Novell Developer Kit

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GROUPWISE® SDK OVERVIEW

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U.S. Patent Nos 5,553,139; 5,553,143; 5,677,851; 5,758,069; 5,784,560; 5,818,936; 5,864,865; 5,903,650; 5,905,860; 5,910,803 and other Patents Pending.

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Contents

About This Guide

This overview provides a summary of each GroupWise® SDK component and explains how you can use them to customize GroupWise to fit your needs.

Communication is essential for an organization to succeed. In today's business world, information can be communicated in various ways: simple e-mail, memos, and sticky notes; or large and complex documents, data, audio, graphics, and video files. But if the way information is captured makes it difficult to organize, preserve, and access, the information is of little value.

The GroupWise architecture enhances communication by treating any electronically captured information as a basic element—called a message—regardless of its format. With GroupWise, the way information is captured is not an issue. The key to making that information valuable lies in how it can be easily organized, shared, preserved, and accessed. That's why GroupWise is built on a messaging architecture. And that's why GroupWise *is* messaging.

This guide contains the following sections:

Audience

This guide is intended for developers who are not familiar with all of the components of the GroupWise SDK.

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the User Comments feature at the bottom of each page of the online documentation.

Documentation Updates

For the most recent version of this guide, see the GroupWise Developer Suite NDK page (http://developer.novell.com/ndk/gwsdk.htm).

Additional Information

For the related developer support postings for GroupWise, see the Developer Support Forums (http://developer.novell.com/ndk/devforums.htm).

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Concepts

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The GroupWise® SDK consists of various strategic components that work together to give you a complete and robust environment for extending GroupWise functionality.

The GroupWise architecture enhances communication by treating any electronically captured information as a basic element—called a message—regardless of its format. With GroupWise, the way information is captured is not important. The key to making that information valuable lies in how it can be easily organized, shared, preserved, and accessed.

You might also be interested in Formativ, an Integrated Development Environment (IDE) for GroupWise, which abstracts the GroupWise APIs and makes customizing and enhancing GroupWise even easier. Formativ's IDE is integrated directly into GroupWise and appears as a natural extension of the GroupWise client. It gives you the power to develop a wide range of applications, enhancements, and utilities for GroupWise with less coding and less effort than before. For more information on Novell's long-time partners and their Formativ product, see Advansys's Web site (http://www.advansyscorp.com/formativ.htm).

This section describes the GroupWise architecture and explains GroupWise terminology that may be unfamiliar to new users, including the following:

1.1 Terms

You can better understand GroupWise if you understand the terms used within the architecture.

Administration and Management is responsible for directory and system administration tools to maintain the system Address Book and configuration information about your GroupWise installation.

The *message store system* is a series of *post offices* on the network. It securely houses your information in the form of calendars, messages, documents, indexes, and folders.

The message transfer system is composed of *message transfer agents* (MTAs) which route messages between the post offices, gateways and directory agents.

The *client* provides the user interface to the services in GroupWise.

Third-party interfaces consist of GroupWise implementations of industry standard APIs and GroupWise-specific APIs to support developers who extend the functionality of your GroupWise system.

1.2 Administration and Management

Because GroupWise uses Novell eDirectory™ as its master directory, administrating GroupWise has never been easier. Integration with eDirectory means that GroupWise can use data that has already

been defined in the system, eliminating the need to enter common user information more than once. The administration user interface has been integrated with the NetWare® Administration program to give users a single point of administration.

A simple GroupWise system is a collection of data storage areas and agent programs. Understanding GroupWise data storage and agent relationships isimportant to understanding how a GroupWise system is administered.

1.2.1 Data Storage

User data is generated when a user creates a message (mail, calendar, notes) or document and is stored at a GroupWise post office and moved through the system by the message transport subsystem. *Administrator data* defines the system's organizational structure, its users, and various grouping and naming objects. Configuration information for agent programs is also found in the administrator data.

The GroupWise *Directory* refers to all administrator data in a GroupWise system. A copy of the administrator data is stored at each post office and domain in the system. The GroupWise Directory is secondary to eDirectory, which is the global Directory. A subset of the information available in eDirectory is replicated to the GroupWise Directory which is indexed at each access point to enable fast lookup of information.

1.2.2 Agents

GroupWise has a set of processes, called *agents*, that manipulate the system's data so it can be properly stored and accessed. There are three distinct types of agents: the Post Office Agent (POA), the Message Transfer Agent (MTA), and the Administration Agent (ADA). Each agent is available on a variety of operating system platforms.

1.2.3 Object Classes

The administration of GroupWise requires the ability to manipulate objects in the system. Each major object class in GroupWise is described below.

Object Class	Description
domain	A directory object that contains a set of post offices, agents, and connectivity agents, and information about the way they link (pass data) to other domains in the system. A domain is the topmost object in the GroupWise object hierarchy. An important attribute of the domain is the path to the location of the administrator data file.
post office	The location where user data is stored and accessed. An attribute of the post office object is the path to the location of the message databases and subdirectories. Another attribute identifies the users who access their data at the post office.
user	A person who is authorized to use the GroupWise system. Each user object has a distinguished directory name and a GroupWise address which consists of the domain and post office the user belongs to and the user's name.
resource	A non-user object which can be scheduled. Meeting rooms and equipment are examples of resource objects.

Object Class	Description
distribution list	A list of users and/or resources which receive any message addressed to the distribution list.
library	A storage location for documents with an associated access list and profile attribute set. An attribute defines the locations where the documents will be stored.
agent	A process that works on a specific set of GroupWise data. The Post Office Agent delivers messages to the user data store, the Message Transfer Agent transports messages between domains and post offices, and the Administration Agent replicates information between the GroupWise directory databases and eDirectory.
connectivity agent	An agent that provides conversion from GroupWise to another message or communication protocol.

1.3 Directory Replication and Synchronization

The GroupWise Directory is synchronized with eDirectory. GroupWise replicates the Address Book information from eDirectory into the GroupWise Directory. The fully replicated indexed database on which the GroupWise Directory is built provides fast lookups for the GroupWise Address Book.

Because the GroupWise Directory is replicated around all of the domains and post offices in the GroupWise system, domains can exist on platforms where eDirectory is not available and can participate fully in the GroupWise system. This means that existing domains on NetWare 3.x servers and on other NOS platforms function as they have in the past.

In this replication, eDirectory is the "master directory" and pertinent data is replicated from eDirectory to the GroupWise Directory. Data is never pushed from the GroupWise Directory-it is read from eDirectory and written to GroupWise.

Administrator data is propagated from a domain's directory database to the system’s other domain and post office databases. This model allows for simultaneous operation of GroupWise 4.x and GroupWise 5.x and 6.x domains in an interconnected system and allows a GroupWise system to span eDirectory and non-eDirectory network nodes.

There are two methods by which information is synchronized from eDirectory to a domain database. The first is used when information is changed through the NWAdmin interface with the GroupWise Admin Snapin running. In this case, the GroupWise Snapin simultaneously writes changes to both eDirectory and the domain database.

In the second method, the Administration Agent (ADA) checks eDirectory for changes that are not reflected in the GroupWise Directory. When a difference is detected, the data in eDirectory is used to update the GroupWise Directory.

This method detects both changes made by NetWare administration products that are not using GroupWise Admin Snapin, and changes made by any application which writes directly to eDirectory.

When an ADA is configured, the administrator defines the domains in which the ADA will do GroupWise and eDirectory synchronization. Only ADAs that run on platforms with eDirectory access are able to participate in the GroupWise/eDirectory synchronization, but all ADAs participate in the GroupWise to GroupWise synchronization.

1.3.1 Replication between GroupWise Domains

A GroupWise domain can be a primary, secondary, external, or foreign domain. The domain's type determines how it participates in the replication of directory data. The domain types are described below.

Domain Type	Description
Primary	There is only one primary domain in a GroupWise system. All directory updates must pass through this domain. Every change is sent to the primary domain from the originating domain. The primary domain then propagates the change to the rest of the system.
Secondary	A secondary domain participates fully in the replication of administrator data, but all changes made at the secondary domain are sent to the primary domain for propagation.
External	An external domain is considered a separate GroupWise system, and by default, receives no Administration data but can be configured to participate in a system's directory synchronization. The GroupWise administrator specifies which objects to replicate from the external domain, and the administrator of the external domain specifies which objects can be replicated.
Foreign	A foreign domain is an external system that is not GroupWise. GroupWise does not replicate foreign domains because directory format is unknown. Many foreign domains can participate in directory information exchange through a gateway to GroupWise. Foreign domains are provided so addresses from outside systems can be published in the GroupWise Address Book.

1.4 Administration of GroupWise 4.1 Systems

A GroupWise system is migrated one domain at a time. As a domain is migrated, the objects in that domain are moved into eDirectory and must be managed through the GroupWise Admin Snapin in NWAdmin. The first domain migrated must be the primary domain. You can continue to manage GroupWise 4.1 domains through the DOS-based AD.EXE program.

Once a domain is migrated, the GroupWise MTA and ADA must be run on that domain. Each post office in the domain can be individually migrated as time permits. Once the post office is migrated, the client must be upgraded before people will be able to access the post office. Placing a new client at the post office will trigger the auto upgrade when users enter GroupWise.

Components

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This section describes the various components that make up the GroupWise® SDK, and how you can use them to customize GroupWise to fit your needs.

If you are using early binding, you must use the latest version when you are declaring objects to have access to the latest features. For example, you need to use Account3 rather than Account2 or Account to use the newest features that have been added to the Account object.

IMPORTANT: Unless otherwise marked, the features in the following GroupWise components will work with GroupWise 7 and later versions:

- GroupWise Administrative Object API
- GroupWise C3PO
- GroupWise Controls for ActiveX
- GroupWise IMAP
- GroupWise MAPI
- GroupWise Object API
- GroupWise ODMA
- GroupWise Tokens
- GroupWise Trusted Application API
- GroupWise Web Service (SOAP)
- GroupWise WebAccess Customization

2.1 GroupWise 5.x & 6.x

GroupWise 5.x and GroupWise 6.x open up advanced workgroup computing interfaces and access methods through its various APIs. Because these components and services are delivered as part of the GroupWise product, you will be able to access them smoothly and easily. Features such as the rich message store, document store, and message transport capabilities are available through the GroupWise engine. You can access these components and services using various standard tools and access methods including COM, OLE Automation, OCX/ActiveX, C/C++, Java, and DDE.

The table below gives a comparative list of GroupWise components, tools, and access methods.

Component	COM	OLE Automation	OCX/ ActiveX	C/C++	Java	DDE
Administrative Object API	Yes	Yes	Yes	Yes		
C3PO	Yes	Yes	Yes	Yes		
Controls for ActiveX	Yes	Yes	Yes	Yes		

Component	COM	OLE Automation	OCX/ ActiveX	C/C++	Java	DDE
MAPI	Yes	Yes	Yes	Yes		
Object API	Yes	Yes	Yes	Yes		
ODMA	Yes	Yes		Yes		
Tokens	Yes	Yes	Yes	Yes		Yes
WebAccess Customization	Yes	Yes		Yes	Yes	

2.1.1 Administrative Object API

The Administrative Object API (Admin API) is similar to the Object API, except that it applies it to GroupWise *administration* information. You can use the Admin API through OLE languages such as Visual Basic, Delphi, and object-oriented languages, such as C++. The Admin API supports OLE Automation, an industry standard for interfacing applications.

See the "NDK: GroupWise Administrative Object API" documentation.

2.1.2 C3POs

Custom 3rd-Party Objects (C3PO) let you add menu and toolbar items to trigger applications and capture commands. For example, you can modify the GroupWise client toolbar or define new record types in the GroupWise information store. You can develop C3POs using C++, Delphi, or Visual Basic. The COM-based C3PO interface replaces the GroupWise 4.1 Custom Messages and Custom Commands. The Ready, Delivery, ShutDown, and Overflow events can all be handled in a C3PO, allowing you, for example, to replace the current interface for a message type such as GW.MESSAGE.NOTE.

See the NDK: GroupWise C3PO documentation.

2.1.3 Controls for ActiveX

You can utilize ActiveX technology to embed an Address Book or Name Completion OLE Control (OCX) in your Visual Basic 4.0 or Delphi 32-bit solution. OCX properties let you customize user access to Address Book contents and control return information for your solution to use.

See the GroupWise Controls for ActiveX (../../../../gwactive.htm) details page.

2.1.4 MAPI

The Messaging Application Programming Interface (MAPI 1.0) is a set of object-oriented functions that provide messaging capabilities. Mail-enabled applications use MAPI to create, transfer, and store messages, as well as handle complex addressing information. MAPI objects are data structures that support a set of properties and comply with the OLE component object model (COM), which requires that objects support one or more interfaces, or sets of functions.

See the NDK: GroupWise MAPI documentation.

2.1.5 Object API

The Object API lets you see, use, and manipulate the GroupWise information store from outside GroupWise. With the Object API, you can create your own client application. It provides access to the Address Book, documents, mail messages, appointments, tasks, notes, and phone messages. It supports OLE Automation, which is an industry standard for interfacing applications. It is simple to use with languages such as Delphi and Visual Basic, and can also be used with C/C++ languages.

See the NDK: GroupWise Object API documentation.

2.1.6 ODMA

ODMA (Open Document Management API) specifies a set of interfaces that applications can use to initiate actions within a Document Management system.

The GroupWise® ODMA component links to the ODMA Industry Standard Web site (http://www.infonuovo.com/odma/). This Web site provides information, documentation, and software. The GroupWise client follows and uses the ODMA Industry Standard as outlined on this Web site.

2.1.7 Tokens

Tokens assign names to low-level events, such as "save a file" and "send mail," and allow you to use tokens to operate as programs. While a C3PO lets you extend GroupWise objects, and the Object API lets you see and manipulate the GroupWise information store from outside GroupWise, tokens let your solution command the GroupWise client from DLLs and DDE scripts using the Third-Party Handler. You can also use tokens to create Visual Basic executables that users can run from the client interface.

See the NDK: GroupWise Tokens documentation.

2.1.8 WebAccess Customization

If you're using the GroupWise WebAccess program to access your GroupWise mailbox and calendar through the Internet, WebAccess Customization lets you modify the HTML source files to include your own graphics or company information. You can also use this component to enhance the WebAccess UI by creating additional calendar views.

See the NDK: GroupWise WebAccess Customization documentation.

2.2 Moving from 4.1 to 5.x or 6.x

Specific GroupWise 5.x and 6.x APIs are listed and discussed earlier in this overview. For developers moving from 4.1 to 5.x or 6.x, the following information may be helpful.

2.2.1 GroupWise 16-Bit APIs

The GroupWise 16-bit version has the same APIs available as GroupWise 4.1. GroupWise 16-bit does access the data store, and a few changes to some of the AddressBook tokens were made. Other than that, the APIs and their functionality remain the same. However, it's a good idea to test your 4.1 application to make sure it does work with GroupWise 16-bit version.

2.2.2 GroupWise 32-Bit APIs

This section contains the following:

Windows Open API (WOAPI)

This interface is a carry-over from GroupWise 4.1, but it has been converted to a 32-bit DLL. The GroupWise 4.1 16-bit DLL will not work directly under GroupWise 5.x and above.

The structures used in this interface are also the same as GroupWise 4.1 structures, so most of the 16-bit code can be ported without modification.

GroupWise 5.x and above does not include macro support. If your third-party DLL runs any macros, they need to be modified to perform all the macro functions within the DLL.

Registration of a GroupWise 5.x and above third-party handler is done by adding an entry in the Windows Registry. The following reg files data will add the appropriate DLL entry:

```
;Start of reg file
REGEDIT 4
[HKEY_CURRENT_USER\Software\NOVELL\GroupWise\Client\Third Party]
"DLL1"="c:\\tphdll\\gwdll1.dll"
;End of reg file
```

To add multiple third-party DLLs, just add another entry for DLL2, such as:

```
"DLL2"="c:\\tphdll\\gwdll2.dll"
```

Dynamic Data Exchange

GroupWise 5.x and above has a Token Commander interface that also supports DDE. If you currently have an application that sends DDE messages to GroupWise 4.1, try it with GroupWise 5.x and above. Depending on the commands you use, things may work without modification. Complex filter commands used in GroupWise 4.1 also work in GroupWise 5.x and above. Using Filters to get a message, VIEWNAME works in GroupWise 5.x and above with just a small problem: only the first 4 characters of VIEWNAME are returned.

Most of the tokens used in GroupWise 4.1 can be used in GroupWise 5.x and above. The GroupWise Tokenization documentation in this SDK gives details and lists the 4.1 tokens either modified or obsolete in 5.x and 6.x.

Revision History

A

The following table lists changes made to the GroupWise® Overview documentation:

Release Date	Changes
March 1, 2006	Added table of GroupWise components that support GroupWise 7 and later versions to Chapter 2, “Components,” on page 15.
October 5, 2005	Transitioned to revised Novell documentation standards.
February 18, 2004	Removed information about unsupported components. For a list of unsupported GroupWise components, see the Unsupported (../../../../unsupported.htm) page.
October 8, 2003	Added information about Formativ.
September 2001	Added support for GroupWise 6.x.
June 2001	Made changes to improve document accessibility.
February 2001	Added statement about using the latest version when declaring objects to the beginning of “Components” on page 15.
September 2000	Alphabetized the table that provides a comparative list of GroupWise 5.x components, tools, and access methods.
July 1998	Documentation added to the Novell Developer Kit.