

New Practices in Flexible Learning

Groove educational tool suite for Peer-to-Peer collaborative learning environments

Technical specification manual for Role-Play tool

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1 Introduction

1.1 Purpose

This document provides a comprehensive technical and architectural overview of the Groove system and its installation procedures. It also provides brief and comprehensive information and instructions on some of the features that can be found within Groove. With Groove being a Peer-to-Peer based application, it is very important to follow proper installation techniques, otherwise a compatibility issue could arise. This document covers the specifications needed by a typical Groove user or developer. Development within Groove requires the installation of certain additional tools (Groove development kit and toolkit for VS.NET) which help to integrate the Groove application development into the respective development platform.

1.2 Scope

The document begins with a brief description of the Groove architecture and also studies some of the important components present within Groove application. It also describes the Peer-to-Peer based architecture, which is the basis of Groove, and shows graphical representations of the strong security architecture found within Groove that makes it a powerful tool for collaborative learning. It then proceeds to the steps that need to be followed to set up a Groove workspace on your system (installation, creation and injection of tools). This section also includes the procedures that need to be followed when developing within the Groove environment using Microsoft's Visual Studio.NET framework. Once the installation has been completed, the document then explains the implementation steps that need to be followed to start using the workspace using a collaborative approach. Finally, the document contains the details of the system requirements that need to be satisfied for the efficient running of the Groove application.

1.3 Definitions, acronyms and abbreviations

The following definitions, acronyms and abbreviations have been used in this document:

Collaborative learning: An instructional methodology where students work in groups to achieve a common academic goal.

Injection: The term 'injection' is similar to 'installation' in the sense that it makes a component or feature available for use. It is the process of adding data or functionality to a Groove account.

However, injection offers a number of powerful advantages:

- Any component that you inject becomes part of your Groove account. As a result, the same component automatically becomes available on any other computer on which you use the same Groove account.
- Injection does all the installation work for you. When you click a .grv or .vcg file, the component simply gets installed. You don't need to specify directory paths or run setup programs.
- Injection usually just requires having an Internet connection or an email account. You never need to feed CDs and/or floppy disks into your disk

drives. Instead, you just double-click the injection file and let Groove do the work.

Encryption: Encryption is the process of scrambling data so that only the intended receiver can use it. To be effective, encryption needs to be used by both the sender and the receiver. Users should make sure it is being used when sending sensitive information.

Peer-to-Peer: Establishing a connection from one computer directly onto another computer without the need for a server sitting in between to provide the connectivity.

Enterprise Management Server: The Groove Enterprise Management Server provides enterprise IT managers with centralized services for administering the deployment and use of Groove within the enterprise. It includes facilities for usage management and reporting services, security policy management services, active directory support etc.

GDK: Groove platform Development Kit

GTK: Groove development Toolkit (Groove toolkit for Microsoft VisualStudio.NET)

Groove workspace: Space allocated for you to work on the Groove application.

Shared workspace: A common workspace on Groove, on which many users can access (provided they are invited contacts) and collaborate together with the rest of the group within the workspace.

Passphrase: Similar to a password used for security purposes.

2 Description of the Groove architecture and its components

Groove is Internet software for making direct connections with people far and near. With Groove, one can talk, chat, instant message, draw pictures, swap photos and files, play games and browse the Web together with friends, family and co-workers. With Groove, having conversations with context is as easy as sending an email or accessing the Web. Groove runs on Windows PCs and uses the Internet for communication. It is thus a great Peer-to-Peer tool for communication purposes.

With Groove, groups of business associates, family members, friends or acquaintances can work or socialize in a way that is meaningful and natural, and with complete security and control over the group's activity and content. If a browser is what people use to interact with pages on a Web site, Groove will become the way people interact directly with other people in Groove shared spaces.

Some of the key features provided by Groove are as follows:

- **Instant text and audio messaging.** Instant messages can also be invitations to participate in other Groove activities, such as participating in shared spaces or conversation spaces.
- **Shared spaces.** A shared space is an online collaboration room where you and other people can share far richer activities than simple messaging. A few examples of activities people might do in a shared space include:
 - planning a reunion for a family or group where people live in different locations
 - collaborating on a project without team members ever meeting face-to-face, or
 - an ongoing virtual club-meeting for any variety of clubs where sharing things like documents and schedules is a constant necessity.
- **Collaboration.** The ability to collaborate and share information regardless of time or Internet online status. You can be active in any shared space you are a member of at any time, regardless of whether other members are active or online. You can also be active in a shared space even if you are not connected to the Internet. The next time you connect, your updates and additions are automatically added to the shared space. For example, while flying home from a meeting, you might add responses to a collection of discussion documents. When you next connect your laptop to the Internet, all of your responses are automatically added and shared with all other members of the shared space.
- **Extensibility.** As a software platform, Groove is highly extensible. You can continually enhance your experience using Groove by injecting new and upgraded components. These components may include new or improved tools you can add to your shared spaces. In addition to tools, you may also inject new contacts, shared space invitations, and even your Groove account itself (if you want to use your Groove account on multiple computers).

Finally, a Groove administrator can create Groove licenses and make these available for employees to inject into their Groove accounts.

- Privacy.** For Groove members, all communications are private as they take place only between yourself and other members of a shared space. As an additional privacy feature, you can assume multiple identities so that you can interact with different people using a different persona. For example, you might be 'Kathleen Doe' when using Groove for business activities, 'KathyD' when talking with friends, and maybe 'Mom' when talking with your kids.
- Security.** Whenever possible, Groove avoids storing your data on servers. Instead, your data is transmitted directly to the other people in the same shared space. A copy of this data is stored on each user's computer (not on a server where you don't have control over it). Groove automatically and securely distributes and saves data that group members produce during their interactions.

In instances where Groove does need to store your data on a server (for example, if you are transmitting data to someone who is not online, your data is encrypted such that it is unreadable on the server.

The screenshot shows the Groove workspace interface for a 'Product Planning' workspace. The interface includes a top navigation bar, a file explorer on the left, a central workspace area with a document titled 'Product Planning', and a bottom toolbar. Callouts point to various features:

- INVITE:** Points to the 'Invite' button in the top navigation bar. Description: 'Extend invitations to new members via Groove instant message, Windows Messenger or email.'
- AWARENESS:** Points to the 'Active' and 'Online' lists on the left sidebar. Description: 'Groove Workspace tracks who is online, who is active in a shared space, where they are in that space, as well as new information added to shared spaces.'
- CONVERSATION:** Points to the 'Chat' button in the bottom toolbar. Description: 'Users can talk with one another via live voice or text based chat within the context of their shared spaces. Members can also open a chat window for continuous communication outside the context of a Groove shared space.'
- ADD TOOL:** Points to the 'Add Tool' button in the bottom toolbar. Description: 'Users can add new functionality to any shared space at any time, with as few as two clicks of a mouse.'
- TOOLS:** Points to the entire bottom toolbar. Description: 'Tools are what you use to communicate in shared spaces.'

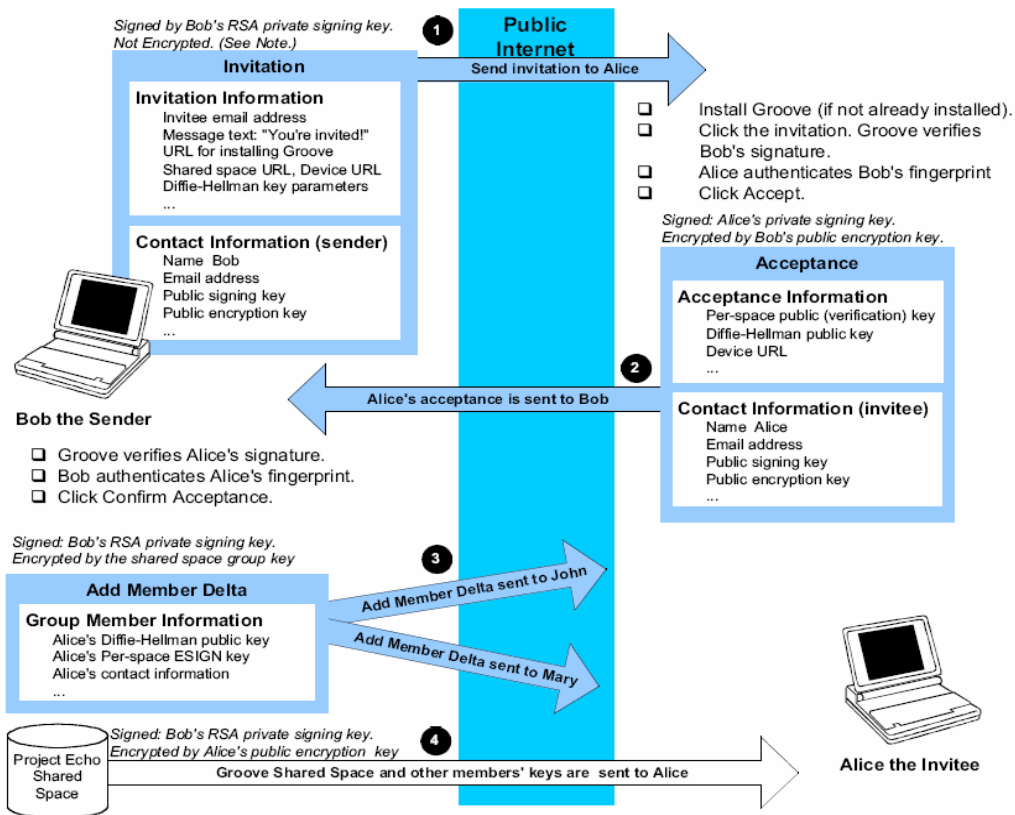
3 Architectural representation

Sharing of data over a collaborative environment using Groove is secure and easy. Groove facilitates the sharing of data and computational resources quickly and securely among those who need it – anywhere, anytime, any way. Users can create ad-hoc collaborative places known as 'shared spaces' without cumbersome administrative intervention and can do so on demand. It also allows users to invite people (almost instantaneously, whether they are across the table or from any part of the world) to join the shared space by dynamically introducing data and tools to the space. The other advantage of using Groove is its very effective firewall. Groove uses standard web protocols to avoid requiring network administrators to open special ports in the firewall. In addition, organizations can deploy Groove servers for centralised management and control of Groove usage.

Groove’s security features enhance collaboration in the following ways:

- Groove enables secure, cross-firewall collaboration
- Security features are transparent to the user
- Groove encrypts all content on disk and over the network
- User driven shared space access control

Below is a graphical representation of the security architecture within Groove:



NOTE - The invitation in step 1 is not encrypted when sent by email. When sent to an existing Groove user using their contact information, the invitation is encrypted using the recipient's public encryption key.

All information related to a user's account is handled by the Enterprise Management Server. During account enrolment, the Enterprise Management Server creates a one-time account activation code that the user account and Management Server use to establish a secure communication link with the user during account enrolment. This account information (and other managed identity information) is initially passed to the user out-of-band using some secure method such as trusted email or person-to-person transfer.

The below architecture shows the process of account enrolment within the managed environment:

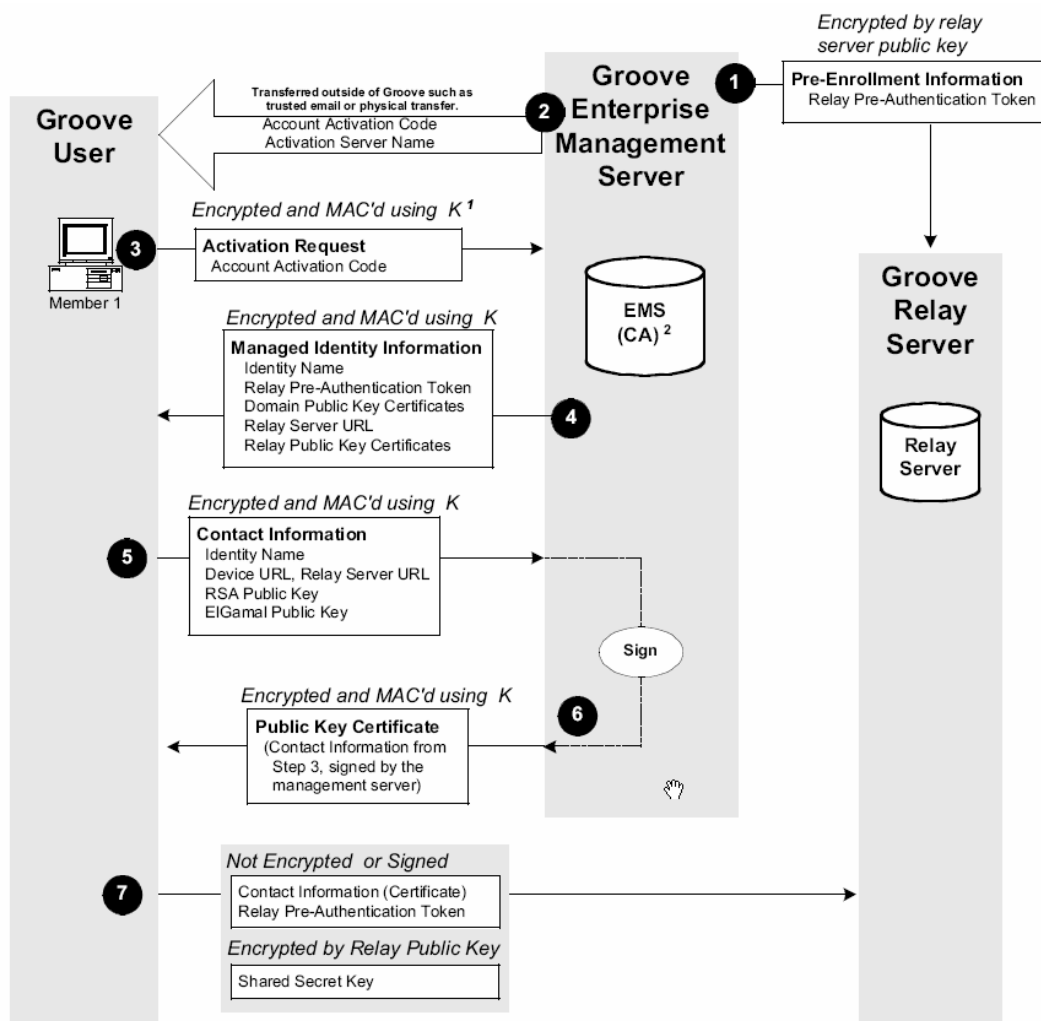


Figure Key:

- 1 – K is the key created by Hashing the account activation code
- 2 – The Enterprise Management Server acts as a Certifying Authority (CA) as it signs managed-identity public keys (contact information) to create certificates.

4 Deployment of Groove Workspace

4.1 Installing Groove Workspace

If you install Groove Workspace from the Groove web page (www.Groove.net), you can choose installations between the free Groove Workspace Preview Edition, and the licensed Groove Workspace Standard or Groove Workspace Professional editions.

To install Groove Workspace:

1. Make sure your computer satisfies the system requirements (refer to the 'system requirements' section)
2. Go to the 'Products' page on groove.net.
3. Do one of the following:
 - Click **Buy Now** to see options for purchasing Groove Workspace Standard or Groove Workspace Professional, as well as a description of feature differences among Groove Workspace editions.
 - Click **Try Now** to see information and options for downloading the free Groove Workspace Preview edition.

(or)

If you are installing Groove Workspace from a CD, insert the CD into the drive and follow the instructions displayed on the screen.

4.2 Creating a licensed Groove Workspace account

If you have installed Groove Workspace Standard Edition or Groove Workspace Professional Edition, an activation key must be used to create a new account. Usually, each new account created must have its own key. Typically, activation keys are distributed by email. If the Groove software was provided to you by your employer or organisation, you should receive an email containing your activation key from your Groove administrator. If you purchased a Groove license on your own, you should receive an email containing your activation key from Groove Networks. In addition to the activation key, these email messages include instructions for installing or updating Groove and activating an account.

If you currently have a Groove Preview Edition account, you can use the activation key to change this to a licensed account. You can create a new Groove Workspace Standard Edition or Workspace Professional Edition account using the Product Activation wizard.

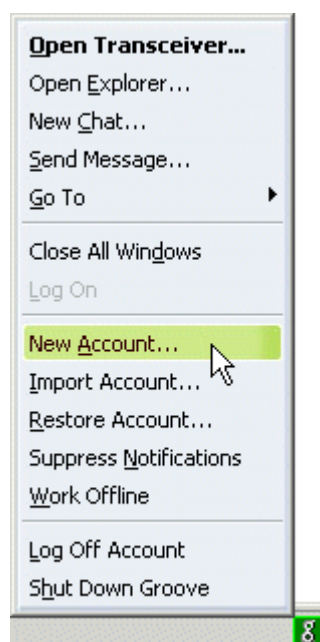
You must be online to create an account. To create a new account, do the following:

1. Install and start Groove as described in the email message.
2. Start the product activation wizard.

If you have no existing accounts, the product activation wizard starts automatically and steps you through the account creation process.

If you already have an account, do not log into it if prompted to do so.

To start the product activation wizard, select 'New Account...' from the Groove taskbar menu:



3. Copy your activation key from the email message and paste it into the 'Activation Key' data entry field or enter the same into the field. Click 'Next'.
4. If Groove displays the license agreement, accept it and click 'Next'.

5. When prompted, enter a name for the account. You may enter any name you choose. You may also change the name later after the account is created. If the account name is completed for you, you were supplied a managed identity.

In either case, your account name is your initial identity (display name) by which people will recognise you.

6. Set a passphrase to keep your Groove account secure.

Many employers or organizations set policies that determine if a passphrase is required and how complex it must be. If the passphrase you enter does not meet these requirements, Groove will ask you to enter a different passphrase before creating your account. Also, if you want to avoid typing your passphrase each time you start your computer and open Groove, check 'Remember my passphrase on this computer.' Depending on policies, this option may not be available. But, beware: if you check this option, other people can access your Groove account without a passphrase on this computer. Use this option only if you are sure no one else will use your computer.

7. If you only want people to be able to find your Groove contact, accept the option 'List my name in the Groove.net public directory'. If you list your name in the Groove.net public directory, other Groove users will be able to find your contact information quickly and start Groove activities with you. If you uncheck this option but change your mind later, you can still list your Groove contact information in 'My Account'.

8. Click 'Finish'.

By following the above steps you will have allowed Groove to create your account with the name and passphrase you specified. Your account will have one identity, your default identity, which has the same name as your account. In addition, by default, Groove adds a sample shared space called 'Welcome Space' to your account. To go to this shared space, double-click it in 'My Spaces', or select 'View → Go To → Welcome Space' from the 'View' Menu.

4.3 Injecting new components into Groove

Being a software platform, Groove is highly extensible. You can continually enhance your experience, using Groove by injecting new and upgraded components. These components may include new or improved tools you can add to your shared spaces, contacts, shared space invitations, and even your Groove account itself if you want to use your Groove account on multiple computers. As a rule of thumb, any file that has a .grv (Groove file) or .vcg (Groove vCard file) extension can be injected into your Groove account. Basically, these are the files associated with your workspace that can be saved and reused.

For security reasons, new components are always injected into a single Groove account. That is, if you have more than one Groove account on your computer (or if, perhaps, you are sharing a computer with other people who have Groove accounts), you cannot inject a new component into all accounts simultaneously. On clicking any injectable file under these circumstances, Groove first opens a Login dialog box in which you need to enter the passphrase for the selected account (enter your Groove passphrase if prompted).

Injecting contacts

Groove contacts may send you their vCard (.vcg) file as a file attachment. Alternately you may download Groove vCard files from the public directory on Groove.net. When you open the file attachment or download a vCard file from Groove.net, the new contact gets added to 'My Contacts'

Injecting shared space invitations

You may receive an invitation to a shared space as a file attachment in an email, or an administrator may place a shared space invitation file on a file server or Web site. In either case, a shared space invitation is a file that contains the name of the shared space and has a .grv file extension. When you open this file, the invitation gets injected into your Groove account, and the 'Respond to Invitation' dialog box opens.

Injecting your Groove account

You can save your Groove account as a .grv file that you can open to inject your Groove account onto another computer that already has Groove installed but on which you do not yet have your Groove account.

4.4 Starting Groove

Starting Groove depends on which options you selected during installation. You can choose to have an icon placed on your desktop or to have Groove start automatically when you start your computer. If either of these options have not been selected, you can start Groove from the Windows 'Start' menu.

To start Groove:

1. Click 'Start', then select 'Programs → Groove → Groove' or double-click the Groove icon. If there are multiple Groove accounts on this computer, Groove displays the 'Groove Select Account' dialog box. If there's only one account on this computer, Groove displays the 'Groove Login' dialog box.
2. If you see the 'Groove Select Account' dialog box, select the Groove account you want from the 'Name' drop-down list.
3. Type in your passphrase.
(Note: If you didn't set a passphrase for your account, you will not see the passphrase text box.)
4. Enter your passphrase.
5. Click 'Select' if you selected an account from the drop down list or 'Login' if there is only one account on this computer and click 'Login'.

By following the above procedure, Groove will start and open a transceiver.

4.5 Shutting down Groove

To shut down Groove completely and log off all accounts, click the Groove taskbar icon and select the 'Shut Down Groove' option.

4.6 Installing Visual Studio.NET

You can install either Microsoft's Visual Studio.NET 2002 or Microsoft's Visual Studio.NET 2003 version onto your system.

Note: We have used the VS.NET 2002 GDK for our development.

4.7 Installing the Groove Development Kit (GDK)

The Groove Development Kit (GDK) is used to develop customised Groove tools or to enhance existing tools. It contains all the essential details and tools needed to start developing in Groove. GDK can be obtained free of cost from the Groove website (www.groove.net)

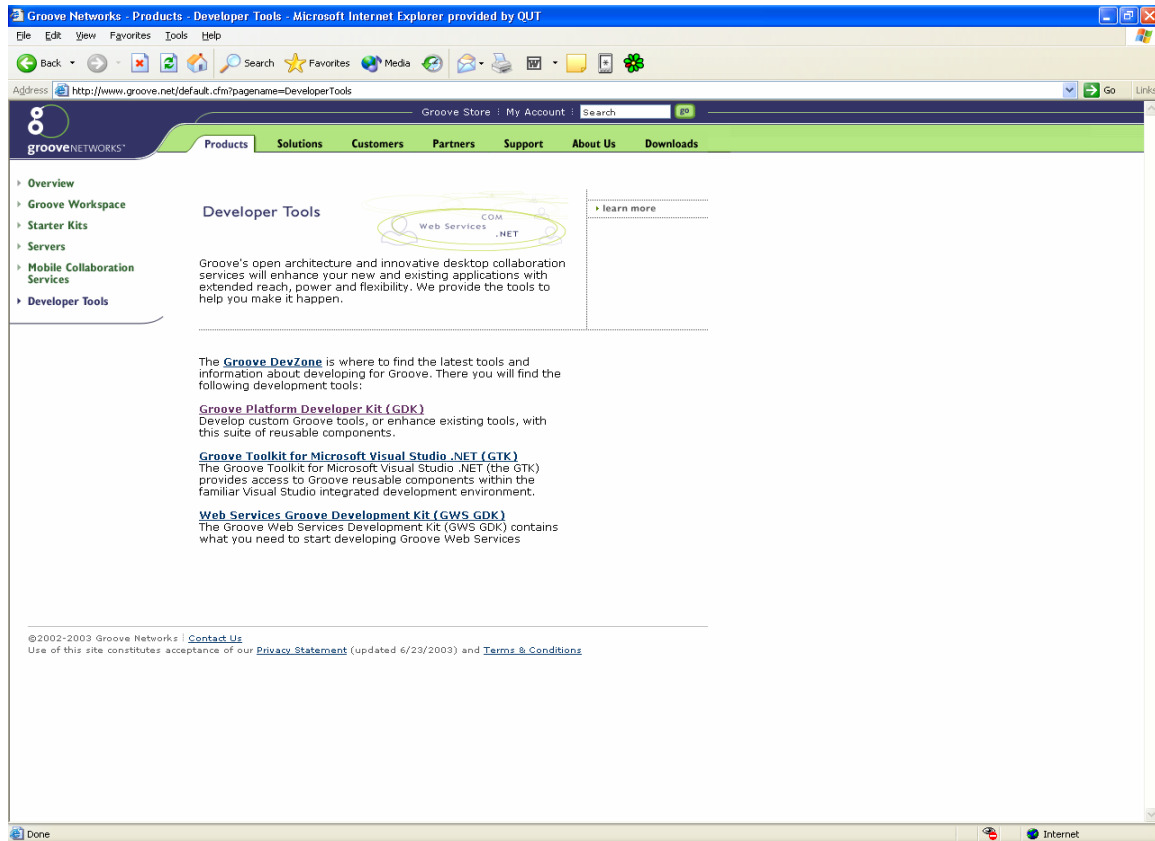
The GDK provides for the following:

- sample code in popular programming languages
- comprehensive API documentation
- utilities and tools to help you to quickly begin creating customized tools, and
- documentation and samples for integration, enabling development of extended enterprise solutions

System Specifications

- Basic requirements for Groove Preview Edition (refer to the system requirements)
- For Visual Basic samples, Visual Basic 6.0 Service Pack 3 is required
- For Visual C++ samples, Visual C++ 6.0 Service Pack 3 is required
- For script samples, Visual Interdev is recommended

From the Groove webpage, select the 'Products → Developers Tools' option. The system will display the Developers Tools screen (as shown below). Now click on the Groove Platform Development Kit (GDK) link and click on the 'Download' option to start the download of the GDK to your system.



The system will then download the GDK. The GDK is a complete package including documentation, registry settings, working samples in Visual C++, VB and Java and the Groove developer tools.

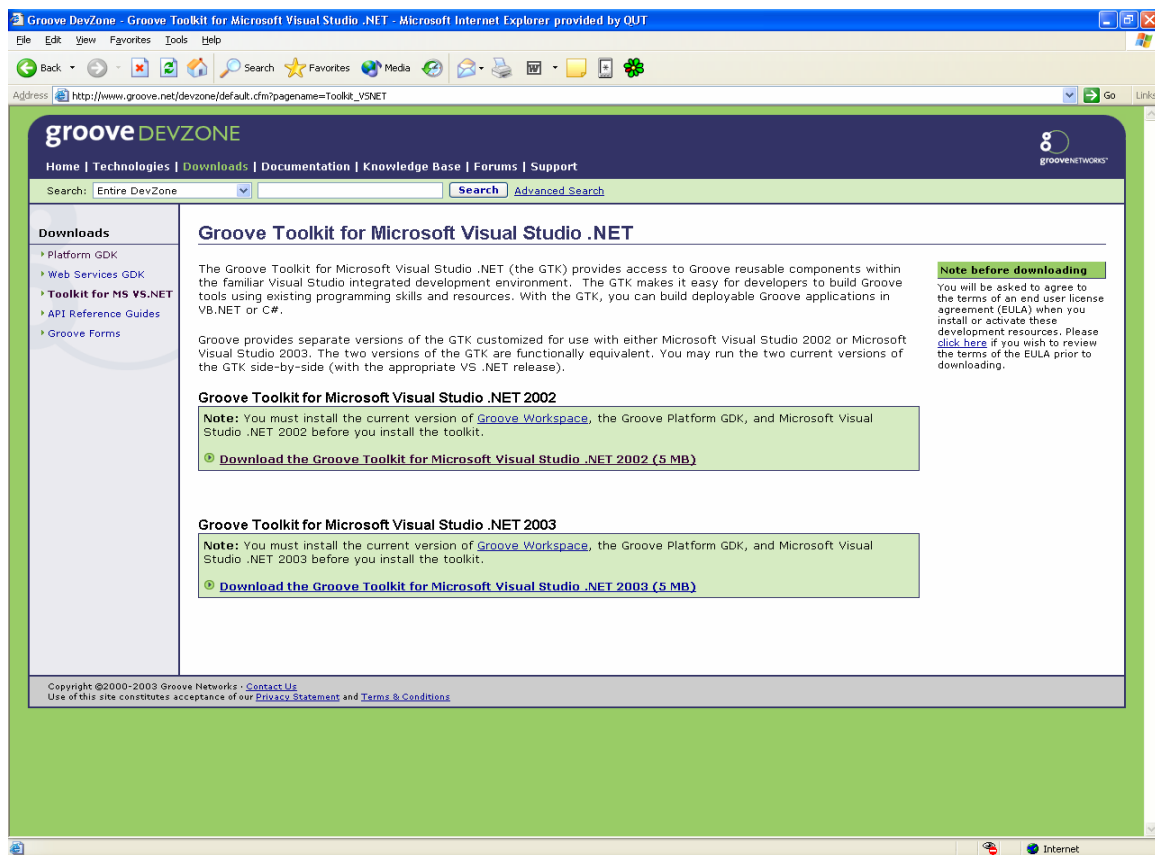
4.8 Installing the Toolkit for VS.NET

The Groove Toolkit for Microsoft Visual Studio .NET (the GTK) provides access to Groove reusable components within the familiar Visual Studio integrated development environment. The GTK makes it easy for developers to build Groove tools using existing programming skills and resources. With the GTK, you can build deployable Groove applications in VB.NET or C#.

Groove provides separate versions of the GTK customized for use with either Microsoft Visual Studio 2002 or Microsoft Visual Studio 2003. The two versions of the GTK are functionally equivalent. You may run the two current versions of the GTK side-by-side (with the appropriate VS .NET release).

Note: We have used the VS.NET 2002 GDK for our development.

From the Groove webpage, select the 'Products → Developers Tools' option. The system will display the Developers Tools screen (as shown below). Now, click on the Groove Toolkit for Microsoft Visual Studio.NET (GTK) link. Then select either Visual Studio 2002 or Visual Studio 2003 version and click on the 'Download' option to start the download of the GDK on to your system.



The system then downloads the GTK installer onto your system. Run the executable to complete the installation.

5 Implementation steps

5.1 Creating a Groove workspace

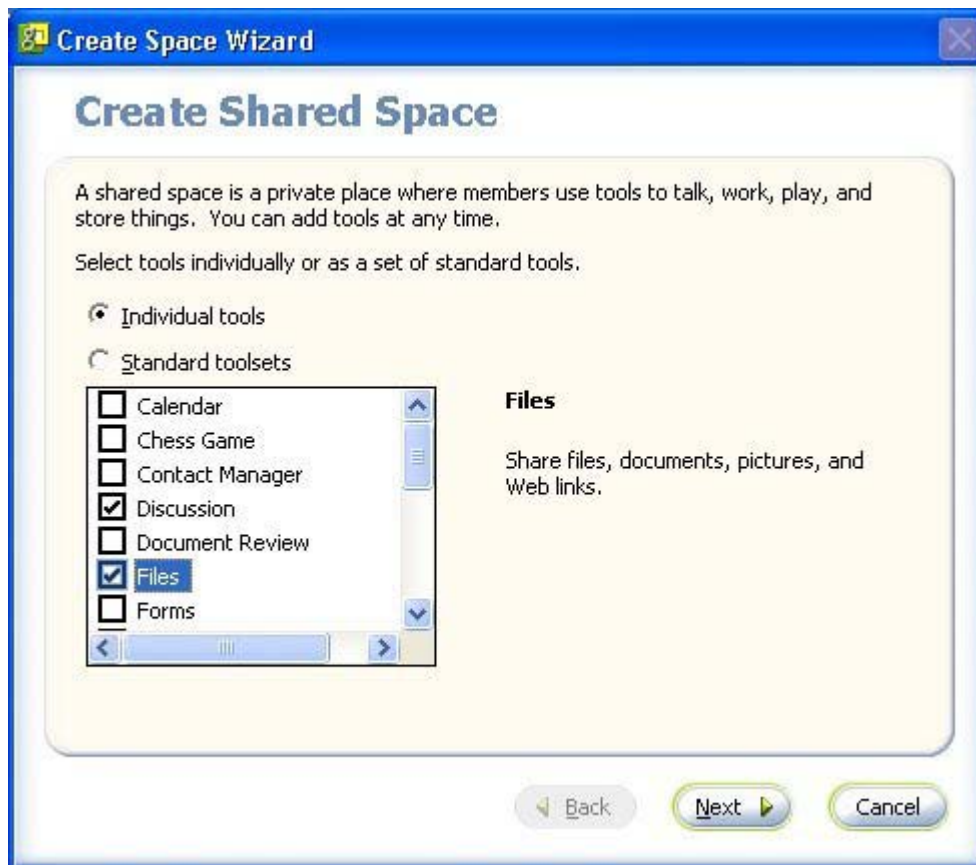
The following steps help you to create a new workspace in Groove. Every shared workspace contains a collection of tools which the user can choose to be displayed within the newly created workspace. Tools can be removed and added anytime, provided that sufficient permissions are set.

Step 1:

Run the Groove application. Select the 'File → New → Shared Space' sub menu option to start the create space wizard.

Step 2:

The 'Create Shared Space' dialog window allows you to either select your custom tools or to select the standard toolset option to get a default set of tools loaded on to your workspace. Click on the 'Next' button to proceed.



Step 3:

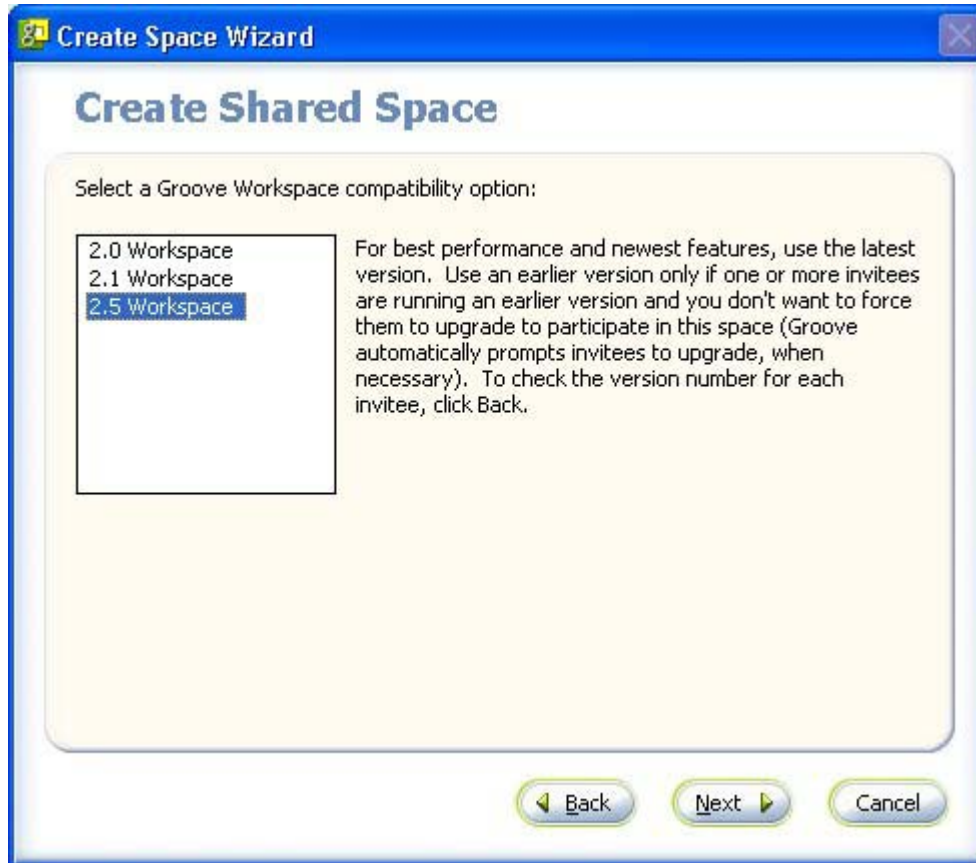
Once you have selected your choice of tools, enter a suitable name for the shared space. Select the 'Invite no one at this time' option and click on the 'Next' button.

Note: It is always advisable to invite people after completing the creation of a space.



Step 4:

The screen then asks you to choose a 'Groove Workspace Compatibility' option. Select '2.5 Workspace' and then click on the 'Next' button.



Step 5:

Now, click the 'Finish' button on the create space wizard to complete the creation of a shared space. Groove will now create and open the shared space.

The shared space that has been created is now ready to be used. Contacts can now be invited into the workspace to begin a collaborative exchange. Additional tools can be added or removed according to need.

5.2 Adding a new tool to the shared workspace

Collaborative learning may need new tools to be added and removed with the flow. It is very easy to add or remove tools using Groove Workspace.

To add new tools, follow the steps outlined below:

Step 1:

Click on the 'Add tools' tab (which is normally located in the right corner)

Step 2:

Select the required tool(s) from the available list of tools.

Step 3:

Click on 'Add Selected Tool' button.

The new tool is added to the left of the 'Add Tool' tab.

Note: To move tools from one tab to the another, drag and drop the tool to the required location.

5.3 Removing a tool from the shared workspace

Right click on the tab for the tool to be removed and select the 'Delete tool' option.

5.4 Inviting people to the shared workspace

Inviting users to join the shared space can be done using the Groove contact of the user or through email address. You can also use the instant messaging tool to invite users.

Inviting by email

This method is normally used to invite users who are not yet running Groove or who do not have a Groove contact created yet. This invitation to users arrives in the form of an email message with a Groove invitation file attachment. The recipient user has to open the attachment to accept the invitation.

Step 1.

To invite a user by email, follow the steps below:

- Click on the 'Invite' option from the shared space. The 'Send Invitation' window will pop up.
- Click on 'Recipients' to open the 'Add Recipients' window.
- Click on the 'Look in' drop down list box and select the 'Enter an email address.' option.
- Enter the email address of the user into the 'Email Address' field and click on 'Add' button.
- Click on the 'OK' button which displays the added address into the 'To:' field in the 'Send Invitation' window. By default, standard steps on how to get Groove are included in the message field. You can also include your own message.
- Finally click on the 'Send Invitation' option.

Groove sends the email invitation. Recipients who are already running Groove can open and accept the invitation immediately. Other recipients must first install Groove and activate an account before opening and accepting the invitation.

Inviting by instant message

This is the easiest way to invite people into your shared space provided you have the users Groove contact or can find it in a search directory.

Step 2.

To invite a user by instant message, follow the steps below:

- Click on the 'Invite' option from the shared space. The 'Send Invitation' window will pop up.
- Click on 'Recipients' to open the 'Add Recipients' window and browse through the search directories.
- Click on the 'Look in' drop down list box and select a search directory.
- Search for the user/contact in the selected search directory. On retrieving the required user contact, click on the 'Add' option.
- Click on the 'OK' button. The selected contact's name and addresses appear in the 'To:' field in the 'Send Invitation' window.
- Click on 'Send Invitation' option after typing any message (optional).

6 System requirements

6.1 Operating system

- Microsoft Windows 98/2000/ME/XP
- Microsoft Windows NT 4.0 (with service pack 5 or later)

6.2 Hardware requirements

- 400 MHz Intel Pentium processor or higher
- 128 MB RAM
- 100 MB available hard disk storage (with 60 MB additional space required for user data)
- Display resolution 800 x 600, 15 bit (32,768) colour minimum
- Sound card, speakers, and microphone required to use voice features

6.3 Software requirements

- Microsoft Internet Explorer 4.0 or later (5.0 or later recommended)
- Internet Explorer 6.0 required for Groove forms tool, Mobile workspace for Microsoft SharePoint and Groove Web Services.

6.4 Internet connection

- 56 kbps modem minimum
- LAN(Local Area Network), DSL or cable modem preferred