Ventia Pty. Ltd.

DeskNow

Advanced setup

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Overview

DeskNow is a computing platform that provides a rich collaborative environment, accessible from everywhere and from different devices. The DeskNow platform is open to third-party developers and to integration with legacy systems.

A more detailed overview of DeskNow can be found at http://www.desknow.com.

This manual describes the procedures involved in installing a DeskNow server using custom servlet engines / application servers. For normal installation, even if you want to use an external database, use the automatic installers that are available for Windows/Linux/Unix on the DeskNow download page.

For standard installations on either Windows, Linux and Unix systems, please refer to the Quick Start page that is automatically installed with DeskNow (Windows) or the README.txt file that comes with the Linux/Unix distribution.

In this document it is assumed that the Reader is already familiar with DeskNow features and concepts.

The Reader of this manual should also have a good knowledge of web server products, RDBMS systems and system administration (Windows/Unix) in general.

Legal

DeskNow is a registered trademark of Ventia Pty Limited.

Every other trademark present in this document belongs to its registered owner.

Several patent applications have been lodged by Ventia Pty Ltd to cover ideas and technologies that are illustrated in this document.

The concepts, names, or functionalities illustrated in this document may change without prior advice.

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1 Introduction

1.1 General description

A DeskNow system is conceptually organized in two separate units: a server and a client.

1.1.1 DeskNow server

A DeskNow server is a three-tier system, where the business layer is packaged as a *Web Application* [1]. The Web application component is provided in the CD.

Several additional components are necessary to run a DeskNow server:
- a Servlet Engine
- a Java Development Kit
- a SQL-92 database
- a JDBC driver to communicate with the database

DeskNow is a fully functional SMTP and POP3 mail server, with user and alias administration integrated in the web interface. If you want to use an exisiting mail server, you can disable the mail server functionality of DeskNow.

Any modern J2EE application server can be used instead of the Servlet Engine.

DeskNow does not require the use of specific brands or products for any of these components, letting you choose your preferred ones, or the ones already in use in your organization. Each of these components is also available as free product from several organizations.

It is important however that these products are fully compliant with their intended standards.

This also means that a DeskNow server can run on all major Operating Systems.

These components do not need to be present or run on the same computer, so that you have the maximum freedom in designing the network layout of the server.

The DeskNow server can also be scaled up to run on multiple computers for load balancing purposes, with virtually no limits to the number of users it can support. More information on load balancing is provided in the Administration manual.

1.1.2 DeskNow client

DeskNow is designed to be accessible by clients implemented in different technologies, and running on a large set of different devices.

- The most common client interface is HTML based, and is compatible with every modern web browser.
  DeskNow allows for the complete customization of the HTML interface, and multiple *layouts* can be in use in the system at the same time, letting users choose their preferred interface. Please refer to "DeskNow – Web Design Guide"

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[1] For more information about Java Servlets and Web Applications, see
http://java.sun.com/products/servlet/index.html

for more information.

- DeskNow provides also a customized interface for Pocket Internet Explorer, which runs on every PocketPC and PocketPC 2002 device.
- DeskNow provides also a WAP interface, accessible by any WAP 1.1 compliant device
- Yet another interface comes in the form of Java Midlet, using J2ME technology. A Java midlet is a small Java application that can run on many PDAs and mobile phones. Midlets are installed permanently on the device, so that access is fast even with slow wireless connections. Many devices support over-the-air installation. DeskNow for J2ME can be downloaded from the DeskNow website.

1.2 Component requirements

This section briefly describes the basic requirements for the components of a DeskNow system – both server and web client.

1.2.1 Servlet engine

A servlet engine is a web server extension that can run Java Servlets. Modern servlet engines usually act as web servers as well, or function as plug-in extensions of traditional web servers.

DeskNow requires the servlet engine to be compliant with Servlet 2.2 and JSP 1.1 specifications[2].

There are currently many servlet engines available. A comprehensive list can be found at http://java.sun.com/products/servlet/industry.html .

We recommend Jakarta Tomcat, by the Apache Foundation, which is a very good *free* engine. Being endorsed by Sun Microsystems, Tomcat is also always at the forefront of servlet technology implementation.

Tomcat can be downloaded for free at http://jakarta.apache.org . We recommend using the latest production release of the branch 4.1.x. DeskNow cannot run on Tomcat releases older than 4.0 (due to limits of page size in Tomcat 3.x).

1.2.2 J2EE Application Server

Although not necessary, it is possible to use a J2EE Application server instead of the Servlet Engine.

1.2.3 Java Development Kit (or SDK)

This is usually required by the servlet engine / application engine itself.

JDK for many different platforms can be downloaded for free from http://java.sun.com . Other vendors provide alternative JDK, as well.

DeskNow requires a JDK version 1.4.1 or greater.

NB JRE (Java Runtime Environment) does not allow the compilation of JSP, therefore it cannot replace the JDK.

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[2] see http://java.sun.com/products/servlet/download.html

1.2.4 Relational database

DeskNow requires a SQL-92 compliant database.

For your convenience, DeskNow is usually shipped with a copy of McKoi Database. You don't need to use the McKoi Database, you can choose to use a different one.

Currently the following other RDBMS are supported:
- Microsof SQL Server 2000
- PostgreSQL 7.1, 7.2, 7.3

MySQL will be fully supported when it will implement a larger set of the SQL syntax and semantic (in particular transactions and relational integrity). If you are looking for a free solution, PostgreSQL (http://www.postgresql.org) is probably a better choice. *Please note that only PostgreSQL 7.1 or greater is supported.*

NB Please note that McKoi Database is suitable only for SMALL numbers of users (<20-30), and light load. It does not offer many advanced features of commercial databases, but it has proven stable and reliable in many commercial applications. However Ventia is not responsible for its support.

1.2.5 JDBC Driver

A JDBC Driver is a software driver that enables Java applications to communicate with a database.

There are currently drivers available for all the major database systems. A list can be found at http://industry.java.sun.com/products/jdbc/drivers .

Some servlet engines also provide a set of built-in JDBC drivers. Most database products come with their own JDBC driver.

In particular, a free JDBC driver for Microsoft SQLServer 2000 can be found at http://www.microsoft.com.

DeskNow comes with only the drivers for the McKoi database.

1.2.6 Mail server

DeskNow is a full featured SMTP and POP3 server, so that you don't need an existing mail server.

If you already have a mail server, and you prefer to keep using it, you can integrate it with DeskNow in two ways:
- if your server is a POP3 server, every user can setup an external account in DeskNow, so that new emails get automatically retrieved by DeskNow and stored in the user DeskNow inbox.
- if your server is a Qmail server, you can setup qmail to deliver all the email to a single mail folder, and have DeskNow retrieve them from there. This is a far easier method, because it involves less administration, and requires less configuration for the user. The use of a QMail-based system is also more efficient, because emails are made available to DeskNow directly as files, thus avoiding POP3 overhead. A QMail based system is also appealing to public sites, because there is no need to create a POP3 account for every user that subscribes to the service. QMail can be found at http://www.qmail.org.

1.2.7 Web browser

The requirements for the web browser depend on the layout used (see the Administration and the Web Designer manual).

The default layout for DeskNow has been tested with Microsoft IE 5, 5.5 and 6, Netscape 6.2 and 7.0, Mozilla 1.1, 1.2 and 1.2.1.

2 Setup

2.1 Preliminary Tasks

Before the actual setup of DeskNow server can begin, it is important to setup all the required components, and to test that they all work correctly.

In particular, it is important to test that the servlet engine is working correctly. Before installing DeskNow, check that the sample applications usually provided work correctly.

Please refer to documentation provided by the manufacturer of the components.

Ventia cannot assist in solving problems related to the installation and administration of these components.

2.2 Disk content

Whether you downloaded the DeskNow platform, or received it on a CD, you will find at the root of the file tree the following three folders (among others):
- webapps
- desknowdata
- sql

Under 'webapps', you will find a folder called 'desknow'. This folder completely contains the Web Application, as defined by Java Servlet Specification. The Web Application comprises all the servlet binaries and libraries and all the 'static' elements such as HTML pages, images, sounds, applet binaries, and Javascript files.

'desknowdata' on the other hand contains all the configuration files and the folders needed for the correct execution of the web application. These are the folders where the user data will be stored, the mail spool, etc.

IMPORTANT: the provided 'desknowdata' is just a reference structure that can be used in small servers without changes. DeskNow is fully configurable, and in larger sites the user data can be stored on multiple disks, computers, NAS devices and so on.

'sql' contains SQL scripts that you need to execute to configure your database.

From now on, we will generally refer to the CD, but all the files contained in the CD are contained in the downloadable archive as well.

2.3 Quick setup tutorial

The best way to learn to setup and administer DeskNow is to follow a simple step-by-step tutorial. This will help you to setup the DeskNow server in a basic configuration, to check that the basic system is working, and to become confident with the server. A quick setup can take as little as 15 minutes!

After completing the basic setup, you can change the configuration to better suit your needs.

2.3.1 Configuration of the database

This step is optional, as you may want to use the McKoi database, in which case you don't need to take any action.

In our example we will assume that you decide to use Microsoft SQL Server 2000, running on localhost, and accepting connections on the default port (1433).

According to the documentation provided with your database system, create a database named 'desknow'. Create an user account 'desknow_server' with read, write and DDL permissions over the database created. It is important that the account have DDL permissions (i.e. that it is able to create, alter or delete tables and indexes), otherwise server upgrades will not run properly.

In our example, we will assume that the password for the account 'desknow_server' is 'password'. We recommend using a stronger password in a real system. Also note that you can choose a different name for the database and for the account. desknow_server must have db_owner privileges on the database.
IMPORTANT: the account must be an SQL account, and not a Windows logon account

Depending on your DBMS, pick from the directory 'sql' on the CD the sql script that is appropriate.

In our example, the correct script file is 'desknow_sqlserver2000.sql'.

According to the documentation provided with your DBMS, execute the SQL script within the created database. The script will create all the tables and indexes necessary.

In our example, start the 'Query Analyzer' tool of SQL Server and connect as desknow_server to the desknow database. Open the file 'desknow_sqlserver2000.sql' located on the CD and execute it.

2.3.2 Deployment of the Web Application

To install the web application in your servlet engine, follow the servlet engine's manual.

Usually all you need to do is to copy the folder "/webapps/desknow" located on the CD under the "webapps" folder provided by the engine.

Example: if you are using Jakarta Tomcat under Windows, its webapps folder will be in a path like "C:\Program Files\jakarta-tomcat-4.0.4\webapps". Copy the folder "desknow", which is contained under the folder "webapps" on the cd, under "C:\Program Files\jakarta-tomcat-4.0.4\webapps", so that you have as a result "C:\Program Files\jakarta-tomcat-4.0.4\webapps\desknow".

If using Tomcat, you can have DeskNow setup as default web application. In this case, you can access it at http://www.myhost.com instead of http://www.myhost.com/desknow . To setup DeskNow as default web application in Tomcat, rename /webapps/desknow to /webapps/ROOT.

From now on, we will refer to the folder where you copied the web application as $(DESKNOW_WEBAPP).

In our example, $(DESKNOW_WEBAPP) means "C:\Program Files\jakarta-tomcat-4.0.4\webapps\desknow". $(DESKNOW_WEBAPP)/index.html means "C:\Program Files\jakarta-tomcat-4.0.4\webapps\desknow\index.html", and so on.

Usually you need to restart the servlet engine after deploying a web application, but DO NOT restart the servlet engine yet.

Important: Due to a bug, JBoss cannot run correctly large webapplications deployed with this method. You need to package them in a .war file. See http://www.desknow.com/forums/viewtopic.php?t=149 for more details.

2.3.3 Installation of the JDBC driver

In this step, all you need to do is to make sure that the chosen JDBC driver is included in the CLASSPATH of the servlet engine, and that the driver is properly configured. The easiest way to do this is to copy the .jar file or files that usually constitutes the driver into the folder $(DESKNOW_WEBAPP)/ WEB-INF/lib.
Please follow the driver's manufacturer instructions.

By default, DeskNow is configured to use the JDBC driver for the McKoi database. To connect to SQL Server, download and install the free JDBC driver (available from the SQL Server section at http://www.microsoft.com). Copy all the .jar files in the "lib" directory of the JDBC driver in the $(DESKNOW_WEBAPP)/ WEB-INF/lib folder.

2.3.4 Deployment of the DeskNow data

Copy the folder "desknowdata" from the CD to your hard drive. Make sure the drive has enough free space to hold all the user data that you plan to host.

Make also sure that the user account that will be running the servlet engine has read/write permissions over the folder and all of its subfolders.

It is recommended, although not necessary, that you create an apposite system user account to run the servlet engine. Consult the servlet engine documentation for more info.

For our example, we will assume that you copied the folder as "c:\desknowdata". We will refer to this folder as $(DESKNOWDATA).

Now you need to configure the web application so that it knows where to look for its data. Edit the file $(DESKNOW_WEBAPP)/ WEB-INF/web.xml with a XML editor or a normal text editor, and replace the text $**{DESKNOWDATA}** with the path of $(DESKNOWDATA).

In our example, locate the following line:
<param-value>${DESKNOWDATA}/cfg/Main.cfg</param-value>

and replace it with:
<param-value>c:\desknowdata/cfg/Main.cfg</param-value>

(note that you can use the forward slash / even in a Windows system)

Note: alternatively, you can leave ${DESKNOWDATA} in web.xml, and make sure that the system environment variable DESKNOWDATA is defined when the servlet engine is started, and its value is the path of your chosen desknowdata directory.

2.3.5 Configuration of DeskNow

The configuration of DeskNow is done through a set of files located in $(DESKNOWDATA) /cfg.

This paragraph reports only the changes that are needed for the minimal reference configuration. Refer to the Administration and Configuration manual for a full description of all the parameters.

- Set the path of the DeskNow base data. This information is contained in DeskNowBase.cfg.

  In our example, DeskNowBase.cfg must be edited to contain the following line:
  %SET%DESKNOWDATA   c:\desknowdata
  If, however, your chosen path contains spaces, you can enclose it in double quotes, like:
  %SET%DESKNOWDATA   "c:\My Files\desknowdata"

- Set the database connection parameters (if you do not want to use the embedded database). This information is contained in the file Database.cfg.

  Following our example, edit Database.cfg and comment out the section for the internal database. Then uncomment the section for SQL Server 2000.The default parameters are already set, and you do not need to change them:
  JdbcDriver   com.microsoft.jdbc.sqlserver.SQLServerDriver
  Url   jdbc:microsoft:sqlserver://localhost:1433;
  *   SelectMethod=cursor;DatabaseName=desknow*
  Username   desknow_server
  Pasword   password

  For the moment, do not modify the other parameters in this file.

2.3.6 Configuration of the mail settings

You can now configure how DeskNow will handle mail. Even if it is possible to do so by manually editing a configuration file, it is easier to use the Configuration Wizard provided.

To do so, follow these steps:
- cd to the bin directory that you extracted from the package
- (Unix/Linux only) execute 'chmod 777 config.sh'
- (Unix/Linux only) execute './config.sh <path of desknowdata>'
- (Windows only) execute 'config.bat <path of desknowdata>'

where <path of desknowdata> is $(DESKNOWDATA) (i.e. the full path of where you stored the desknow data folder.
  Ex.   ./config.sh /var/desknowdata
  or   config.bat C:\desknowdata

2.3.7 Testing the server

Now you can restart the servlet engine.

IMPORTANT: if you decided to use DeskNow as a full POP3 and SMTP mail server, the servlet engine must run as 'root' user on Unix/Linux systems. This is necessary because DeskNow needs to open ports whose number is below 1024 (25 for SMTP and 110 for POP3). To disable the mail server part of DeskNow, and use

an external mail server, please see the accompanying document "DeskNow – Administration and Configuration".

If you are able to see the console output, you should see a list of messages produced by DeskNow. If you can't see the console output, you can monitor the log files instead. The log files are created on startup in the folder $(DESKNOWDATA)/log.

If no log output is produced, it means that the web application was not started. Check that you deployed it correctly. It is particularly important that the user account used to run the servlet engine has read/write/execution permission on the entire $(DESKNOWDATA) folder and subfolders.

If no errors were encountered, you should see the message "DeskNow server successfully initialized".

If an error message is written on the log, review the error message, which very often is clear enough to understand the cause of the problem. Check that you followed correctly all the setup steps, making sure that all the components of the system (especially database, JDBC driver, servlet engine) are configured properly. To try again, simply restart the servlet engine. If you can't figure out how to solve the problem, contact our support service.

2.3.8 Testing the client

To test the client, just point your browser to the index.html file of the DeskNow web application. Make sure you do not launch the file from the local file system, but use an HTTP URL instead.

> *In our example, assuming you are using Tomcat on localhost, just point your browser to http://localhost:8080/desknow/index.html.*
> *If you have installed DeskNow as default web application (see 2.3.2), the correct URL is http://localhost:8080 /index.html.*

If you cannot access the page, probably you didn't map the web application in the proper directory (see "Deployment of the Web Application"). Find out where your application is mapped and correct the URL accordingly.

Just login as administrator.

> *As this is your first login, use the default username and password:*
> *username = admin*
> *password = password*

You're in!

The first operation we recommend to do is to change the password for the 'admin' user, picking one of your choice. Don't forget your password! The process to recover the administrator password is complex, and requires communication with our support staff.

From now on, we will refer to the 'admin' user as Administrator.

2.3.9 Why does the response appear to be slow?

The first time you access a page in DeskNow, the servlet engine needs to compile it. Pages need to be compiled only once, and remain valid until a web designer modifies

them. Thus the first time you run DeskNow the response will appear to be slow, but after this initial step the response will be much faster.
This generally applies to every web application using JSP technology.

2.4 SSL communications

SSL is available for the default DeskNow Lite license only for a trial period of time (60 days from the date of installation). After this period, it will not be available. See chapter 3 for information on how to purchase a DeskNow license.

SSL (Secure Socket Layer) is an encryption protocol that can protect data traveling over a network.

HTTPS (HTTP Secure) is the protocol that a web browser and a web server use to communicate when they protect their communication with SSL.

DeskNow can use indifferently the HTTP and HTTPS protocols for client-server communications. HTTPS is *more secure*, but *slower*.

To enable SSL use in DeskNow, you need a web server that supports SSL, and an SSL certificate. You can buy SSL certificates from trusted Certificate Autorities (such as Verisign or Thawte). *Several tools are available on the market to create "test" certificates. If creating your own certificate, you must instruct the browser to trust the authority you used to create it.*

Alternatively, look for "howto" guides on how to use SSL directly within Tomcat, from the Jakarta Project web site.

Before trying SSL with DeskNow, make sure that your web server can serve pages using SSL, for instance by typing https://localhost on your browser.

To use SSL you also need a SSL-capable Java environment on the server. This can be achieved in two ways:
- use Java version 1.4
- use Java 1.3 with JSSE (Java Secure Socket Extension) properly installed and configured

Using SSL with DeskNow is very easy: just access the index.html page with the HTTPS protocol!

> *Example:*
> *https://localhost/desknow/index.html*

2.5 Upgrade from a previous installation

You can upgrade from a previous release of DeskNow without risk of losing your data or configuration.

To upgrade DeskNow from a previous release:
1. stop DeskNow server
2. move the folder $(DESKNOW_WEBAPP) (es "C:\Program Files\jakarta-tomcat-4.0.4\webapps\desknow") to a different location, outside the webapps folder.
3. install the new DeskNow webapp

4. do not alter the database. If changes to the database structure are necessary, they will be carried out automatically by DeskNow upon restart.
5. do not alter the user's files in $(DESKNOWDATA)
6. remove any compiled jsp (es remove all files from "C:\Program Files\jakarta-tomcat-4.0.4\work").
7. restart DeskNow server

2.6 Troubleshooting

Following is a list of common problems that can occur in a DeskNow installation. If none of these symptoms describes your problem, or the suggested solution does not fix it, please refer to Support (section 3).

2.6.1 DeskNow is not starting

If you are able to see the console output when you start the servlet engine, you should see a list of messages produced by DeskNow. If you can't see the console output, you can monitor the log files instead. The log files are created on startup in the folder $(DESKNOWDATA)/log.

2.6.2 No log files are created

If no log output is produced, it can be due to different reasons:
- the DeskNow web application was not started. Check that you deployed it correctly (see section 2.3.2).
- The user account used to run the servlet engine could not write to disk because it did not have the permission. The account used to run the servlet engine must have read/write/execution permission on the entire $(DESKNOWDATA) folder and subfolders.
- The servlet engine has a Java Security Manager enabled, that prevents webapplications to write to disk. Check the settings of your servlet engine. (Note: this is usually the case with Plesk)

Once you've made the necessary changes, restart the servlet engine.

2.6.3 This message appears in the console / log files: "INITIALIZATION FAILED - SERVER NEEDS TO BE RESTARTED"

For some reason the initialization process failed. By examining the log output that immediately precedes this message, you should be able to get an idea of what the problem's origin is.

Typical reasons are:
- DeskNow could not connect/login to the database, or the 'desknow' database was not created correctly. See 2.3.1 and 2.3.3
- The configuration files are malformed (missing or misspelled parameters)
- the DesKNow base was not setup correctly, with read/write permission given to the servlet engine. See 2.3.4
- The version of Java you are using is too old. Install the latest version of the Java Software Development Kit.
- If you decided to use DeskNow as a full mail server (the default), the servlet engine (ex. Tomcat) must be started with the 'root' account on Linux/Unix systems, because it needs to open port numbers below 1024.

2.6.4 This message appears in the console / log files: "javax.servlet.ServletException: access denied (java.io.FilePermission"

You are running the servlet engine with a SecurityManager. The servlet engine is preventing DeskNow to write particular files. Consult the servlet engine manual on how to disable the SecurityManager or to grant permissions to particular web applications.

2.6.5 I can't open the initial login page

Make sure that you can open the examples that usually come with the servlet engine. If you can't, please check the servlet engine documentation. If you can access other web applications but not DeskNow, check that the web application has been deployed correctly, with the name you're using in the URL. See 2.3.5

2.6.6 I can't login

This problem is typically related to JSP page compilation.
Possible causes are:

- you are using a JRE, and not a JSDK. JSDK is needed because it contains the compiler that can compile the JSP pages.

  If you downloaded a JSDK, make sure that the environment variable JAVA_HOME points to the JSDK and not the JRE contained within. Example: JAVA_HOME should point to "C:\j2sdk1.4.0" and not to "C:\j2sdk1.4.0\jre".
- the servlet engine does not have write access to the directory where JSP pages are compiled. For Tomcat, this is usually $(TOMCAT)/work. Make sure that the servlet engine has write access to the work directory and all its subdirectories.

2.6.7 When I login, only the menu appears. On the right frame there is an error message

Very likely you are using a non-trivial configuration, typically with the servlet engine connected to a web server. To properly generate some pages of DeskNow, the servlet engine needs to be able to *connect to itself* by sending an HTTP request to the address that the user is using.

> *Example: if you are logging in using the URL https://myserver.myorg.com/desknow, the servlet engine will try to connect to https://myserver.myorg.com/desknow.*

Many factors could prevent it from doing so, typically access restrictions imposed by the web server or other proxies (the servlet engine cannot provide usernames/passwords), or improper SSL certificates (the servlet engine requires the certificates to be valid, trusted and with the correct name), or particular DNS configurations. If you are using SSL it could be that you are using a version of the JSDK lower than 1.4 and no JSSE.

In all these cases, the solution is simple: tell the servlet engine to connect to itself in a different (often faster) way. After all, SSL is not required *internally*!

To do so, add the following line to the configuration file Web.cfg:

> *Custom.BaseURL   http://localhost/desknow/*

Make sure to add the final '/'. Adjust the setting to your specific needs, if necessary. This setting will force the servlet engine to use this URL as the base for every "internal"

communication, bypassing SSL, authorizations, etc. Adjust this URL as necessary to reflect your setup (ex. you may need to change the port).

3 Licensing DeskNow

DeskNow is provided by default with the **DeskNow Lite** license.
This license is **FREE**, does not expire and can be used by an unlimited number of users.

Some of its advanced features however, are only available for a trial period after its installation. At the end of this period, you can either choose to continue using DeskNow without these features, or to purchase a commercial license.

To purchase a commercial license or to see a full feature matrix, please visit
http://www.desknow.com/buy.html .

4 Support

DeskNow provides both open-style support using public discussion forums, and fast, premium support for customers that purchased a commercial license or Service Agreement.

Please visit http://www.desknow.com/support.html to access DeskNow Support.