

UNIVERSITY OF WATERLOO
Faculty of Engineering
Department of Systems Design Engineering

Exchange Student's Guide to Studying and Working in Lausanne, Switzerland

GENE 303 – International Studies Option

Prepared by
Kevin Cheng

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1 Introduction

Switzerland was an opportunity to study abroad, experience different cultures, and make friends with people all around the world.

I found Switzerland has changed my views on the world by opening my eyes to a different way of living, language, and cultural norms, especially in an international environment. An exchange experience is what you make of it and many of the things I mention are simply guidelines that give you an idea of what has interested and challenged me while I was there.

There are many different things you need to consider to get the best in being abroad and living in a different environment away from home. Employment and cultural opportunities are available and has made my experience much more rich and challenging.

In this report, the first section outlines the many things that one should consider before, during, and after such a life-changing experience. It gives an overview of Lausanne and its surround region along an inside perspective on the culture and interesting events; employment at EPFL and the United Nations.

The second section outlines an evaluation on Microsoft Groove as an application for humanitarian response.

2 Preparation

2.1 Before you Leave

Before embarking on your exchange to Switzerland, it is important to reflect on how long you expect to stay there and how you plan to finish your studies. In my case, various circumstances enticed me to extend my stay and it was necessary to reassess my situation (e.g. finances, course requirements etc.). As such, it is important to clearly ensure that your courses will transfer over and that you have enough money to pay for your stay.

Waterloo includes an invaluable checklist of the many things to do before your departure [1]

Also include extra costs for administration fees and emergencies (e.g. registering for your residence, transportation, memberships, delays in money wire transfers).

2.2 Residence

Student residences for the local universities are spread out across the city unlike at the University of Waterloo. This makes the accompanying lifestyles much more diverse on with varying accessibility to the university. Each residence has its own unique layout, surroundings, facilities, and culture which effectively becomes a large influence on your experience.

For more communal and quiet experience, the Marcolet, Bourdonnette, and Triaudes offer apartment style accommodations designed with comfortable rooms, kitchens, and balconies. Otherwise, Rhodanie, Cèdres, and Falaises offer a more student residence experience similar to Village 1 at UW with shared facilities and common areas. Nevertheless, the rooms are often in high demand so it is highly recommended to reserve a room at least 6 months in advance to get your preference (i.e. International students get priority but still one should call in to guarantee a place). [2] Apartment rentals are another option but often require a longer term lease (i.e. 1 year).

3 Arrival

At first when you arrive in Geneva and leave their airport filled, you must go to the neighbouring train station which can take you directly to Lausanne in approximately 20-50 minutes (depending on which train you take). If you take the InterCity, it is direct from Geneva, otherwise the InterRegio and RegioExpress make regional stops to smaller cities along the way.

3.1 Train Passes

I suggest before you take your first Swiss train, decide whether or not you prefer purchasing the 1/2 tariff rail pass and "free after 7" card, which will allow you to get half price fares for all Swiss trains and possibly 25% reductions off France, Germany, Italy, and other surrounding countries, and free train use after 7pm across all of Switzerland. If you decide to travel often and stay in Switzerland for more than 4 months these should definitely be considered to save you money. As of today, the price for these cards is 249 CHFs. [3]

3.2 Checking into Residence

Once you arrive to the Lausanne train station you may decide to take a taxi directly to your place of residence for convenience. You should have already notified the concierge of your arrival as surprise visits can often lead to bad rapport and sometimes even conflict (in my experience). Your room typically should be furnished however, if you decide to purchase new furniture a cheap solution is to go to the second-hand shops around town or the neighbouring Ikea superstore in Nyon.

3.3 Contact Local Authorities

It is important that you contact the local commune authorities as soon as possible in order to process your student Permit status. After arrival, EPFL academic student services will provide you with a new student card with official proof of your student status. This allows you to open a bank account and get basic services such as obtaining a cell phone.

3.4 Bank Account

If you wish to open a bank account, there are a couple of choices to choose from. Banking institutions range from local cantonal banks (Banque Cantonale Vaudois), corporate banks (La Poste), and larger institutions (Credit Suisse). As a student, it is recommended that one choose either La Poste or Banque Cantonale Vaudois because they do not charge annual service and transaction fees, and occasionally have promotions for new clients. Keep in mind that banking services in Switzerland are costly and requests such as cancelling a stolen card and increasing spending limits are more expensive than in Canada.

3.5 Phone Lines

Landlines both private and public payphones charge you per minute, which is very different from Canada. In terms of getting a phone line, it is probably recommended to get a cell phone. One can purchase a pay-as-you-go phone and plan for approximately 50 CHF, however the calling rates are still rather expensive in comparison to Canada. For long distance calling, one should also consider Voip telephony or purchase a calling card.

3.6 Local Transport

For those who take the bus and metro systems often, it is recommended to purchase the monthly pass for 41 CHF (student fare). It is relatively inexpensive for Swiss standards and the routes are quite convenient. A difference with the Swiss system is that it is by an honours system, meaning that you will not be checked for your ticket or pass each time you take the bus. However, there are random checks enforced by controllers who charge you 60-80CHF if you do not have your ticket.

4 Lausanne and the Surrounding Region

4.1 Background

Lausanne is situated in the French-speaking canton of Vaud where it is a center for academia, arts, wine, and athleticism. Throughout the city, you can see many influences of modern industry, fashion, architecture, and business, but yet it still keeps its roots in tact with its historical Notre Dame cathedral, parks, monuments, local traditions, unique small boutiques, and local farmers' markets. The city is very much a diverse mix with many international students, researchers, and business people from all over the world.

It is ideally situated on top of a hilly region overlooking 'Lac Lemman' (or Lake Geneva). Also, it is nestled in between popular wine-making and farming regions of Morges and Lavaux that offer many opportunities to taste authentic local wine and cheese specialties. Conveniently, it is only an hour train ride away from the world famous Swiss Alps region which offers great conditions for mountaineering and alpinism in all seasons.

4.2 Academia

The city hosts world-class academic institutions in the areas of business (UNIL), engineering (EPFL), hotel management (EHL), and artisan trades. It is worthwhile to explore and meet people from these schools and discover the many different aspects that exist outside engineering and University of Waterloo. The Swiss standard of education is one of the highest in Europe and these schools are typically well financed publicly and/or privately, which effectively affords many interesting opportunities and events you can partake in.

Public lectures are also given quite often at EPFL and UNIL on a full range of topics from global warming to public media.

4.3 Sporting Lifestyle

Lausanne is widely known for being the Olympic Capital of the world. It hosts many sporting events from world-class marathons across the city to boat racing down at the marinas.

Throughout the lake areas and parks, there are maintained trails and routes which are ideal for biking or jogging. In addition to being scenic, there are often a lot of people participating in such activities making it much more motivating. The city itself interestingly also loans out free bikes (for a deposit) during the summer so that people are more encouraged to be active.

4.4 Arts

There are many museums across the city which covers art history, modern art, photography to Olympic history. Often, there are student rates and even an outstanding "Nuit de Musee" event in October where they showcase all the cities' museums for a nominal fee throughout the entire night where the festivities end with a thematic transformation of their metro station into a discotheque. The city hosts many festivals as well as celebrate their deeply rooted culture and traditions (e.g. wine tasting, beer festivals, gastronomy, marathons etc..)

Other things include music at the Orchestre de Chambre de Lausanne, Lausanne opera, the Underground Film and Music Festival, and outdoor theatre.

5 Exchange Student Experience

5.1 Student Lifestyle

As an exchange student, you should definitely consider subscribing to the ERASMUS network which connects you to the many other exchange students in your similar situation. The EPFL and UNIL exchange programs organizes many events to help you get integrated with the new living environment and culture.

Events such as weekly pub nights, ski weekends, cultural sight-seeing, international dinners are great ways to meet new people and try new things. The lifestyle is refreshing and the general attitude of exchange student culture is open-mindedness. Often, cross-culture barriers are easily broken, and for me, has led to life-long friendships and probably the greatest memories of my life.

In addition to the exchange student activities, there are also many events organized by the student body at the host university. I encourage everyone going abroad to take advantage of this once in a lifetime experience and explore as much as you can!

5.2 Sporting Activities

As a student, you get access the university sports center and their included recreational activities. This includes sailing, climbing, hiking, skiing, rowing, dancing, karate and much more. One should sign up early in the term as many of the popular classes get booked up quickly.

5.3 Popular Events in the Area

The city of Lausanne and its surrounding regions hosts many world famous events such as the Montreux Jazz Festival or the Paleo Music Festival in Nyon which showcases popular and up-and-coming artists. Jazz festivals like in Cully transforms local cafes into jazz lounges and caves with a more taste and style.

For those who are interested in wine, Morge's annual wine festival also offers a rich experience in tasting the local produce.

Finally, as a student in engineering, Balelec is a local event at EPFL that transforms the school into 8 venues with different music scenes and environments.

6 Studying and Working in Lausanne

6.1 School System

The EPFL and UNIL schooling systems are slightly different from UW's. As part of the European Bologna Process, their system is broken into a three cycle system: bachelor, master, and doctorate. Typically, the first three years of studies are considered as part of bachelors and the next 1.5 years afterwards is considered masters, where as our bachelor engineering degrees (without coop) take 4 years. [4]

Furthermore, the terms start and end dates are quite different. At EPFL, the school year starts in October and ends in July, where terms span for roughly 5 months. Exams may sometimes need to be rescheduled into the summer break due to conflict. It is also important to note that sometimes the course exams are done orally, where the professor tests the student on the spot on how to solve a problem. It can be quite different how you study for the course as it is usually based on a deeper theoretical understanding and how you explain your answer. Also, course final exams are often worth most of the marks and some rare cases exam conflicts cannot be rescheduled resulting in a failed course.

Depending on the course, they are sometimes broken into halves and distributed across the year, so make sure that what you are looking for will be taught while you are there. To make things even more difficult, the bachelor courses tend to be taught in French so preparation is highly recommended. Overall, the Swiss system is different and can challenge you to approach studying and examinations in another way.

If you are interested in learning something new that UW does not offer, there are many courses in areas such as micro- and bio- technology that EPFL is a leader in. Outside of engineering, there is the neighbouring Management of Technology school or UNIL, which offer a wide range of business and arts courses as well.

6.1.1 Language Center

I would also highly recommend taking advantage of the EPFL language center as one can learn French, German, and/or Italian. The courses are more practical than at UW as they tend to be small workshop classes based on situational usage and are almost always taught in the language of interest. [5]

6.2 Obtaining Employment

As a holder of the Permit B student status, one is allowed to work for a limited amount of hours per week, after 3 months of stay or during university holidays (e.g. exam or summer break). For those who are interested in short term employment, EPFL labs often opens many positions to students who wish to help during summers. Their salaries range from 1500 – 2500 CHFs per month, which covers a bit more than the cost of living. Furthermore, there is a neighboring “scientific park” which is a community of small businesses that often look for help as well.

With the help of coop experiences, it often makes you much more qualified for the position than other students in Europe.

7 References

[1] University of Waterloo's pre-exchange checklist. Available from:

http://www.eng.uwaterloo.ca/~exchange/Exchange%20From/Right%20Nav_general%20procedures/checklist.htm

[2] Fondation Maison Etudiant Lausanne. Available from:

<http://www.fmel.ch>

[3] Swiss Rail Service Webpage. Available from:

www.cff.ch

[4] Europa Education and Training. Available from:

http://ec.europa.eu/education/policies/educ/bologna/bologna_en.html

[5] EPFL Language Center. Available from:

<http://langues.epfl.ch/>

8 Introduction to Groove

This section I will discuss my investigation of Microsoft Virtual Office Groove 3.x Professional and Microsoft Office Groove 2007 (Groove) as a suitable tool for the Office of the Coordination of Humanitarian Affairs (OCHA) and the United Nations Disaster Assessment and Coordination (UNDAC). As part of an internship found in Geneva, I explored possible technical solutions that can help improve the appeals process for donor funding in humanitarian response. Groove is a possible solution to manage data and communications in a simple, organized, dynamic, and secure way.

Groove allows team members and information resources to be grouped into common workspaces containing shared interactive tools such as file sharing, document review, discussions, customizable forms, shared text editors, shared web links, and other tools. These workspaces can be tailored to different types of projects or teams, and saved, reused, and redistributed for similar upcoming projects.

Groove is a tool that can operate in a dynamic and disruptive work environment. With built-in encryption, communication tools (messaging, workspace chat), and offline data synchronization, this application can meet the needs of non-centralized and mobile teams or cluster groups. In the field, Groove's network and VSAT activity must be managed with a controlled network, firewall/proxy setup, or user guidelines.

Broad administrative and integrated features such as user policy management, bulk licensing, data bridging, and Microsoft Office integration also make deployment more manageable and adaptable to our existing systems.

9 Evaluation

9.1 Goals

The goal of this evaluation is to identify potential strengths, weaknesses, points of interests, and problems with the Groove client, server and network structure. In general, the software application should offer organized simple setup, minimal learning curve, user-friendliness, compatibility, simple file sharing, file and data management, network stability, user management, and security. From surveying in-field users' feedback on the existing software, and general emergency response, the issues and suggestions were mentioned in the following table.

Category	Current issues or Desired functionality	Key Groove Benefits	Inherent Groove Issues
Installation, Deployment, and Licensing	<ul style="list-style-type: none"> Difficulty with UNDAC Mission software configurations; No streamlining of software deployment for high employee turnover; Desires compliance to integrate with existing systems; 	<ul style="list-style-type: none"> Simple and quick client installation and setup; Bulk deployment capabilities; 	<ul style="list-style-type: none"> Some features not backwards compatible;
Usability and Training	<ul style="list-style-type: none"> General technical annoyances and impedances during emergencies (time is a critical issue); Not an industry standard; Not user-friendly and difficulty to train; General lack of adoption of tool; 	<ul style="list-style-type: none"> Microsoft Standard familiarity; Tools in general simple to use and setup; Online Microsoft training available; Limited Notes and Office integration; Single platform for organized contacts and messaging; 	<ul style="list-style-type: none"> Requires additional training in Best Practices; UI and product features are currently changing; No message history maintenance;
Contacts, Messaging, and Communications	<ul style="list-style-type: none"> No integration with email and other communications (e.g. Lotus Notes, Wave mail, Skype); Numerous communication channels between different parties; 	<ul style="list-style-type: none"> Generic workspaces and tools for structured workflows and information management; Offline data synchronization; Limited form and tool customization; Office and Sharepoint integration; Third-party tools; 	<ul style="list-style-type: none"> Risk of automatic synchronization and network traffic; Incompatibility between Groove and third-party tool versions; Form scripting still has bugs
Collaboration, Productivity, and Information management	<ul style="list-style-type: none"> Unclear information management process; Misplaced documents and files; Information decentralized and duplicated work efforts; UNDAC Mission Software not clear in finding and archiving files; Desires global structure for file archives and templates on local machines; 3W forms not flexible for different emergencies (desires dynamic forms); Desires integration with Excel for data entry and storage; Desires third-party GIS mapping tools; 	<ul style="list-style-type: none"> Efficient data synchronization; 	<ul style="list-style-type: none"> Requires client, server or network restrictions;
Network Usage	<ul style="list-style-type: none"> High bandwidth costs associated with VSAT; Desires bandwidth control; 		
Administration	<ul style="list-style-type: none"> Inability to limit accessibility and complexity for in-field emergency users; Desires centralized data backup and versioning; 	<ul style="list-style-type: none"> Broad administrative functions; Available auditing, data bridging, and backup services 	<ul style="list-style-type: none"> Requires subscriptions or access to servers; Servers costly and impractical;
Security	<ul style="list-style-type: none"> Data and communications not protected; 	<ul style="list-style-type: none"> Data storage and transmissions are encrypted; 	<ul style="list-style-type: none"> -
Future outlook and support	<ul style="list-style-type: none"> Seeking a long-term solution; 	<ul style="list-style-type: none"> Microsoft product development support and long-term involvement; Third-party developer community; 	<ul style="list-style-type: none"> Requires time to arrive at a stable product release and SDK;

10 Installation and Deployment

10.1 Deployment, Manageability, and Maintenance

From a Groove pilot, the administrator has recommended to predefine designated workspaces (e.g. file structures and forms, mission specific OSOCC templates, version compatibility), user accounts, and invitations at the same time as providing wireless access, which can streamline deployment. User accounts may also be created generically (e.g. UNDAC1, UNDAC2) and their personal identity configured afterwards, which can also minimize download and setup hassles to new users in the field. This systematic deployment approach addresses some of UNDAC's problems such as frequent change of management, team coordination issues, and unsystematic user policy management.

In general, Groove features are ready to use and require no additional development (except for forms). If new workspaces and tools are to be created by the users, precautions and guidelines should be followed to prevent automatic downloading over the VSAT and incompatibility (See Sections 2.5 and 2.6).

User licensing, policy control, identity creation, password, member groups, authentication, roles, and other administrative activities are also available on the Groove Manager Server or by a subscription to Groove Enterprise Services. Furthermore, existing user directories (e.g. LDAP, Notes) can be synchronized with the Groove clients using the Manager server. These services can improve scalability, deployment and administration of information service policies and should be tested further.

10.2 Server and Network setup

To prevent unwanted network activity over the VSAT, it is possible to implement networking or firewall precautions. A designated Groove network can be used behind a proxy with access to the VSAT. This computer must be configured so that it does not route the packets within the Groove network outside to the VSAT. A simpler solution is to work over a separate LAN subnet that does not have any VSAT access.

A proxy or firewall can also be configured to filter outgoing Groove packets, which should also be tested further. See Section 2.6 for more details on Network Behavior and Communication Management.

If these network and firewalls precautions are not used, it is important to depend on user training to manage client communications.

10.3 Training

From Triplex, Microsoft sample scenarios, and personal experience, Groove functionality is generally straightforward and quick to learn. However, to avoid misuse in unmanaged low-bandwidth environments it is still important that everyone be trained on best practices with Groove.

In unprepared situations, failure to comply with the guidelines can lead to problems such as network congestions. Thus, the UNDAC and OSOCC teams or administrators should distribute clear guidelines to all users. General guidelines include setting the Files tool to Manual download, avoiding attachments in the Discussion/Forms tool, avoid using the Picture tool, suspending non-mission workspaces to reduce communications, and avoiding invitation of non-LAN users.

11 Workspaces, Sharing, and Synchronizing

11.1 Workspaces, Share, Synchronize

Groove can allow workspace members to do tasks offline and then synchronize with other members directly or via a relay server once they return online. Data is synchronized in a changed-based fashion (i.e. “delta” chunks) to reduce network bandwidth consumption. For example, a change of 100KB in a 2.3MB Powerpoint file (in the Files tool) subsequently resulted in a 700KB transmission rather than reuploading the updated file. The transmission of these changes continues even after interruptions, which can be useful behind unreliable connectivity.

Groove’s standard workspaces offer a structured and robust platform for remote disaster assessment, coordination, and archiving management. Documents can be organized, shared, and synchronized to reduce misplacement, duplication, and data loss. For long-term data storage, it is recommended to have data bridging and backup capabilities rather than having workspaces that are too large and unmanageable. Workspaces can also be saved directly or as templates then reused for similar projects.

Large workspaces should be treated with caution when one is on a low-bandwidth connection. A typical workspace accommodates up to 100 members, but this depends on the site hardware, network setup, and usage patterns and practices.

For simple and non-collaborative sharing, file folders on the local machine can also be shared and synchronized relatively easily as well. (See Section 2.5.4 for file sharing details)

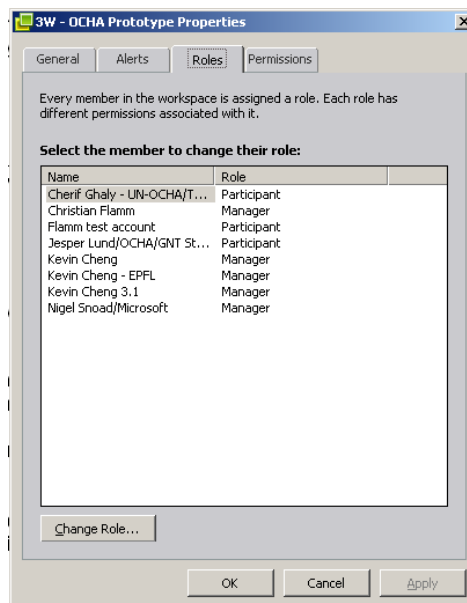
When one creates a workspace, it is important to acknowledge and set the minimum workspace version required for compatibility. Currently, Groove 2007 workspaces are backwards compatible to Groove 3.x but need to be configured accordingly . For the time being, it is recommended to create the workspace in the older version to ensure backwards compatibility.

11.2 Alerts

Users can be notified of changes (e.g. file updates and new discussions) via alerts. To keep the alerts manageable, one should configure alert settings to only important documents, contacts, tools and workspaces. The administrator should preconfigure as much as possible. Tool alerts can also inherit workspace settings for simplification.

11.3 User Roles and Permissions

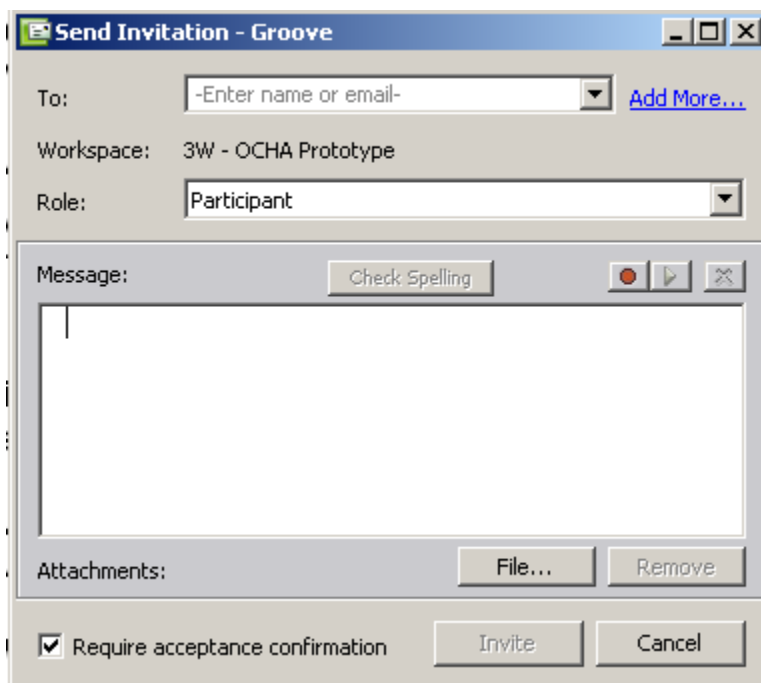
Workspaces and tools have three levels of roles: Guest, Participant, and Manager. The user permissions, such as inviting users, tool access, document deletion and editing, can be tailored for each user within the workspace. Tool level permissions also grant rights to modify, delete, and other features. As a precaution, some backup Managers should be created in cases of urgent administrative needs. A work-around to obtain additional user control would be to use customized forms.



Other user controls can be managed from the Groove Manager Server or Enterprise Services.

11.4 Invitations

People can be easily invited on an as-needed basis throughout the project cycle. Before invitations are sent, the workspace and tools settings (e.g. alerts, download settings) should be configured properly, as these are inherited to the subsequent invitees. Within the invitation, the invitee's role and confirmation can be assigned, and for security purposes, the Manager role should be granted conservatively and that 'Require confirmation' be checked off. Otherwise, the number of members can grow out of control and the workspace privacy can be compromised.



One should accept invitations and downloads over high bandwidth connections to avoid unnecessary VSAT usage. File attachments to invitations should be avoided when behind a low bandwidth. Furthermore, one should also avoid inviting users outside of the LAN subnet or users over the VSAT.

Unfortunately, the Groove 2007 workspace is also not backwards compatible with previous versions, and the invitations cannot be accepted. Thus, it is important that the workspace properties be configured to meet version requirements.

When someone is uninvited from a workspace, the workspace will be deleted from all computers of that member. The deletion will occur the next time they are online and will be warned after the fact. It may be courteous to warn them before hand so that they have the chance to backup their data. Suspending the member may be a milder option to uninviting them. However, this requires that the user be idle for a certain period before this feature can work.

11.5 General Usability

The built-in tabs navigation in the workspace can still be unclear to the user and it is recommended to structure navigation with the 'Copy as Link' feature. Links to the workspaces, tools, or items can be pasted onto pages which then act as a navigation index (e.g. welcome pages and shared notes).

The workspace user interface follows a familiar Microsoft convention but still would require training. Integration with Microsoft Office and other technologies may afford general ease of use over time.

12 Contacts and Messaging Management

12.1 Contacts and Online Presence

Groove offers standard contact management (e.g. Contact lists, renaming aliases, hiding online presence) and user directory features. The local network user directory has been removed in Groove 2007. Optionally, OCHA, UNDAC and other contact information can also be synchronized with existing databases using the Manager server.

Online presence information is detected and broadcasted directly within a LAN subnet or indirectly over a WAN via a relay server. Detailed information on contacts such as the device URL, relay server use, and online presence (on LAN and WAN), can be accessed using the Contact Manager.

12.2 Messaging: Instant messaging, voice messaging, chat, and broadcasting

Instant messaging, voice messaging, and chat are the main channels for public and private conversations in Groove. Instant and voice messages are saved locally whereas the chat is synchronized across workspace members. The conversation can also be saved accordingly with 'Save as Space'. For group conversations among workspace members, the workspace chat should be used.

Messages histories accumulate quickly with large attachments and should be cleaned frequently to free up space and optimize performance.

Messaging can also be extended further to accommodate other standards such as MSN Messenger, Office Communicator, and Jabber. Simple Groove shortcuts have also been added to Lotus Notes and Outlook.

13 Tools and Applications

For our purposes, we will look at how Groove tools can be applied in humanitarian emergency response. Before proceeding with Groove tools, general guidelines should be reviewed. Proposed applications of Groove tools include: Shared Mission Briefings, Brainstorming and Project Planning, and Emergency Assessment and Data Gathering.

13.1 General Guidelines for Groove tools

Currently, most Groove tools do not have a setting to manually synchronize files which can automatically queue large unforeseen data transmissions. Before tools and workspaces are created, specific features need to be treated with caution and the following tool guidelines are recommended:

- One should avoid uploading attachments to the Discussions, Document Review, Forms, Meetings, and Task Manager tools;
- The Pictures tool should not be used;
- Users must not drag-and-drop large files into the Notepad, Sketchpad, and Text tools;
- All large pictures and files should be placed into the Files tool then linked to accordingly;
- The Files tools' and shared folders' download setting must be set to Manual or Limited.

If these guidelines are followed the Calendar, Contact Manager, Files, Discussion, Document Review, Forms, Meetings, Notepad, Outliner, Sketchpad, Task Manager, Text, Web links, and Welcome Page do not pose large network risk. The Infopath 2007 and Sharepoint files tools have yet to be evaluated. For version information and an overview of all built-in and third-party Groove 3.1 and 2007 tools see Appendix A.

To ensure workspace compatibility and usability, the tool versions must be configured to suit all members. The number of tools should also be kept to a minimum and grouped in folders for the purposes of organization.

13.2 Shared Mission Briefings

A workspace with tools such as the discussion board, chat, welcome pages, and shared notes can be used as a channel for project specific communications to organize and clarify mission briefings. A common platform makes it easier to share objectives and reduces the risk of miscommunication between field agents, cluster groups, and headquarters.

13.3 Brainstorming and Project Planning

Shared sketchpads, notepads and third party GIS tools are available for brainstorming and visualization of concepts (e.g. assessments of maps or images).

Groove also has group calendars, discussions, meetings, task management, and shared navigation that make project planning more interactive, organized, and documented.

13.4 Emergency Assessment and Data Gathering

Data gathering from emergency assessments can be stored and shared using the Forms and Files tools.

13.4.1 Customizable Forms

The Forms tool is designed for the input of structured data (e.g. when information is already collected in Excel during the Phase II or III of the emergency). The data is stored as a record and can be imported or exported to standard CSV format, Excel and other applications.

When designing a basic form with Groove's form designer, it uses pre-defined components and functions, such as form headers, field-types, buttons, data lookups, validation, formatting, default values, and default form styles for convenience. The data can be displayed in different views according to the desired selected fields and groupings of data. Alternatively, a third party tool also exists to generate reports from the forms data.

Form access can also be defined either by the user's workspace role. Features such as the hiding the preview pane, showing the command bar, searching, changing views, etc, can be disabled in the form options.

For further complexity such as a dynamic user interface, data lookup, linking to contact information or messages, editing application data, or enhancing role permissions, javascript, VB script, and Cascading Style Sheets (CSS) can be used. The Form development API allows access to Groove services and can be integrated into other web services. However, it is not recommended for unsophisticated users who do not have prior training or related experience. Existing form samples are available from Microsoft and some can be used as templates. (See Appendix B for 3W Development Notes)

Interestingly, RSS SSE (Really Simple Syndication Simple Sharing Extensions) is reported to be supported for Groove forms which allow standard two-way replication of its structured data between a large number of systems. This would be a way to broadcast and replicate forms of different clusters. [4]

From a Microsoft comparison, Groove's Forms tool is meant for lighter-weight data input solutions while Microsoft's existing form development software Infopath is meant for more complex XML document design.

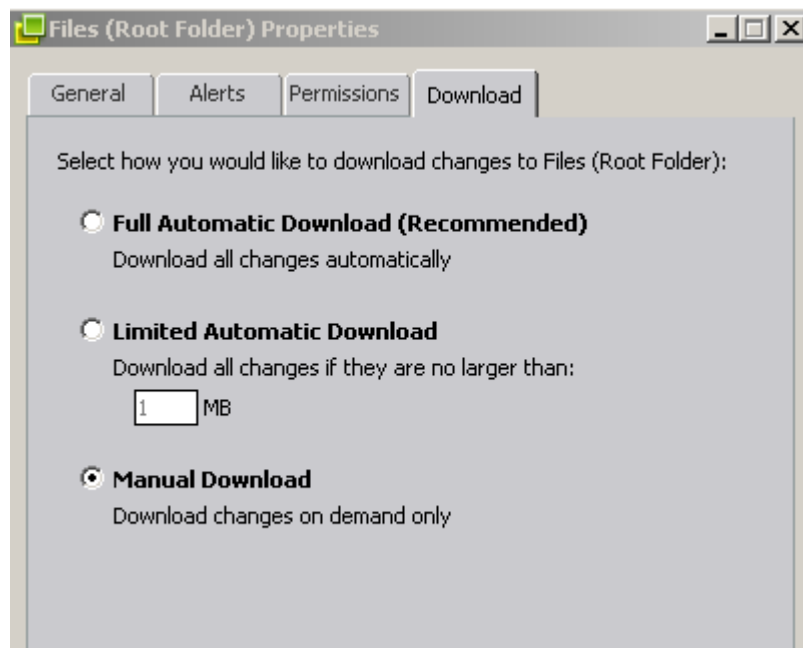
	Groove Forms	Groove InfoPath Forms
Focus	Collaborative uses of structured data	Rich XML data collection Standardized Schema support
Data	Records	XML Documents

Multiple forms in a single tool, or tools in a single solution?	Yes	Yes
Relationships	Discussions, response hierarchies, lookups, granular changes	Not in Groove 12
Programmability	Scripting, DHTML, macros, web services	Scripting, macros, web services

13.4.1.1 Comparison of Groove Forms and Infopath Forms [5]

13.4.2 Files Tool and File sharing

For images, presentations, word documents, spreadsheets and other documents that are not entered into forms, the Files tool or folder sharing should be used. It is recommended to limit or restrict automatic downloading of documents as shown below.



Download Properties in the Files tool.

Either Manual or Limited Automatic Download should be selected and configured before invitations are sent.

Since there is currently no search feature in the Files tool, a predefined organized and simple file structure is recommended to can make document archiving and access easier. This should also be accompanied by a process and strategy for information management (e.g. where to put the assessment reports, situation reports form teams, contact data, etc.) and perhaps discussion threads that encourage organized and documented communication including links to the files.

A difference noticed in Groove 2007 is that certain files types, such as .exe, are restricted by default but can be enabled in application preferences if required.

For file availability across Windows programs, selected file folders on the local machines can also be shared and synchronized across multiple computers. Conflicts in file synchronization (i.e. two users make changes to the same file while offline) can occur and will create a second file as a copy.

13.5 Customization of Web Services and Tools

A Groove Web Services Development Kit is available and provides Groove API Web Services for integration with other desktop applications. A Groove 2007 SDK Beta 2 is also available but requires Groove 2007 and Visual Studio 2005. These capabilities should be further investigated.

14 Network Behaviour and Communication Management

Groove is designed to operate over firewalls and poor network conditions regardless of the peer-to-peer connectivity. From bandwidth testing, Triplex observations, and Microsoft documentation, the Groove client has sought to communicate outside the LAN subnet to a Relay server in order to maintain contact with other workspace members and administrative processes.

This behavior can be controlled by managing communications at the network, firewall/proxy, client, or server level.

14.1 Network Behaviour

Groove clients synchronize and operate most efficiently when the team members are all under the same subnet (using TCP port 2492). However, the Groove client will attempt to make use of the Relay server (using HTTP or SSL) when:

- The client is already communicating with the relay server;
- The client cannot communicate with other workspace members (e.g. if they are offline, behind a firewall, or poorly connected);
- At least one workspace member is outside of the client's LAN subnet.

This effectively applies to data synchronization, messaging, invitations, device presence, and miscellaneous activities.

14.1.1 Data Synchronization

When data is added to a workspace Groove will look at the list of workspace members. First it will find which one of these members are reachable directly (using TCP port 2492). It will then send the information in 'deltas' over to the clients. If there are any members online, but not on the same LAN subnet it will make use of the Relay server to send the information over HTTP or SSL. Finally, Groove checks if any of the members of the workspace are offline. If there are offline members then Groove contacts the Relay

Server (e.g. over the VSAT to the Internet) and stores the ‘deltas’ on the relay server until the member comes back online.

It is therefore recommended that most of the synchronizing activity be done over a ‘Groove’ LAN subnet with limited connectivity to outside of the network.

When a file transfer is queued it will not be deleted even if the file is deleted. One needs to purge it using the ‘GrooveClean.exe’. When a transmission is killed manually outside of Groove, the transfer will persist the next time it logs on.

14.1.2 Messaging

Instant messages and voice memos are sent directly if they are in the same LAN subnet and then are saved on the local machine. However, broadcasts and messages to remote members use the Relay server.

14.1.3 Invitations

Similarly, when a workspace member is online and on the same LAN subnet invitations are direct. Otherwise, it uses the Relay server.

14.1.4 Device Presence Information and Miscellaneous Behaviour

The Device Presence data is broadcasted directly across the LAN and/or via the relay server across the WAN.

From bandwidth testing of paused workspaces, instant messages, and invitations, an average of approximately 153 KB of data was transferred per hour with a Groove 3.x client. No data is transferred when set Offline.

14.2 Communication management

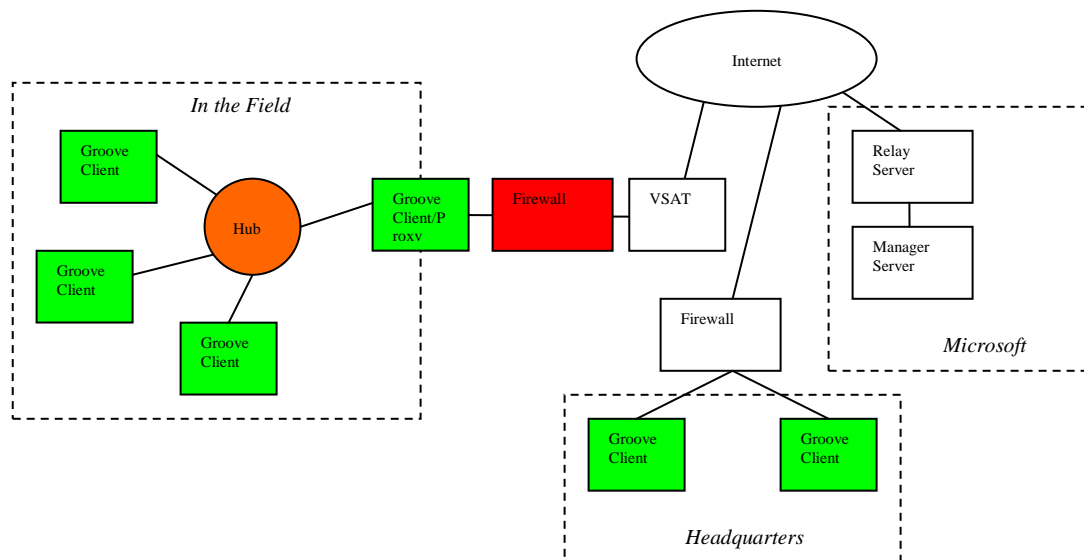
14.2.1 Network

One possible network solution to restrict Groove's access to the relay server is by separating Groove clients to a dedicated 'Groove LAN subnet'. In this scenario their access to other networks must be disabled (e.g. other wireless connections) to ensure containment. For example, a wireless hub can be configured for Groove usage, where it is not directly connected to the VSAT.

14.2.2 Proxy/Firewall/VSAT

It may also be possible to configure a proxy or firewall to restrict routing to only within the Groove LAN subnet. Furthermore selected local machine addresses, known Groove ports, packet headers, routing data, or destination addresses (e.g. restrict access to known Microsoft Relay servers) may also be filtered.

Similarly, this may also be done by the VSAT itself. These solutions have yet to be tested.



Simplified Concept of a Possible Network Solution

14.2.3 Client

As observed from Triplex 2006, when Groove users deviate from best practices in unprepared networks it can lead to unforeseen network traffic. Again, the Files tool and folder properties should be set to 'Manual Download' or 'Limited Automatic Download'.

For client communication management, Groove's Communication Manager should be used to pause workspace synchronization, messaging, and invitations. Users must be trained to enable and disable communications for limiting unnecessary bandwidth consumption. For example, when behind limited connectivity, one should pause all irrelevant and non-essential workspaces to control traffic. If a workspace or communication activity is paused, incoming data is still received if Groove clients are communicating via 'static IP address mode' and:

- Another paused member of the workspace is running an earlier version of Groove,
- A contact running an earlier version of Groove sends a message or invitation.

Furthermore, some unfinished download activity still continued after pausing as well. A 'Pause All Workspaces' shortcut is also located under the 'Common Tasks' in the 'Launch bar'.

When a member of the workspace is remote, they should be suspended. Unfortunately, a member cannot suspend immediately but rather they need to be absent from the workspace for a set period of time. When the user comes back on-line the user can be "un-suspended" in which case changes are synchronized.

If no collaboration is required, working offline is the best option.

In order to terminate and purge existing data transmissions in the queue and reset relay server connections, one needs to execute the 'GrooveClean.exe' in the local machines' Groove application directory. Unfortunately, there is no feature built-in the Groove user interface to allow this functionality and it is important to perhaps create a shortcut to this file on the machines.

14.2.4 Server

Hosted onsite Groove Relay and Manager Servers can also contain the relay traffic locally. However, this option is currently too expensive and impractical due to their hardware requirements.

15 References

- [1] Groove 2007 Planning and Deployment Guide. Microsoft Corporation 2007.
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- [2] Groove Web Services Development Kit Documentation. Available from:
<http://www.groove.net/solutions/develop/downloads.cfm>

- [3] *Strong Angel III : Integrated Disaster Response Demonstration*. Available from:
<http://www.strongangel3.net/sse>

- [4] *UNDAC Field Handbook*. Office for the Coordination of Humanitarian Affairs.
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