'OVS' cannot be found in the system list.	
	Make sure that saplogon.ini exists and choose an existing system description in the system list.	
	ОК	
		(Logon to SAP System faile

Solution

Within NWBC, there is a connection defined, that also in addition states that for SAP GUI connections, that the connection data from SAP GUI logon with the description 'XYZ' should be used for all SAP GUI connections started by NWBC. When this error message comes, there is no

such SAP GUI connection defined with the matching description. In nearly all cases, it is recommended to **not** define this configuration string, but just to leave this field open. If the configuration string is defined, it must match directly a SAP GUI connection description. If this configuration field is empty (default recommended case), the connection data NWBC received from the server will also be used to start SAP GUI connections. This configuration field is only needed in very special cases where a special SAP GUI connection, for example via a SAP GUI router, is needed.

Options		×
Connections Search Providers B20 Y12 Y13	Support Personalize Name: URL: Type: Client: Language: SAP GUI Logon System: Comment: Assistance Panel Url New Delete Connect	YI2 http://ldciyi2.wdf.sap.corp:50026/nwbc ABAP 000 EN YI2 [PUBLIC] I Use this field only in cases where SAP Logon settings, for example SAP Router settings, should be used. This field is optional and should only be filled in exceptional cases. A This field is optional and should only be filled in exceptional cases. A Value must match exactly the SAP Logon Description/Name. (Restart)
		OK Cancel Apply

(SAP GUI Logon System)

For more detail information, refer to section 3.4.1 Configuring Connections [Page 37].

CFG.02 Interactive Option 'GUI Link' for ICF Service Nodes

Symptom

I am looking for the GUI link option for service nodes. Does the Business Client support the interactive option *GUI Link* for ICF service nodes?

Solution

No, not at all. That means, the interactive option *GUI Link* for ICF service nodes must **not** be specified - otherwise you will receive an internal server error message if you try to connect to the backend system.

ABAP.01 Locks After Short Dumps or Exceptions

Symptom

ABAP locks are still set after a short dump or an exception.

Solution

In ABAP, an uncaught exception will also cause a short dump to be written in transaction ST22 (ABAP Dump Analysis). It is usual that after a short dump, all locks are released. However, it can happen from time to time that this does not happen, and that a lock will stay dangling. Such a dangling lock will then usually cause an error message to be displayed, namely that the data is locked in another session or already opened in another session, although the user does not have any other opened sessions.

This is exactly the same behavior that will be experienced when a running application (either a transaction or a Web Dynpro ABAP application) within NWBC causes a short dump or an uncaught exception. Also in this case, it is quite possible that there remain dangling locks which are not cleared. Note that the NWBC is just a newer UI technology onto the same ABAP runtime, and therefore we have exactly the same behavior patterns as when running the applications in SAP GUI or in a browser.

These locks have then to be manually removed via transaction SM12 (Display and Delete Locks). Transaction SM12 can either be started by logging on with the SAP GUI and running the transaction, or by starting the transaction directly from the NWBC shell.

More information

- The SAP Lock Concept (BC-CST-EQ) [External]
- Managing Lock Entries [External]
- <u>Deleting Lock Entries</u> [External]

PFCG.01 Searching for Technical Names

Among the buttons on the *Menu* tab there are some that are of great help in troubleshooting situations:

- Search in Role Menu
- Position
- Switch on/off technical names

(Search, Position and Technical Name)

For example we have a problem in NWBC where we know the settings for a certain entry is the source of the problem in PFCG. So we render out this string and tell the user to find this entry within a large role. To see the technical names of your individual menu entries, use the button *Switch on Technical Names*. This causes the technical names of the menu entries to be displayed in the navigation tree, in addition to the textual description. By pressing the *Search in*

Role Menu button, entering the given search string and specifying whether the search shall be carried out in the technical names and/or in texts this entry will be highlighted in the navigation tree on the left.

Scription Attributes Menu Attributes			
		C YI2(1)/000 Search in menu tree	
		Find su01	
Hierarchy	Node Details	Type of search	
🕨 🧰 Role menu	Туре	In Technical Name	
	Object	In texts	
	Text		
	Further Node Details		Find 3
	Node Id		
	Alias for Applic.		
	Description		
	Service Map Symbol		
	Target System		
Q Description Attributes Menu	Authorizations	User Personalization	
CDescription Attributes OMenu	Authorizations	Use Personalization Copy Menus Further Action	is 🖌 🕂 Further Node
Conscription Attributes Menu	Authorizations	Use Personalization Copy Menus Further Action alls	is) 🖳 Further Node
Conscription Attributes Menu Conscription Transaction I I Hierarchy Conscription Attributes Menu	Authorizations	Use Personalization Copy Menus Further Action alls	is 🕢 🖽 Further Node
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C Description Attributes Menu C Description Attributes Menu Hierarchy C Demo C Demo C Demo C Demo C Durk - www.sap.com C Du	Authorizations Authorizations Authorizations None Det Type Object Text Oder with Order with Order with Alias for A	Us Personalization Further Action aits ode Details pplic.	is
C Description Attributes Menu Hierarchy C Role menu C Demo C Applications C Link Collection D URL - www.sap.com WDY_APPLICATION - Sales WDY_APPLICATION - Sales WDY_APPLICATION - Sale Ordi WDY_APPLICATION - Sa	Authorizations Authorization	Us Personalization Further Action ails ode Details upplic. on	is
C Description Attributes Menu Hierarchy C Role menu C Demo C Applications C Link Collection C WDY_APPLICATION - Sales O WDY_APPLICATION - Sales O WDY_APPLICATION - Sales O WDY_APPLICATION - Sales O WDY_APPLICATION - Enployee O WDY_APPLICATION - Sales O WDY_APPLICATION - Enployee O WDY_APPLIC	Authorizations	Use Personalization Purther Action Ise Copy Menus Purther Action alls ode Details upplic. on ap Symbol	s I Purther Node
C Description Attributes Menu Hierarchy C Role menu C Demo C Applications C Link Collection C UnkL - www.sap.com C WDY_APPLICATION - Sales C WDY_APPLICATION - CRUPCUIT C WDY_AP	Authorizations	Use Personalization Further Action aits ode Details pplic. on ap Symbol stem	s) P Further Node
C Description Attributes Menu C Description Attributes Menu Hierarchy C Role menu C Demo C Applications C Link Collection C UnkL - www.sap.com C WDY_APPLICATION - Sales C WDY_APPLICATION - CRUPCUL C WDY_APPLICATION	Authorizations	Use Personalization Further Action aits ode Details pplic. pn ap Symbol stem	s) P Further Node
C Description Attributes Menu Hierarchy C Role menu C Demo C Applications C Link Collection C MUT_APPLICATION - Sales O WDY_APPLICATION - Collection	Authorizations Authorization	Use Navigation Personalization Further Action Further Acti	s) P Further Node
C Description Attributes Menu Hierarchy C Demo C D	Authorizations Authorization	Us Personalization Further Action ails ode Details upplic. on ap Symbol stem sed Navigation	IS I Parther Node

(Search in Role Menu)

If, on the other hand, we need to find a certain node ID, we simply press the *Position* button, enter the node id in question and press *Enter*. The system highlights the relevant node id in the *Other Node Details* section on the right and expands the navigation tree to the relevant entry on the left.



(Position on Node ID 57)

For more information on the *Menu* tab, see <u>5.4 Navigation Tree</u> [Page 72].

PFCG.02 What Happens If No Roles are Assigned?

Symptom

It could happen that you start NWBC in a system where no roles are assigned to your user name.

Solution

If no roles are assigned, NWBC is automatically displayed with the standard SAP menu. It is the same menu as can be seen in the SAP Easy Access Menu under *SAP Menu*.



(SAP Easy Access in the ABAP Workbench and in NWBC for HTML)

PFCG.03 Why are Some Strings in Quotes?

Symptom

Some entries on the navigation panel are displayed in quotes. Why?

Solution

By default, all entries on the navigation panel are loaded from the PFCG in the user-selected logon language. However, it can happen that for a specific entry, there is no text available in the user-selected logon language. In this case, an attempt is made to find a relevant text first in English, thereafter in German. If these fallback attempts fail, a string will be generated based on the name of the role. If a fallback text is used instead of a text in the user-selected logon language, the selected fallback text will be displayed in quotes.

			Search For:		In:		▼ Search	L
Business Context Vie * "Finanzstammda Übersicht" "Benchte"	ten	ering						
"Editionen"	All (671)	In Process (0)	Released (0)					
"Verteilungsmonitor"	Show Quick Control	riteria Maintenance			Chang	e Query Define N	ew Query Perse	onalize
Editions	View: [Standa	rd View] 💌	Create Display Change	Requests E	Sition History	Run Validation	S 4	Filter
Change Requests of an Edition	Edition	Description	Type of Edition	Status	Number	Valid From	Invalid From	
Edition anzeigen"	1111	FRSI	Data Model 0G	In Process	10	012 2569	001 2967	
reate Edition	2104	11101	Data Model 0G	In Process	14	010 2099	001 2100	-8
dition Comparison bance Documents	2204	2204	Data Model 0G	In Process	6	012 2300	001 2400	-0
lore	2904	2204	Data Model 0G	In Process	0	012 2080	001.2400	
	21049		Data Model 0G	In Process	5	012 2055	012 2063	
	201108		Data Model 0G	In Process	0	008 2011	009 2011	-0
	210409		Data Model 0G	In Process	0	012 2120	001 2200	-0
	9011924			Released	0	001.1924	003 1946	
	001 1790	001 1790	Data Model 0G	In Process	0	001 1990	003 1990	
	001 2009	001 2009	Alianz Demo Edition Type	Released	0	001 2009	012 9999	
		1						
	Pand				Last Refre	sh 14.11.2009 00	27:27 CET Refre	sh 🖬
	CONTRACT DE LA							

(Quotes example)

OBN.01 Object-Based Navigation Errors

Object-based navigation (OBN) is a technology which allows navigation between applications, where the exact target application can only be resolved at runtime, based on the available roles assigned and the OBN targets configured in these roles. For example, assume that a button is named *Buy Widgets* that needs to start a new application that depends on the role definitions. The application triggers an OBN call widgets.buy. During runtime, NWBC will attempt to resolve this navigation request onto a configured application. For more information, see <u>5.10</u> <u>Object-Based Navigation (OBN)</u> [Page 86].

If this target is not found, this can be due to the following problems:

- Configuration error: Not all relevant roles are assigned to the user and the OBN target being addressed is not visible in one of the roles assigned to the user. During runtime, the system is unable to find out which other roles should be assigned to the user, since this is always dependent on the application in question. Report NWBC_LIST_OBN_TARGETS can help here - it returns a list of all roles that contain a specific OBN target. You can then make the message available for the relevant application component for further processing
- **Development error**: The developer calls an OBN target that has never been defined. If this is the case, only the developer can solve the problem. The message must then be passed to the relevant application component.

You cannot solve this kind of OBN error on NWBC side. The Business Client simply receives the request to trigger OBN. If there is no OBN target, NWBC has no other way of knowing which additional roles are required or whether a development error exists.

OBN.02 Failed to Resolve Object-Based Navigation

Symptom

OBN calls are similar to carrying out a phone call. Assume person A wants to call person B and dials the number 12345. Then, at the phone company, seen is only an incoming number 12345. If this number is unknown, then the phone company has no information about why A wants to dial 12345, no information about B and definitely no possibility to connect A to B. OBN calls are similar to phone calls, and here NWBC is the phone company.

"PurchaseOrder.Display". Use transaction PFCG to define this OBN target in a role or contact your system administrator to assign a rol
target in a role or contact your system administrator to assign a rol
at the end of the end
with the relevant OBN entries to your user.
To close the window, please click here.

OBN error)

For example, we see that an application wishes to reach the target "PurchaseOrder.Display. However, if the information has not been configured, NWBC has no possible way to resolve this call. To be very clear, this is **not** an error within NWBC, but usually a configuration error in the applications, the roles created or the roles assigned to the user.

Solution

Below are possible ideas in how to attempt to resolve this problem.

One idea would be to check whether there are other roles defined that already have a definition for this target OBN. It could be that the user is just missing this role assignment. As a first step, use from transaction SE38 the report NWBC_LIST_OBN_TARGETS with the input parameter the OBN target that needs to be resolved. Compare the found roles to the roles that have been assigned to the user (can be seen in transaction SU01).

In this example, we see within transaction SU01 for the specific user a number of SAP_BC_EPM_* roles assigned. In addition, we see that there is one extra role that matches the same naming pattern and that contains the target OBN that has not been assigned to the user. It could be that the user is just missing the assignment of this additional role. Note that one needs a detailed insight into all roles and their functionality to know whether assigning of the role to the user in the specific context is correct. This can only be decided after consulting the application documentation.

Ref	Addres	s Logon Data SNC	Defaults Paran	nete	rs Roles	Profiles	Groups Personalization LicenseDat	a Attribs
	Role A	A 7 (A) (B) (F) (D) (A) ssignments	≣_ &rRole_ () U	ser master red	ord.		
B	Status	Role		T	Start Date	End Date	Role name	Indi
		SAP_BC_EPM_BASE		0	21.09.2009	31.12.9999	Basis authorisations for a EPM test user	e
		SAP_BC_EPM_USER		Ð	21.09.2009	31.12.9999	Basis EPM role	=
	•	SAP_BC_EPM_WEBDYNPRO						
	•	SAP_BC_WEBSERVICE_CONS SAP_BC_WEBSERVICE_DEBU SAP_ESH_SEARCH_USER	UMER GGER		List all ro	oles that c	ontain targets for a specific OE	N call
			2	L	ist all rol	es that cont	ain targets for a specific OBN call	
				S S Z Z	AP_BC_EPM_P CC_EPM_P AL_NWBC BS_NWBC_DEM	ERFORMANCE		

(SU01 and report NWBC_LIST_OBN_TARGETS)

OBN.03 How to Verify OBN Configuration at Database Level

Symptom

Sometimes reports and configuration are good, but how can we really look at OBN at the database level?

Solution

For this, consider to use transaction SE16 to look at the database table AGR_HIER_BOR. An OBN call is usually of the format object.method and is stored in the database table in the fields LOBJTYPE_NAME (equal to object in this example) and VERB_NAME (equal to method in this example). By defining a specific query, it is possible to see in which roles this specific OBN target is defined.

From here, one can consider to use transaction SU01 to verify whether the user has found the assigned role.

In addition, with the key fields AGR_NAME and OBJECT_ID, it is possible to look up the associated application in table AGR_HIER.

OBN.04 How to Debug OBN

If you have ABAP knowledge and like to debug, it is relatively simple to debug through an OBN resolve sequence. All OBN calls for both NWBC for Desktop and NWBC for HTML are resolved on the server in one method CL_NWBC_RUNTIME->RESOLVE_NAVIGATION. Just set a HTTP breakpoint for the correct user and client in this method. (Important: NWBC for Desktop will cache resolved OBN calls, first flush the NWBC cache by using a control-click on the *Help* menu.) The resolving steps involve first retrieving all possible OBN targets that are mapped into the assigned roles, selecting the correct OBN target and finally doing the parameter mapping of incoming parameters onto the target application parameters.
OBN.05 How to Handle Long Portal-Based OBN Targets

Within ABAP, for an OBN definition within PFCG, both the object and method names can have a maximum of 32 characters. However, with a role defined within the SAP portal based on the PCD, it is possible to have longer names. It could happen that an application triggers such an OBN call with a name that exceeds 32 characters, based on a role defined in the PCD. In such a case, the application can usually not be changed to trigger a different OBN when running within a role defined in PFCG. The pragmatic recommended approach is to define the OBN targets within PFCG exactly the same as in PCD, just cutting the string off at 32 characters. The assumption is that already the first 32 characters should be significant. When an OBN is triggered that exceed 32 characters (both on object and method), the comparison to the definition will be done only on the first 32 characters, allowing the same OBN targets to be used also within a PFCG-defined role.

OBN.99 What to Do If All Else Fails...

If all the conditions below are met, and the problem is not yet resolved, you can consider opening a problem ticket for us to look at in more detail:

- 1. You have read the document on OBN, specifically chapter <u>5.10 Object-Based Navigation</u> (OBN) [Page 86].
- 2. You have read all OBN.* related texts in the FAQ.
- 3. You have checked table AGR_HIER_BOR to confirm that this OBN target is actually defined in a specific role.
- 4. You have used transaction SU01 to confirm that this role is assigned to this user.

PORTAL.01 The Size of (SAP NetWeaver Portal) iViews is Too Small

Symptom

When running NWBC for Desktop against a portal server, some iViews are displayed in a small box (height of 300 pixels) and do not use the available canvas size. How can the iView size be increased to use 100% of the width of the canvas?

				Search For:	In:	Search Log
	EE			6		
Home	Systems Connections system m	apping Recipe Developer	Content Administrati	Delegated User Adm		
stview Service M	ip					
ork Overview						
vipes	Query 'PLM Favorites	' is already open in another sessio	I – Display Help		· · · · · ·	
ecifications	Ouery My Active Co	itext' is already open in another set	ssion - <u>Display Help</u>			
bels	Query Work tems' is	already open in another session -	Riselity, Helb			
aterials	Work Environment					=
aterial BOMs					•	
oumens						

Solution

The reason for this limited height is that the SAP NetWeaver Portal iView has configured a default height to be fixed, with the default value of 300 pixels. Within the Portal Content Directory (PCD), the configuration for the iView must be changed. Change the attribute com.sap.portal.iview.HeightType to have the value FULL_PAGE.

SEC.01 Security Errors

If security settings are incomplete, several errors might occur.

No Login Possible with SSO

Symptom

If you have activated SSO for your system, no logon screen is displayed but the following error message occurs: Your PFCG navigation tree is empty. Please contact your system administrator.

If SSO is deactived, however, the login screens appears.

Solution

The error message indicates that you are sending your digital certificate to the server, which you (or your system administrator) has mapped for you onto a user which has no roles. To rectify this, assign the necessary roles to your user name.

Note that you can make the login screen disappear if you activate certificate mapping. For more information, see <u>7.2 Use of Digital Certificates</u> [Page 118].

HTTP Certificates Issue

Symptom

When using **Microsoft Windows XP** there can be issues with HTTP certificates.

Solution

When using **Microsoft Windows XP**, request and install KB919477 via <u>http://support.microsoft.com/kb/919477</u>. For more information, see <u>7.2 Use of Digital Certificates</u> [Page 118].

SEC.02 Logon with Different User when Digital Certificates are Active

Symptom

It is not possible to logon to the system with a different (test) user. Each logon is completed with your own assigned user.

Solution

During the logon process, the ICF logon application will switch to HTTPS. Once HTTPS is active, the server and the client will exchange digital certificates. If the client/user should have a digital certificate that maps onto a user ID on the server, then the logon will automatically be completed

with this user ID identified by the digital certificate and the user will not be prompted to enter a new user ID (enabling an alternative logon).

If it is required to logon with a different user, the certificate logon needs to be prevented. One approach could be to remove at the server the certificate mapping to the user ID (transaction SM30, view VUSREXTID, remove *Active* checkbox). The alternative would be to delete the digital certificate at the client (first make a backup by exporting the certificate).

Once the digital certificate mapping is not active, the logon application can't complete a logon automatically and will stop to prompt the user for logon data.

This problem is definitely in the domain of the system administrator to solve, to a lesser extend in the domain of the user. Basically the authentication landscape has to be updated. The error is **not** related to NWBC and can also be reproduced by starting any Web Dynpro ABAP application in the browser.

We highly recommend to read sections <u>7.1 NWBC and Authentication</u> [Page 117] and <u>7.2 Use of</u> <u>Digital Certificates</u> [Page 118].

SEC.03 SSO logon not possible; browser logon ticket cannot be accepted

Symptom

This message is displayed during the logon process. It indicates already during the logon that it will not be possible to issue a single sign-on or logon ticket (MYSAPSSO2 ticket). NWBC absolutely requires this SSO ticket to work, as it is the mechanism with which authority information is passed between the shell and the different canvasses started.

Solution

There are a number of reasons why the logon process can fail to issue (or accept) a logon ticket. Typical reasons can be:

- The profile parameters for logon tickets are not configured
- There is an issue with the digital certificate of the server used to create and accept these tickets.
- The browser instance already has a MYSAPSSO2 ticket from another server which is not accepted by this server (especially applicable for NWBC for HTML). Due to the architecture of MYSAPSSO2 tickets, there can only be one such a ticket active. Retest with a newly started browser session.
- In some releases of NetWeaver, incorrectly configured digital certificate could lead to this error message.

This problem is definitely in the domain of the system administrator to solve. In all cases the problem is either an incorrectly configured server or a system authentication problem within the landscape. The error is **not** related to NWBC and can also be reproduced by starting any Web Dynpro ABAP application in the browser.

We highly recommended to read sections <u>7.1 NWBC and Authentication</u> [Page 117] and <u>7.3</u> <u>Logon Tickets</u> [Page 121].

SEC.04 SSO Logon not possible; logon tickets not activated on server

Symptom

During logon, this error message is displayed. The logon application indicates that it will not be possible to issue a logon ticket. Such a logon ticket (MYSAPSSO2 cookie) is critical for NWBC to enable the shell to communicate with the server and for starting different types of applications without requiring a re-authentication process each time. There are a large number of reasons why this could fail, for example support for logon tickets might need to be configured on the server.

Solution

Read chapters 7.1 NWBC and Authentication [Page 117] and 7.3 Logon Tickets [Page 121].

Until this problem has been resolved, and the error is not displayed anymore, it is not possible to run NWBC against this system. Contact your system administrator to do the necessary system configuration.

SEC.05 Possible Number of Active Connections with NWBC

Symptom

I want to have more than one active system connections with NWBC. Is that possible?

Solution

No, It is only possible to connect to **one** server at any time. For more information, see <u>7.1 NWBC</u> and Authentication [Page 117] and <u>2.10 Connecting to Different Systems</u> [Page 28] and <u>SEC.06</u> Can Authentication Information be Shared Between Connections [Page 184].

SEC.06 Can Authentication Information be Shared Between Connections

Symptom

SSO between NWBC connections fails. Can authentication information be shared between connections?

Solution

Note that it is only possible to connect to **one** server at any time. For more information, see <u>7.1</u> <u>NWBC and Authentication</u> [Page 117] and <u>2.10 Connecting to Different Systems</u> [Page 28].

When switching between connections, all authentication information is cleared, and this means new authentication is required against any new system (implicit logoff). As a workaround you might consider running two instances of NWBC (one shell per server). Alternatively, you could export all roles onto a portal and use this as single server for your NWBC connection.

SEC.07 Logged Off Successfully! But Not Really Logged Off

Symptom

Specifically with NWBC for HTML, after logoff a dialog is displayed stating that the user is logged off. However, starting NWBC for HTML new, the user is logged on directly again.



Solution

One must clearly distinguish between logging off from the server that terminates the session with the server, versus clearing authentication information from the browser.

Let us first draw a parallel to real life. Assume that as a student goes to a party. After paying and showing some identification to proof the student is above 18 (authentication process), a stamp is made on the hand of the student. Late at night, the student decides to go home and calls "goodbye" to all friends and the doorman (the party session is closed). But what happens if the student now stands outside the door and decides to go back inside? Of course, that stamp is still there on his hand. There is nothing that prevents the student from turning around and just walking back inside (with the wave of a hand).

Authentication works similarly. One has to understand how the initial authentication is done and how re-authentication is done for all subsequent HTTP requests. The typical approach would be to set a login ticket (MYSAPSSO2 cookie) that is used each time for re-authentication. This cookie is set by the server and on logoff can also be deleted by the server. However, there are a number of other authentication processes, where the authentication information "sticks" to the browser session. Once the data is entered, the browser will always use this authentication data and it can never be deleted again, definitely not from the server. Two typical cases are the use of basic authentication or digital certificates. In both cases the authentication information will "stick" to the browser session (similar to the stamp on the hand). What the logoff achieves is that it terminates the session on the server, but it is impossible to clear the authentication information from the browser. Thus, if the application is restarted, the authentication information is immediately reused (one is automatically logged on with the wave of a hand) and a new session is started.

This is also the reason why the on-screen popup recommends closing the browser. For more detailed information, it is highly recommended to read <u>7 Security Aspects</u> [Page 116].

SEC.08 Security Alert: Security Certificate has Expired or is Not Yet Valid

Symptom

The system displays a security alert with the following text: The security certificate has expired or is not yet valid.

Security	Aler	t statute and s	×	
ß	Infor char secu	mation you exchange with this site cannot be viewed or nged by others. However, there is a problem with the site's nity certificate.		
	0	The security certificate is from a trusted certifying authority.		
		ß		
	▲	The security certificate has expired or is not yet valid.		
	•	The security certificate has a valid name matching the nam of the page you are trying to view.	e	
	Dog	ou want to proceed?		
		Yes No View Certificate		(Socurity Alor

Solution

This is a browser-based popup that informs the user that the certificate used by the server is not valid. The problem is a configuration error on the server and can not in any way be influenced by NWBC. We highly recommended to read chapter <u>7.7 Certificate Error Popups in the Browser</u> [Page 127] for all details. The only possible solution for this problem is to request from the system administrator to configure the digital certificates used in the server to be valid.

SEC.09 Browser-Based Testing and Authentication

Already the frequently asked question <u>SEC.02 Logon with Different User when Digital Certificates</u> <u>are A</u> [Page 182] addressed the effects of digital certificates when using HTTPS-based URLs. However, there are a number of other factors that could influence the authentication process. Highly recommended is to read the complete chapter 7 on <u>Security</u> [Page 116].

Especially in test sequences, where it is important to run a specific test with a very specific user, care must be taken with a clear test strategy to ensure that the tests are run in a repeatable manner with the correct test user. There are a number of unsuspecting factors that could play a role during the authentication process.

- First and foremost, when HTTPS-based URLs are used, always be well aware of the effect of digital certificates. If there is any digital certificate available within the browser and this certificate is mapped on the server, it could at any time be used as part of the authentication process.
- When starting an URL from the ABAP stack, for example as is done by transaction NWBC, the browser will be supplied with a onetime re-entrant authentication token which results in a MYSAPSSO2 cookie being set for the specific user.

When running in a new browser window within an existing browser session, all
accumulated cookies are considered for the HTTP requests. Especially in a tabbed
browsing environment, one tends to open a new tab to quickly test something different.
However, this new tab is just another browser instance within the same process (at least
for Microsoft Internet Explorer) and thus shares all the cookies from the other tabs.
Similarly, if the URL in the browser is changed to a different location, the cookies within
this browser session are still valid and evaluated. These cookies play a critical role during
the authentication process and can cause havoc when expecting to be authenticated with
a specific user.

A number of recommendations are made here, specifically when user authentication problems are seen within a browser as a way to achieve a structured test environment where tests can run with guaranteed correct users.

• First and foremost, disable any tools that will inject a digital certificate into the secure store.

(SAP Internal: the *PSE Management* application, visible as a little green box in the task bar tray, manages digital certificates and must be disabled for all testing. Once disabled, the tool will remove your personal certificate from the system.)

- Also ensure that there are no additional digital certificates available for the browser to use. For Microsoft Internet Explorer, this can be verified under
 Tools → *Internet Options Tools* → *Internet Options Tools Tools*
- To ensure that there are no authentication information passed from SAP GUI, do **not** start any browser-based testing from SAP GUI, as then the SAP GUI user will automatically be used. Specifically, do **not** use transaction NWBC when it is needed to test with a different user. (If needed, use it only once to obtain the start-up URL for a bookmark.) Always manually starts the test sequence by entering the test URL in the browser (or use a bookmark).
- Consider to disable browser plug-ins if it is suspected that they could negatively influence the test results.
- Always close all browsers, definitely **all** browsers, before starting a test sequence. Never test within a running browser, never test on a second tab within a browser and never use *New Window* (Control-N) to get a new browser instance for testing. All of these cases will result in a shared cookie store, tainting the authentication information. In all test sequences, always close all browsers first and then start one browser new for the test case. Do this for each test case.
- Consider to extend the URL with URL parameters to force the authentication for a specific user. Parameters available are sap-user, sap-password, sap-client and sap-language. These can be added to the startup URL that is then bookmarked for the specific test sequence. (Consider security guidelines when storing passwords locally.)

SEC.10 Why does NWBC Only Use Basic Authentication Popup for Logon Sequence

Symptom

When logging on to NWBC it could happen that you get a basic authentication logon window with no client field, and when logging on you end up in the wrong client.

SAP Net	Neaver" Application Serv	Cr Cr Cr annot be accept	Red		
Choose "Logon" password No switch to	to continue A dialog box app HTTPS occurred, so it is not	secure to send a pa	an enter your user and		
System Client * User Password Language	DM 102 Via Popup Via Popup Via Popup Legish • Accessibility LegiOn	Connect to dimte Connect to dimte Connect to dimte Connect to dimte Server [DIM] req Warning: This see Password be sen Viser name: Password:	c00.wdf.sap.corp c00.wdf.sap.corp at SAP Web uires a username and passwo rver is requesting that your ut in an insecure manner (basic connection).	D Application rd. authentication	
Change Passwor Copyright 2002-20	d 105 SAP AG All Rights Resen		ОК	Cancel	(Evam

Solution

Make sure that on the *Error Pages* tab in SICF under *Logon Errors* the option for *Explicit Response Time* is **not** active. Use the *System Logon* instead.

Response Page Header Ti (A) Alias er Page Response Page Body Alias Page to URL Status 2 t	Explicit Response Page Header Alias Header Page Explicit Response Page Body Alias Body Page Redirect to URL Status O Form Fields (Text Form)	Explicit Response Time	NO! Documentation	
Alias er Page Response Page Body 2011 Alias Page to URL Status 2 t	Alias Header Page Explicit Response Page Body Alias Body Page Redirect to URL Status 2 Redirect W/Vo Form Fields (Text Form)	Explicit Response Page	Header	
er Page Response Page Body Page to URL Status 2 t	Header Page Explicit Response Page Body Image: Constraint of the second	Alia:	3	
Response Page Body Pige Alias Page to URL Status 2 t	Explicit Response Page Body Alias Body Page Redirect to URL Status Wivo Form Fields Form Fields (Text Form)	Header Page		
Response Page Body Di Alias Page to URL Status 2 t	Explicit Response Page Body Alias Body Page Redirect to URL Status W/o Form Fields Form Fields Form Fields Center Fields Status Status Status Status Status Status Status Status			
to URL Status 2 t	Body Page Alias Body Page Redirect to URL Status 2 Redirect O Form Fields (Text Form)	Explicit Response Page	Body	
to URL Status 2	Body Page Redirect to URL Status 2 Redirect OForm Fields (Text Form)	Alias	3	
to URL Status 2 t	Redirect to URL Status 2 Redirect W/o Form Fields (Text Form)	Body Page		
t claus a	Redirect • W/o Form Fields OForm Fields (Text Form)	Pedirect to LIPI	Status 2	
	W/o Form Fields (Text Form)	Redirect		
	W/o Form Fields O Form Fields (Text Form)			
Form Fields (Cart Form)	Or with teres (rewronn)	W/o Form Fields	O Form Fields (Text Form)	
	O Form Fields (Base64)	Control on releas	OForm Fields (Researd)	
Form Fields OForm Fields (Text Form)		Redirect to URL Redirect	Status 2 OForm Fields (Text Form)	
O Form Fields (Base64)				

For more information, see <u>7.1 NWBC and Authentication</u> [Page 117] and <u>System Logon</u> [External].

SEC.11 J2EE Overwriting MYSAPSSO2

Symptom

After starting applications on a Java server (e.g. portal iViews or Wiki pages) within NWBC, all following application starts bring up logon dialogs in HTML as well as SAP GUI based applications.

This is caused by SAP's J2EE engine overwriting NWBC's MYSAPSSO2 cookie which was received after the first login and which is vital for starting applications on the connected server.

Solution

Configure the systems to issue a MYSAPSSO2 cookie for the host. This can be done via the UME property ume.logon.security.relax_domain.level = 0.

For more information, see SAP note 1368384.

SEC.12 'Connection to System Failed'

Symptom

You have installed Microsoft Windows XP SP2, but you have **not** installed hotfix 919477. If you want to connect to a system with NWBC, the connection fails. An error message appears: Connecting to 'SYS' failed. The backend of connection 'SYS' returned a fatal error: An unknown error occurred while processing the certificate.

	The backend of connection 'SYS' returned a fatal error:
HJ	-2146893017 (0x80090327): An unknown error occurred while processing the certific
~	

(Connecting to ... failed)

Solution

Request and install hotfix 919477. For more information, see <u>7.2 Use of Digital Certificates</u> [Page 118].

Note that in Microsoft Windows XP SP3 the hotfix is already included automatically.

SAP-Internal

For SAP-internal colleagues the hotfix is available via \\NS0009\nwuif\nwbc\download\winhttp_patch\XP.

CRASH.01 What Exactly does Crash Mean?

Symptom

Often a problem ticket is opened stating only that NWBC crashed. However, it is not possible to know whether the shell of NWBC had a problem, whether the crash happened because of the SAP GUI used as canvas, whether it is a JavaScript error or whether the ABAP runtime itself caused a rabax.

Solution

To continue with the investigation, we need screenshots of the complete desktop (or at least NWBC shell) showing exactly what "crashed". If possible, include text that describes the exact type of crash.

- A SAP GUI crash can be recognized by the mouse cursor that changes to include the word "crash". In this case, it is highly recommended to first install the latest SAP GUI and retest the application. If it still crashes, see if the application can be executed directly within SAP GUI without crashing. If it crashes also in standalone case, route problem tickets to BC-FES-GUI.
- If it is an ABAP rabax, it is important to also attach the text of the rabax (using transaction ST22). In this case, the error is usually caused by the running application, and the problem ticket needs to be routed to that specific component. The approach is to see what component triggered the rabax (class, report, etc.), to then navigate to the containing package and there to determine the assigned application component (which is the queue to be used for the problem ticket).
- For a JavaScript error, the error is usually caused by the canvas application itself and not NBWC. The approach would be to reproduce the error without NWBC and then investigate why the web application is triggering a JavaScript error.

CRASH.02 Microsoft .Net Exception

Symptom

Occasionally, while using the Business Client, there will be a .NET exception: Invisible or disabled control cannot be activated.

1icrosoft	NET Framework	×
8	Unhandled exception has occurred in a component in If you click Continue, the application will ignore this er continue.	your application. ror and attempt to
	Invisible or disabled control cannot be activated.	
▲ <u>D</u> et	ails	Continue
See the e just-in-time	nd of this message for details on invoking (JIT) debugging instead of this dialog box.	4
System.Ar at Syste at Syste at Syste at Syste at Syste at Syste	** Exception Text ************************************	e activated emal(Control valui ontrol ctl) Control value) ioreFocusedChild(ioreFocusedChild()
•		•

(.Net exception)

This is related to a situation within the .NET3.0 runtime, which cannot be resolved. The coding of the Business Client has been enhanced to reduce the number of occurrences to a minimum, but they will never be completely eliminated.

Solution

The only possible way to resolve this situation is to install the latest .NET runtime, at least install .NET3.5. See also <u>3 Installation and Client Configuration</u> [Page 33] and <u>3.1 Desktop Installation</u> [Page 33].

CRASH.03 Crashes in NWBC (While Displaying an HTML Application)

Symptom

The typical symptoms observed are that a specific click sequence through an application will cause NWBC to crash. The message displayed is roughly of this format: The Instruction at 0x004496e5 referenced memory at 0x0000000. The memory could not be read. Once *OK* is selected, NWBC is terminated.

If the problem does occur, it is usually limited to specific computers and always within the same place with an HTML-based application. Typically, the problem can't be reproduced in a standalone case when the same application is executed directly within the browser.

NWBCCI	lient.exe - Application Error	<
8	The instruction at "0x004496e5" referenced memory at "0x00000000". The memory could not be "read"	
	Click on OK to terminate the program Click on CANCEL to debug the program	
	OK Cancel	

(NWBC error message)

One well-known cause of these problems is related to a timing behavior within the Microsoft Internet Explorer 6 (IE6). Specific sequences of rendered HTML, especially around complex Web Dynpro rendering, can cause the IE6 to crash, which causes then the secondary crash within NWBC.

To isolate the problem more, look at the following aspects:

- The crash occurs with a click stream through an HTML-based application
- The computer has a Microsoft Internet Explorer 6 installed

Solution

Although it is possible to change the underlying HTML to prevent the crash, this is deemed as extremely difficult to identify the exact HTML construct causing the problem and getting the rendered HTML modified. The recommended approach is to install a newer version of Microsoft Internet Explorer. As a fallback consider to experiment with installing all relevant IE6 fixes, although it is not known whether there exists an IE6 fix for this problem.

CRASH.04 CX_NWBC=>NO_COCKPIT

Symptom

No cockpit has been specified within the URL.

Solution

In beta versions of the NWBC runtime, the usage of a cockpit within the URL was enforced. When calling NWBC with the URL /sap/bc/nwbc, an exception was raised to indicate that no cockpit is available. This error is always an indicator that the ABAP system is at a level that is not supported.

See <u>INSTALL.03 On which SAP NetWeaver Versions is NWBC v3.0 supported?</u> [Page 167] and update the service pack level to a minimum level supported.

CRASH.05 CX_NWBC=>INVALID_COMMAND

Symptom

Unknown command has been specified within the URL.

Solution

Very specifically if this exception is raised on the startup URL (as used by NWBC for Desktop) of /sap/bc/nwbc/TicketIssuer, it is a clear indicator that the ABAP system has only a beta version of the NWBC runtime that is **not** officially supported.

See <u>INSTALL.03 On which SAP NetWeaver Versions is NWBC v3.0 supported?</u> [Page 167] and update the service pack level to a minimum level supported.

CRASH.06 Blue Screen of Death

Symptom

The typical symptom is a Microsoft Windows (blue) error screen, colloquially called "blue screen of death", at random times. After such an error screen, it is only possible to switch off the computer and restart.



Solution

These types of errors are caused by device drivers running in Microsoft Windows kernel mode or by faulty hardware (usually memory). It is not possible for normal user applications to cause such errors. Although it is true that NWBC can trigger the error regularly or randomly, NWBC itself is **not** responsible for the error. In the typical examples observed, the problems were usually caused by the graphics driver running in kernel mode. The reason for this is that NWBC uses via Windows Presentation Framework (WPF) a lot of "exotic" functionality from the graphics adapter. In this sequence, it is typically the graphics driver itself, running in kernel mode that causes the blue screen error. Recommended as a first step, is to update the graphics drivers to the very latest versions available.

In addition, the blue screen will also list any number of device drivers that were involved in triggering the error, for example win32k.sys. Recommended is to use an Internet search engine and to search for the expression "blue screen of death" plus the name of the device driver causing the error. In most cases many relevant links are returned.

If this does not resolve the problem, please contact your IT team to request that both the hardware and Microsoft Windows installation be reviewed and possibly replaced.

CRASH.07 CX_NWBC=>RELEASE_UNSUPPORTED 'NWBC is only supported with NW 7.02 or 7.20 and further releases'

Symptom

Directly on starting NWBC, an exception is shown with the text The NetWeaver Business Client for Desktop is only supported with the NetWeaver 7.02 or 7.20 and further releases. The call stack shows method RELEASE_UNSUPPORTED of the CX_NWBC class.

Error when processing your request

What has happened?

The URL http://iginaone.in.intelligroup.com:8002/sap/bc/nwbc was not called due to an error.



What can I do?

If the termination type was RABAX_STATE, then you can find more information on the cause of the termination in the system BPQ in transaction

(Example of CX_NWBC=>RELEASE_UNSUPPORTED)

This exception is shown directly after the authentication phase:

- when testing the /sap/bc/nwbc node or /nwbc alias within transaction SICF
- when starting NWBC for HTML with the transaction NWBC
- or within the logon window when starting NWBC for Desktop

Solution

On SAP NetWeaver 7.00 and SAP NetWeaver 7.01, NWBC v3.0 is only released for SAP Business All-in-One (see also <u>INSTALL.03</u> [Page 167]). On these releases, NWBC will only function if the NWBC configuration reflects an SAP BAiO use case (refer to setting BUSINESS_LINE=BAiO in chapter <u>4.6</u> [Page 59]). Also see SAP note <u>1368177</u> for complete details.