

PROCESS DIRECTOR 7.2

Web Application Configuration Guide

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Questions or comments about this document may be emailed to documentation@readsoft.com.

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Introduction

About this guide

This guide describes how to deploy and configure the PROCESS DIRECTOR Web Application. It assumes you are already familiar with the general concepts and basic use of PROCESS DIRECTOR.

The guide contains the following chapters:

- [Deploying the Web Application](#)

Lists the system requirements, describes the configuration files, and explains how to deploy the PROCESS DIRECTOR Web Application to Tomcat and SAP NetWeaver Application Server.
- [Connecting to SAP systems](#)

Explains how to connect to one or more SAP application servers, as well as to an SAP message server.
- [SSO and external authentication](#)

Explains the two authentication options available for logging on to the Web Application: using Single Sign On (SSO) or an external authentication system.
- [Common configuration tasks](#)

Explains some of the most common tasks you normally perform after deploying the Web Application.
- [PROCESS DIRECTOR appearance](#)

Looks at the different ways you can change the PROCESS DIRECTOR user interface, such as changing themes and text strings.
- [Administration tools and logs](#)

Provides important information for administrators of the PROCESS DIRECTOR Web Application.

- [Configuration files](#)

Explains all the settings in the PROCESS DIRECTOR Web Application, including those in the main configuration file, `pdweb-app.properties`.

- [Appendix A - Windows and SSO](#)

Instructions for configuring your system to enable automatic logon to the PROCESS DIRECTOR Web Application using the logon credentials of the current Windows user ("Single Sign-On").

- [Appendix B – JRE, Tomcat & JCo](#)

Instructions for installing the Java Runtime Environment (JRE), Apache Tomcat, and the SAP Java Connector (SAP JCo).

Typographical conventions

The following typographical conventions are used:

- Menu names, commands, and dialog names appear in **bold**.
- Names of keys on your keyboard appear in **SMALL CAPITAL LETTERS**.
- Names of files, folders, and settings appear in `Courier` font.
- SAP transaction codes and program names appear in `ARIAL MONOSPACE`.
- Variables that have to be replaced by an actual value are *italicized* or appear in `<>`.

Deploying the Web Application

- [Architecture overview](#)
- [Hardware requirements](#)
- [Software requirements](#)
- [Tested environments](#)
- [Installation files](#)
- [Renaming the Web Application](#)
- [Deploying to Tomcat](#)
- [Deploying to SAP NetWeaver Application Server](#)
- [Deploying multiple applications](#)
- [Adjusting the memory pool for Java](#)
- [Files and folders](#)
- [Upgrading](#)

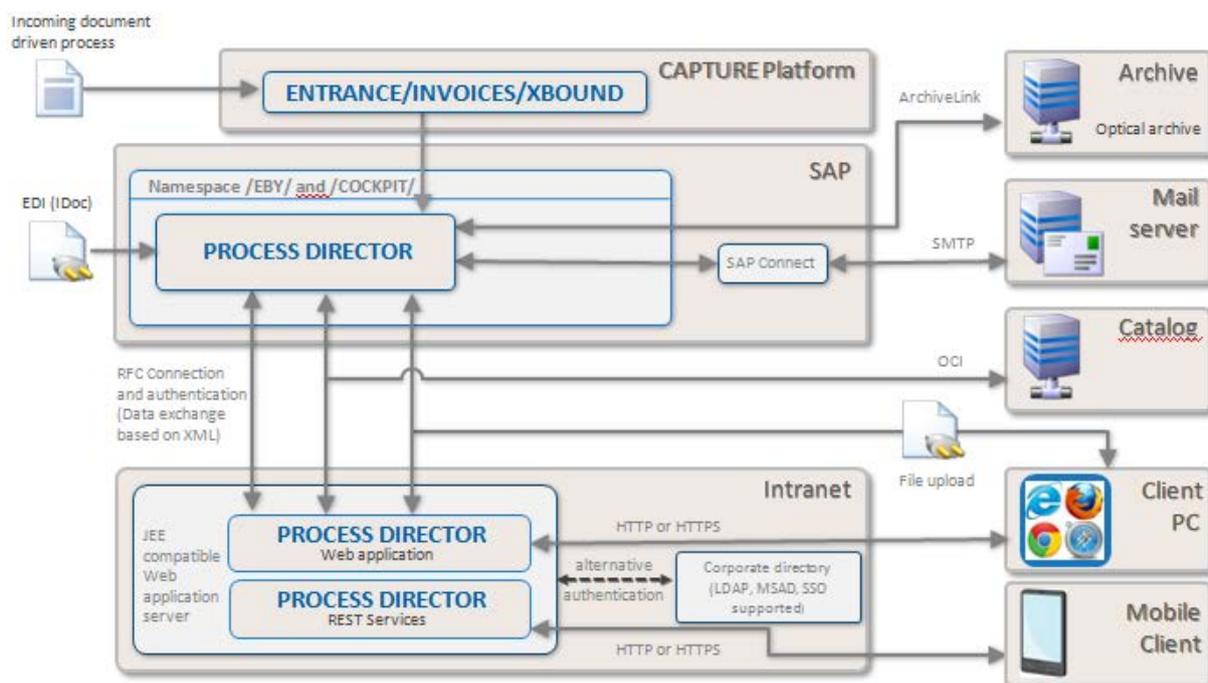
Examples in this guide use Apache Tomcat as the Web Application server. Although other Web Application servers can be used, Tomcat is the recommended server and provides the best default behavior for the PROCESS DIRECTOR Web Application.

The PROCESS DIRECTOR Web Application only works if PROCESS DIRECTOR is installed. See the *PROCESS DIRECTOR Installation Guide* for instructions on installing PROCESS DIRECTOR.

For performance reasons, we do not recommend using the Web Application for documents with more than 100 line items. Such documents should be processed in the SAP GUI only.

Architecture overview

The PROCESS DIRECTOR Web Application is part of a larger solution. The following diagram illustrates the architecture of a typical solution and the place of the PROCESS DIRECTOR Web Application within it. Note that PROCESS DIRECTOR also resides in SAP, as well being a Web Application.



Hardware requirements

The PROCESS DIRECTOR Web Application should run on its own server. However, installation on systems running other applications is also possible.

The minimum hardware requirements are:

Item	Requirement
RAM	ReadSoft recommends about 30 MB per concurrent user session. Thus, if 100 users are logged on simultaneously, you can expect memory usage of around 3 GB.

Installation on a Virtual Machine is also possible and supported by ReadSoft.

For information about support for mobile devices, please contact your local ReadSoft representative or the ReadSoft SAP Solutions Lab.

Software requirements

The following table lists ReadSoft's recommended software as well as the minimum requirements:

Item	Recommendation	Minimum requirement
Operating system	Windows 7 Windows XP Windows 2012 Server Windows Server 2008 or 2008 R2 Windows Server 2003 Windows 2000	Any operating system supported by the other software components below.
Web browser	(No recommendation)	Internet Explorer, Versions 7 to 10. For PROCESS DIRECTOR Web Application versions prior to 7.2 patch level 5, Version 10 must be run in compatibility mode (see below). Firefox, version 3 and later Safari, version 4 and later Chrome, version 4 and later
Java Runtime Environment (JRE)	JRE 6 JRE 7	JRE 5
Web application server	Apache Tomcat 6.0 Apache Tomcat 7.0 SAP Netweaver CE from version 7.1	J2EE compatible Java Servlet 2.4 Java Server Pages (JSP) 2.0
Java Connector (JCo)	2.1.10 3.0 (see below)	2.1.10

Important: The parameter [pd_suggest_jpa](#) must be set to no for Netweaver installations.

- ❗ **Note:** If using a 64bit version of JRE, the other components must also be 64bit.
- ❗ **Note:** The PROCESS DIRECTOR Web Application only works if PROCESS DIRECTOR is installed. See the *PROCESS DIRECTOR Installation Guide* for instructions on installing PROCESS DIRECTOR.

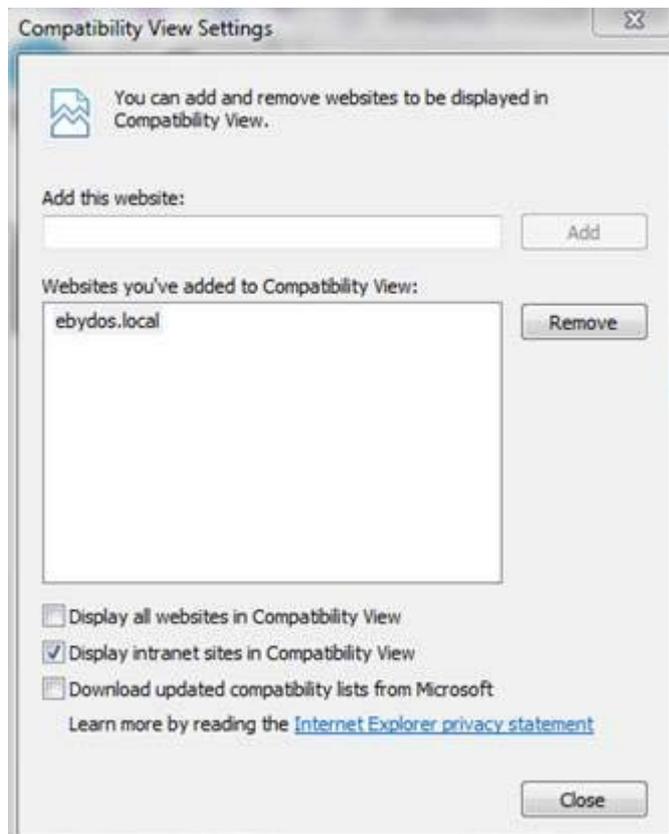
Known limitations with Internet Explorer 8

In Internet Explorer 8, the browser memory usage increases each time an attachment is uploaded in the PROCESS DIRECTOR Web Application. This can lead to slow performance if a large number of attachments are added.

PROCESS DIRECTOR and Internet Explorer 10

Internet Explorer Version 10 (IE10) should always run in compatibility mode for PROCESS DIRECTOR Web Application versions prior to 7.2 patch level 5, otherwise the PROCESS DIRECTOR Web Application may not display or work correctly. This mode can be set for a specific server or site, so it is not necessary to enable it for all sites.

1. Open the PROCESS DIRECTOR Web Application in IE10.
2. Go to **Tools > Compatibility View settings**.
3. Click the **Add** button.



Using JCo 3.0

With JCo3, if you deploy several instances of the Web Application on Tomcat, only the first instance that connects to JCo3 after restarting Tomcat will work. This also applies if you deploy one instance of the PROCESS DIRECTOR Web Application together with other web applications such as MOBILE APPROVAL and INFO MAIL. If you wish to use multiple instances or web applications, you must move the `jcolayer` library to the Tomcat main library folder and remove it from all Web Application library folders.

1. Deploy all instances of the Web Application that you wish to use.
2. Start Tomcat.
3. After the WAR files are unpacked, go to the `Tomcat/webapps/pdweb-app/WEB-INF/lib` folder of the newest Web Application and copy the `jcolayer*.jar` file to the `Tomcat/lib` folder (the name of this file may vary; for example, it could be `jcolayerB030204.jar` or `jcolayer-1.0-SNAPSHOT.jar`).
4. Remove the `jcolayer*.jar` file from the `Tomcat/webapps/pdweb-app/WEB-INF/lib` folder of all deployed Web Application instances.
5. Restart Tomcat.

Note: When using JCo 3.0, the maximum number of SAP connections specified in the `saplogon.properties` file is not multiplied by 10 internally (unlike in JCo 2, where `maxconnections=10` actually means 100).

See [Appendix B - JRE, Tomcat & JCo](#) for instructions on how to install JRE, Tomcat and SAP JCo.

Tested environments

Note: All tests with our web applications are performed within Microsoft Windows environments only.

Item	Tested with
Operating system	<ul style="list-style-type: none"> ▪ Windows 7 ▪ Windows XP ▪ Windows Server 2008 R2, 2008 and 2003 ▪ Windows 2000

Item	Tested with
Java Runtime Environment (JRE)	<ul style="list-style-type: none"> ▪ Java 5 (JRE 5) ▪ Java 6 (JRE 6) ▪ Java 7 (JRE 7)
Web application server	<ul style="list-style-type: none"> ▪ Apache Tomcat 6.0 ▪ Apache Tomcat 7.0
SAP Java Connector (JCo)	<ul style="list-style-type: none"> ▪ 2.1.10 ▪ 3.0

Installation files

The PROCESS DIRECTOR Web Application is a Java Web Application. The files you need depend on the Web Application server.

Web server	File	Description
Apache Tomcat	pdweb-app.war	The PROCESS DIRECTOR Web Application.
	wcconfig.war	Configuration files.
SAP NetWeaver	pdweb-app.ear	Contains pdweb-app.war and some configuration files in the META-INF folder.
	wcconfig.ear	Configuration files.

These files are sent as ZIP files and are password protected (to ensure they are not blocked by email server protection filters). The password is **readsoft**.

Renaming the Web Application

You can rename the Web Application in order to:

- Have a different URL.
The path after the server name can be changed.
Example: `http://localhost:8080/newname/init.do`
- [Deploy more than one Web Application on the same machine.](#)

To rename the Web Application:

1. Rename the `pdweb-app.war` file (that is, *before* deploying it!)

Example: `pdweb-app_TEST.war`.

2. [Deploy the Web Application.](#)

Two folders are created: One with the new name (for example, `pdweb-app_TEST`) and `wcconfig`.

3. Rename the `pdweb-app.properties` file in the `../webapps/wcconfig/` folder.

🔴 **Important!** The name must be the same as the renamed WAR file.

Example: `pdweb-app_TEST.properties`.

4. Rename the `pdweb-app` folder in the `../webapps/wcconfig/` folder.

🔴 **Important!** The name must be the same as the renamed WAR file.

Example: `pdweb-app_TEST`.

Deploying to Tomcat

1. Stop Tomcat (if it is running).
2. Place `pdweb-app.war` and `wcconfig.war` in the `../Tomcat/webapps/` folder.
3. Start Tomcat.

Tomcat decompresses the WAR files to two new folders: `pdweb-app` and `wcconfig`.

4. Enable PROCESS DIRECTOR in the [pdweb-app.properties](#) file in the `wcconfig` folder:
 - a. Set [appmode](#) to 16.
 - b. Set [processdirector](#) to yes.

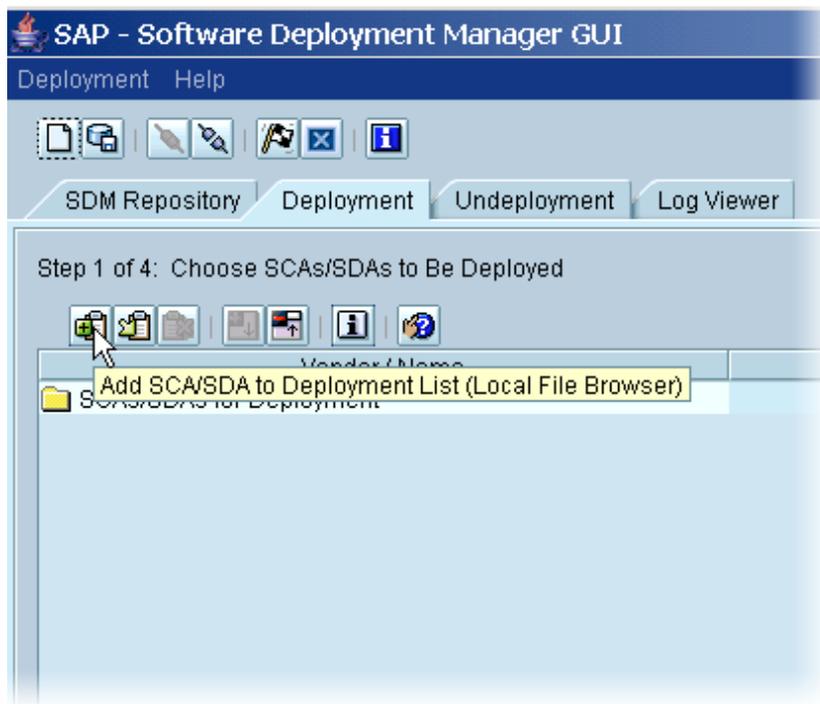
Deploying to SAP NetWeaver Application Server

ReadSoft recommends using the SAP Software Deployment Manager (SDM) to deploy the PROCESS DIRECTOR Web Application.

1. Run `RemoteGui.bat` to start SDM.

The file is located in the `c:\usr\sap\<instance_id>\JC00\SDM\program\` folder.

2. Connect to your SDM server.
3. In the **Deployment** tab, add the two PROCESS DIRECTOR EAR files.

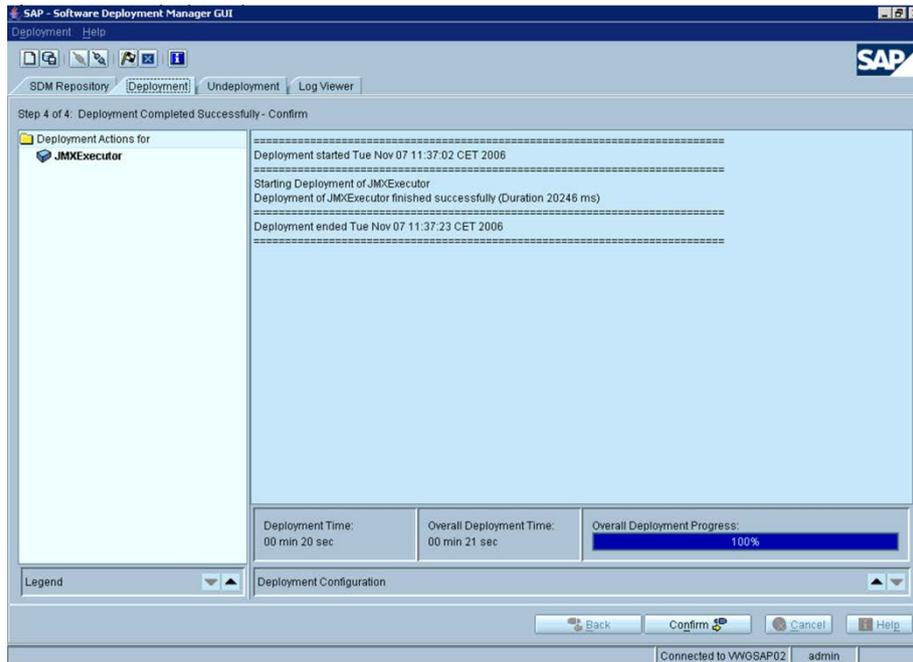


Click the **Add** button and select `pdweb-app.ear` and `wcconfig.ear`.

4. Deploy the EAR files.

- a. Click the **Next** button twice until you reach the **Step 3 of 4** screen.
 - b. Click the **Start** button to start the deployment.
5. Click the **Confirm** button to finish the deployment.

This button appears after the Web Application has been successfully deployed.



Important: Do not use the parameter [pd_suggest_jpa=yes](#) for Netweaver installations.

Deploying multiple applications

You can deploy more than one Web Application on the same machine. For example, you may want to have one instance for testing, and another for production.

1. [Rename the applications](#)
2. [Deploy the first application](#)
3. [Deploy the second application](#)

Note: If you are using JCo3, you must also move the `jcolayer` library to the Tomcat main library folder and remove it from all Web Application library folders. See [Using JCo 3.0](#).

Rename the applications

The first thing to do is to name the applications you want to deploy differently.

See [Renaming the application](#).

Example: `pdweb -app_TEST.war` and `pdweb -app_PRODUCTION.war`.

Deploy the first application

1. [Deploy the first Web Application](#).
2. If you have renamed the WAR file you deployed, you must also rename the `pdweb -app.properties` file and `pdweb -app` folder as described in [Renaming the application](#).

Deploy the second application

1. Rename the WAR file.

Example: `pdweb -app_PRODUCTION`

2. Make a duplicate of the configuration folder, using the same name as the WAR file.

Example: Make a duplicate of the `../webapps/wcconfig/pdweb -app_TEST` folder and call it `../webapps/wcconfig/pdweb -app_PRODUCTION`.

Result: You now have two configuration folders in `../webapps/wcconfig/`:

```
* pdweb -app_TEST
* pdweb -app_PRODUCTION
```

3. Deploy the second Web Application.

⚠ Important! Only deploy the main WAR file (for example, `pdweb -app_PRODUCTION`). Do not deploy a second `wcconfig.war` file!

4. Copy the `../webapps/<WebApplication2>/WEB-INF/conf/web-app.properties` file to the `../webapps/wcconfig/` folder.
5. Rename the `web-app.properties` file using the same name as the WAR file you deployed.

Example: `web-app_PRODUCTION.properties`

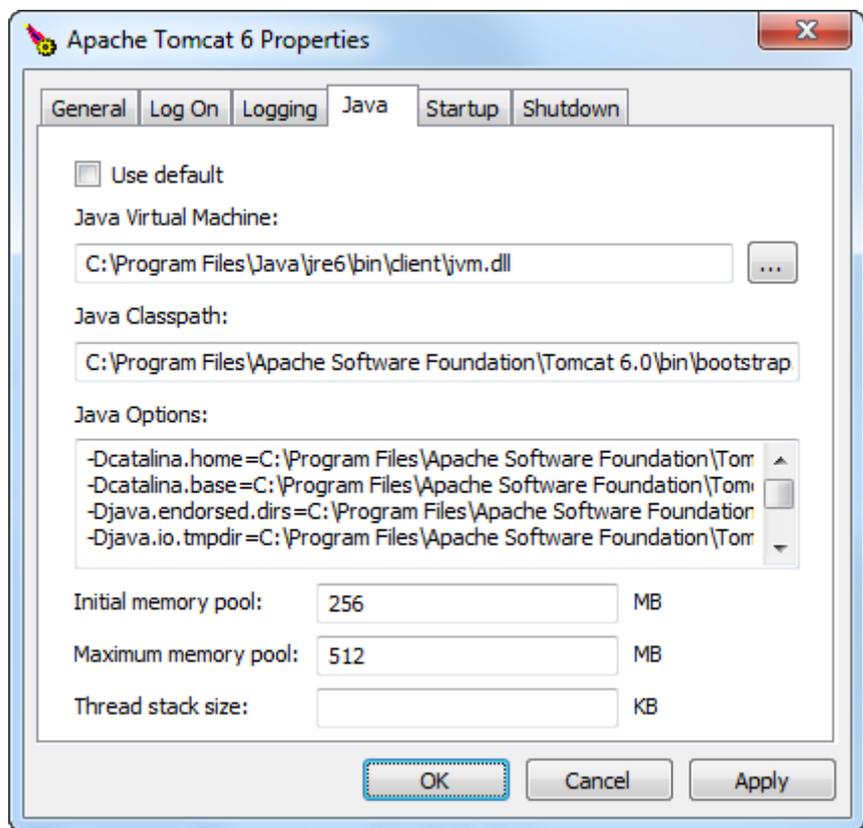
Adjusting the memory pool for Java

For some deployments, the default memory allocated for Java to use may not be enough. As a result, you may receive memory overflow exception errors. You can fix this problem by specifying your own values. ReadSoft recommends about 30 MB per concurrent user session. Thus, if 100 users are logged on simultaneously, you can expect memory usage of around 3 GB.

If you are experiencing high memory loads, you should also set the parameter [pd_suggest_jpa](#) to no.

To change memory values for Apache Tomcat:

1. Open the Monitor Tomcat utility program.
2. Go to the **Java** tab.
3. Specify the **Initial memory pool** and **Maximum memory pool**, as shown below.



Increasing the number of connections

The maximum number of simultaneous connections permitted from the Web Application to the SAP system is controlled by the parameter `sysid.maxconnections` in the `saplogon.properties` file.

The actual number of connections that are used internally is 10 times the value specified by this parameter. Thus, setting `sysid.maxconnections=10` will allow 100 connections.

The SAP Java connector (JCo) has a built-in default limit of 100 connections. This means that setting `sysid.maxconnections` to a value higher than 10 will have no immediate effect, because JCo does not allow more than 100 connections. In the PROCESS DIRECTOR Web Application, a connection is allocated when the user logs on and released when he logs off or closes the browser, or when a session timeout occurs. When many users are logged on simultaneously, the default of `sysid.maxconnections=10` (internally 100) may often be exceeded.

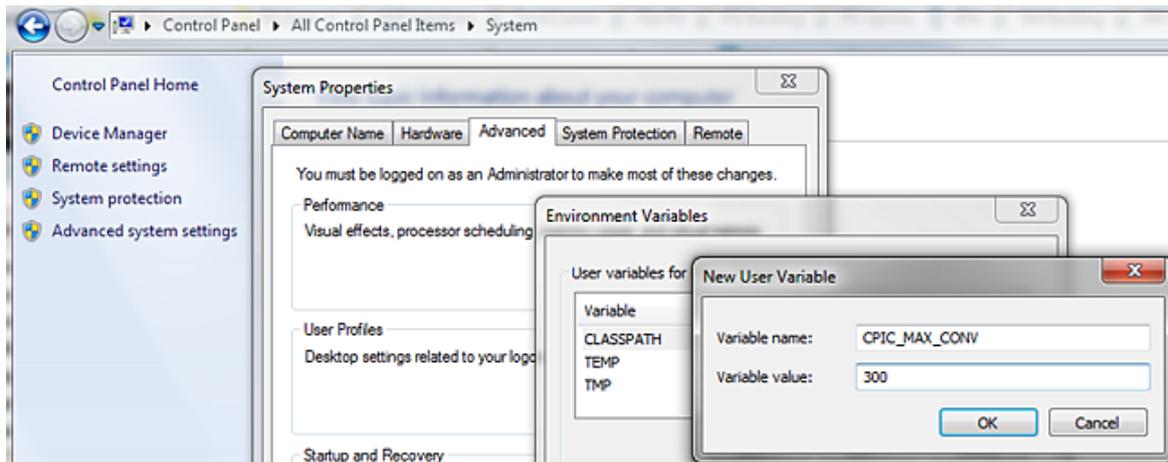
You can increase the maximum number of connections to more than 100 by setting the operating system environment variable `CPIC_MAX_CONV` on the server where JCo is installed, that is, for the web application server that runs the application that uses JCo. For example, if you want to set `sysid.maxconnections=30` (internally 300), you must set `CPIC_MAX_CONV=300`.

You can set this variable in the startup script of the application server using the following commands:

- Windows: `set CPIC_MAX_CONV=300`
- Unix: `export CPIC_MAX_CONV=300`

However, the preferable method is to set the variable in the operating system settings. For example, for Windows:

1. Go to **Start > Control Panel > System > Advanced System Settings**.
2. On the **Advanced** tab, click the **Environment Variables** button and add the variable and a value.



Additionally, you should check the SAP profile parameters `gw/max_sys` and `gw/max_conn`. and set them to the same value as `CPIC_MAX_CONV`. These parameters define the maximum number of connections from the SAP site.

For more information, see SAP Notes [314530](#) and [1507034](#).

The SAP parameters `rdisp/tm_max_no` (maximum permitted number of users), `rdisp/rfc_max_login` (percentage of permissible RFC logons) and `rdisp/tm_max_own_login` (percentage of permissible RFC logons for a single user) can also affect the number of permitted connections. For example:

Parameter setting	Description
<code>rdisp/tm_max_no = 2000</code>	Allows 2000 logged-in users combining DIA and RFC on a single SAP application server
<code>rdisp/rfc_max_login = 90</code>	Allows 1800 logged-in RFC users on a single application server (90% of 2000)
<code>rdisp/tm_max_own_login = 6</code>	Allows a single user to occupy a maximum of 120 sessions on a single application server (6% of 2000)

See the SAP documentation for more information.

File and folders

The PROCESS DIRECTOR Web Application is comprised of [two WAR files](#). After being deployed, these files extract to two separate folders in the `../webapps/` folder:

- `pdweb-app`
- `wcconfig`

Configuration files

All configuration files are in the `wcconfig` folder. The Web Application files are kept separately in the `pdweb-app` folder. This is designed to provide an easy way to upgrade the Web Application (which replaces the `pdweb-app` folder) without affecting existing configuration files.

The primary configuration file is `pdweb-app.properties`, which is saved directly in the `wcconfig` folder.

Most other configuration files are saved in the `wcconfig\pdweb-app\WEB-INF\conf\` folder.

PROCESS DIRECTOR uses the following (default) method to locate the configuration files:

1. It starts in the `..\webapps\pdweb-app` folder.
2. It goes up one folder to the `..\webapps` folder.
3. It goes down to the `..\webapps\wcconfig` folder.
4. It uses the `pdweb-app.properties` file. The `pdweb-app.properties` file also specifies the locations for the other configuration files.

Specifying the location of `pdweb-app.properties`

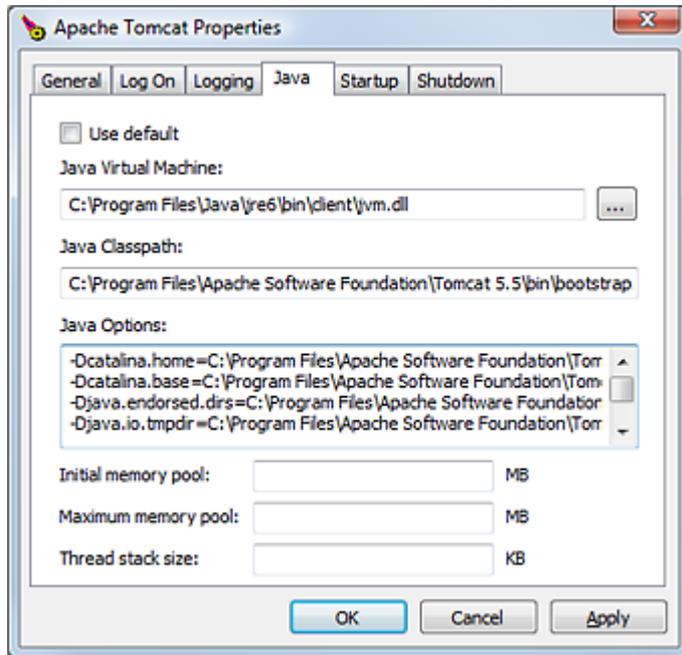
If you do not want to use the [default method](#) for locating `pdweb-app.properties`, you can specify its location explicitly in the Java options of Tomcat.

For Windows running Tomcat 6.0 or later:

1. Open the Configure Tomcat application.

Go to **Start > All Programs > Apache Tomcat 6.0 > Configure Tomcat**.

Select the **Java** tab.



2. In the **Java Options** section, enter the variable `-Dcom.ebydos.webapp.config` and then the path of the `pdweb-app.properties` file.

You can use the `%context%` variable when using more than one ReadSoft Web Application.

Examples:

One Web Application called `pdweb-app`:

```
-Dcom.ebydos.webapp.config=c:/your/path/pdweb-app.properties
```

More than one Web Application:

```
-Dcom.ebydos.webapp.config=c:/your/path/%context%.properties
```

If the `pdweb-app.properties` file cannot be found using the default method and if no specific path has been set in the Tomcat configuration, the PROCESS DIRECTOR Web Application uses the `pdweb-app.properties` file in its own internal folder:

```
../webapps/pdweb-app/WEB-INF/conf/.
```

Upgrading

When upgrading to a newer version of the PROCESS DIRECTOR Web Application, you must have a clear understanding of the current installation and where the configuration files are saved. Review the implementation documents for your solution as well as the [Files and folders](#) section of this document, which explains the configuration files and how they are located.

Upgrading from version 7.1 and later

Note: The steps below describe a scenario where the configuration files are located in the recommended `wcconfig` directory.

1. Stop Tomcat.

2. If you have modified or created a new [theme](#):

Copy the folder of your theme from the `pdweb -app/themes` folder to a temporary location.

3. If you have modified any of the `Messages_xx.properties` files:

Copy the files you have changed from `.../webapps/pdweb -app/WEB-INF/classes/nls/` to a temporary location.

4. Delete the `pdweb -app` folder and `pdweb -app.war` file in the `webapps` folder.

5. Tomcat only: Delete the `Catalina` folder.

This is located in the `.../Tomcat/work/` folder.

6. Place the new `pdweb -app.war` file in the `webapps` folder.

It is important that the newly deployed Web Application has the same name as the old Web Application. This will allow it to find and use the existing configuration files in the `wcconfig` folder. If you wish to use a new name, see [Renaming the application](#).

7. Start Tomcat.

Tomcat automatically decompresses and deploys the new Web Application WAR file and creates the new folder structure.

8. If you have modified or created a new theme:

a. Copy the folder of your theme from the temporary location to the `pdweb -app/themes` folder.

b. Change the `theme.pdweb` parameter in `pdweb -app.properties` if necessary to point to your theme folder.

9. If you have modified any of the `Messages_xx.properties` files:

Copy the files you backed up previously to the `.../webapps/pdweb -app/WEB-INF/classes/nls/` folder.

Icons not displayed after upgrade

If after upgrading, some of the icons in the Web Application are not properly displayed (for example, instead of an image, the icon code (@08@) is displayed), copy the `icon_mapping.properties` file from `...\webapps\pdweb-app\WEB-INF\conf` to `...\webapps\wcconfig\pdweb-app\WEB-INF\conf`.

Upgrading from version 3.2 and earlier

Version 3.2.x of the Web Application is called either WEB CYCLE or WORK CYCLE. These Web Applications, like the PROCESS DIRECTOR Web Application, is based on Java and deployed to a web application server. Although the appearance is a major improvement and very different to WEB/WORK CYCLE, the system requirements, deployment and configuration of the PROCESS DIRECTOR Web Application is mostly the same. Therefore, upgrading from WEB/WORK CYCLE is a relatively simple process.

1. Backup the following files:

File	Description
saplogon.properties	Contains the connection settings to your SAP system.
webcycle-app.properties	The main configuration file.
Messages_xx.properties	(Only if modified.) Contains changed GUI strings.

All of these files can be reused.

2. If you have modified your theme, you cannot move the themes folder to the new application and reuse it, as you could with upgrades within WEB CYCLE releases. You must start from the beginning and determine what changes you need to make to the look and feel of the Web Application.
3. Deploy the `pdweb-app.war` and `wcconfig.war` files (`pdweb-app.ear` and `wcconfig.ear` for SAP NetWeaver).
If you want to deploy the PROCESS DIRECTOR Web Application on the same machine as your existing WEB CYCLE/WORK CYCLE Web Application, see [Deploying multiple applications](#).
4. Copy the files you backed up in Step 1 to the same paths in the `/webapps/wcconfig/...` folder.

File	Copy to...
saplogon.properties	../webapps/wcconfig/pdweb-app/WEB-INF/conf/
webcycle-app.properties	../webapps/wcconfig/
Messages_xx.properties	../webapps/wcconfig/pdweb-app/WEB-INF/conf/

5. Rename `webcycle-app.properties` to `pdweb-app.properties`.

Some parameters may not be supported in the PROCESS DIRECTOR Web Application or are obsolete. Review the `PDWebApp-SupportedParameters.xlsx`, which lists all parameters and whether they are supported or not.

6. Enable the PROCESS DIRECTOR Web Application in `pdweb-app.properties`:

Set **appmode** to **16**.

Set **processdirector** to **yes**.

7. Create a worklist for incoming invoices.

This is described in *Configuring PROCESS DIRECTOR for use with Accounts Payable*, a ReadSoft guide.

Connecting to SAP systems

Connection method

The PROCESS DIRECTOR Web Application connects to SAP systems via a Remote Function Call (RFC). In order to configure the Web Application, the SAP Basis team must first create and configure an RFC user in SAP for this purpose. The RFC user must have authorizations for all activities that the Web Application may need to perform. In particular, the RFC user must have authorization to perform RFC calls for function group `ARFC`.

Configuration file

The [saplogon.properties](#) file is used to configure the connection to the SAP system and is located in the `../webapps/wcconfig/pdweb-app/WEB-INF/conf/` folder.

Parameters

The [saplogon.properties](#) file contains the following parameters, which are explained in the file itself. The `sysid` portion of the parameter should be replaced by the SAP system ID.

<code>sysid.activate</code>	<code>sysid.msghost</code>
<code>sysid.client</code>	<code>sysid.group</code>
<code>sysid.user</code>	<code>sysid.sso</code>
<code>sysid.passwd</code>	<code>sysid.ext_auth_svc</code>
<code>sysid.sysnr</code>	<code>sysid.ext_search</code>
<code>sysid.system</code>	<code>sysid.jcotrace</code>
<code>sysid.ashost</code>	<code>sapsystem</code>

Connecting to an SAP application server

The following example entries in `saplogon.properties` illustrate a typical connection to a single application server:

```
TR1.activate = yes
TR1.client = 120
TR1.user = system
TR1.passwd = abc123
TR1.lang = EN
TR1.ashost = your.server.local
TR1.sysnr = 0
TR1.maxconnections = 10
```

Here, the `system` user ([RFC user](#)) has the `abc123` password to connect to the application server located at `your.server.local`. Each parameter uses the `TR1` prefix as the SAP system ID and the `TR1.client` parameter is the client number.

`TR1.activate` must be set to `yes` to enable the subsequent entries.

Connecting to multiple application servers

The PROCESS DIRECTOR Web Application can connect to more than one SAP system. For example:

```
TR1.activate = yes
TR1.client = 120
TR1.user = system
TR1.passwd = abc123
TR1.ashost = your.server.local
TR1.sysnr = 0
TR1.maxconnections = 10
```

```
PD1.activate = yes
PD1.client = 120
PD1.user = system2
PD1.passwd = xyz789
PD1.ashost = my.server.local
PD1.sysnr = 0
PD1.maxconnections = 10
```

```
sapsystem = TR1
```

The `sapsystem` parameter specifies the default system, in this case `TR1`. This setting can be overridden in the URL by inserting `sapsystem=<ID>` at the end of the PROCESS DIRECTOR URL. Using the above example, to use `PD1` instead of `TR1`, you can go to: `http://localhost:8080/pdweb-app/init.do?sapsystem=PD1`. The `sapsystem` parameter is case-sensitive.

The disadvantage of using this method to select the system is that it displays the SAP system ID in the URL. You may not want this for security reasons.

Warning: Do not use system selection by URL in cases where you distinguish between a test system and a production system. The PROCESS DIRECTOR Web Application only has one set of configuration and log files. Instead, install the application twice, using different names. URL switching between multiple test systems, or multiple production systems, is OK.

All parameters in `saplogon.properties` are explained in [saplogon.properties](#).

Connecting to an SAP message server

You must use the following two parameters to connect to an SAP message server:

Parameter	Description
<code>sysid.msghost</code>	The address of the SAP message server.
<code>sysid.group</code>	The name of the message server group.

Note: The `sysid.ashost` parameter is not needed.

Example:

```
QA1.activate = yes
QA1.client = 120
QA1.user = system
QA1.passwd = abc123
QA1.msghost = your.server.local
QA1.group = space
QA1.sysnr = 0
QA1.maxconnections = 10
```

Accessing multiple servers in one Worklist

You can configure the Web Application to display the Worklists of several SAP systems in a single "Master Worklist", enabling users to access documents in these systems with a single logon. You can also include Worklists from CouchDB databases.

Configuration file

The `_default.json` file is used to configure the Master Worklist and is located in the `wcconfig\pdweb -app\WEB-INF\conf\mwc_default` folder.

Parameters

The `_default.json` file contains the following parameters.

Parameter	Description
<code>connections</code>	Defines which systems the Master Worklist connects to.
<code>authConfig</code>	Defines which system connection is used to authorize user logon to the Master Worklist.
<code>displayMode</code>	Defines how nodes will be displayed in the Master Worklist: by system with process types as subnodes, or by process type with systems as subnodes.
<code>systemWorklistConfigs</code>	Defines which system Worklists will be displayed in the Master Worklist.

All parameters in `_default.json` are explained in [_default.json](#).

- ❗ **Important:** If your Master Worklist has more than one system that includes the Accounts Payable process type, you must set the parameter `primary` in the [systemWorklistConfigs](#) file.

Providing multiple Worklist configurations

The PROCESS DIRECTOR [Master Worklist](#) configuration supports "multi-tenancy", a concept that enables you to provide access to different Master Worklist configurations depending on the host name of the URL entered in the web browser. Multi-tenancy makes it possible for a single instance of the Web Application to support multiple client organizations (known as "tenants").

For example, suppose you want to provide supplier portals with the host names **tenanta.rs.com** and **tenantb.rs.com**. These portals will use different Master Worklist configurations.

1. In the `wcconfig\pdweb -app\WEB-INF\conf\mwc\` folder, create a file called `tenants.properties`.
2. In the `tenants.properties` file, add an entry for each tenant to map the host name/IP address to the tenant name. For example:

```
tenanta.rs.com = TenantA  
tenantb.rs.com = TenantB
```

3. In the `wcconfig\pdweb -app\WEB-INF\conf\mwc\`, create a subfolder for each tenant name. For example:

```
TenantA  
TenantB
```

 **Note:** The subfolder name must not begin with an underscore.

4. For each tenant, create a `_default.json` file in the tenant subfolder and enter the Master Worklist configuration for the tenant in this file.

When the user enters the URL **tenanta.rs.com**, the Web Application searches for a folder called `TenantA` in the `mwc` folder. If a folder with this name is found, the `_default.json` configuration file in this folder is used. If no folder with this name is found, the default configuration file in the `mwc_default` folder is used. If the user enters the URL **tenantb.rs.com**, the `_default.json` file in the `TenantB` folder is used.

You can create further configuration files for a tenant in the tenant subfolder, for example, `tenanta1.json` and `tenanta2.json`. By default, the system will use the `_default.json` configuration file in the tenant subfolder. This setting can be overridden in the URL by inserting `mwc=<configfile>` at the end of the PROCESS DIRECTOR URL. For example, you can go to: `http://tenanta.rs.com/pdweb -app/init.do?mwc=tenanta1` to load the `tenanta1.json` instead of the `_default.json` configuration.

SSO and external authentication

There are essentially two different methods for logging on to the PROCESS DIRECTOR Web Application:

- [Single Sign On \(SSO\)](#)
- [External authentication services](#)

The essential differences between the two are:

Method	Single Sign On (SSO)	External Authentication Service
Authentication Service	SAP system	Non-SAP system. Example: Windows Active Directory
Manual entry of username and password required	No	Yes

Single Sign On (SSO)

The PROCESS DIRECTOR Web Application can be configured to enable users to automatically logon to the application without having to enter their user names and passwords. How you configure the Web Application depends on:

- The type of user (SAP, Web Application, or email)
- The SSO method used by your organization

Which method can I use?

SAP users only: [MySAP SSO2 ticket](#)

SAP, Web Application, and email users: [Windows NT LAN Manager](#), X.509 Client Certificate

MySAP SSO2 ticket

In this scenario the Web Application uses a MySAP SSO2 ticket stored in a cookie. This only works for SAP users. Web Application users cannot be authenticated using this method without the development of a separate plug-in.

1. Activate Single Sign On:

Set the `sysid.sso` parameter in `saplogon.properties` to **1**.

2. Specify the name of the cookie:

Use the `sso-cookiename` parameter in the `pdweb-app.properties` file. The correct name is set by default:

```
sso-cookiename = MYSAPSSO2
```

3. Specify the name of the user ID.

Set the `sysid.user` parameter in `saplogon.properties` to **\$MYSAPSSO2\$**.

Note: You may want to specify an RFC user for SSO using the [sysid.ssouser](#) parameter in `saplogon.properties` so that after logon the RFC user credentials are used for communication with SAP instead of the credentials of the logged on user.

Windows NT LAN Manager

In this scenario, the Web Application retrieves the username from the Windows NT LAN Manager (NTLM). This method can be used for SAP, Web Application, and email users.

Use the [ntlmauthenticate](#) parameter in the `pdweb -app.properties` file to specify the NTLM authentication method.

ntlmauthenticate

The method used to retrieve user credentials from the Windows NT LAN Manager (NTLM).

Valid values	Description
0	Off

Valid values	Description
1	<p>Email users only.</p> <p>Email users do not logon. The email they receive contains a link to the document they are assigned to work on. The link contains the document GUID, which is a 32-digit hex code.</p> <p>Setting <code>ntlmauthenticate=1</code> prevents others from using this GUID to work on the document. Email users will only be able to open documents when:</p> <ul style="list-style-type: none"> ▪ The Web Application is able to retrieve the username from the NTLM and ▪ This username can be located in a directory server and ▪ The matching email address is the same as the one specified as the recipient of the document.
-1	<p>Email users only.</p> <p>Sends the information returned from the loginheader parameter to the SAP system for authentication.</p>
2	<p>SAP and Web Application users only.</p> <ol style="list-style-type: none"> 1. The username is retrieved from NTLM using the HTTP header. 2. The username is matched against the list of SAP and Web Application users in the SAP system. 3. If a match is found, the document list for that user is displayed.
-2	<p>Same as 2. If SSO is not available, or if the user credentials retrieved are incorrect, the standard logon page is displayed for the user to log on manually.</p>
3	<p>SAP and Web Application users only.</p> <ol style="list-style-type: none"> 1. The username is retrieved from NTLM by calling the Java <code>getRemoteUser()</code> method. 2. The username is matched against the list of SAP and Web Application users in the SAP system. 3. If a match is found, the document list for that user is displayed. <p>The system searches all user types, in the order specified by the priorities set in <code>/EBY/PDBO_VUSTC</code> (see the <i>PROCESS DIRECTOR SAP Configuration Guide</i>), and logs the user on when valid user credentials are found.</p>

Valid values	Description
-3	Same as 3 . If SSO is not available, or if the user credentials retrieved are incorrect, the standard logon page is displayed for the user to log on manually.

Requirements for 0, 1, -1 & 2

The server hosting the PROCESS DIRECTOR Web Application must sit “behind” a Microsoft IIS server. See [Appendix A](#), IIS and Tomcat for details about how to setup such a scenario. This setup only supports Microsoft Windows using Internet Explorer, or Firefox with the help of a plugin.

loginheader

Specifies the method used by email users to retrieve user credentials, which are used by the [ntlmauthenticate](#) parameter.

Value type	Description
Header	If the value is <code>someheader</code> , then the Web Application looks for an HTTP header named <code>someheader</code> and the header content is considered to be a user name. The Web Application will then attempt to get the document list for this user. When calling the Web Application via the single document link, the existence of the specified header is enough to access the document.
Cookie	The parameter value may reference a cookie (<code>cookie:somecookie</code>). In this case the application looks for a cookie named <code>somecookie</code> . The value <code>cookie:somecookie</code> can have the extension (<code>fromN,toN</code>). In this case the logon name is taken from the cookie value starting with character <code>fromN</code> up to (but excluding) character <code>toN</code> . The character count starts at 0. Example: <code>loginheader=cookie:someuser(2,8)</code> Value of cookie <code>someuser</code> = <code>\$\$SmithZABC</code> User name used = <code>SmithZ</code>

Value type	Description
Java Class	<p>The parameter value can reference a JAVA class (<code>class:someclass</code>). In this case the application dynamically loads the Java class <code>someclass</code> and tries to call the <code>authenticateUser(HttpServletRequest request)</code> method. This method either returns a null value and sets the request attribute <code>logonError</code> or returns the account name of the user logged on to the workstation.</p> <p>Note: Dynamic loading of Java class is done relative to the <code>com.ebydos.cockpit.webcycle.app.auth</code> package if the class name does not contain a period (.) otherwise as an absolute package.</p>

X.509 Client Certificate

In this scenario the Web Application uses an X.509 Client Certificate. PROCESS DIRECTOR provides a sample file which you can adjust. See the SAP documentation for more information on using X.509 certificates.

```
#parameters for X509CertRfcAuthenticator
#
#this plugin extracts the user principal name and the email address from
the certificate
#example for a principal name: CN=Ulrich Schraermeyer ,OU=IT ,O=SAPLAB
,C=DE
#
#all listed values are the default values that are taken if the parameter
is not set
#
####Do not use certificates with principal name part "CN=" starting with..
(list of comma separated values)
#exclude = MyCompany
#
####Attribute which holds the user id within in the principal name, set it
to empty to pass the whole name to SAP
#id_for_gid = SERIALNUMBER
#
####index in general name to look for email
#type_index = 1
#
####index in list of found values to look for email
#mail_index= 1
#
####name of RFC to call if id/mail was successfully found in certificate
```

```
#####specify "null" if no RFC should be called. In this case the user type
is directly taken from the e_usertype parameter
#rfc_name = Z_MYC_MM_WC_SSO_CHECK
#
#####RFC import parameters to pass id/mail
#i_mail = EMAIL
#i_gid = GID
#
#####RFC export parameters
#e_userid = USERNAME
#e_usertype = USERTYPE
#e_message = MESSAGE
```

External authentication services

You can use an external authentication service for the logon process. The PROCESS DIRECTOR Web Application comes packaged with two services (Java classes):

- [MSADAuthService](#)
- [NovellAuthService](#)

Set the `sysid.ext_auth_svc` parameter in `saplogon.properties` to the name of the authentication service you wish to use.

The Java class specified is dynamically loaded and the following interface method is called:

```
char userType = authenticateUser (String user, String password, Properties
properties)
```

The method checks the user and password and returns the character **I** if the user is an authenticated Internet (PROCESS DIRECTOR) user or **S** if the user is an authenticated SAP user. A space character is returned if an error occurs and the `ext.auth.error` field of the passed properties object contains the error message.

On method entry, the properties object is initialized using settings specified in a properties file. The properties files for `MSADAuthService` and `NovellAuthService` are saved in `..\webapps\wccconfig\pdweb-app\WEB-INF\conf`. The filename is `JavaClass_xx.properties`, where `xx` is the language (if one exists—otherwise `JavaClass.properties` is used).

If the specified Java class name contains a period (`.`), the class is loaded absolutely, otherwise the `com.ebydos.cockpit.webcycle.backend.services` package name is automatically prepended.

MSADAuthService

MSADAuthService is part of the Java Standard API, optimized for Microsoft Active Directory.

In the `MSADAuthService.properties` file you must specify an LDAP server (`ldapHost` parameter) and a pattern to find the user (`userDN` parameter). The `userDN` parameter must contain the variable `%user%` and may also contain the variable `%domain%`.

You can search multiple servers or locations for the user by specifying multiple host/DN combinations, such as `ldapHost1 / UserDN1` and `ldapHost2 / UserDN2`. Note that the numbering starts with 1 and may not have gaps.

Multiple LDAP hosts do not have to be different; you can also use the same server, but use different DNs, for example:

```
ldapHost = fra-dc
userDN = cn=%user%
ldapHost1 = fra-dc
userDN1 = %user%@readsoft.local
ldapHost2 = ebydos-dc
userDN2 = %user%@ebydos.local
```

MSADAuthService.properties example

```
#name or IP of LDAP server
ldapHost = andrea
#name or IP of an optional fallback LDAP server
ldapHost_fallback = jessica
#IP port of the LDAP service, default=389
#ldapPort = 389
#pattern to find the user (must contain %user%, may contain %domain%
userDN = %user%@company.%domain%
#localized error messages
error.nohost = The ldapHost parameter is missing in configuration file
error.nouserDN = The userDN parameter is missing in configuration file
error.invalidport = Invalid LDAP port number
error.ldap49 = User unknown or invalid password
error.communication = Communication error with LDAP sever
```

Example results for user and domain variables

The following table gives examples of what data is passed to the `%user%` and `%domain%` variables.

Username	Resulting user name	Resulting domain
Name	Name	<empty>
Name@company.fr	Name@company	fr
Name.de	Name	de
Name@company	Name@company	<empty>

NovellAuthService

NovellAuthService is part of the Novell LDAP API, optimized for Novell eDirectory. The `ldap.jar` and `utilities.jar` external libraries are required.

NovellAuthService.properties example

```
#name or IP of LDAP server
ldapHost = HOST
#IP port of the LDAP service, default=389
#ldapPort = 389
# pattern to find the user (must contain %user%)
userDN = cn=%user%,ou=cuid,o=user
#optional user checks
checkattr.1 = groupMembership
checkvalue.1.1 = cn=web-cycle
checkvalue.1.2 = ou=auth-groups
#localized error messages
error.invalidobject = User unknown
error.invalidattribute = Attribute not found in directory entry:
error.invalidcheckvalue = User has insufficient rights
error.ldap49 = Wrong password
error.ldap91 = Error connecting to directory server
error.nohost = Parameter ldapHost is missing in configuration file
error.nouserDN = Parameter userDN is missing in configuration file
error.invaliduserDN = Parameter userDN does not contain %user%
error.invalidport = invalid LDAP port number
```

User variables

The username used to logon is copied to `%user%` without any modifications.

Usage of `checkattr` and `checkvalue`

Additional authentication checks can be performed using the `checkattr` and `checkvalue` parameters. In the example above, the user data must contain the `groupMembership` attribute which can have both the `cn=web-cycle` or `ou=auth-groups` values.

Other authentication services

The authentication procedures for the [MSAD](#) and [Novell](#) authentication services should be similar for other LDAP servers as well. Note that the username format of **user@company.tld** is Microsoft Active Directory-specific.

Common configuration tasks

This chapter explains how to perform some common configuration tasks in PROCESS DIRECTOR Web Application:

- [Setting the display language](#)
- [Enabling users to edit their profiles](#)

Note that most of the configuration for the Web Application (for example, specifying fields and field states, available actions, etc.) is done in SAP. See the *PROCESS DIRECTOR SAP Configuration Guide* for more information.

Setting the display language

There are three ways you can set the display language for the PROCESS DIRECTOR Web Application:

Method	Description
Language setting in the web browser	Users can select a default language in their browser settings.
SAP logon language	SAP users can change the Logon language setting in the SAP GUI under System > User profile > Own data , on the Defaults tab.
PROCESS DIRECTOR logon language selection	Users can have the option to select the display language when logging in to PROCESS DIRECTOR. 

Parameters

There are four parameters in `pdweb-app.properties` that determine which of the above settings is used, as well as which languages are available:

Parameter	Description
browserlocale	Turn on this parameter to use the browser's language setting.
languages	Lists the supported/available languages.
addlanguages	Lists the unsupported languages that can nevertheless be selected. In this case, English is used as the language together with the local numbering format of the selected language.
languageselection	Turn on this parameter to display the drop-down language box in the PROCESS DIRECTOR logon screen. To use this parameter, browserlocale must be set to 0 .

Enabling users to edit their profiles

You can permit users to edit their user profile using the Web Application.

The screenshot shows a web application interface for editing a user profile. The title bar reads 'User profile Personal data'. Below the title bar are three tabs: 'Personal data', 'Password', and 'Substitute'. The 'Personal data' tab is active. The form contains the following fields:

- First name, last name:** Barbara Jones
- Email address:** jones@readsoft.com
- Telephone:** +49699043260
- Department:** (empty field)
- Language:** English (dropdown menu)

At the bottom of the form, there is a blue bar with the title 'Actions' and two buttons: 'Save' and 'Close'.

You can determine which **User profile** tabs are displayed.

Parameters

To enable/disable the **User profile** button in the PROCESS DIRECTOR Web Application, set the following parameters to *yes/no*:

User type	Parameter
SAP	editprofilesap
SAP and Web Application	editprofile

Note: For SAP users, *both* of these settings must be set to *yes* to enable the **User profile** button.

To enable/disable the respective **User profile** tabs, set the following parameters to *yes/no*:

Submenu	Parameter
Personal data	editmasterdata
Password	editpassword
Substitutes	editsubstitutes

Enabling workflow recall for AP

You can permit users to recall Accounts Payable documents that they have already approved.

Two settings are necessary:

- In `/COCKPIT/WI3A`, activate the option **Recall documents** for the workflow step. The document can only be recalled if the workflow step to which the user is assigned has this option activated.
- In the `pdweb-app.properties` file, enter one of these settings for the `undo` parameter:
 - 1 - Only documents that have not yet been approved by a subsequent processor in the workflow can be recalled
 - 2 - Documents that have been approved by a subsequent processor in the workflow can be recalled

- ❗ **Note:** A document can only be recalled if the workflow has not yet been completed.
- ❗ **Note:** These settings apply only to Accounts Payable documents. It is not possible to recall individual workflow steps for other process types.

Creating your own buttons

Creating a custom button is a way to extend the functionality of the Web Application by allowing it to interact with external web services when users click the button.

When you create custom buttons, you need to specify:

- The URL of the external web server.
- Parameters whose values are used as queries to the external web server.

Example URL:

`http://www.company.com/?user=JOHN&usertype=S&docno=000000000123456`

Here, the username, document number and user type (S for SAP user) is included in the URL and passed to the `www.company.com` web server.

Procedure

1. Create a file called `customer_buttons.properties`. Save it in the `..\Tomcat\webapps\wcconfig\pdweb -app\WEB-INF\conf\` folder.
2. [Specify the parameters](#) in the `customer_buttons.properties` file.

Among other things, you need to specify the page the button appears on, as well as the URL, the name of the button label, and the parameters that you wish to send to the external web server when the button is clicked.

3. Add the values for the `ButtonN.textkey` and `ButtonN.tipkey` parameters to the `Messages_xx.properties` localization file(s).

These values are references to keys in `Messages_xx.properties`, whose values in turn are the label and tooltip strings for the button.

Example

In `customer_buttons.properties`:

```
Button1.textkey = EmployeeSearchButtonLabel
Button1.tipkey = EmployeeSearchButtonTooltip
```

In Messages_en.properties:

```
EmployeeSearchButtonLabel = Employee search  
EmployeeSearchButtonTooltip = Search for employees
```

- ❗ **Remember!** Custom Messages_xx.properties files must be saved in the ..\Tomcat\webapps\wccconfig\pdweb -app\WEB-INF\conf folder and the icons must be saved in the ..\Tomcat\webapps\pdweb -app\themes\procdir \images\pd folder.

Example

In the following example, clicking a button opens Google. The button will be displayed in the Detail view of all the process types.

Entry in the customer_buttons.properties file

```
Button1.page = TAB_HEAD_PROCESS_DIRECTOR  
Button1.textkey = customer.button1.text  
Button1.icon = exit.gif  
Button1.tipkey = customer.button1.tip  
Button1.winprops = height=500,width=1000,location=yes  
Button1.url = http://www.google.com/search  
Button1.row = 1
```

Entries in Messages_en.properties file

```
customer.button1.text = Search Vendor  
customer.button1.tip = Search for vendor on Google
```

Result



Custom user searches (PD AP only)

When forwarding documents (including querying and assigning), you must search for users in order to add them to the list of recipients.

User type	Processor ↑	Full Name	E-Mail
<input type="radio"/> SAP user	BILLICH	Claude Billich	claudio.billich@sap.com
<input type="radio"/> SAP user	BILLTEST22	Bill Timm	william.timm@sap.com
<input type="radio"/> SAP user	SP_BILLCLRK	Bette Anderson	

User types: SAP user, Internet (WORK CYCLE) user, User group, Email user.

The default procedure for searching and selecting users is:

1. The RFC_WC_USER_GETLIST function is called, using values entered in the user search form. The program calculates the search results based on:
 - Type of forward (forwarding, querying, or assigning)
 - WORK CYCLE ID, Step ID and sub-position
 - Document GUID
2. RFC_WC_USER_GETLIST returns the search results, using the /COCKPIT/SWC_USERLIST table.
3. The user selects one or more users to forward the document to.

This procedure however only applies for searching SAP (S) and WORK CYCLE (I) users, and user groups (G). It is not used for Email users (E). This is because Email users are not “users” in the normal sense—they are not listed in SAP or WORK CYCLE. To forward documents to Email users, their email address must be entered manually.

Customizing user searches

You can customize user searches as follows:

- [Search an external source for Email users.](#) There is an interface that allows you to provide a Java plugin to search this source.
- [Replace the RFC_WC_USER_GETLIST search function](#) with a custom one you create.

Interface to search Email users (PD AP only)

A custom Java class can be plugged in to the user search process. This enables users who are Email users to be searched and included on the recipient list, without having to manually enter the users' email addresses.

1. Create the Java class.
2. Add the Java class name to `sysid.ext_search`.
3. Create the Properties file.

Creating the Java class

The Java class is dynamically loaded and the following interface method is called:

```
WCUser[ ] users = searchUser (Properties properties, String userid, String name, String mail)
```

Using the values passed, an external directory is searched for matching users and a list of matches returned. If no match is found, the result is null.

If the Java class name contains a period (.), the class is loaded absolutely. Otherwise the `com.ebydos.cockpit.webcycle.backend.services` package name is automatically prefixed.

Creating the Properties file

On method entry, the properties object is initialized using the `JavaClass_lang.properties` file, where:

JavaClass: The name of the Java class.

lang: The language code, retrieved from the web browser.

Example: `ExampleEmailUserService_de.properties`.

This file must be saved in the `../webapps/wcconfig/pdweb-app/WEB-INF/conf/` directory. If the web browser's language is not available, `JavaClass.properties` is used instead.

The `EmailUserService.properties` file contains some sample settings for you base your file on.

Using another search function (PD AP only)

You can replace the [RFC WC USER GETLIST](#) function and use a custom one to search for SAP, WEB CYCLE, and Email users:

1. Set `sysid.ext_search = StdUserSearchService`.

This parameter is located in the `saplogon.properties` file.

2. Create a `StdUserSearchService.properties` file.

Save it in the `../webapps/wcconfig/webcycle-app/WEB-INF/conf/` directory.

3. Specify the function name you wish to use.

In `StdUserSearchService.properties`, add the following entry:

```
rfcFunctionName = CUSTOM_FUNCTION
```

For example: `rfcFunctionName = ZEIC_CUST_RFC_WC_USER_GETLIST`

4. Add your function to SAP.

Adding a Help link

You can add a help link to the Web Application to provide information in a custom URL.

1. In the `help_configuration.properties` file, enter:

```
*.help = <custom URL that contains the information>
```

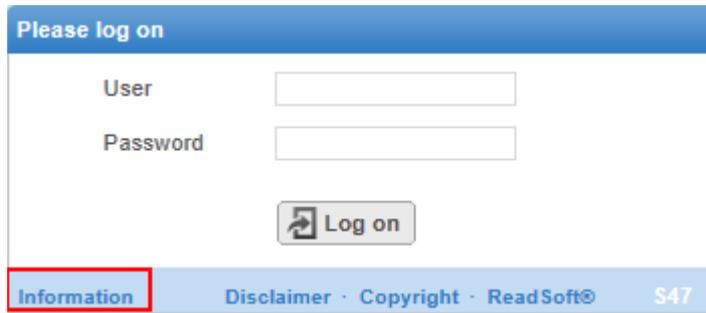
For example: `*.help = http://intranet/documents/help.pdf`.

A link called **Help** will then be visible at the bottom of the logon page, the document overview page and the document detail page. Clicking the link calls up the linked page or document.

You can specify [parameters](#) to display the link only on the logon page, or only on pages within the application.

2. (Optional) To rename the **Help** link, [create a copy of the `messages.properties` file](#) and overwrite the `common.help` message key.

For example: `common.help = Information`



The image shows a login form titled "Please log on". It has two input fields: "User" and "Password". Below the fields is a "Log on" button with a right-pointing arrow icon. At the bottom of the form, there is a footer bar with the following links: "Information" (highlighted with a red box), "Disclaimer", "Copyright", "ReadSoft", and "S47".

You can even specify different help links for different languages by adding multiple links to the `help_configuration.properties` file. For example:

*.help.en = <custom URL that contains the information in English>

*.help.de = <custom URL that contains the information in German>

*.help.fr = <custom URL that contains the information in French>

Add language-specific `messages_xx.properties` files, where `xx` is the language (for example: `en`, `de`, `fr`) and change the `common.help` parameter in these files so that the help link name is in the appropriate language.

PROCESS DIRECTOR

appearance

The appearance of the PROCESS DIRECTOR Web Application can be configured and customized in several ways.

- [Overall look and feel](#)

The overall look and feel is controlled by [themes](#). Themes can be configured using a CSS file, logos, icons, and other images. Themes are located in the `..\webapps\pdweb - app\themes\` folder.

- [GUI texts](#)

The texts that appears in dialog boxes, messages and other areas are located in the `Message.properties` files (one for each language), in the `..\webapps\pdweb - app\WEB-INF\classes\nls` folder. These files can be copied to your configuration folder and the text strings changed.

- [Display of attachments](#)

Attachments can be displayed in a docked panel to the right of the document details or in a separate popup window.

- [Node counters](#)

Numbers showing how many documents are available in a Worklist node can be hidden.

- [Number of rows displayed](#)

You can specify how many rows are displayed per page in tables, such as the document overview list or the search results list.

Themes

The overall look and feel of the PROCESS DIRECTOR Web Application is controlled by themes.

Default theme: `../webapps/pdweb-app/themes/procdir/`

Specify the current theme in `pdweb-app.properties`:

`theme.webcycle` = `themes/procdir/`

To change the appearance, make a copy of the `themes/procdir/` folder and change the content in the copied folder accordingly.

CSS

Path: `../themes/procdir/theme.css`

The CSS file is used for all text styles (including highlights). When changing the CSS file, you can change the styles as you wish but you must retain the existing element names.

Print CSS

Path: `../themes/procdir/pdprint.css`

For [printing](#) document data.

Logos

Folder: `../themes/procdir/images`

File	Use
<code>logo.gif</code>	All PROCESS DIRECTOR pages except the logon page.
<code>logo_big.gif</code>	The PROCESS DIRECTOR logon page.

There are no requirements for using other images as logos. They do not have to be a specific size—they are not scaled to fit a predefined area.

Other images

Folder: `../themes/procdir/images/`

Type	Use
<code>../images</code>	All background images.
<code>../images/cal</code>	Calendar icons.

Type	Use
<code>../images/icons</code>	All other icons.

Note: Some images are displayed according to a specific height and width. In these cases, icons that differ in size to the originals will be resized.

All language text strings (apart from field labels) are stored in localization files in the `../webapps/pdweb-app/WEB-INF/classes/nls/` folder. The files are called `Messages_xx.properties` where `xx` is the two-character ISO 639-1 language code (for example, EN for English and DE for German).

To change the strings:

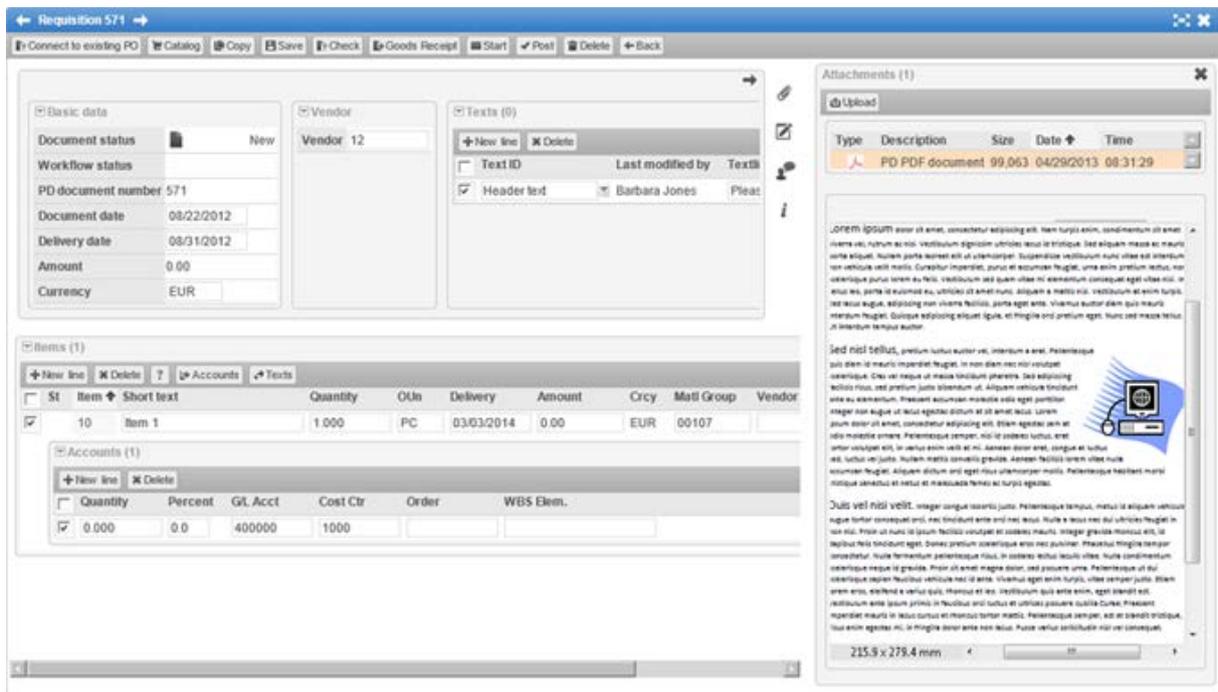
1. Copy the necessary `Messages_xx.properties` file(s) from `../webapps/pdweb-app/WEB-INF/classes/nls/` to `../webapps/wcconfig/pdweb-app/WEB-INF/conf/`.
2. Edit the strings as required.

The changes will take effect the next time users login. It is not necessary to restart the web server.

Attachments display

Attachments can be displayed in a docked panel to the right of the document details or in a separate popup window.

Use the parameter `pd_imagedocking_width` in the `pdweb-app.properties` file to specify the width of the docked panel in pixels, or disable this parameter to display attachments in a popup window.



Attachments displayed in docked panel

Suppressing node counters

If node counters are suppressed in the Worklist configuration on the SAP side for performance reasons, all nodes in the Web Application will display (0). To avoid this, in the `pdweb-app.properties` file, set the `pd_node_counters` parameter to `no`.

See the *PROCESS DIRECTOR SAP Configuration Guide* for more information on suppressing node counters.

Number of rows displayed in tables

You can specify how many rows are displayed per page in tables, such as the document overview list or the search results list. For example, you can specify that 50 documents (rows) should be displayed by default in the document overview list. If more documents are available, paging controls are displayed, allowing the user to browse through the other pages.

Use the following parameters to specify the number of rows to display in tables:

GUI area	Parameter
Document list	<code>pd_page_size_list</code>

GUI area	Parameter
Search results	pd_page_size_search
Document detail header	pd_page_size_hdr_table
Document detail items	pd_page_size_table

File format conversion

By default, document images are displayed in TIF format. However, this may not always be practical unless users have a TIF viewer installed on their machine. In these cases, you can make PROCESS DIRECTOR convert and display the images as PDF files instead.

Requirements

The external library `itex-1.2.jar` must be present in the `../Tomcat/shared/lib/` folder. This library is not delivered with PROCESS DIRECTOR.

- Note for SAP NetWeaver:** If you intend to use any external libraries, including the one above, these must be manually included in the `pdweb-app.ear` file before deploying it. Otherwise, these libraries will not work.

Parameters

Set the parameter to **1** to display images in PDF format.

Set the parameter to **A** to give the user the option to view images in the original TIF format.

Administration tools and logs

Administration of the PROCESS DIRECTOR Web Application is composed of:

- [Logs](#)
- [Administrator mode for SAP users of PROCESS DIRECTOR](#)
- [Initial configuration](#)

Logs

There are two kinds of log files for the PROCESS DIRECTOR Web Application:

- Web server log files
- SAP log files

Web server log files

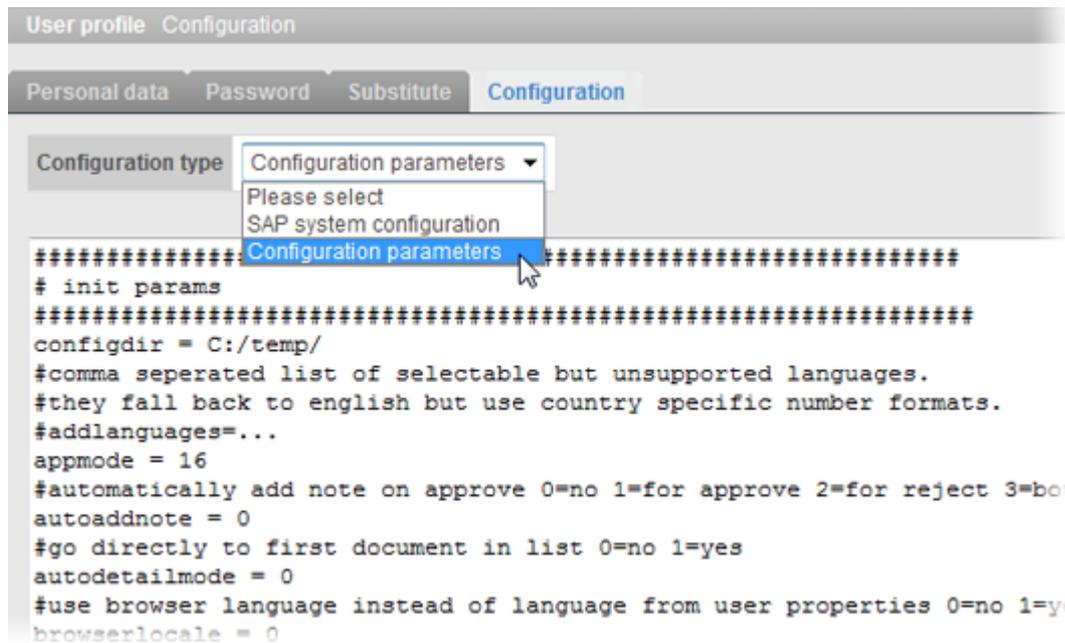
Configuration file	log.properties
Configuration file path	Specified using the logconfig parameter in the <code>pdweb-app.properties</code> file.
Description	The log.properties file determines the content of the log files, including logging level (ERROR, DEBUG, etc.)

SAP log files

Configuration file	<code>log4sap.properties</code>
Configuration file path	Specified using the saplogconfig parameter in the <code>pdweb-app.properties</code> file.
Description	<p>The <code>log4sap.properties</code> file determines the content of the SAP log files.</p> <p>Requirements:</p> <ul style="list-style-type: none">▪ The saplogging parameter must be set to I to activate SAP logging.▪ SAP Netweaver 7.0 or later. <p>The <code>com.sap.logging.bridge.log4j.SapLogAppender</code> is used to create the log files (packaged with the PROCESS DIRECTOR Web Application). <code>SapLogAppender</code> uses the SAP logging API to write log entries, therefore it only runs in an SAP Netweaver environment, which provides the needed libraries.</p>

Administrator mode

One or more SAP users (they must be SAP users and not just Web Application users) can be designated as administrators. This gives them the ability to edit the [saplogon.properties](#) and [pdweb-app.properties](#) files using the PROCESS DIRECTOR Web Application.



Administrators have a separate tab to edit configuration files.

Add the following entry to [pdweb-app.properties](#) for each administrator:

[administratorN](#) = *SAP User ID*

The value for N for the first entry must be 1 and increment sequentially for subsequent entries. For example:

```
administrator1 = johnsmith
administrator2 = martinmueller
administrator3 = susandoe
```

Initial configuration

The [saplogon.properties](#) and [pdweb-app.properties](#) files can also be edited in the web browser, as in [administrator mode](#), but without logging on, provided the configuration files have not yet been edited since they were shipped by ReadSoft.

Go to: <http://localhost:8080/pdweb-app/init.do?configInit>

Configuration files

This chapter describes the settings for the PROCESS DIRECTOR Web Application's configuration files:

File	Location	Description
<u>pdweb-app.properties</u>	../webapps/wcconfig/	Main configuration file.
<u>saplogon.properties</u>	../webapps/wcconfig/pdweb-app/WEB-INF/conf	SAP system information.
<u>log.properties</u>	../webapps/wcconfig/pdweb-app/WEB-INF/conf	Web server log settings.
<u>log4sap.properties</u>	../webapps/wcconfig/pdweb-app/WEB-INF/conf	SAP log settings.
<u>plugin_configuration.properties</u>	../webapps/wcconfig/pdweb-app/WEB-INF/conf	Enables use of WEB CYCLE features.
<u>icon_mapping.properties</u>	../webapps/wcconfig/pdweb-app/WEB-INF/conf	Specifies which icons to use.
<u>mimetypes.properties</u>	../webapps/wcconfig/pdweb-app/WEB-INF/conf	Maps MIME types to file extensions.
<u>Messages.properties</u>	../webapps/pdweb-app/WEB-INF/classes/nls/	Contains localized language text strings.
<u>help_configuration.properties</u>	../webapps/wcconfig/pdweb-app/WEB-INF/conf	Enables you to add help to the application.
<u>default.json</u>	../webapps/wcconfig/pdweb-app/WEB-INF/conf/mwc/_default	Configuration file for the Master Worklist.

File	Location	Description
tenants.properties	../webapps/wcconfig/pdweb-app/WEB-INF/conf/mwc/	Configuration file for creating Master Worklist configurations for different client organizations.

Parameter syntax and path notation

parameter = value

- Parameter names must be lowercase (they are case sensitive).
- Value names use both lowercase and uppercase. Some values may be invalid if the incorrect case is used. Refer to the parameter descriptions and examples.
- Use the hash symbol # to disable a parameter. In these cases, the default value is used for some settings.
- Path names must use forward slashes /, not backward slashes \, even for Windows installations.
- Relative paths may be relative to different folders depending on the parameter.
- Absolute paths are allowed.

pdweb-app.properties

This section describes all of the settings in the `pdweb-app.properties` file, the main configuration file for the PROCESS DIRECTOR Web Application.

- Note:** Some parameters may not appear in the `pdweb-app.properties` file by default. In these cases, you must add them manually in order to use them.

accounting.copy.FIELD

When creating new accounting lines, this setting determines if the value from the selected field from the first line is automatically added to the new line.

- Note:** This parameter applies only to Accounts Payable documents.

Example:

```
accounting.copy.COSTCENTER = yes
accounting.copy.ORDERID = yes
```

This would copy the values of the cost center and purchase order number from the first accounting line to all the newly created lines.

Valid values	Description
no	Does not copy fields from the first line to the new line.
yes	Copies the selected field from the first line to the new line.

accounting.modifycount

Determines whether users can add and delete account assignment lines.

Valid values	Description
no	Adding and deleting account assignment lines is not allowed.
yes (Default)	Adding and deleting account assignment lines is allowed.

accounting.preset

When creating new accounting lines, this setting determines if values from non-editable fields from the first line are automatically added to the new line.

Note: This parameter applies only to Accounts Payable documents.

See [accounting.preset.STEPID](#) to apply this behavior to specific workflow steps only.

Valid values	Description
no	Do not preset non-editable fields for new accounting lines with values from the first line.
yes (Default)	Preset non-editable fields for new accounting lines with values from the first line.

accounting.preset.STEPID

When creating new accounting lines for the specified workflow step, this setting determines if values from non-editable fields from the first line are automatically added to the new line. This setting is the same as [accounting.preset](#), except that you can specify exactly which workflow step(s) to apply it to.

Note: This parameter applies only for Accounts Payable documents.

Valid values	Description
no	Do not preset non-editable fields for new accounting lines with values from the first line, for the specified workflow step.
yes	Preset non-editable fields for new accounting lines with values from the first line, for the specified workflow step.

addlanguages

The list of languages *unsupported* by PROCESS DIRECTOR. If the [languageselection](#) parameter is enabled, these languages appear together with those listed for the [languages](#) parameter in the dropdown box on the logon screen.

For these unsupported languages, English is used as the display language, but the numbering formats used will be those of the selected language.

To add an unsupported language:

1. Add the two-character ISO 639-1 language code.
2. Add the `language.ll=Language` string to the [Messages_xx.properties](#) files, where:

`ll` = The two-character ISO 639-1 language code.

`Language` = The name of the language in the language of the respective `Messages_xx.properties` file.

administratorN

Specifies one or more SAP users as administrators. This gives them the ability to edit the [saplogon.properties](#) and [pdweb-app.properties](#) files using the PROCESS DIRECTOR Web Application.

See [Administrator mode](#) for details.

Syntax

`administratorN = SAP User ID`

The value for *N* for the first entry must be **1** and increment sequentially for subsequent entries. For example:

```
administrator1 = johnsmith
administrator2 = martinmueller
administrator3 = susandoe
```

appmode

Determines which Web Application is run: WORK CYCLE, WEB BOARD or PROCESS DIRECTOR.

In order to use PROCESS DIRECTOR, you must also set the [processdirector](#) parameter to **yes**.

Valid values	Description
1	WORK CYCLE
3	WEB BOARD
16 (Default)	PROCESS DIRECTOR

browserlocale

This setting determines which display language is used based on the web browser's language setting.

Valid values	Description
0 (Default)	Before logon: The language in the browser's setting is used. After logon: The language in the SAP user profile is used.
1	The browser's language setting is used before and after logon.
xx	A two-character ISO 639-1 language code (for example, EN for English and DE for German). The specified language is used before and after logon.

Valid values	Description
xxXX	A two-character ISO 639-1 language code plus the two-character ISO 3166 country code (for example, enUS for American English and enGB for British English. The specified language is used before and after logon.

Note: If a language is used that PROCESS DIRECTOR does not support, English is used as the display language together with the numbering format of the selected language.

csvDownloadList

This setting allows users to copy or export the documents in the document list to a CSV file. When enabled, the **Export list** button appears in the document list.

You can use a combination of the following variables to determine which data is included in the list:

Valid values	Description
%jco	The field name in SAP.
%desc	The display name of the field.
%data	The field value from the document.
%sep{x}	The field separator, where x can be any character. For example, a semicolon (;).
default (Default)	Default uses the following variables: %jco%desc%data%sep{;}
:copy	By appending :copy to one of the variable combinations above, the Export list button opens a new window showing the Current documents list as a simple table. This window contains a Copy button, which copies the contents of the table, including the HTML tags, to the clipboard. Example: %desc%data%sep{;}:copy

editmasterdata

When [editing user profiles](#) is enabled, editmasterdata determines if users can edit their personal data (name, email address, phone number, department and display language).

Valid values	Description
no	Personal data cannot be edited.
yes (Default)	Personal data can be edited.

editpassword

When [editing user profiles](#) is enabled, `editpassword` determines if users can change their passwords.

Valid values	Description
no (Default)	Passwords cannot be changed.
yes	Passwords can be changed.

editpersonalsettings

When [editing user profiles](#) is enabled, `editpersonalsettings` determines if the **Personal settings** tab is displayed. This tab allows users to clear the histories for entered users and values, and provides the option to view documents in their original file format.

Valid values	Description
no	Personal settings tab is not displayed.
yes (Default)	Personal settings tab is displayed.

editprofile

Determines whether SAP and PROCESS DIRECTOR users can edit their user profiles. For SAP users, the [editprofilesap](#) parameter must also be set to **yes**.

Valid values	Description
no	User profiles cannot be edited.
yes (Default)	User profiles can be edited.

Note: The default value is **yes** for normal mode only. In portal mode, the default is **no**.

editprofilesap

Determines whether SAP users can edit their profiles. To enable this setting, the [editprofile](#) parameter must also be set to **yes**.

Valid values	Description
no (Default)	SAP user profiles can be edited.
yes	SAP user profiles cannot be edited.

editsubstitutes

When [editing user profiles](#) is enabled, `editsubstitutes` determines if users can assign substitutes.

Valid values	Description
no (Default)	Substitutes cannot be assigned.
yes	Substitutes can be assigned.

editusercustfields

Allows users to edit custom PROCESS DIRECTOR user data fields. These fields can also be edited using `/COCKPIT/WUM`.

Valid values	Description
no (Default)	Disables editing of custom PROCESS DIRECTOR user data.
yes	Enables editing of custom PROCESS DIRECTOR user data.

extsearch.default

If an external Email user search has been added (using the [sysid.ext_search](#) setting in [saplogon.properties](#)), `extsearch.default` determines if this search method is used as the default for all the workflow steps.

To use the external search for only specific workflow steps, use [extsearch.STEPID](#).

Valid values	Description
no	Do not use the external search method.
yes (Default)	Use the external search method (if available).

extsearch.STEPID

If an external user search has been added (using the [sysid.ext_search](#) setting in [saplogon.properties](#)), `extsearch.STEPID` determines if this search method is used as the default for the specified workflow step(s). Add an entry for each workflow step for which the external search is used.

Use [extsearch.default](#) to make the external search the default for all the steps.

Valid values	Description
no	Do not use the external search method for the specified workflow step.
yes	Use the external search method for the specified workflow step.

helpconfig

The path to the help configuration file.

Default	<code>../WEB-INF/conf/help_configuration</code>
Example result	<code>C:\Program Files\Apache Software Foundation\Tomcat 5.5\webapps\wccconfig\webcycle-app\WEB-INF\conf\help_configuration.xml</code>

history.attachfile

This parameter gives users the ability to upload and attach files to documents when viewing documents in the **History** tab.

Valid values	Description
no (Default)	Files cannot be attached in the History tab.
yes	Files can be attached in the History tab.

history.onlyapprovals

- i** This parameter controls whether the documents displayed in the **History** tab include only approved documents or not.
- i** **Note:** To use this parameter, the [history.stateselection](#) parameter must be disabled.

Valid values	Description
no (Default)	Both approved and unapproved documents are displayed in the History tab.
yes	Only approved documents are displayed in the History tab.

history.stateselection

- i** Determines whether the **Show only approvals** check box is displayed in the **History** tab. If this box is checked, only approved documents are displayed in the search results. Otherwise, non-approved documents are also shown.

Alternatively, you can hide this check box and configure this option as standard for all users, using the [history.onlyapprovals](#) parameter. If set to **yes**, the results will include only approved documents, for all users.

Valid values	Description
yes (Default)	Displays the Show only approvals check box in the History mode.
no	Does not display the Show only approvals check box in the History mode.

ignorefieldstateinlist (PD AP only)

This parameter controls the evaluation of a workflow step field status in the overview list. If the parameter is set to **yes**, the value of a field that is hidden by the field status in the document detail will be displayed in the overview list. If the parameter is set to **no**, the field will be displayed in the overview list, but the value will not be displayed.

Set to *yes*, this parameter can help to improve performance when using User Exit 22, *Determining the field status in the detail screen*.

Valid values	Description
no	The field value of the hidden field is not displayed in the overview list.
yes (default)	The field value of the hidden field is displayed in the overview list.

imageattach

Determines whether the **Attach image** button is displayed in the **Current documents** detail view. (Applies only to those documents that do not have an image attached to them.) After uploading an image, the **Attach image** button changes to **Show invoice as image**.

Note: Only one image can be attached to a document.

Valid values	Description
no	Hides the Attach image button.
yes (Default)	Displays the Attach image button.

imageattach.STEPID

Determines whether the **Attach image** button is displayed in the **Current documents** detail view for the specified workflow step. This setting is the same as [imageattach](#), except that you can specify for exactly which workflow step(s) users are allowed to upload images.

Valid values	Description
no	Hides the Attach image button for the specified workflow step.
yes	Displays the Attach image button for the specified workflow step.

imageconvertjpg

This parameter only applies to the RESTful Web Service, which must be installed in order to run the Web Application on alternative clients, such as ReadSoft Mobile. This parameter must be set to 2 in order to display images correctly.

Converts PDF and TIF documents to a series of JPG images.

Valid values	Description
0 (Default)	Does not convert PDF and TIF documents to a series of JPG images
2 (Default)	Converts PDF and TIF documents to a series of JPG images

imageconvertpdf

Converts and displays document images as PDFs.

Note: The external library `itex-1.2.jar` must be present in the `../Tomcat/shared/lib/` folder. This library is not delivered with PROCESS DIRECTOR.

Valid values	Description
0 (Default)	Do not display document images as PDFs.
I	Displays document images as PDFs.
A	Displays document images as PDFs. Also gives users the option to display documents as TIFs.

imageconvertpng

This parameter only applies to the RESTful Web Service, which must be installed in order to run the Web Application on alternative clients, such as ReadSoft Mobile. This parameter must be set to 2 in order to display images correctly.

Converts PDF and TIF documents to a series of PNG images.

Valid values	Description
0 (Default)	Does not convert PDF and TIF documents to a series of PNG images
2 (Default)	Converts PDF and TIF documents to a series of PNG images

imageconvertpdf.permissions

This parameter specifies the security settings for [PDF images](#). You can use a combination of the following values, each separated by a semicolon (;).

By default, `imageconvertpdf.permissions` is disabled, which means that all of the actions below are allowed, and that PDFs are not encrypted. As soon as you enable this setting and specify one of the values, the other actions not specified are disallowed. PDFs are always not encrypted, unless you specify **1**.

Valid values	Description
AllowPrinting	Printing is permitted.
AllowModifyContents	PDF editing is permitted.
AllowCopy	Copy/paste functions are permitted.
AllowModifyAnnotations	Annotation editing is permitted.
AllowFillIn	Data entry in forms is permitted.
AllowScreenReaders	Permit screen readers to access PDFs.
AllowAssembly	Changing pages, bookmarks and thumbnails permitted.
AllowDegradedPrinting	Lower resolution printing is permitted.
0	PDF is not encrypted.
1	PDF is encrypted.

imageinlist

Displays the invoice image in the overview list.

Note: This parameter applies only to Accounts Payable documents.

Valid values	Description
0 (Default)	Does not display the invoice image.
1	Displays the invoice image.

invoice.createatonce

Determines if, when creating an invoice, the invoice is created immediately, or if an invoice form must first be filled in and saved.

Note: This is valid for only Accounts Payable documents.

Valid values	Description
no	Invoice form must first be filled in before the invoice is created. After clicking Save , messages from SAP are displayed about the invoice creation.
yes (default)	Invoice is created without filling in a form. User is immediately taken to the Detail view of the invoice.

invoice_create_taxes

Determines whether or not users can add tax information when they create a new invoice.

Note: This parameter is valid for only Accounts Payable documents and you can set it only if the `wb_create` parameter is set to 1.

Valid values	Description
no (default)	Users cannot enter any tax information when they create a new invoice.
yes	Users can enter tax information when they create a new invoice.

languages

This setting specifies the languages supported by PROCESS DIRECTOR.

If the [languageselection](#) parameter is enabled, the list of languages here also appears in the dropdown box on the logon screen.

PROCESS DIRECTOR ships with localizations for these languages:

de, en, fr, es, nl, ja, no, fi (Finnish is not available for Accounts Payable)

Additionally these languages are available for Accounts Payable:

pt, it, pl, sv, cs, sl, hu, ro, tr, zh, ru.

Adding support for another language

1. Add the two-character ISO 639-1 language code to the list above.

You can specify a three-character language code to explicitly set an SAP language.

2. Create the [Messages_xx.properties](#) file for the language.

languageselection

Displays the language selection box on the logon screen. To use this parameter, [browserlocale](#) must be set to **0**.

Valid values	Description
0 (Default)	The language selection box is not displayed.
1	The language selection box is displayed, using values from the languages and addlanguages parameters.

lineitems.editable

This parameter applies to Accounts Payable documents only.

It determines whether line items for MM invoices can be edited or not. The line item field must be set as editable in SAP for it to be editable in the PROCESS DIRECTOR Web Application. If it is not, changing the `lineitems.editable` setting has no effect—the field will remain read-only.

This parameter can also be enabled or disabled for individual workflow steps by adding the step ID (for example, `lineitems.modifycount.WFSTEP1=no`).

Valid values	Description
no	Do not allow MM line item fields to be edited.
yes (Default)	Allow MM line item field values to be changed (for editable fields only).

lineitems.modifycount

This parameter applies to Accounts Payable documents only.

It determines whether line items for MM invoices can be added and deleted or not. This parameter can also be enabled or disabled for individual workflow steps by adding the step ID (for example, `lineitems.modifycount.WFSTEP1=no`).

Valid values	Description
no	Do not allow MM line items to be added or deleted.
yes (Default)	Allow MM line items to be added or deleted.

logconfig

Determines the path of the web server log configuration file.

Default value	<code>WEB-INF/conf/log.properties</code>
Example result	<code>C:\Program Files\Apache Software Foundation\Tomcat 6.0\webapps\wconfig\pdweb-app\WEB-INF\conf\log.properties</code>

loginheader

Specifies the method used by email users to retrieve user credentials, which are used by the [ntlmauthenticate](#) parameter.

Value type	Description
Header	<p>If the value is <code>someheader</code>, then the Web Application looks for an HTTP header named <code>someheader</code> and the header content is considered to be a user name. The Web Application will then attempt to get the document list for this user. When calling the Web Application via the single document link, the existence of the specified header is enough to access the document.</p>
Cookie	<p>The parameter value may reference a cookie (<code>cookie:somecookie</code>). In this case the application looks for a cookie named <code>somecookie</code>. The value <code>cookie:somecookie</code> can have the extension (<code>fromN,toN</code>). In this case the logon name is taken from the cookie value starting with character <code>fromN</code> up to (but excluding) character <code>toN</code>. The character count starts at 0.</p> <p>Example:</p> <pre>loginheader=cookie:someuser(2,8)</pre> <p>Value of cookie <code>someuser</code> = <code>\$\$SmithZABC</code></p> <p>User name used = <code>SmithZ</code></p>
Java Class	<p>The parameter value can reference a JAVA class (<code>class:someclass</code>). In this case the application dynamically loads the Java class <code>someclass</code> and tries to call the <code>authenticateUser(HttpServletRequest request)</code> method. This method either returns a null value and sets the request attribute <code>logonError</code> or returns the account name of the user logged on to the workstation.</p> <p>Note: Dynamic loading of Java class is done relative to the <code>com.ebydos.cockpit.webcycle.app.auth</code> package if the class name does not contain a period (.) otherwise as an absolute package.</p>

logo

Filename of the image that is displayed in the upper-right corner of the browser window.

Default value	logo.gif
File type	Either JPG or GIF
Size	See logoheight .
Location	The <code>images</code> folder of the current theme.

logoff_redirect_url

This parameter allows the user to be redirected to a specific URL on clicking **Log off** or the **Close** button.

You can enable this parameter by setting it to the desired URL.

For example, `logoff_redirect_url = http://www.readsoft.com`

logoheight

The height of the [logo](#), in pixels.

Default value	60
----------------------	----

maxresult.search

This parameter defines the selection options for the **Results** drop-down list when using search helps (for example, searching for vendors and purchase orders). The values specify the maximum number of search results to display. You can use the parameter [pd_page_size_search](#) to specify how many of the returned search results to display on a single page.



Valid values	<p>Any series of positive integers, comma separated.</p> <p>The 0 value displays the All text.</p> <p>The first non-zero value is selected by default. In the example shown above, the valid values would be 0,10,20,50,100,500, and 10 would be selected by default.</p>
Default	0,1,10,50,100, 500

messageconfig

The path to the customized localization files/text strings.

- Note:** The default localization files are saved in the `../webapps/pdweb-app/WEB-INF/classes/nls/` folder. If you want to edit these strings, you must move the [Messages_xx.properties](#) files to the location you specify below.

Default	<code>../WEB-INF/conf/Messages</code>
Example result	<code>C:\Program Files\Apache Software Foundation\Tomcat 6.0\webapps\wcconfig\pdweb-app\WEB-INF\conf\Messages_xx.properties</code>

multiaccounting.check

Determines if the following check is performed:

Sum of the amounts and quantities in the multi-account assignment items = Totals of the respective line item

Valid values	Description
no (Default)	No check of totals is performed.
yes	The above multi-account assignment total check is performed. If the totals are not the same, an error message is displayed.

multiaccounting.check.STEPID

This parameter performs the same check as the [multiaccounting.check](#) setting. Using `multiaccounting.check.STEPID` though, you can restrict the check to one or more single workflow steps. Do this by inserting the name of the step after the setting name. For example:

`multiaccounting.check.MYWORKFLOWSTEP`

Valid values	Description
no (Default)	No check of totals is performed for the specified step.
yes	The multi-account assignment total check is performed for the specified workflow step.

multiprocessing.approve

When enabled, users can approve documents from the **Current documents** *List view*, as well as approve multiple documents simultaneously.

You can specify if documents must be in the same workflow step for them to be approved together. See the [multiprocessing.approve.checksteps](#) parameter.

Valid values	Description
no (Default)	Disables document approval in the <i>List view</i> .
yes	Enables document approval in the <i>List view</i> .

multiprocessing.approve.checksteps

When enabled, documents must be in the same workflow step for them to be approved together.

To use this parameter, [multiprocessing.approve](#) must be enabled.

Valid values	Description
no	Documents can be in different workflow steps and approved together using multiprocessing.approve .
yes (Default)	Documents must be in the same workflow step for them to be approved together using multiprocessing.approve .

multiprocessing.forward

When enabled, users can forward documents from the **Current documents** *List view*, as well as forward multiple documents simultaneously.

You can specify if documents must be in the same workflow step for them to be forwarded together. See the [multiprocessing.forward.checksteps](#) parameter.

Valid values	Description
no (Default)	Disables document forwarding in the <i>List view</i> .
yes	Enables document forwarding in the <i>List view</i> .

multiprocessing.forward.checksteps

When enabled, documents must be in the same workflow step for them to be forwarded together.

To use this parameter, [multiprocessing.forward](#) must be enabled.

Valid values	Description
no	Documents can be in different workflow steps and forwarded together using multiprocessing.forward .
yes (Default)	Documents must be in the same workflow step for them to be forwarded together using multiprocessing.forward .

multiprocessing.reject

When enabled, users can reject documents from the **Current documents** *List view*, as well as reject multiple documents simultaneously.

You can specify if documents must be in the same workflow step for them to be rejected together. See the [multiprocessing.reject.checksteps](#) parameter.

Valid values	Description
no (Default)	Disables document rejection in the <i>List view</i> .
yes	Enables document rejection in the <i>List view</i> .

multiprocessing.reject.checksteps

When enabled, documents must be in the same workflow step for them to be rejected together.

To use this parameter, [multiprocessing.reject](#) must be enabled.

Valid values	Description
no	Documents can be in different workflow steps and rejected together using multiprocessing.reject .

Valid values	Description
yes (Default)	Documents must be in the same workflow step for them to be rejected together using multiprocessing.reject .

multiprocessing.substitution

When enabled, a user (acting as a substitute) can take over documents from the **Current documents** *List view*, as well as take over multiple documents simultaneously.

Valid values	Description
no (Default)	Disables the taking over of documents in the <i>List view</i> .
yes	Enables the taking over of documents in the <i>List view</i> .

normaltimeout

The session timeout period, in seconds.

After the specified period of inactivity, the current session is terminated. The user is logged off and all existing locks are removed (this also occurs if the user closes the browser before logging off).

ntlmauthenticate

The method used to retrieve user credentials from the Windows NT LAN Manager (NTLM).

Valid values	Description
0	Off

Valid values	Description
1	<p>Email users only.</p> <p>Email users do not logon. The email they receive contains a link to the document they are assigned to work on. The link contains the document GUID, which is a 32-digit hex code.</p> <p>Setting <code>ntlmauthenticate=1</code> prevents others from using this GUID to work on the document. Email users will only be able to open documents when:</p> <ul style="list-style-type: none"> ▪ The Web Application is able to retrieve the username from the NTLM and ▪ This username can be located in a directory server and ▪ The matching email address is the same as the one specified as the recipient of the document.
-1	<p>Email users only.</p> <p>Sends the information returned from the loginheader parameter to the SAP system for authentication.</p>
2	<p>SAP and Web Application users only.</p> <ol style="list-style-type: none"> 1. The username is retrieved from NTLM using the HTTP header. 2. The username is matched against the list of SAP and Web Application users in the SAP system. 3. If a match is found, the document list for that user is displayed.
-2	<p>Same as 2. If SSO is not available, or if the user credentials retrieved are incorrect, the standard logon page is displayed for the user to log on manually.</p>
3	<p>SAP and Web Application users only.</p> <ol style="list-style-type: none"> 1. The username is retrieved from NTLM by calling the Java <code>getRemoteUser()</code> method. 2. The username is matched against the list of SAP and Web Application users in the SAP system. 3. If a match is found, the document list for that user is displayed. <p>The system searches all user types, in the order specified by the priorities set in <code>/EBY/PDBO_VUSTC</code> (see the <i>PROCESS DIRECTOR SAP Configuration Guide</i>), and logs the user on when valid user credentials are found.</p>

Valid values	Description
-3	Same as 3 . If SSO is not available, or if the user credentials retrieved are incorrect, the standard logon page is displayed for the user to log on manually.

Requirements for 0,1,-1 & 2

The server hosting the PROCESS DIRECTOR Web Application must sit “behind” a Microsoft IIS server. See [Appendix A](#), IIS and Tomcat for details about how to setup such a scenario. This setup only supports Microsoft Windows using Internet Explorer, or Firefox with the help of a plugin.

ntlmauthenticate.error

When using the [NTLM method](#) to authenticate users, and a user cannot be authenticated (because the user name cannot be determined), you can enable this setting to force the web server to return the error, instead of the WORK CYCLE Web Application.

Valid value	Description
401	Forces the web server to return the NTLM authentication error, instead of the WORK CYCLE Web Application.

password_for_user_data

Determines if users must enter their password again before they can save any changes to their personal data.

Valid values	Description
no (Default)	Do not display or require password entry.
yes	Display password field and require password entry before editing user data.

pd_doc_navigate

Determines whether users can navigate to the previous or next document from the document detail view or not.

Valid values	Description
yes (Default)	Allows users to navigate to the previous or next document.
no	Does not allow users to navigate to the previous or next document.

pd_field_help_delay

For fields that have search help, you can display details of the current field value in a popup window. To do this, set `pd_field_help_delay` to a value in milliseconds, which specifies how long the mouse cursor must hover over the field before the details are displayed.

Vendor	Plant	A	GR
1060	1000	K	<input type="checkbox"/>
Country	KN		
City	FRANKFURT AM MAIN		
Search term	CHEMIE		
Name	READSOFT EBYDOS AG		
Vendor	1060		
Company Code	1000		

For example, 1500 means that the mouse cursor must hover one and a half seconds over a field before the details are displayed.

Valid values	Description
<Positive integer>	Displays the full search help value for all fields with search help.
<Negative integer> Default: -500	Displays the full search help value only for read-only fields with search help.

pd_group_message

Determines the order in which messages resulting from a document processing action are displayed.

Valid values	Description
yes (Default)	Messages are displayed sorted by severity (error, warning and success).
no	Messages are displayed in the same order as they are received from SAP. This can be useful when searching for errors.

pd_help_icon_pos

Determines the position of the icon that opens the search help or the calendar help for a field.

The value of this parameter is the offset relative to the right-hand border of the field where the icon appears. The default value is -16, so the icon appears in the right-hand corner of the field.



If you set this value to 0, the icon will appear directly behind the field.



pd_ignor_att_url

This parameter only applies to the RESTful Web Service, which must be installed in order to run the Web Application on alternative clients, such as ReadSoft Mobile. This parameter must be set to `yes` in order to display images correctly.

It enables you to specify that attachments are always read using binary data.

Valid values	Description
no (default)	Do not read attachments using binary data.
yes	Read attachments using binary data.

pd_imagedocking_width

Determines whether attachments are displayed in a docked panel displayed to the right of the document details or in a separate popup window.

Valid values	Description
0	The image is displayed in a popup window.
Disabled (default)	The image is docked with a default width of 400 pixels.
Positive integer	Defines the width (in pixels) of the panel that displays the docked image; for example, 400 = the panel is 400 pixels wide.

pd_initialsplit

This parameter controls the default width of the Worklist. The default value is 20%. Enter a different value (in percentage, pixels or points) to increase or decrease the default width.

pd_message_mode

Determines whether messages are displayed in a pane to the right of the header data or in a popup window.

Valid values	Description
default	Messages are displayed in the Current messages pane to the right of the header data.
popup	Messages are displayed in a popup window, which can be closed by clicking the mouse. The popup can be displayed again by clicking an icon on the right-hand side of the header data.

pd_node_counters

Determines whether counters are displayed in the Worklist nodes.

Valid values	Description
yes (Default)	Worklist node counters are displayed.
no	Worklist node counters are not displayed. If node counters are suppressed in the Worklist configuration on the SAP side for performance reasons, all nodes in the Web Application will display (0). To avoid this, set this parameter to no .

pd_page_size_list

This parameter controls how many documents are displayed in the document list. If more documents are available, paging controls are displayed, allowing the user to browse through the other pages. The default value is 20 documents. If this parameter is set to -1, the number of documents displayed is calculated automatically.

pd_page_size_hdr_table

This parameter controls how many lines are visible for tables in the header panel on the document detail page. If more lines are available, paging controls are displayed, allowing the user to browse through the other pages. The default value is 7 lines. If this parameter is set to -1, the number of visible lines is calculated automatically.

pd_page_size_search

This parameter controls how many search results are displayed on a single page. The default value is 10 lines. If more than the specified number of lines are available, paging controls are displayed below the search results, allowing the user to browse through the other pages. You can use the [maxresult.search](#) parameter to specify values for the maximum number of results to display in total.

Search help for field Vendor
✕

	To
Search term <input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
Postal Code <input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
City <input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
Name <input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
Vendor <input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
Results <input style="width: 50px;" type="text" value="20"/> ▼	
Search help <input style="width: 80%;" type="text" value="Vendors (General)"/> ▼	

Search
Reset
Cancel

	Search term	Postal Code	City	Name	Vendor ↑
<input type="radio"/>	CPG	27563	HAMBURG	FORKS MANUFACTURING GMBH	1
<input type="radio"/>	AUTO	66386	ST. INGBERT	WALD & MAIER	100
<input type="radio"/>	ALLGEMEIN	12001	BERLIN	C.E.B. BERLIN PERSONAL &	1000
<input type="radio"/>	AUTO/PUMPE	97341	SCHWEINFURT	SKF KUGELMEIER KGAA	1001
<input type="radio"/>	AUFZÜGE	83204	ROSENHEIM	MÜLLER KG	1002
<input type="radio"/>	AUTO	90710	HARBOR CITY	GUSSWERK US	1003
<input type="radio"/>	AUTO	67102	W1 LONDOND	JONES LTD.	1004
<input type="radio"/>	ELEKTO	68301	MANHEIM	PAQ DEUTSCHLAND GMBH	1005
<input type="radio"/>	CHEMIE	66000	FRANKFURT/MAIN	BLACKS AG	1006
<input type="radio"/>	BIKE	30095	HANNOVER	BIKE RETAIL & CO.	1007

⏪
⏩
1-10
▼
⏪
⏩

pd_page_size_table

This parameter controls how many lines are visible for tables on the document detail page. If more lines are available, paging controls are displayed, allowing the user to browse through the other pages. The default value is 10 lines.

pd_print_full_text

Determines how much of the text typed in a field in the Web Application is printed.

Valid values	Description
0 (Default)	Only the first 40 characters will be printed.

Valid values	Description
l	The whole text will be printed.
n	The first n letters will be printed, whereby n > 1..

pd_print_page

Displays a **Print** button  at the top right of the page in the document detail view that enables users to print the document data, including notes.

You can make printing available for specific process types only by appending the process type ID. For example, the following settings allow printing for requisitions (PO) and goods receipts (DN) only:

```
pd_print_page = no
pd_print_page.PO = yes
pd_print_page.DN = yes
```

You can customize the look and feel of the printed page by editing the `pdprint.css` file in the `themes/procdir` folder.

Valid values	Description
no (Default)	Print button is not displayed.
yes	Print button is displayed.
0	Print button is not displayed (same as no).
1	Print button is displayed (same as yes).
2	Print button is displayed without the printer dialog popup.

pd_searchhelpkey

Determines which key(s) is used to open the search help popup (to search for valid values in the database).

```
pd_searchhelpkey=<code><modifier>
```

Valid values	Description
<code>	p=F1, q=F2, r=F3, s=F4, t=F5, u=F6, v=F7, w=F8, x=F9, y=F10, z=F12.
<modifier>	0=No modifier 1=SHIFT 2=CTRL 3=SHIFT+CTRL 4=ALT 5=SHIFT+ALT 6=CTRL+ALT 7=SHIFT+CTRL+ALT 8=ALTGR 9=SHIFT+ALTGR 10=CTRL+ALTGR 11=SHIFT+CTRL+ALTGR 12=ALT+ALTGR 13=SHIFT+ALT+ALTGR 14=CTRL+ALT+ALTGR 15=CTRL+SHIFT+ALT+ALTGR

Examples

pd_searchhelpkey=s0 Result: **F4** (Default)

pd_searchhelpkey=p4 Result: **ALT+F1**

pd_select_last_node

Determines whether the last used Worklist node or the Quick Start menu is displayed when the user logs on to the Web Application.

Valid values	Description
yes	Displays the document list of the Worklist node that the user was working with when they logged off.
no (Default)	The Quick Start menu is displayed (if available).

pd_select_mode

By default, the Web Application displays standard select boxes, in which the user selects an entry with the mouse:

Doc status	<input type="checkbox"/>
PD doc number	210
Action for data record	Insert 
G/L Account No.	22233310

Standard select box

The Web Application can also render a new, non-standard select box that shows only the internal value in an input field. When the user clicks the arrow icon in the select box, the external values are displayed in a popup. The internal value is generally very short, while the external value is longer, but easier to understand. Users who know the internal value can type the value directly into the select box.

Doc status	<input type="checkbox"/>
PD doc number	210
Action for data record	I 
G/L Account No.	
Company Code	

Insert (I)
Change (U)
Delete (D)

New select box

The new select box saves space in tables and also provides a quick input mode for users who prefer to use the keyboard rather than mouse. You can also configure the new select box to display the external value.

Doc status	<input type="checkbox"/>
PD doc number	210
Action for data record	Insert 
G/L Account No.	22233310
Company Code	1000

New select box with external values

Valid values	Description
0 (Default)	Always use standard select boxes.
1	Use the standard select box in the header and the new select box in tables (for example, in line items).
2	Always use new select boxes.
3	Use the standard select box in the header and the new select box showing external values in tables.
4	Always use new select boxes showing external values.

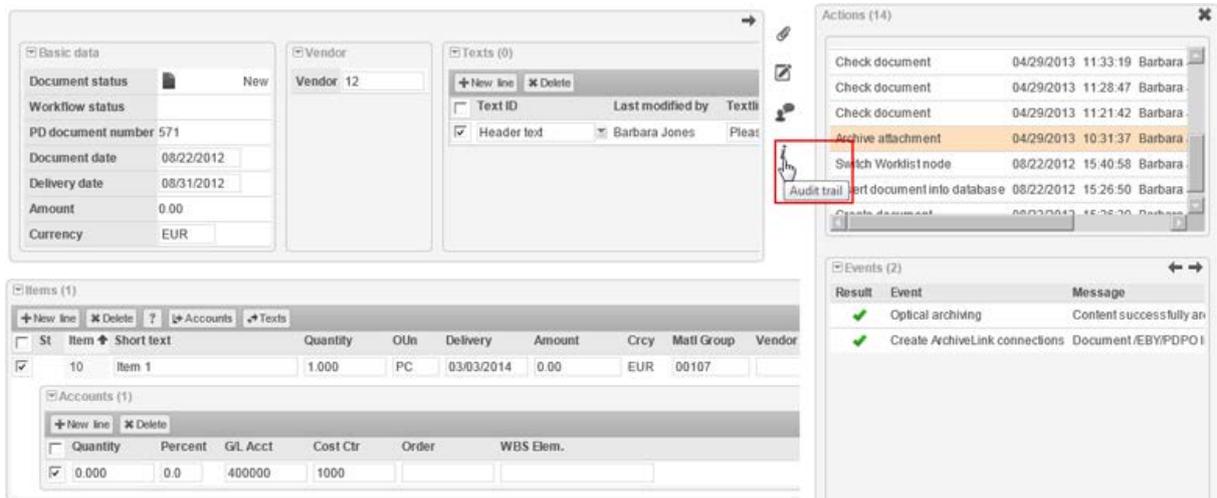
pd_show_last_note

Determines whether or not the last note added to the document is displayed in a popup window when the document is in a workflow. This popup window is displayed only once per document and user session. However, if the **Notes** pane is already open, the popup is not displayed.

Valid value	Description
<Number of characters>	Determines the number of characters displayed in the note. For example, the value 100 displays only the first hundred characters of the note.

pd_show_old_messages

Determines whether older messages (from previous checks) are displayed or not. Click the **Audit trail** button to view the older messages.



Valid values	Description
yes (Default)	Displays recent and older messages.
no	Displays only recent messages.

pd_show_tif_embedded

Determines whether an attached TIF image in a document is displayed in a separate browser window or in the PD viewer itself.

Valid value	Description
No (Default)	File opens in a separate application.
Yes	File is displayed in the PD viewer.

pd_subtable_first

For tables that have sub-tables, a field (of the type icon) should be defined in the field catalog that triggers opening and closing of the sub-tables. If there is only one sub-table, the definition of the trigger field can be skipped and a default icon is rendered. This option controls whether this default icon appears as the first or the last field in the table line above.

Valid values	Description
yes (Default)	The default icon appears as the first field.
no	The default icon appears as the last field.

pd_suggest_jpa

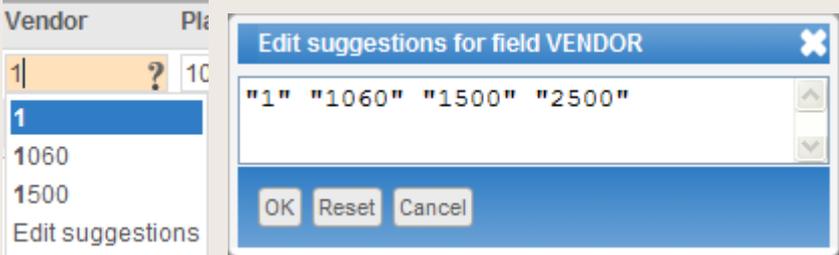
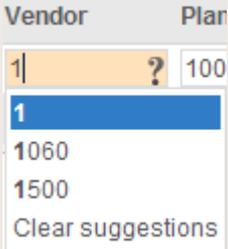
Determines whether [suggestions](#) are stored in an in-memory SQL database or in flat files (one per user).

ⓘ Important: Do not use `pd_suggest_jpa=yes` on Netweaver installations. On Tomcat installations, you should set this parameter to `no` if you are experiencing high memory load.

Valid values	Description
no (default)	Suggestions are stored in flat files.
clear	Suggestions are stored in an SQL database.

pd_suggest_mode

Text fields of a normal text type (in general, all fields that do not contain price or quantity values) have a built-in function to offer the user a list of previously entered values while typing. With this option you can add additional functionality to this list. By default this property is not activated, so previously entered values are not displayed.

Valid values	Description
edit	<p>Adds the additional entry Edit suggestions to the list. Selecting this entry opens a popup in which the user can modify or clear (reset) the current suggestion list.</p> 
clear	<p>Adds an additional entry Clear suggestions to the list that clears the list of suggestions for this field.</p> 

pd_warning_new_version

When a user logs on to the Web application, a check for a cookie named `pdVersion` is performed. If this cookie is found and the value is different from the internal application version number, a message is displayed suggesting that the user should clear the browser cache.

Valid values	Description
yes (Default)	The message is displayed
no	The message is not displayed

pluginconfig

The path to the [plugin configuration file](#).

Default	<code>../WEB-INF/conf/plugin_configuration</code>
Example result	<code>C:\Program Files\Apache Software Foundation\Tomcat 6.0\webapps\wcconfig\pdweb-app\WEB-INF\conf\plugin_configuration.xml</code>

portalmode

Activates portal mode. This parameter should be used only in conjunction with a [Single Sign On](#) (SSO) implementation.

Valid values	Description
0 (Default)	Portal mode is not used.
1	Portal mode is used.
2	Portal mode is used, but adds screen header elements (like logo, user name, copyright message, and optional help button) that would not normally be visible when in portal mode.

processdirector

Enable this setting to use the PROCESS DIRECTOR Web Application. In addition, the `appmode` setting must be set to **16** in to use PROCESS DIRECTOR.

Valid values	Description
yes	Enables the PROCESS DIRECTOR plugin.
no (default)	Disables the PROCESS DIRECTOR plugin.

resetpassword

Determines whether the **Reset password** link is displayed on the WORK CYCLE logon page. This feature allows users to have the system send them a new (randomly generated) password to their email address.

Valid values	Description
no	Hides the Reset password link.
yes (Default)	Displays the Reset password link.

saplogconfig

Determines the path of the SAP log configuration file.

Note: SAP logs are only produced if [saplogging](#) is set to **1**.

Default value	WEB-INF/conf/log4sap.properties
Example result	C:\Program Files\Apache Software Foundation\Tomcat 6.0\webapps\wcconfig\pdweb-app\WEB-INF\conf\log4sap.properties

saplogging

Use SAP logging (for SAP Netweaver 7.0 or later).

Valid values	Description
0 (Default)	Do not use SAP logging.
1	Use SAP logging.

The Web Application uses the [saplogconfig](#) parameter to determine the location of the log4sap.properties file.

(The Web Application uses Apache Log4j as the logging API. This makes it possible to attach to customer specific or application server specific logging systems.)

saplogonconfig

The path to the SAP logon properties file.Default	<code>../WEB-INF/conf/saplogon.properties</code>
Example result	<code>C:\Program Files\Apache Software Foundation\Tomcat 6.0\webapps\wcconfig\pdweb-app\WEB-INF\conf\saplogon.properties</code>

showimagebutton

Determines where to place the **Show image** button and icon in the detail view.

Valid values	Description
1	Text button at the top.
2	Text button at the bottom.
3	Text button at the top and bottom.
4	Icon at the top.
5	Text button and icon at the top.
6	Text button at the bottom and icon at the top.
7	Text button at the top and bottom and icon at the top.

showlastlogin

Determines whether the last logon information is displayed in the header after logging on.

Valid values	Description
no (Default)	Does not display last logon information.
yes	Displays last logon information.

showlinks

Determines which of the following links are displayed on the logon page and in the header of all other (non-popup) pages:

- Home page
- Copyright notice
- Disclaimer

Valid values	Description
1	Home page.
2	Copyright notice.
3	Home page and copyright notice.
4	Disclaimer.
5	Home page and disclaimer.
6	Copyright notice and disclaimer.
7	All links.

showtaxes

Determines whether the tax field is displayed in the detail view. The field is a link that opens a popup window that displays the tax details of the document.

Valid values	Description
no	Hides the tax field.
yes (Default)	Displays the tax field.

sso-cookiename

The name of the cookie containing the single sign on ticket. (When using a SAP single sign on logon scenario.)

Default value	MYSAPSSO2
---------------	-----------

switchtab.cookie

Determines if a cookie is used to automatically log the current user on to the Web Application specified in [switchtab.url](#).

Valid values	Description
no	Do not use cookies. Will only work with SSO authentication .
yes	Use cookies. Will only work when switching between URLs in the same domain.

switchtab.cookie.expire

The time (in seconds) the cookie containing the user's logon credentials is valid. Applies when logging on to a Web Application specified in [switchtab.url](#).

Valid values	Any positive integer.
--------------	-----------------------

switchtab.message

The name of the tab created using [switchtab.url](#). The value is the name of the key in the Messages_xx.properties localization file.

switchtab.url

You can add a tab that links to an INVOICE COCKPIT SUITE Web Application:

- WORK CYCLE
- WEB BOARD
- MOBILE APPROVAL
- INFO MAIL

The following example adds a tab that links to WEB BOARD:

```
switchtab.url = http://localhost:8080/webboard-app/init.do
```

```
switchtab.message = appl.webboard
```

```
switchtab.cookie = yes
```

```
switchtab.cookie.expire = 60
```

template.createfrom

Allows users to create new invoices based on templates that they have previously created.

Users can use only those templates that they themselves have created. Templates are not shared between users.

Note: This parameter applies only to Accounts Payable documents.

These settings must be enabled:

- [wb_create](#). Allows invoices to be created.
- [template.save](#). Allows invoice templates to be created.

Valid values	Description
no (Default)	Invoices cannot be created using templates.
yes	Invoices can be created using templates.

template.save

This setting gives users the option of creating invoice templates. The **Save template** button appears when creating a new invoice.

The [wb_create](#) setting, which allows invoices to be created, must be enabled.

Note: This parameter applies only to Accounts Payable documents.

Valid values	Description
no (Default)	Invoice templates cannot be created.
yes	Invoice templates can be created.

theme.pdweb

Specifies the location of GUI theme that is currently used.

Default value: `themes/procdir/`

Note the presence of the ending forward slash.

This points to the `../webapps/pdweb-app/themes/procdir/` folder.

undo

Determines whether users can recall Accounts Payable workflow steps in the Web Application.

Valid values	Description
0	Disables the Recall Worklist node for all Web Application users.
1	Only documents that have not yet been approved by a subsequent processor in the workflow can be recalled
2	Documents that have been approved by a subsequent processor in the workflow can be recalled

Note: Workflow steps can only be recalled if the option **Recall documents** is activated in the step settings in /COCKPIT/WI3A.

upload.html.pdfconverter

Use this setting to convert HTML forms to PDF for archiving. The value is the path to the converter tool:

```
full_path_to_convert.exe <in> <out>
```

Where the <in> and <out> variables are replaced by the input and output filenames.

For example:

```
c:/program files/html2pdfconverter/convert -i{in} -o{out}
```

userformat.superior

This setting controls what information is displayed in the Worklist node for substitutes.

Valid values	Description
%n (Default value)	Full name
%m	Email address
%d	Department
%p	Phone number

Valid values	Description
%u	User ID
%t	User type

userformat.superior.tooltip

This setting controls what information is displayed in the Worklist node tooltip for substitutes.

The default value is %t: %n (%u).

Valid values	Description
%n	Full name
%m	Email address
%d	Department
%p	Phone number
%u	User ID
%t	User type

userformat.workflow.status (PD AP only)

This setting controls what user information is displayed in the **Workflow Status** window.

The default value is %n (%t: %u) - full name (user type; user ID).

Valid values	Description
%n	Full name
%u	User ID
%t	User type

userpriority

When using a [Single Sign On](#) method, this setting determines which user account to use if an SAP user and PROCESS DIRECTOR user have the same user name.

userpriority has no effect in the following scenarios:

- When logging on manually with a password. PROCESS DIRECTOR determines the user account in accordance with the user type priority configuration settings in /EBY/PDBO_VUSTC (see the *PROCESS DIRECTOR SAP Configuration Guide* for more information).
- For logons via [MySAP SSO2](#). The SAP user is used.
- For logons via an SSO plugin (see [loginheader](#)). The plugin can specify the user value. Only if none is specified, is userpriority used.

Valid values	Description
S (Default)	Use the SAP user account.
I	Use the PROCESS DIRECTOR user account.

userprofile_mode

Determines if all tabs are displayed or just the **User Profile** one. This can be used when two instances of the Web Application are deployed. One can be used for document processing, the other for user administration.

Valid values	Description
no (Default)	Display all enabled tabs.
yes	Displays only the User Profile tab.

userwarnings

Used to override document forward, assign, and query operations that have “failed.”

When a document is forwarded, assigned, or a query sent, an SAP function call is made. The function call either succeeds or fails and returns an error message.

These error messages have corresponding numbers, which you can list here to allow the user to continue with the action in spite of the error.

Consider the following use case:

1. A user forwards a document to someone who is on vacation.
2. SAP returns an error: *10: User is on vacation.*
3. If `userwarnings = 10`, the user has the option to forward the document anyway.
4. If `userwarnings` does not contain **10**, the user cannot forward the document.

Valid values	A comma-separated list of SAP error numbers.
---------------------	--

wb_create

Determines whether or not users can create invoices (for their supplier[s] only).

Note: This is valid for only Accounts Payable documents.

Valid values	Description
0 (default)	Creating invoices is not permitted.
1	Creating invoices is permitted.

wallowsapsubst

This setting allows SAP users to act as substitutes for PROCESS DIRECTOR users.

Valid values	Description
no	SAP users cannot be substitutes for PROCESS DIRECTOR users.
yes (Default)	SAP users can be substitutes for PROCESS DIRECTOR users.

wintitle

The title displayed in the web browser title bar.

Valid values	Any string.
Default value	(The product name and version.)

xss_security_header.n

This setting enables you to configure which HTTP headers are added to the HTTP response in order to prevent [cross-site scripting \(XSS\)](#).

The parameter value must be of type `<header>:<value>`. If this parameter is set, an HTTP header named `<header>` with value `<value>` is added to the HTTP response.

The default setting shipped with the PROCESS DIRECTOR Web Application is:

```
xss_security_header.1 = X-FRAME-OPTIONS:SAMEORIGIN.
```

saplogon.properties

The `saplogon.properties` file contains information about the SAP system the PROCESS DIRECTOR Web Application connects to.

In the parameter names, replace `sysid` with the SAP system ID. For example, replace `sysid.activate` with `TR1.activate`.

sapsystem

Specifies the default SAP system when there is more than one defined in [saplogon.properties](#).

sysid.activate

Determines if the connection to the system is enabled or not.

Valid values	Description
no	The connection to the SAP system is deactivated.
yes	The connection to the SAP system is activated.

sysid.ashost

The host name of the application server.

sysid.client

The three-digit SAP client identifier.

sysid.ext_auth_svc

Specifies the Java class used to authenticate users.

sysid.ext_search

Specifies the Java class used to search Email users.

sysid.group

The name of the application server group.

sysid.jcotrace

The SAP JCo trace level. Possible values are **0** to **10**. Higher values result in more detailed logs.

JCo traces are written to the same folder as the logs of the Web Application (specified using the `logDir` setting).

sysid.lang

Not used (deprecated).

sysid.maxconnections

The maximum number of simultaneous connections permitted from the PROCESS DIRECTOR Web Application to the SAP system. The number of connections is allocated from the general pool of connections to the SAP system.

Note: This is not the same as the maximum number of concurrent users, which can be higher than the maximum number of connections.

The actual number of connections that are used internally is 10 times the value specified by this parameter. Thus, setting `sysid.maxconnections=10` will allow 100 connections.

The SAP Java connector (JCo) has a built-in default limit of 100 connections. This means that setting `sysid.maxconnections` to a value higher than 10 will have no immediate effect, because JCo does not allow more than 100 connections. If you need more than 100

connections, [set the environment variable CPIC_MAX_CONV](#) on the server where JCo is installed to the desired number and set the `sysid.maxconnections` parameter accordingly.

sysid.msghost

The host name of a message server.

sysid.passwd

The SAP system user password.

For SAP system releases in which passwords are not case sensitive, never use lowercase letters in passwords. New versions of the RFC library (like in JCO 2.1.7 and above) do not automatically convert passwords to uppercase. See also: SAP Note 792850.

Secure passwords

On request, ReadSoft can provide a tool with which you can generate a secure password, so that the actual password is not displayed in the `saplogon.properties` file. You will receive the file `sec.zip`. Proceed as follows:

1. Unzip the `sec.zip` file to any Windows folder.
2. Open a command prompt, type `sec <password>` and press **ENTER**. For example: `sec abc123`.

A secure password is generated:



```
Administrator: Command Prompt
C:\>cd rs
C:\rs>sec abc123
>SECURE(6A0B93F133504D7C94A6CEFD)<
C:\rs>
```

3. Enter this secure password in your `saplogon.properties` file:

```
DR1.activate           = yes
DR1.client             = 800
DR1.user               = user
DR1.passwd             = SECURE(6A0B93F133504D7C94A6CEFD)
DR1.lang               = DE
DR1.ashost             = sapDR1
DR1.sysnr              = 0
DR1.maxconnections    = 10
```

4. Restart Tomcat.

sysid.sso

Enables Single Sign On (SSO).

Valid values	Description
1	Enabled.
2	Disabled.

sysid.ssouser

In a normal Single Sign On (SSO) scenario, the credentials of a user is used to logon and connect to an SAP system. When using the `sysid.ssouser` parameter, users logon in the regular SSO way, but the user specified in this setting is used for all subsequent RFC calls.

Note: To use this setting, [sysid.sso](#) must be set to 1.

sysid.sysnr

The SAP system number.

sysid.system

The SAP system ID, if different to the `sysid` prefix.

The SAP system ID is automatically taken using the `sysid` prefix, which is used for all settings in `saplogon.properties`. This parameter is only needed if you want to use the same file to connect to more than one system that differ only in `client` or `sysnr`.

Example:

```
DR1-800.client = 800
```

```
DR1-800.system = DR1
```

```
DR1-0.client = 0
```

```
DR1-0.system = DR1
```

sysid.user

The SAP system user.

log.properties

Change the `log.properties` file to configure the output of the web server log files. This section describes all the settings found in `log.properties`.

Sample log entry

A log line is composed as follows.

```
[Date]<Sep>Time<Sep>[Host]<Sep>SessionID<Sep>Level<Sep>Message
```

- Square brackets indicate optional values.
- `<Sep>` is the separator character.
- The message is a free-formatted text. If the log level is set to `FATAL`, `ERROR` or `WARNING`, an error number and one more separators is prefixed.

appName

The name of the Web Application, inserted at the start of every log entry.

Valid values	Any string.
Default value	<blank>

dailyFile

Determines if a new log file is created every day.

Valid values	Description
no	The same log file is used every day.
yes (Default)	A new log file is created every day.

dateFormat

The format of the date inserted in log entries.

Example: `yyyy/MM/dd` converts to 2009/08/13

Note: When `showDate` = `no`, the date is not used.

Valid values	Any date conformant with the Java SimpleDateFormat.
Default value	yyyy/MM/dd

host

The hostname of the application server, inserted in log entries.

Valid values	Any string. If the name is specified as %host, the name is taken from the HTTP request.
Default value	%host

level

Specifies the level of activity that is written to the log files.

Valid values	Description
0	OFF
1	FATAL
2	ERROR
3 (Default)	WARNING
4	DEBUG
5	INFO

logDir

The directory where the log files are saved.

If the path is not absolute, it is relative to the web server's working directory. For example: temp1/ would save log files in ../Tomcat 6.0/temp1/

The path must end with a forward slash (/).

If no value is specified (default), the PROCESS DIRECTOR Web Application creates a directory in the web server's log directory. For example: `../Tomcat 6.0/logs/pdweb-app/`

logName

The name format of the log files.

The `%date` variable is replaced by the current date. If no value is specified the default value is used.

Valid values	Any string
Default value	wctrc%date.log

separator

The character used to separate columns in log file entries.

Valid values	Any character.
Default value	;

showDate

Determines if the date is included in log entries. It is set to **no** by default, because the [dailyFile](#) setting is used to produce a new log file for each day.

Valid values	Description
no (Default)	The date is not included.
yes	The date is included.

timeFormat

The format of the time inserted in log entries.

Valid values	Any time conformant with the Java SimpleDateFormat. If no value is specified, the default value is used.
Default value	kk:mm:ss.SSS

log4sap.properties

Change the `log4sap.properties` file to configure the output of the SAP log files.

See [Logs](#) for more information.

plugin_configuration.properties

Overview

This file contains settings that allow PROCESS DIRECTOR to use features from the WEB CYCLE Web Application (such as user management).

PDDDataProvider

Set this to `XMLSapProviderImpl` (default).

OtherPool_1

Set this to `com.readsoft.ebydos.web.pd.base.PDDataPoolImpl` (default).

OtherPool_16

Set this to `com.readsoft.ebydos.web.pd.base.PDDataPoolImpl` (default).

The file `icon_mapping.properties` contains the mapping of application-specific codes that are sent to the PROCESS DIRECTOR Web Application in order to display an icon.

For example, this can be a status icon from the document list, an icon for an action button on the document detail page or a generic icon like for deleting and adding lines in a table.

Normally, there is no need to change this file since it is shipped with useful values. All values in this file are names of “gif” files that are located in the `images/pd` folder of the currently active [theme](#) in the Web Application.

mimetypes.properties

This file maps MIME types to file extensions. While the list of file types which can be uploaded is specified in SAP under /OAC3, the PROCESS DIRECTOR Web Application can only recognise file extensions, for example, `invoice_note.txt`. The mappings in `mimetypes.properties` allow the Web Application to match the file extension with the list of allowed file types in /OAC3.

For example, when the user selects a PDF file to upload, the Web Application looks up the matching file type in `mimetypes.properties`, checks to see that this file type is listed in /OAC3, and if so, allows the document to be uploaded.

Parameter	Description	Default
application/msword	MIME type for Microsoft Word documents	doc
application/vnd.ms-excel	MIME type for Microsoft Excel documents	xls
application/vnd.ms-powerpoint	MIME type for Microsoft PowerPoint documents	ppt
application/vnd.rn-realmedia	MIME type for Real Media files	rm
application/x-shockwave-flash	MIME type for Adobe Flash files	swf
application/pdf	MIME type for Adobe PDF documents	pdf
text/plain	MIME type for plain text documents	txt
text/html	MIME type for Hypertext Markup Language documents	htm
image/tiff	MIME type for Tagged Image File Format images	tif, tiff

Messages.properties

This file contains all language text strings (apart from field labels). Localized versions are provided in the `../webapps/pdweb -app/WEB-INF/classes/nls/` folder. The files are called `Messages_xx.properties` where `xx` is the two-character ISO 639-1 language code (for example, EN for English and DE for German).

See [Changing GUI texts](#) for more information.

Warning! Do not change the default `Messages_xx.properties` file!

customer_buttons.properties

The `customer_buttons.properties` is where you create your own buttons that appear in the Web Application. It is not part of the PROCESS DIRECTOR deployment file—you must create it yourself and save it in the `..\Tomcat\webapps\wcconfig\pdweb -app\WEB-INF\conf\` folder.

The `customer_buttons.properties` file can contain the parameters described below (optional ones are indicated).

Syntax

`ButtonN.Parameter=Value`

`N` = The number of the button. The first button must be `Button1`. Additional buttons must be numbered sequentially. For example:

```
Button1.page = TAB_HEAD_PROCESS_DIRECTOR
Button1.textkey = customer.button1.text
...
Button2.page = TAB_HEAD_PROCESS_DIRECTOR
Button2.textkey = customer.button2.text
...
Button3.page = TAB_HEAD_PROCESS_DIRECTOR
Button3.textkey = customer.button3.text
```

Parameters

Parameter	Description	Valid values
ButtonN.page	The page the button appears on:	

Parameter	Description	Valid values
	On all lists	TAB_HEAD_PROCESS_DIRECTOR_LIST
	On lists for document type XX	TAB_HEAD_PROCESS_DIRECTOR_LIST.XX
	On all detail pages	TAB_HEAD_PROCESS_DIRECTOR
	On detail pages for document type XX	TAB_HEAD_PROCESS_DIRECTOR.XX
	To the right of the User profile button	TAB_HEAD_PROCESS_DIRECTOR_MAIN
	On the worklist	TAB_HEAD_PROCESS_DIRECTOR_WORKLIST
ButtonN.textkey	<p>The name of the text key in <code>Messages_xx.properties</code>. The value of this key in <code>Messages_xx.properties</code> is the string that appears on the button.</p> <p>Example</p> <p>In <code>customer_buttons.properties</code>:</p> <pre>Button1.textkey = EmployeeSearchButtonLabel</pre> <p>In <code>Messages_en.properties</code>:</p> <pre>EmployeeSearchButtonLabel = Employee search</pre> <p>Remember! Custom <code>Messages_xx.properties</code> files must be saved in the <code>..\Tomcat\webapps\wcconfig\pdweb-app\WEB-INF\conf</code> folder.</p>	Any text.

Parameter	Description	Valid values
ButtonN.icon	Optional The name of the icon file that is included in the button.	Any image file. It must be saved in the .. \Tomcat\webapps\pd web - app\themes\procdir \images\pd folder.
ButtonN.tipkey	Optional The name of the key for the tooltip text.	Any text.
ButtonN.winprop s	Optional The properties of popup window. For example, you can specify the width and height.	Any properties/value combination valid for the window.open() Javascript function. For example: height=500, width=1000,location=yes
ButtonN.url	The URL of the page to display in the popup window.	Any fully qualified URL. For example: http://www.readsoft.com
ButtonN.row	The row number the button appears on.  Note: Currently PROCESS DIRECTOR only supports one row of buttons, therefore the only valid value here is <code>ButtonN.row = 1</code> .	1 (default) - Row 1

Parameter	Description	Valid values
ButtonN.parameter.query_param	<p>The name of the fields you wish to pass as a parameter value. You can pass three types of fields:</p> <ul style="list-style-type: none"> Document header fields User fields Document GUID <p>You include multiple fields by creating a separate entry for each, where <i>query_param</i> is the name of the parameter that appears in the URL. For example:</p> <pre>Button1.parameter.user = USER-WC_USER Button1.parameter.usertype = USER-USERTYPE Button1.parameter.docno = HEADER-DOCNO Button1.parameter.id = \$GUID</pre> <p>The resulting URL would look like:</p> <pre>http://www.company.com/?user=JOHN&usertype=S&docno=000000000123456&id=xyz123</pre>	<ul style="list-style-type: none"> Document header fields Any PROCESS DIRECTOR header field name. Values must be preceded by HEADER- User fields \$GUID The GUID of the document. For example, Button1.parameter.id = \$GUID

help_configuration.properties

This file enables you to add a **Help** link to the Web Application and link a file or web address to it. The link can be displayed on the logon page, or on every page within the application, or both.

Enter the appropriate value in the `help_configuration.properties` file, using the format `.help=http://<server><path><filename>`.

For example, to display the Help link on the logon page and link to a file stored in a folder called "documents" on your intranet, enter

```
Logon.help=http://intranet/documents/help.pdf
```

You can add a language code to the help value to display different files or addresses for different languages. For example,

Logon.help.en=http://intranet/documents/english/help.pdf

Logon.help.de=http://intranet/documents/german/Hilfe.pdf

Valid values	Description
Logon.help	Displays the Help link on the logon page.
PDEnter.help	Displays the Help link on every page in the application.
*.help	Displays the Help link on the logon page and on every page in the application.

Tip: You can [rename the help link](#).

_default.json

This section describes all of the settings in the `_default.json` file, with which you can configure a [Master Worklist](#). The `_default.json` file is located in the `wcconfig\pdweb - app\WEB-INF\conf\mwc_default` folder.

Note: This file must be saved with UTF-8 encoding without BOM, so the editor used must support this encoding.

Note: Settings in the `_default.json` file are case-sensitive.

The following shows a sample `_default.json` file. In this example, the Master Worklist connects to two SAP systems, N47 and S47, and to one CouchDB database, IDO.

```
{
  "connections" : {
    "N47" : {
      "@type" : "SAP",
      "poolName" : "N47"
    },
    "S47" : {
      "@type" : "SAP",
      "poolName" : "S47"
    },
    "IDO" : {
      "@type" : "Idaho",
      "host" : "localhost",
      "port" : "5984",
      "database" : "demo",
    }
  }
}
```

```
    "username" : "idahoreadsoft",
    "password" : "SECURE(C1A01476C8AB35045C6E6B58)"
    "enablessl" : false
    "relaxedssl" : false
  }
},
"authConfig" : {
  "connectionLogicalName" : "N47",
  "backendSystemType" : "PD_AND_ICS"
},

"displayMode" : "SYSTEM_FIRST",
{
  "systemWorklistConfigs" : [
    {
      "systemLogicalName" : "N47",
      "systemDisplayName" : {
        "_default" : "Dev System"
      }
    },
    {
      "connectionLogicalName" : "N47",
      "backendSystemType" : "PD_AND_ICS"
    },
    {
      "systemLogicalName" : "S47",
      "systemDisplayName" : {
        "_default" : "QA System"
      }
    },
    {
      "connectionLogicalName" : "S47",
      "backendSystemType" : "PD_AND_ICS"
    },
    {
      "systemLogicalName" : "IDO",
      "systemDisplayName" : {
        "_default" : "Idaho system"
      }
    },
    {
      "connectionLogicalName" : "IDO",
      "backendSystemType" : "IDAHO"
    }
  ]
}
```

connections

Defines which systems the [Master Worklist](#) connects to. Currently only SAP and CouchDB are supported. Some parameters only apply to SAP, others only to CouchDB.

```
{
  "connections" : {
    "N47" : {
      "@type" : "SAP",
      "poolName" : "N47"
    },
    "S47" : {
      "@type" : "SAP",
      "poolName" : "S47"
    },
    "IDO" : {
      "@type" : "Idaho",
      "host" : "localhost",
      "port" : "5984",
      "database" : "demo",
      "username" : "idahoreadsoft",
      "password" : "SECURE(C1A01476C8AB35045C6E6B58)"
      "enablesl" : false
      "relaxedssl" : false
    }
  }
},
```

Parameter	SAP	CouchDB	Description
connection name	x	x	Enter a name for the connection. For SAP systems, this is usually the same as the pool name.
@type	x	x	The type of system. Currently only <i>SAP</i> and <i>Idaho</i> are supported. <i>Idaho</i> enables you to include Worklists from non-SAP databases. Currently CouchDB is the only supported database.
poolName	x		SAPpool name, as specified in the saplogon.properties file.
host		x	Host name or IP address of the system where the CouchDB database resides.

Parameter	SAP	CouchDB	Description
port		x	Port via which the connection is established. CouchDB uses port 5984 for regular connection and port 6984 for secure connection.
database		x	Logical name of the database.
username		x	User name of the user via which the connection is established.
password		x	Password of the user via which the connection is established.
enablessl		x	Set this to <code>true</code> to enable connection via http secure protocol. Be sure to set the port to 6984.
relaxedssl		x	Set this to <code>false</code> to enable http secure protocol connection only with properly verified certificates. Set this <code>true</code> to enable connection via http secure protocol using any certificate, whether properly verified or not. Be sure to set the port to 6984.

authConfig

Defines which system connection is used to authorize user logon to the [Master Worklist](#). If you do not specify a system connection here, the Web Application will default to the first connection specified in the [systemWorklistConfigs](#) section. However, it is good practice to set this parameter.

```
"authConfig" : {
  "connectionLogicalName" : "N47",
  "backendSystemType" : "PD_AND_ICS"
},
```

Parameter	Description
connectionLogicalName	The name of the system connection that will be used to authorize user logon. The user must have valid logon credentials for this system. This connection must be declared in the connections section of the configuration file.

Parameter	Description
backendSystemType	<p>The type of system that the Web Application connects to:</p> <ul style="list-style-type: none"> ▪ PD_AND_ICS (default) for systems that run PROCESS DIRECTOR and include the Accounts Payable process type. ▪ PD for systems that run PROCESS DIRECTOR without the Accounts Payable process type. ▪ ICS for systems that run PROCESS DIRECTOR only with the Accounts Payable process type. ▪ IDAHO for non-SAP databases. Currently only CouchDB is supported.

displayMode

Determines how nodes will be displayed in the [Master Worklist](#). If you do not declare a display mode, the default will be used.

```
"displayMode" : "SYSTEM_FIRST",
```

Value	Description
SYSTEM_FIRST (default)	System name followed by process type
PROCESS_FIRST	Process type followed by system name

systemWorklistconfigs

Defines which system Worklists will be displayed in the [Master Worklist](#).

```
{
  "systemWorklistConfigs" : [
    {
      "systemLogicalName" : "N47",
      "systemDisplayName" : {
        "_default" : "Dev System"
      }
    },
    {
      "connectionLogicalName" : "N47",
      "backendSystemType" : "PD_AND_ICS"
    },
    {
      "systemLogicalName" : "S47",
```

```

        "systemDisplayName" : {
            "_default" : "QA System"
        },
        "connectionLogicalName" : "S47",
        "backendSystemType" : "PD_AND_ICS"
    {
        "systemLogicalName" : "IDO",
        "systemDisplayName" : {
            "_default" : "Idaho system"
        },
        "connectionLogicalName" : "IDO",
        "backendSystemType" : "IDAHO"
    }
],

```

Parameter	Description
systemLogicalName	<p>A logical name for the system. The system logical name is usually the same as the connection logical name, but it is possible that different systems may use the same logical connection.</p> <p>The name should contain only alphanumeric ASCII characters and spaces.</p>
systemDisplayName	<p>This is the text that is displayed in the Master Worklist.</p> <p><code>_default</code> specifies the standard text that will be used if no localized display name is available for the user's logon language.</p> <p>To declare a localized display name, enter the ISO character code for the language to be used and then the text. For example:</p> <pre> "systemDisplayName" : { "_default" : "Dev System" "de" : "Entw. System" } </pre> <p>If you do not specify a display name, the system logical name is used.</p> <p>Note: In system-first display mode, the Master Worklist will be sorted by localized system display name using the default collation.</p>

Parameter	Description
connectionLogicalName	<p>A logical name for the connection.</p> <p>The name should contain only alphanumeric ASCII characters without spaces.</p>
backendSystemType	<p>The type of system that the Web Application connects to:</p> <ul style="list-style-type: none"> ▪ PD_AND_ICS (default) for systems that run PROCESS DIRECTOR and include the Accounts Payable process type. ▪ PD for systems that run PROCESS DIRECTOR without the Accounts Payable process type. ▪ ICS for systems that run PROCESS DIRECTOR only with the Accounts Payable process type. ▪ IDAHO for non-SAP databases. Currently only CouchDB is supported. <p>Note: If the Master Worklist configuration contains one or more systemWorklistconfigs with the backend system type ICS, then it must also contain one or more systemWorklistconfigs with the backend system type PD_AND_ICS and the setting <code>primary : true</code>.</p>
primary	<p>Set this to <code>true</code> to identify this systemWorklistconfig as the primary configuration. The field catalog of the system specified in the primary configuration will be used for the Accounts Payable process type. Other process types are not affected by this setting.</p> <p>Important: You must specify a primary configuration if you have more than one system that includes Accounts Payable, otherwise the field catalog will not be read.</p> <p>If several systemWorklistconfigs are defined as primary configurations, the first primary configuration is used; if the system specified in this configuration is not found, the second primary configuration will be used; and so on.</p>

tenants.properties

This file maps host names/IP addresses to tenant names. This file is required if you want to create [Master Worklist configurations for different client organizations](#).

Parameter	Description
host name/IP address	The host name/IP address that users enter in the browser to access the PROCESS DIRECTOR Web Application.
tenant folder name	The name of the subfolder containing the tenant configuration files.

Appendix A - Windows and SSO

This appendix describes how to configure your system to enable automatic logon to the PROCESS DIRECTOR Web Application using the logon credentials of the current Windows user.

Requirements

- The PROCESS DIRECTOR Web Application must be deployed to *Apache Tomcat*.
- The SAP and PROCESS DIRECTOR user names must be exactly the same as the Windows user names.

Procedure

1. [Install IIS](#)
2. [Copy Tomcat files to IIS](#)
3. [Create required Tomcat files](#)
4. [Create registry entries](#) (Windows 2003 only)
5. [Configure ntlmauthenticate to use IIS](#)
6. [Configure IIS](#)

Additional configuration is required on users' machines if they run the following:

- [Windows 7](#)
- [Firefox](#)

Once you have performed the above tasks, the URL of the Web Application is:

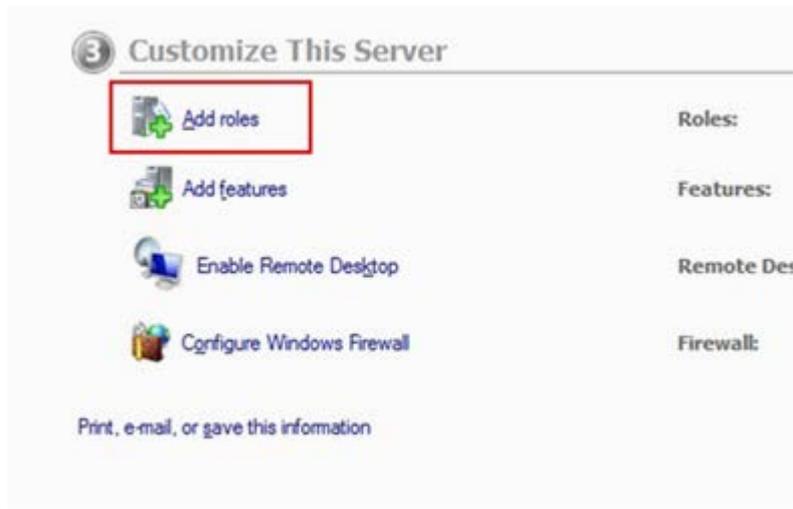
`http://servername/pdweb -app/init.do`

- ❗ **Note:** the standard Tomcat port 8080 is no longer part of the URL.

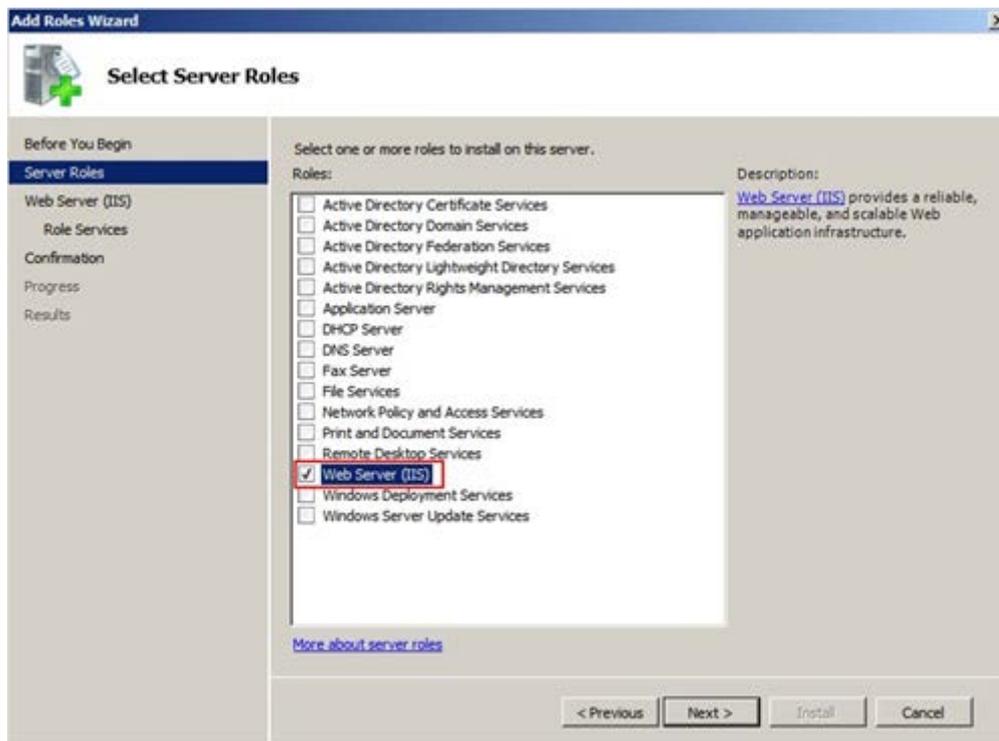
Installing IIS

The following procedure is based on Windows Server 2008 R2.

1. Right-click on **My Computer** > **Manage** > **Add roles**.

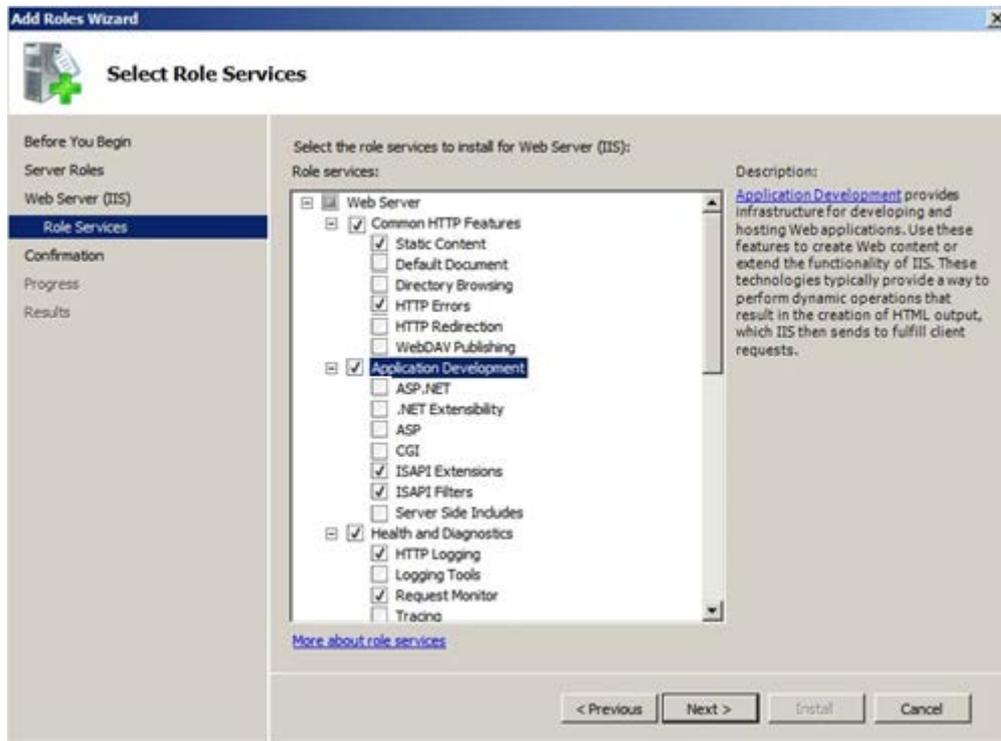


2. Select **Web Server (IIS)** under **Server Roles**.



3. Select **ISAPI Extensions**, **ISAPI Filters** and **Windows Authentication** under **Role Services**.

You may need other services depending on your requirements, but only the above three are required for Single-Sign On.



If there are no other web sites running on the IIS server you should only install the minimal setup:

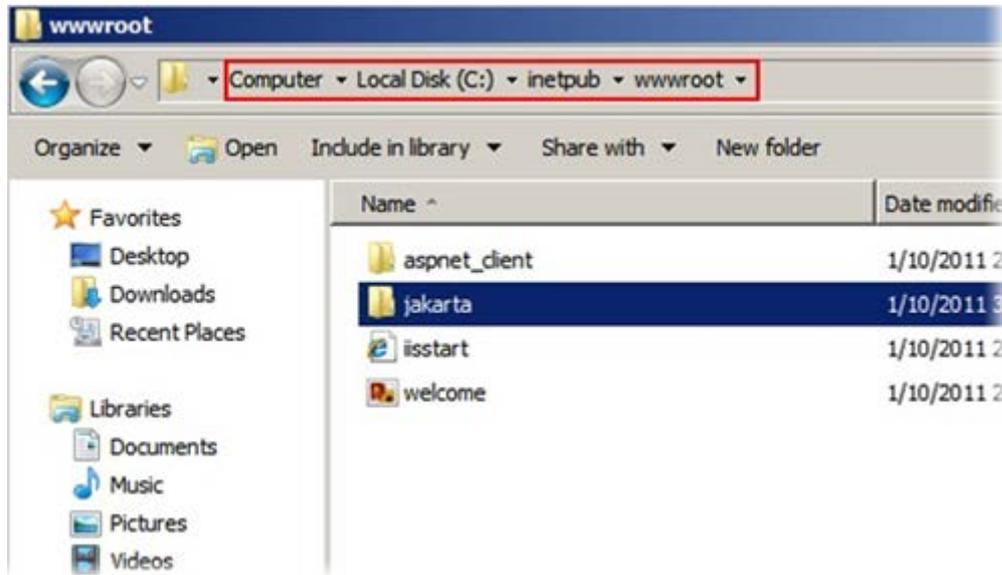
Common HTTP features	Static content HTTP Errors
Application Development	ISAPI Extensions ISAPI Filters
Health and Diagnostics	HTTP Logging Request Monitor
Security	Windows Authentication Request Filtering
Management Tools	ISS Management Console

4. Click **Install** in the **Confirmation** window to start the installation.

- ❗ **Important:** If you plan to run SAP Content Server on the same IIS, ensure the machine name is not longer than 8 characters, otherwise SAP Content Server will not work.

Copying Tomcat files to IIS

1. Create a new folder called `jakarta` in `C:\inetpub\wwwroot\`.



2. Copy the following two files to the `jakarta` folder:

- * `isapi_redirect.dll`

This file is available from the Tomcat website <http://tomcat.apache.org/download-connectors.cgi> or from ReadSoft.

- * [`isapi_redirect.properties`](#)

You must create this file and add the following text to it:

```
extension_uri=/jakarta/isapi_redirect.dll
```

```
log_file=C:\Program Files\Apache Software Foundation\Tomcat  
6.0\logs\isapi_redirect.log
```

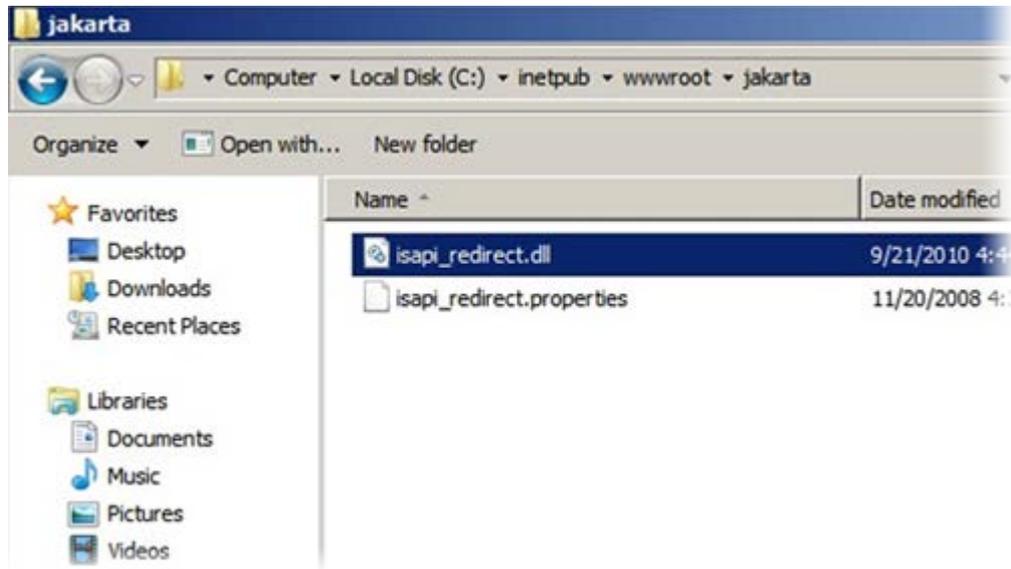
```
log_level=debug
```

```
worker_file=C:\Program Files\Apache Software Foundation\Tomcat  
6.0\conf\workers.properties
```

```
worker_mount_file=C:\Program Files\Apache Software Foundation\Tomcat  
6.0\conf\uriworkermap.properties
```

Be sure to modify the above paths as appropriate.

- ❗ **Note:** After you have completely finished setting up IIS to work with Tomcat, set the **log_level** to **error**.



The jakarta folder must contain the above two files.

More information about these two file can be found on the Tomcat website:
http://tomcat.apache.org/connectors-doc/webserver_howto/iis.html

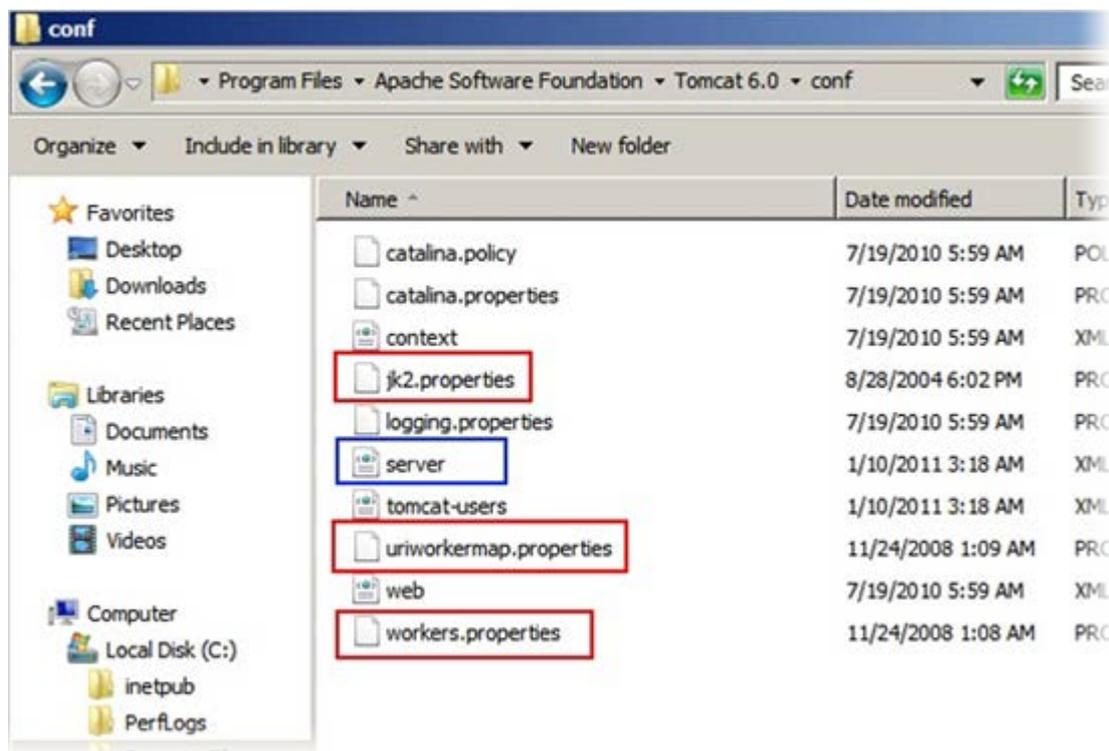
Creating Tomcat files for IIS SSO

There are four files you must create and add to your Tomcat installation:

- [jk2.properties](#)
- [server.xml](#)
- [uriworkermap.properties](#)
- [workers.properties](#)

Sample files can be obtained from <http://tomcat.apache.org> or from ReadSoft.

These files must be added to the `conf` folder:



jk2.properties

The only entry you require in this file is:

```
request.tomcatAuthentication = false
```

This allows the PROCESS DIRECTOR Web Application to easily access the Windows user account by calling the `request.getRemoteUser()` method. Otherwise, the application must extract the account name by decoding an encrypted HTTP header, which may vary between Windows versions.

server.xml

You must replace a section in this Tomcat file to enable SSO with IIS.

Search for the following entry:

```
<!-- Define an AJP 1.3 Connector on port 8009 -->  
  
<Connector port="8009"  
    enableLookups="false" redirectPort="8080" debug="0"  
    protocol="AJP/1.3" />
```

Replace it with this:

```
<!-- Define an AJP 1.3 Connector on port 8009 -->  
  
<Connector port="8009"  
    enableLookups="false" redirectPort="8443" protocol="AJP/1.3"  
    tomcatAuthentication="false" packetSize="65536" />
```

uriworkermapping.properties

If your Web Application is called pdweb -app then you do not need to modify this file. If your application has another name, you need to map it to use the default worker.

The default entries are:

```
# Default worker to be used through our mappings  
  
#  
  
default.worker=ajp13  
  
/pdweb -app=$(default.worker)  
  
/pdweb -app/*=$(default.worker)
```

Note: The default.worker=ajp13 entry must be present at the top of the file, as shown here.

Thus, if you have three different systems, for development, test, and production, you would need the following entries:

```
/pdweb -app_DEV=$(default.worker)

/pdweb -app_DEV/*=$(default.worker)

/pdweb -app_TEST=$(default.worker)

/pdweb -app_TEST/*=$(default.worker)

/pdweb -app_PROD=$(default.worker)

/pdweb -app_PROD/*=$(default.worker)
```

workers.properties

You must ensure the paths for **workers.tomcat_home** and **workers.java_home** point to the respective folders for your Tomcat and Java installations. For example:

```
workers.tomcat_home="C:\Programme\Apache Software Foundation\Tomcat 6.0"

workers.java_home="C:\Program Files\Java\jre6"
```

The **ps** parameter must also be set to \ (indicating a Windows system).

Registry entries for Windows 2003

Windows 2003 requires registry entries for certain IIS and Tomcat files.

1. Open a text editor and enter the following:

```
REGEDIT4
```

```
[HKEY_LOCAL_MACHINE\SOFTWARE\ApacheSoftwareFoundation\JakartaIsapi  
Redirector\1.2]
```

```
"extension_uri"="/jakarta/isapi_redirect.dll"
```

```
"log_file"="C:\\Program Files\\Apache Software Foundation\\Tomcat  
6.0\\logs\\iis_redirect.log"
```

```
"log_level"="debug"
```

```
"worker_file"="C:\\Program Files\\Apache Software Foundation\\Tomcat  
6.0\\conf\\workers.properties"
```

```
"worker_mount_file"="C:\\Program Files\\Apache Software  
Foundation\\Tomcat 6.0\\conf\\uriworkermap.properties"
```

2. Save the file as `iis.reg`.
3. Double-click the file to add the entries to the registry.

Configuring ntlmauthenticate to use IIS

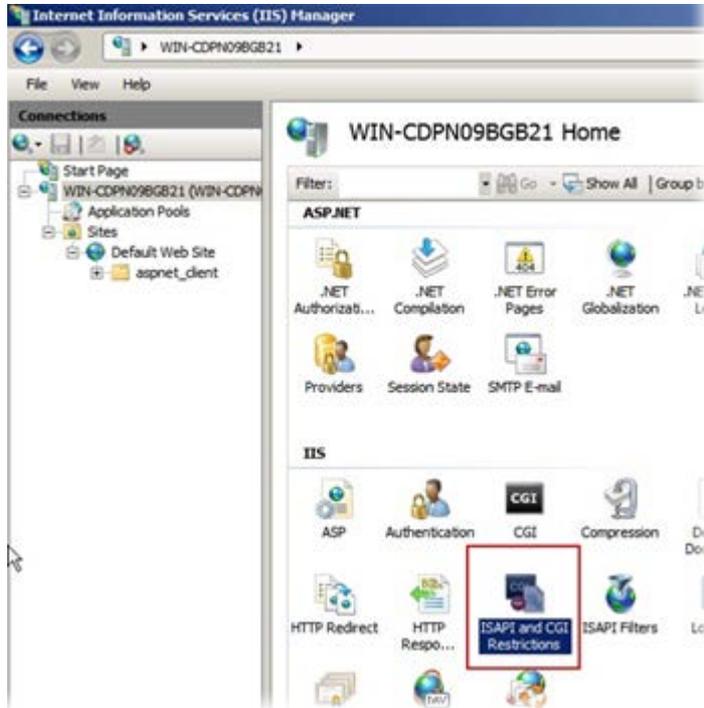
[ntlmauthenticate](#) is a parameter in the [pdweb -app.properties](#) file. In order to use IIS and SSO with the PROCESS DIRECTOR Web Application, you must set `ntlmauthenticate` to 3 or -3. The -3 value is a failsafe setting, so if SSO is not available for some reason, the standard logon page is displayed.

Configuring IIS

After [copying various files to IIS](#) and Tomcat and [configuring ntlmauthenticate](#), you must perform some final configuration of IIS before you can use Single Sign-On. You do this in IIS Manager.

Add an ISAPI Restriction

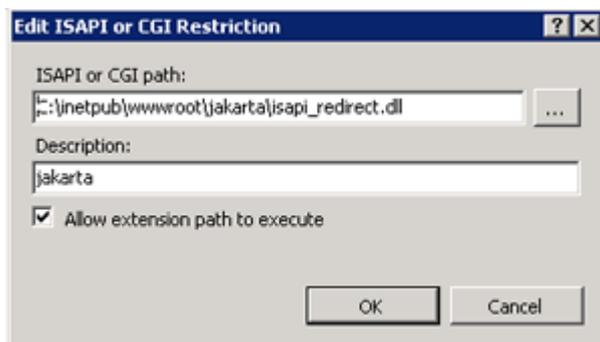
1. Select your machine name and open **ISAPI and CGI Restrictions**.



2. Add the following restriction:

ISAPI or CGI path: C:\inetpub\wwwroot\jakarta\isapi_redirect.dll

Description: jakarta



Add an ISAPI Filter

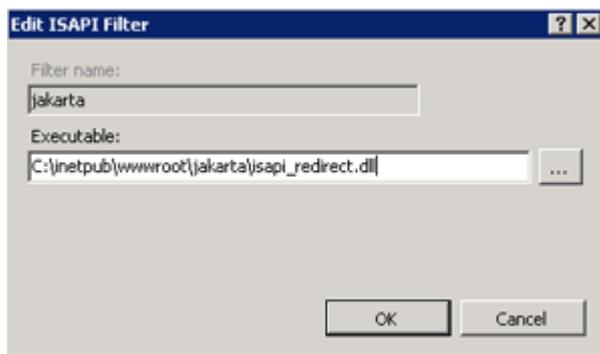
1. Select your machine name and open **ISAPI Filters**.



2. Add the following filter:

Filter name: jakarta

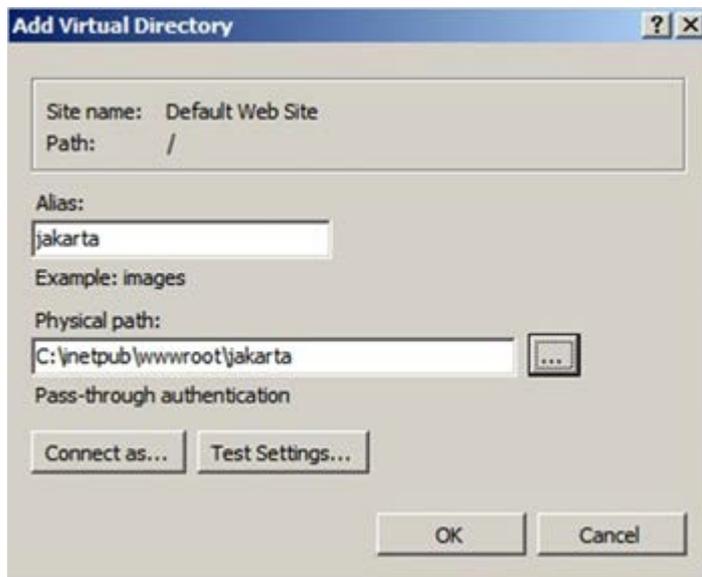
Executable: C:\inetpub\wwwroot\jakarta\isapi_redirect.dll



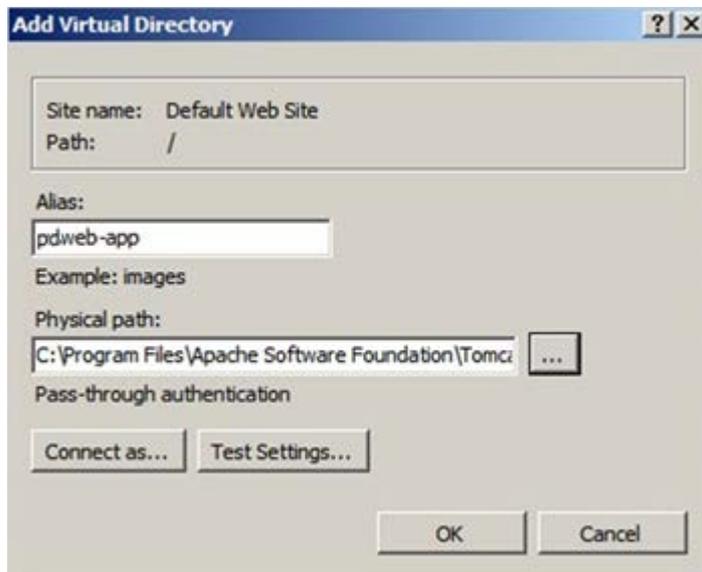
Create virtual directories

You must create two virtual directories and configure the **Handler Mappings** and **Authentication** for each one.

1. Add two virtual directories:
 - a. **jakarta** (The name of the folder you created [here](#).)



- b. **pdweb -app** (The name of the folder in Tomcat where the PROCESS DIRECTOR Web Application is running.)

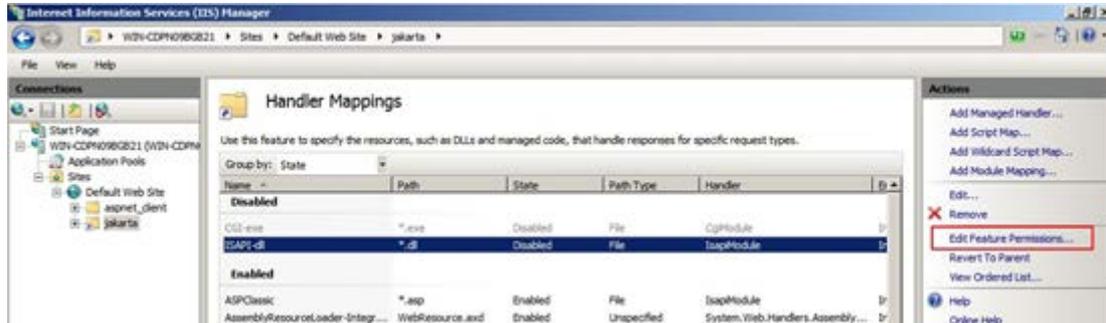


New virtual directories can be added by right-clicking the website in the left-column in IIS Manager.

Enter the **Physical path** for both, as shown above.

- 2. Set the **Feature Permissions** for both directories.
 - a. Select the virtual directory.
 - b. Click **Handler Mappings**.

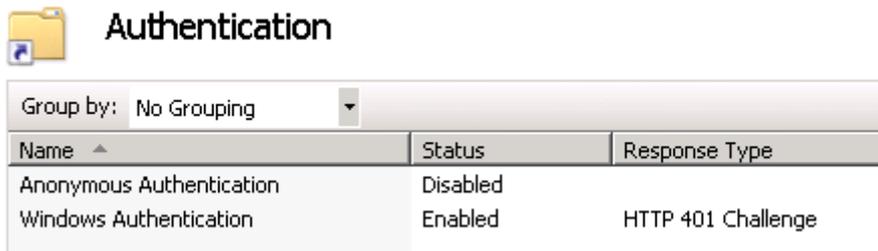
- c. Select **ISAPI-dll**.
- d. Click **Edit Feature Permissions**.



- e. Set the permissions to **Read, Script and Execute**.



- 3. Set the **Authentication** for both directories.
 - a. Select the virtual directory.
 - b. Click **Authentication**.
 - c. Set **Windows Authentication** to **Enabled** and **Anonymous Authentication** to **Disabled**.



SSO configuration for Windows 7 users

For users running Windows 7, the default security settings in Windows 7 and Internet Explorer must be changed:

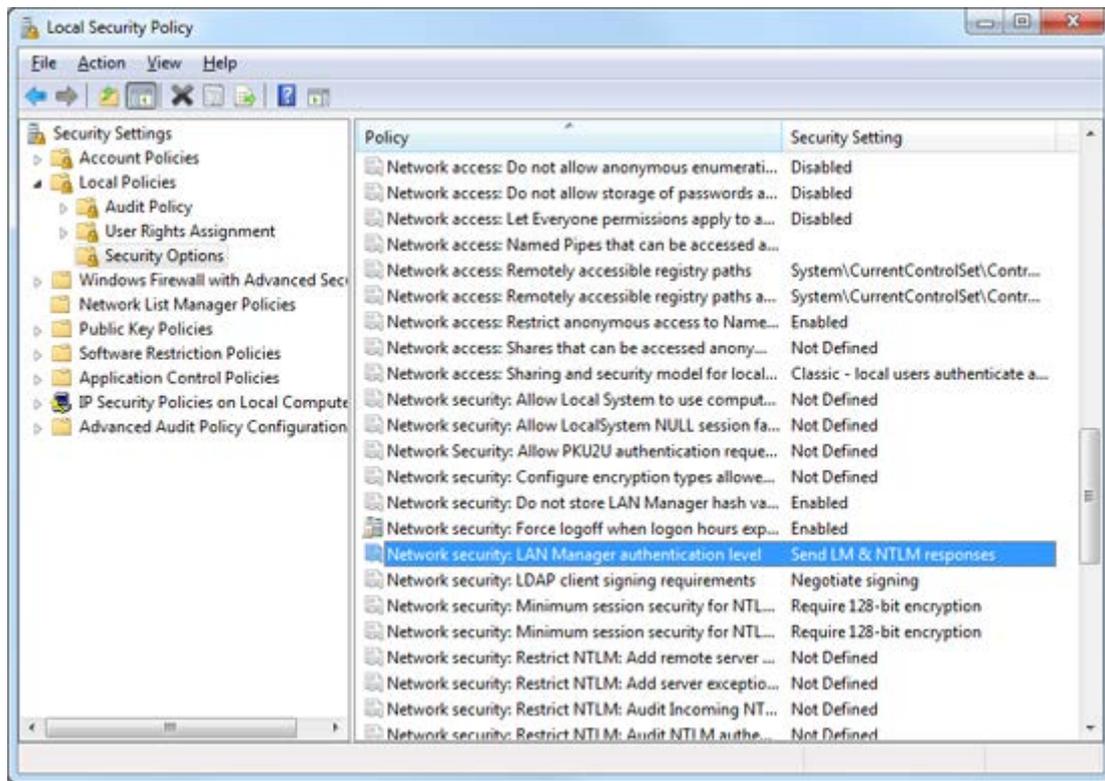
Internet Explorer

1. Go to **Tools > Internet Options > Advanced** tab.
2. Check **Enable Integrated Windows Authentication**.
3. Go to the **Security** tab.
4. Select **Local Intranet** and click **Custom level...**
5. Under **User Authentication**, check **Automatic logon with current user name and password**.

You must restart Internet Explorer to apply the changes.

Windows 7

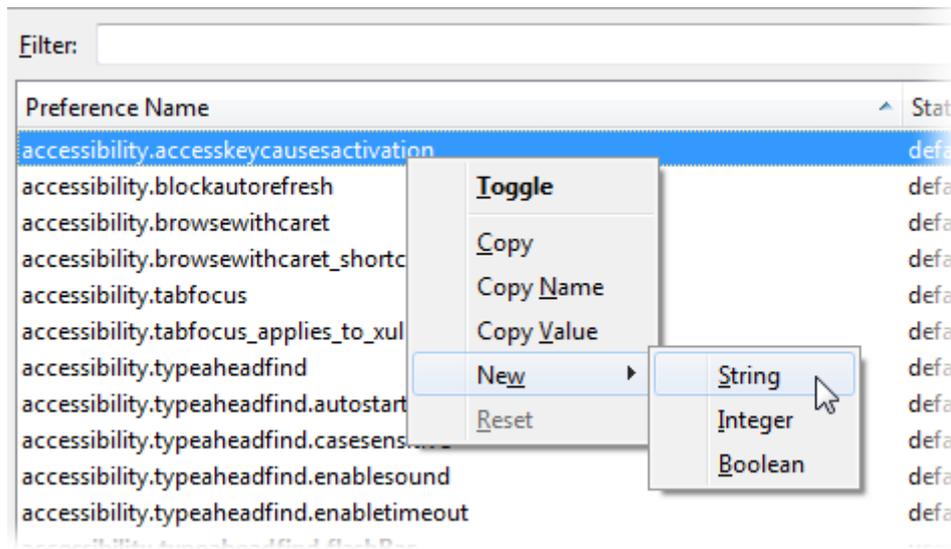
1. Open **Local Security Policy**.
Use the Start menu Search box to open the application.
2. Go to **Local Policies > Security Options**.
3. Set **Network security: LAN Manager authentication level** to **Send LM & NTLM responses**.



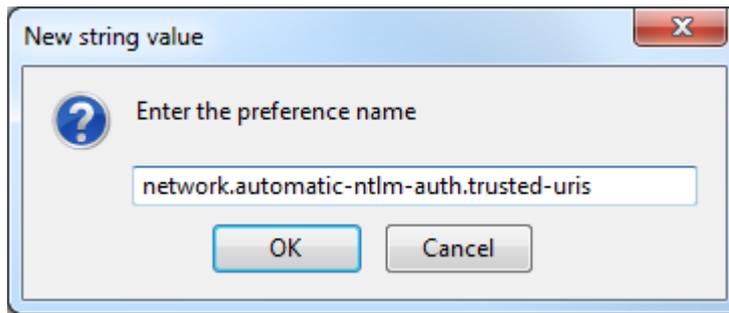
SSO configuration for Firefox users

For users running Firefox, the following parameter must be set:

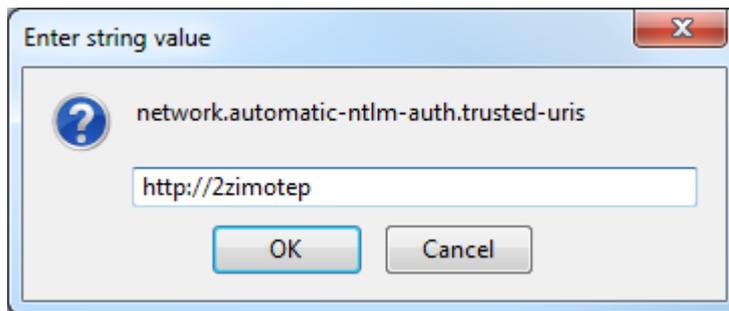
1. Open Firefox and enter **about:config** in the Address Bar.
2. Enter a new string.
 - a. Right-click and select **New > String**.



b. Enter **network.automatic-ntlm-auth.trusted-uris** as the name.



c. Enter **http://2zimotep** as the value.



3. Restart Firefox to apply the changes.

Appendix B – JRE, Tomcat & JCo

This appendix explains how to install the three software components required by the Web Application:

- [Java Runtime Environment \(JRE\)](#)

This can be downloaded at <http://www.java.com>. This web page also provides a link that you can use to find out if a JRE version is already installed.

- [Tomcat servlet container](#)¹

This can be downloaded at <http://tomcat.apache.org>

- [SAP Java Connector \(JCo\)](#)

This can be downloaded from the SAP Service Marketplace at <http://service.sap.com/connectors>²

¹ Other servlet containers are also supported. However, Tomcat is recommended.

² Registration required.

Installing Java Runtime Environment

Run through the Setup Wizard to install JRE. No special options need to be specified. To test the installation, or to find out if a JRE version is already installed:

1. Open a Windows command window:
 - In Windows NT, 2000 or XP: Click **Start**, click In Windows Vista or 7: Click **Start**, type `cmd` and press **ENTER.Run**, then type `cmd` and press **ENTER**.
 - In Windows Vista or 7: Click **Start**, type `cmd` and press **ENTER**.
2. Enter `java -version`.

The JRE version is displayed:

```
Administrator: C:\Windows\system32\cmd.exe
C:\>java -version
java version "1.6.0_26"
Java(TM) SE Runtime Environment (build 1.6.0_26-b03)
Java HotSpot(TM) 64-Bit Server VM (build 20.1-b02, mixed mode)
```

Note: As of version 5, the "1." prefix of the version number was dispensed with. Thus "java version 1.6" is equivalent to JRE6 and "java version 1.5" is equivalent to JRE5.

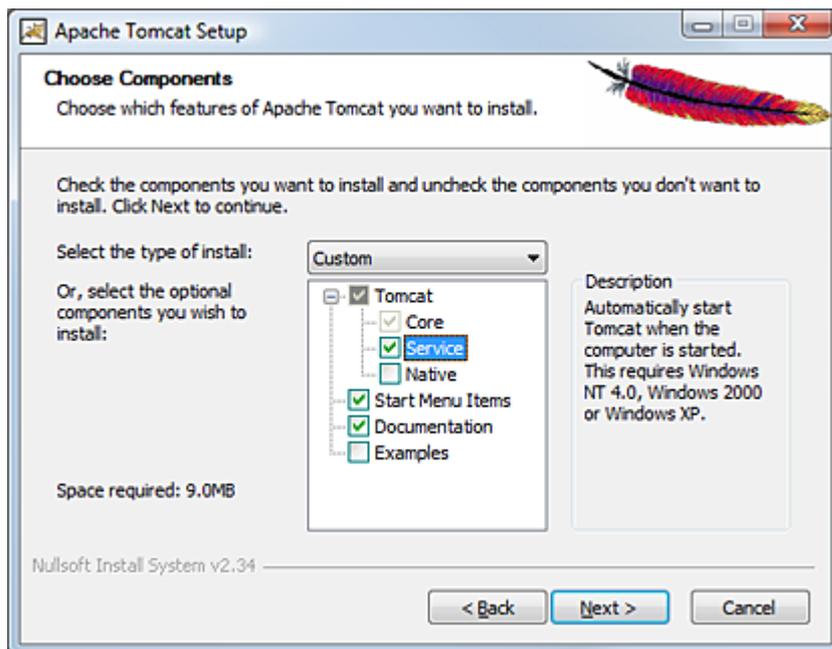
Alternatively, www.java.com provides a link that you can use to find out which JRE version is installed ("Do I have Java?").

Installing Tomcat

To install Tomcat, you must have already installed the [Java Runtime Environment](#).

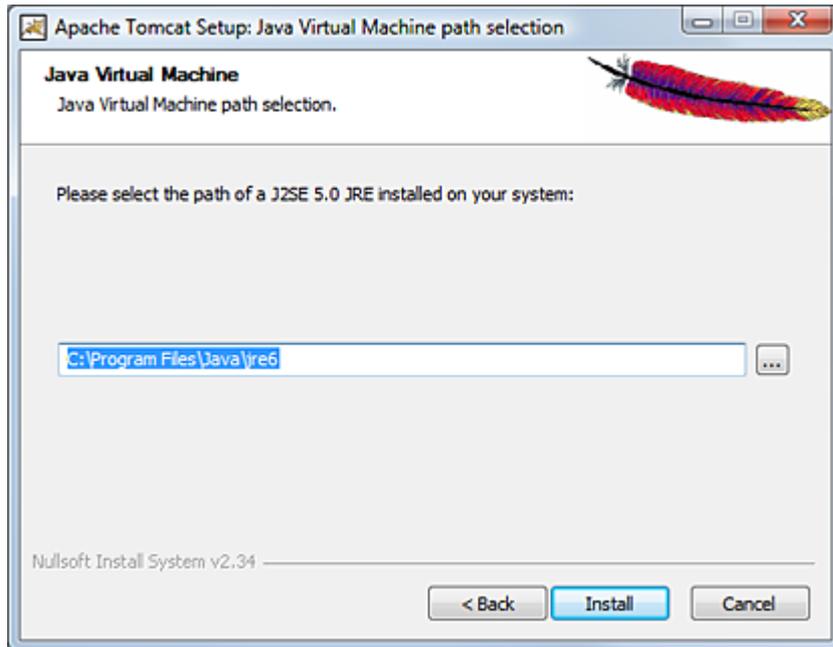
Run through the Setup Wizard to install Tomcat. Take note of the following two options:

- Running Tomcat as a Windows service



Running Tomcat as a Windows Service is recommended, as it makes is easier to start and stop the server.

- Selecting the JRE



If a JRE is already installed, the path to it should automatically appear in the Tomcat Setup Wizard. If you have more than one JRE installed on the machine, ensure the correct one is selected here.

To check that Tomcat has been successfully installed, open a web browser and enter `http://localhost:8080/`. If the installation was successful, the Tomcat home page is displayed.

Installing SAP Java Connector

SAP Java Connector (SAP JCo) is a middleware component that enables two-way communication between SAP systems and Java applications: inbound calls (Java calls ABAP) and outbound calls (ABAP calls Java).

SAP JCo is used to enable communication between the PROCESS DIRECTOR Web Application and the SAP system hosting PROCESS DIRECTOR.

Installation

1. Extract the SAP JCo ZIP file to a temporary folder.
2. Copy the following files to their corresponding folders:

librfc32.dll > C:\Windows\System32\

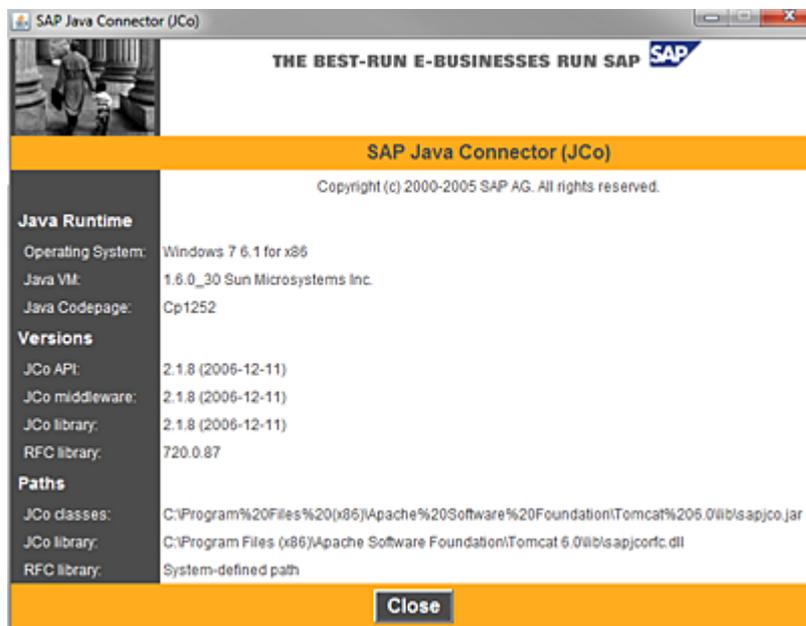
- ❗ **Important!:** If another copy of `librfc.dll` is in this folder, back it up! (The SAP GUI also installs this file.) You should use the most recent file. However, you may find that replacing this file prevents your SAP GUI from logging into systems.

`sapjco.jar` and `sapjcorfc.dll` > The shared library folder of your Tomcat installation. For example:

Tomcat 6.0: `C:\Program Files\Apache Software Foundation\Tomcat 6.0\lib\`

- 📘 **Note:** Only the above three files are required.

3. Check that you have downloaded the correct JCo version for your platform. To do so, double-click on the `sapjco.jar` file. If all fields in the **Versions** section have been filled and there is no error message, this is the correct version.



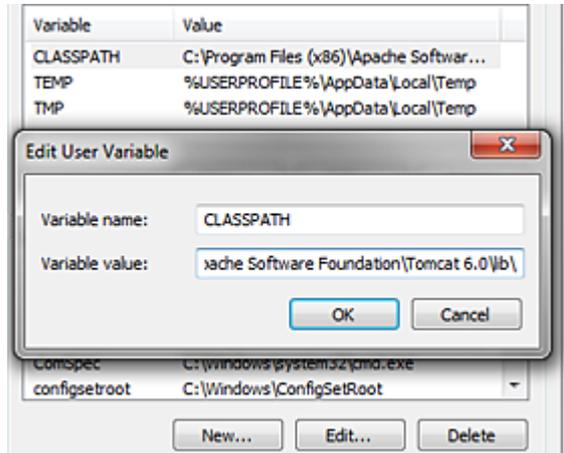
4. Add the path to `sapjco.jar` to the [Windows CLASSPATH](#).
5. Restart Tomcat.

After restarting, you are now ready to [deploy the PROCESS DIRECTOR Web Application](#).

Setting the Windows CLASSPATH

1. Open the System Properties:
 - Windows XP: Select **Start** > **Control Panel** > **Performance and Maintenance** > **System** > **Advanced** tab.

- Windows Vista and 7: In Windows Explorer, right-click **My Computer** and choose **Properties > Advanced system settings**.
2. Click **Environment Variables ...**
 3. If the CLASSPATH variable does not exist, click **New** to add it. Enter the variable name CLASSPATH and the path to your sapjco.jar file (your Tomcat shared library folder) as the variable value.



4. Click **OK**.
5. Close all remaining windows by clicking **OK**.

Further reading

The SAP JCo ZIP file has a docs folder that contains the Javadocs for SAP JCo. The Javadocs describe all SAP JCo classes and interfaces, together with a detailed description of the corresponding objects, methods, parameters, and fields.

Appendix C - Troubleshooting

Where can I find the sample configuration files?

Sample files can be obtained from <http://tomcat.apache.org> or from ReadSoft.

Should I use 32bit or 64bit software versions?

If your OS supports 64bit you should use only the 64bit installations of JRE, JCO, Tomcat and `isapi_redirect.dll`.

My SSO setup does not work. How can I find the source of error?

First try to find out if the error occurs in IIS or on the Tomcat server. Check the log location of `isapi_redirect.dll` (if you followed the guide the path is: `C:\Program Files\Apache Software Foundation\Tomcat 6.0\logs\isapi_redirect.log`). If the log file does not exist or has no content, the error is most probably in the IIS configuration of ISAPI and CGI Restrictions or ISAPI Filter. If the file exists, check the content. The error is most probably caused by Tomcat configuration.

I get HTTP Error 404 when I call the Web Application URL.

Check your `worker.properties` and `uriworkers.properties` file. The standard worker `AJP13` must point to the Web Application folder.

When I call the Web Application URL it tries to download a file called: 'pdweb-app' or 'init.do'.

Make sure you set in the Handler Mappings the Feature Permission of the ISAPI-dll to execute for your entire virtual folders. If it still does not work enable the Execute permission in the Default web site.

Suggestions do not work - Exception `javax.persistence.PersistenceException` error

In rare cases it can happen that [suggestions](#) are configured but not working, or this error message is displayed when the user logs on:

```
BackendServlet (cmd=3): Exception javax.persistence.PersistenceException:  
org.hibernate.exception.GenericJDBCException: Cannot open connection:  
org.hibernate.exception.GenericJDBCException: Cannot open connection
```

This can occur if the `hsqldb.script` file has not been correctly generated. This file is used by the Web Application to create memory tables that are needed to manage suggestions.

To resolve this problem:

1. Stop the application server (Tomcat, if this is used).
2. Remove the folder `hsqldb` from the `Tomcat\webapps\wcconfig\pdweb-app` folder.
3. Start Tomcat.
4. Have the user log in to the Web Application.

The folder `hsqldb` should have been created and the `hsqldb.script` file has entries that begin with `CREATE MEMORY TABLE`.

Glossary

A

Apache Tomcat: An open source servlet container. The recommended server for the PROCESS DIRECTOR Web Application.

C

CSS: Cascading Style Sheet

Currency: The standard three-letter currency code. For example: EUR: euro, GBP: British pound, USD: American dollar.

G

GUI: Graphical User Interface

GUID: Globally Unique Identifier

J

JCo: SAP Java Connector. A middleware component that enables two-way communication between SAP systems and Java applications: inbound calls (Java calls ABAP) and outbound calls (ABAP calls Java). SAP JCo is used to enable communication between the PROCESS DIRECTOR Web Application and the SAP system hosting PROCESS DIRECTOR.

JRE: Java Runtime Environment.

M

Message server: An independent program that lists all the servers in an SAP system. An SAP System that consists of any number of application servers always contains one message server. The message server has the following tasks: 1) Decides which server a user logs on to. 2) Handles communication between the application servers, for example, transport of update requests and lock requests.

Microsoft Internet Information Services (IIS): A set of Internet-based services for servers, including a web server. It can be used with PROCESS DIRECTOR, in conjunction with Apache Tomcat.

MSADAuthService: An authentication service, part of the Java Standard API, optimized for Microsoft Active Directory.

N

NovellAuthService: An authentication service, part of the Novell LDAP API, optimized for Novell eDirectory.

NTLM: Windows NT LAN Manager

R

Remote Function Call: (RFC) Call of a function module that runs in a different system (destination) from the calling program. Connections are possible between different AS ABAP and between an AS ABAP and a non-SAP system. In non-SAP systems, instead of function modules, special programmed functions are called, whose interface simulates a function module. There are synchronous, asynchronous, and transactional function calls. The called system is accessed via the RFC interface.

S

SAP NetWeaver Application Server: A web application server designed to run with SAP solutions. PROCESS DIRECTOR Web Application can be deployed to it.

SDM: SAP Software Deployment Manager. Used to deploy ICS web applications on SAP NetWeaver Application Server.

SSO: Single Sign On. A method of authenticating users from one system, for use in another.

T

theme: The overall look and feel of the PROCESS DIRECTOR Web Application. A theme is a collection of images, logos, and a stylesheet.

W

Worklist: A dynamic tree view of PROCESS DIRECTOR business documents that a given processor can work on, with document categories as expandable nodes and the documents themselves as leaves.

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