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***Web Notification Service
Installation Guide***

Editor(s)

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Revision History

<i>Version</i>	<i>Date</i>	<i>Author(s)</i>	<i>Brief Description</i>
1.0	2006-02-28	Dennis Dahlmann	initial version
1.1	2006-04-07	Dennis Dahlmann	Changes done to make it easier to understand what the WNS does
1.1.1	2006-04-13	Dennis Dahlmann	3.3.1.1 c) edited that you have to change the username to your own username if you want to use the xmpp protocol

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1**Introduction****1.1 Scope**

This document describes the WNS installation process.

This document applies to the following release:

52N-WNS-v1-00-00

1.2 What happens during the installation procedure

The package you will download from the website contains an implementation of the Web Notification Service (WNS) as a Java Servlet. Executing the installation steps [build] will deploy this service in your Apache Jakarta Tomcat web container as a web application (webapp). To use the feature of storing the full XML messages you must install a database, here it is the Opensource XML database eXist. You will find the installation procedure as part of this document.

1.3 Notes concerning the WNS

The Web Notification Service acts as a protocol transducer. Incoming XML encoded messages will be forwarded to registered receivers using the following protocols: SMTP(email), SMS, FAX, PHONE, HTTP POST and XMPP.

1.4 The different user types

There are two different user types. The SingleUser and the MultiUser. The SingleUser is a user with a name and one or more protocol. If a protocol is not needed for registration (maybe you just want to register to get a message via email) just delete the other entries, don't leave it blank! The MultiUser is a group of SingleUsers. You can only register SingleUser to MultiUser.

1.5 The Web Notification Service message types

The WNS supports two kinds of messages, the Notification and the Communication message. If the WNS should send a Notification message, the user should only be notified. If the WNS should send a Communication message the user should acknowledge this and answer to this message. Therefore the calling service must provide further information, e.g. the URL where to send the answer, here called CallbackURL.

If a calling service sends a message to a user, even SingleUser or MultiUser, the calling service doesn't know to which protocol the user is registered. If the user is only registered to an automatic phone service it would not be appropriate to send the full message. In this case the eXist XML database comes into the game. The messages will be stored in the database, if the user is registered to such a protocol and the user will only get the message of the "short message" element which has to be filled in. The message will be stored if the user is registered to SMS, FAX or Phone. The delivered message contains information where to get the full message.

1.6 The different protocol handler and their interaction

The Web Notification Service support different protocols. If you want to use a protocol you have to setup the specific handler. This means that you have to know some values, e.g. the SMTP name of your email server. If a SingleUser is registered to get messages by email, he can register another email address to the existent address. If the SingleUser wants to change the address, the address must be removed and a new address must be registered. If only one address per protocol is registered to the SingleUser and the SingleUser wants to remove it, the user can insert any valid value (no blanc spaces and no characters if only numbers are allowed in the case of SMS, FAX, PHONE) to delete the entry, he doesn't have to insert the exact address to delete it.

This WNS comes with some predefined handlers. We tried to make the complete configuration as general as possible, so that other services can easily be used.

The service we have chosen to deliver SMS, FAX and PHONE message is www.Ecall.ch. As you can see on their webpage the complete service can be accessed by email. Therefore it is necessary to have a SMTP email server specified, because the WNS uses the Ecall.ch service via email. If a user is registered to SMS or FAX or PHONE an email will be send to Ecall. The specific format of the email can be found on their webpage. In section 3.3.1.1 c) you will find more information about the Ecall.ch account settings.

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Requirements

- a) Windows 98 or higher [tested with Windows XP Professional SP2]
- b) Java Runtime Environment 1.5 [tested with JRE 1.5.0_06]
- c) Apache Tomcat Server 5.5 [tested with 5.5.15]
- d) eXist XML Database [tested with eXist-20060316]
- e) For Testing: Internet Browser [tested with Microsoft Internet Explorer 6.0]

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Installation Procedure

3.1 Get the Apache Tomcat Server

- a) Download Apache Tomcat Server 5.5 from

<http://tomcat.apache.org/download-55.cgi>

- b) Install the Tomcat Server.
- c) After installing the server change the password of the admin user! To change the password, open `<tomcat install dir>/conf/tomcat-users.xml` and edit the entry "password" of the admin user to your preferred password. Save.
- d) Open `<tomcat install dir>/conf/web.xml` and check the "listings" properties for the default servlet if it is set to true instead of false. After that you can see the listed files when you go to <http://localhost:8080/52nWNS>, if the value isn't

set to true you cannot see the files listed, which makes it harder for you to access these files.

e) Save the files and start the Tomcat Server.

3.2 Get the eXist XML Database

a) Download the latest stable(eXist-20060316) eXist Database WAR file from

<http://exist.sourceforge.net/index.html#download>

b) Rename the file to exist.war, this makes it easier to access the database

c) Go to <http://localhost:8080> and click at “Tomcat Manager” in the upper left corner under “Administration”. Type in the username and the password that you have chosen in 3.1.

d) Scroll down till the section “Install”. Search for the downloaded eXist WAR file and select it. Click the “Install” button. After installing finished, the eXist database should be listed as an application in the list above.

e) Open a command prompt. Go to `<tomcat install dir>\webapps\exist`

f) Type following in to open the eXist XML database client: `"java -jar WEB-INF\lib\start.jar"`

g) Login using the username “admin” and leave the password blank. Click “OK”.

h) Now click on “Tools” and select “Edit users”. Then select the “admin” user and enter the new password. Then click the “Modify User” button to save the password. Maybe there is an error message, but if you try again to login with the blank password it doesn’t work, you have to use the new password.

i) Logout after that and stop the Tomcat server.

3.3 Get the sources

a) Get the release version at <http://sourceforge.net/projects/fifty-two-north> or <http://mars.uni-muenster.de:8080/52nWNS/52N-WNS-v1-00.00.zip>

b) Configure the Tomcat Server

a) Extract the zip file to `<tomcat install dir>\webapps\52nWNS`.
Check that you have a directory listing like `<tomcat install dir>\webapps\52nWNS\WEB-INF\classes\org\n52\wns`

b) Check if the directory `<tomcat install dir>\webapps\52nWNS\WEB-INF\conf` exist. If this directory does not exist, please check if you checked out the right version of the WNS or get the sources again.

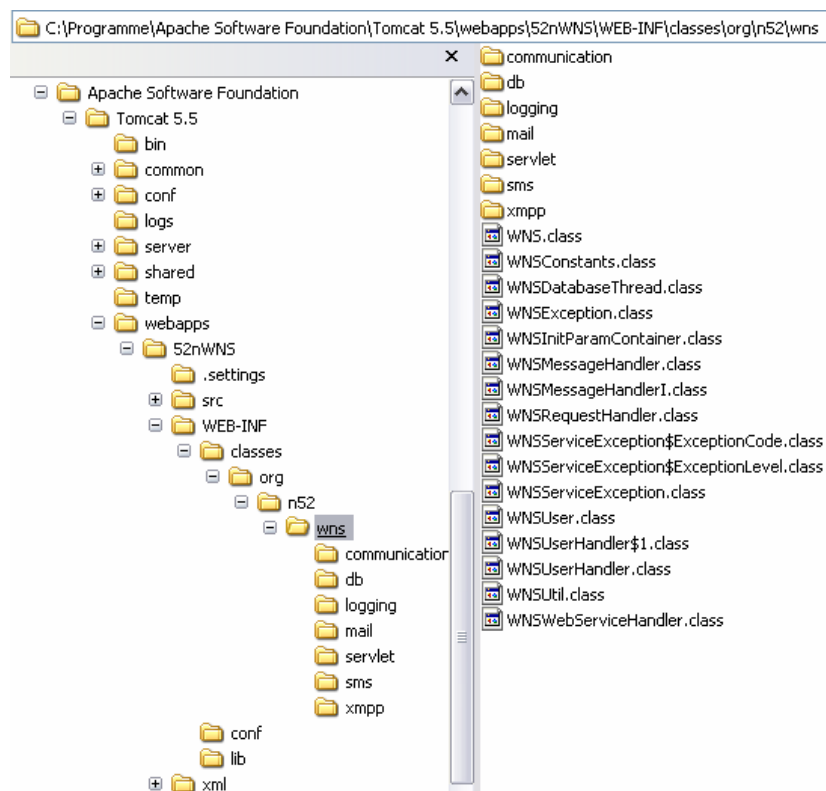


Figure 1: Directory listing

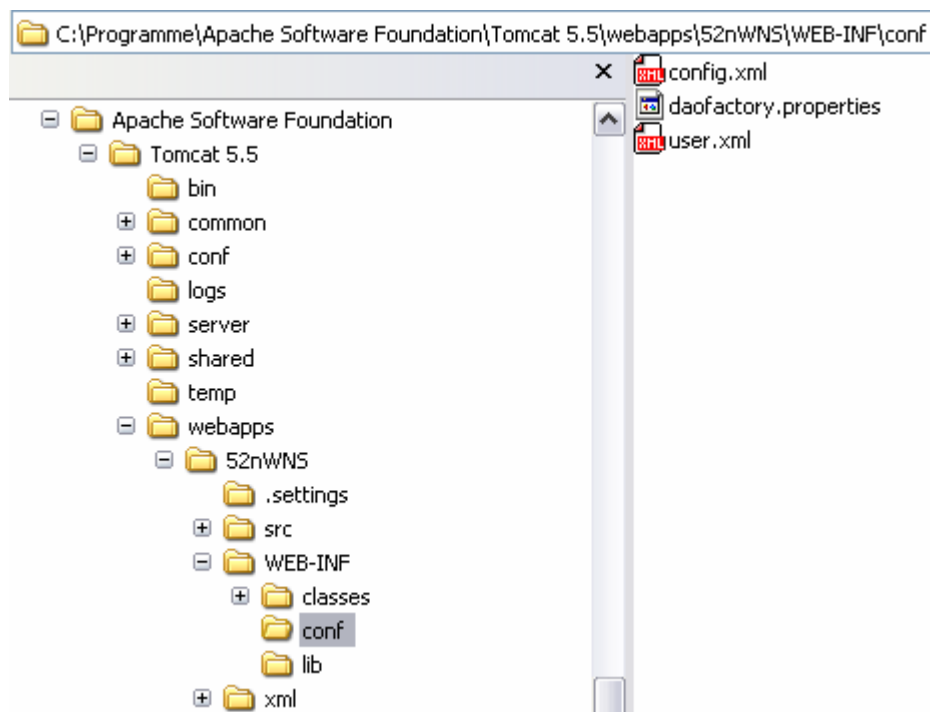


Figure 2: Path to the config.xml, daofactory.properties and user.xml files

3.3.1 Configure the WNS configuration files

3.3.1.1 Configure the config.xml

- a) The config.xml file contains all the necessary information the WNS needs. This means that you setup all the needed services, e.g. the email server. If there is a handler that you will not use, just delete it or comment it out! Open the file `<tomcat install dir>/webapps/52nWNS/WEB-INF/conf/config.xml` with your favorite XML Editor.

b) **ServiceProperties:**

- **MaxTTLOfMessages:** The maximum duration a message will be stored in the database.
- **ExceptionLevel:** Valid values are „DetailedExceptions“ or „PlainExceptions“. This declares how detailed the exceptions will be shown.
- **WNSURL:** Change this URL to the URL where the WNS getMessage form is available. This is necessary to let the user know where the stored message can be fetched.
- **WNSSchemaLocation:** This is the location of the WNS schema. Just needed for the exception codes.
- **OWSSchemaLocation:** The location of the OWS schema. Just needed for the exception codes.
- **DAOFactoryDriver:** The fully name of the XMLFileDAOFactory class.
- **DAOFactoryPropertiesLocation:** Change this to the that path, where the daofactory.properties file is, default `<tomcat install dir>/webapps/52nWNS/WEB-INF/conf/daofactory.properties`
- **DataBaseProperties:** This element specifies the database parameters.

DBName: The preferred name of the database. You can choose any name, maybe “messagestorage” or so.

user: The username that you have chose 3.2

password: The password for the user, also chosen in 3.2

URL: The path to the database, e.g. localhost:8080/exist

checkDBDuration: The duration the db will be checked for old entries in minutes. So if you have stated in the MaxTTLOfMessages element that the messages will be stored 7 days it would make no sense to check only every 10 days.

c) Registeredhandlers:

These properties configure the different handler.

- EMailHandler

The email handler is the major part of the WNS, because mainly the complete communication is done via email. If a SMS, FAX or PHONE protocol is used an email will be send to Ecall.ch.

Host: The host address of the SMTP server

User: The username for your account

Passwd: The password for the user

Sender: The complete email address, e.g. user@52north.org

- XMPPHandler

If you don't want to use the XMPPHandler function comment it out or delete the entry in the config.xml!

Provider: The name of the xmpp server, e.g. jabber.org

User: The username that you have registered at the provider stated above, e.g. 52nWNS

Passwd: The password for the user

Port: The port of the XMPP server, default 5222.

- SMSHandler

Be sure that the EMailHandler is setup properly. To use the Ecall.ch service you have to configure the ecall.ch account settings. Login to your Ecall.ch account or even register a new one. Click on the link "Email access" in the section "Account settings". Insert your email address in the field "Allowed sender addresses" under the "Format 4" section. Check at the top of the page that you accept messages that can be sent by email.

If you don't want to use the SMSHandler function comment it out or delete the entry in the config.xml!

Provider: The full name of the class, e.g.
org.n52.wns.sms.SMSHandlerEcall

User: The username (optional, maybe needed for other service provider)

Passwd: The password for the user (optional, maybe needed for other service provider)

Host: The address where the WNS has to send the email, default
msg.ecall.ch

- PhoneHandler

Be sure that the EMailHandler is setup properly. To use the Ecall.ch service you have to configure the ecall.ch account settings. Login to your Ecall.ch account or even register a new one. Click on the link "Email access" in the section "Account settings". Insert your email address in the field "Allowed sender addresses" under the "Format 7" section. Check at the top of the page that you accept messages that can be sent by email. If you don't want to use the PhoneHandler function comment it out or delete the entry in the config.xml!

Provider: The full name of the class, e.g.

`org.n52.wns.communication.PhoneHandlerEcall`

User: The username (optional, maybe needed for other service provider)

Passwd: The password for the user (optional, maybe needed for other service provider)

Host: The address where the WNS has to send the email, default `voice.ecall.ch`

- FaxHandler

Be sure that the EMailHandler is setup properly. To use the Ecall.ch service you have to configure the `ecall.ch` account settings. Login to your Ecall.ch account or even register a new one. Click on the link "Email access" in the section "Account settings". Insert your email address in the field "Allowed sender addresses" under the "Format 6" section. Check at the top of the page that you accept messages that can be sent by email. If you don't want to use the FAXHandler function comment it out or delete the entry in the `config.xml`!

Provider: The full name of the class, e.g.

`org.n52.wns.communication.FaxHandlerEcall`

User: The username (optional, maybe needed for other service provider)

Passwd: The password for the user (optional, maybe needed for other service provider)

Host: The address where the WNS has to send the email, default `fax.ecall.ch`

d) Save changes

3.3.1.2 Configure the `web.xml`

- Open the file `<tomcat install dir>/webapps/52nWNS/WEB-INF/web.xml` with your favorite XML Editor
- Change the value of the element "param-value" in the element "context-param" to the path where the `config.xml` is stored, default `<tomcat install dir>/webapps/52nWNS/WEB-INF/conf/config.xml`. Please be aware of the slashes instead of the backslashes!
- Save changes

3.3.1.3 Configure the `daofactory.properties`

- Open the file `<tomcat install dir>/webapps/52nWNS/WEB-INF/conf/daofactory.properties` with your favorite editor.
- Change the value for `wns.user.filelocation` to the path where the `user.xml` file is, default `<tomcat install dir>/webapps/52nWNS/WEB-INF/conf/user.xml`

- c) Save changes

3.4 Tests

Make sure that your tomcat is running. Under <http://localhost:8080/52nWNS> you will find many different test clients. With these test clients you can check the abilities of the WNS. Before you can start testing, make sure that you have configured the WNS properly. The test clients provide all the features that the WNS will provide. Also test data is inserted to make the testing easier for you.

The following tests can be done:

- GetCapabilities
- Register a SingleUser
- Register a MultiUser
- Unregister a user
- Update the name of a SingleUser
- Add one or more protocols to a SingleUser
- Remove one or more protocols from a SingleUser
- Add one or more user to a MultiUser
- Remove one or more user from a MultiUser
- Send a DoNotification message
- Send a DoCommunication message
- Get the full message from the database with a GetMessage request, if previously a message by SMS or FAX or PHONE was send.

If you want to send a message, either notification or communication you have first to register a SingleUser. If you want to register a MultiUser, that is a group of SingleUsers, a SingleUser, better more than one, must exist. Here is an example, the GetCapabilities test client.

WNSTestClient....

Server:	http://localhost:8080/52nWNS/wns
Request:	<pre><?xml version="1.0" encoding="UTF-8"?> <GetCapabilities xmlns="http://www.opengis.net/wns" xmlns:ows="http://www.opengeospatial.net/ows" xmlns:ogc="http://www.opengis.net/ogc" xmlns:ns1="http://www.opengis.net/ows" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.opengis.net/wns C:\Arbeit-Ifgi\OWS3\trunk\wns\0.1.1\wnsGetCapabilities.xsd" updateSequence="String" service="WNS"> <ows:AcceptVersions> <ows:Version>0.00.00</ows:Version> <ows:Version>0.00.00</ows:Version> </ows:AcceptVersions> <ows:Sections> <ows:Section>String</ows:Section> </ows:Sections> <ows:AcceptFormats> <ows:OutputFormat>application/x; x=x</ows:OutputFormat> </ows:AcceptFormats> </GetCapabilities></pre> <div style="text-align: right; margin-top: -20px;"> <input type="button" value="Clear"/> <input type="button" value="Send"/> </div>

Figure 3: The WNS Test Client, here for the GetCapabilities request

3.4.1 GetCapabilities

- a) Open your Internet Browser. You can find the WNS GetCapabilities Test Client under <http://localhost:8080/52nWNS/GetCapabilities.htm>.
- b) Click the Send Button. The CapabilitiesResponse xml-document is now shown in your browser.

3.4.2 ListWNSUser

- a) Open your browser and follow the link:
<http://localhost:8080/52nWNS/wns?request=ListWNSUser>

4 Troubleshooting

If you have any problems concerning that some files could not be found please check if you have used slashes instead of backslashes. For any more questions concerning the installation process, feel free to contact Dennis Dahlmann, email: Dahlmann@52north.org

5 Appendix

5.1 Service exception codes

Table 1: Service exception code listing

Service Exception	Description
NoApplicableCode	An other error occurred, see the details of the exception message
UnknownUserID	The user for this UserID is not founded
InvalidRequest	The request is not a valid one
InvalidUserID	The given UserID is not valid
ExpiredMessageID	The given MessageID is expired, that means that no message for this MessageID is available
InvalidParameterValue	See the OGC exception codes
MissingParameterValue	See the OGC exception codes
OperationNotSupported	See the OGC exception codes
XMPPServerLoginError	The setup for the XMPP server is not properly configured
EmailHandlerError	The Email handler setup is not properly configured
ErrorDuringStoringUserFile	An error occurred during storing the user.xml file