



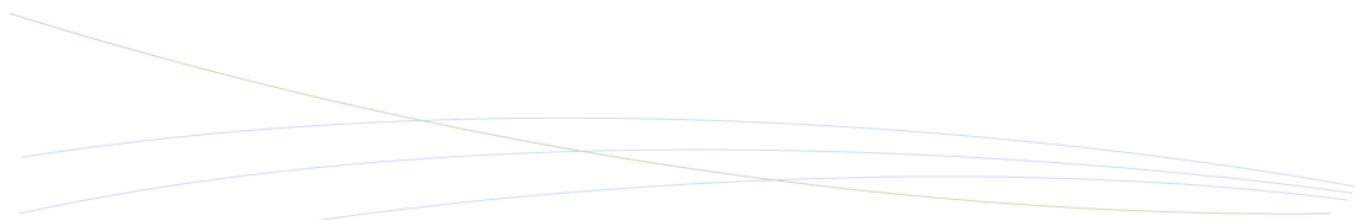
- What's New in Exceed[®] Family



While every attempt has been made to ensure the accuracy and completeness of the information in this document, some typographical or technical errors may exist. Hummingbird Connectivity – a division of Open Text cannot accept responsibility for customers' losses resulting from the use of this document. The information contained in this document is subject to change without notice.

This document contains proprietary information that is protected by copyright. This document, in whole or in part, may not be photocopied, reproduced, or translated into another language without prior written consent from Hummingbird Connectivity.

This edition published June 2007



Contents

Hummingbird Connectivity™ 2008	4
Exceed® Product Family	5
Features Summary	7
Features Details	9
Windows Vista Certification	9
Multiple Profile Space	9
Current Industry Practices	9
Introducing Multiple Profile Spaces	12
Profile Spaces Types	14
Profile Spaces: An Example	15
Rights Management	18
Multiple Profile Spaces Management	20
Conclusion	21
Integration with the Hummingbird Neighborhood	22
First in the Market with X11R7.2 Support	22
Advanced Display Number Control	23
Multiple-Thread Window Message	25
Non-X Window Support in Virtual Desktop	26
Font Related Improvements	27
Additional Extensions and Enhancements	28
New Application Window Properties	29
Ad Hoc Edits to XDMCP Chooser	29
Xconfig Profile Specific Toolbars	30
Optimal Dialog Placements	31
Media Application Server (MAS) Support	31
Xprint X Server	32
Event Monitoring Server	32

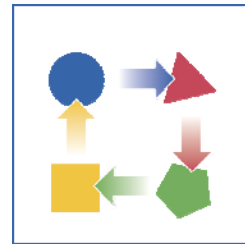
Hummingbird Connectivity™ 2008

Hummingbird Connectivity is a suite of technology solutions that help organizations meet the challenges of integrating heterogeneous systems while providing cost effectiveness. Our customers have been instrumental in our development efforts, over the years and together we have achieved success. Hummingbird Connectivity continues to deliver unparalleled product functionality and substantive return on investment.



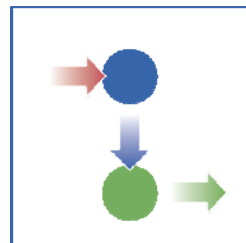
Consolidation

Many organizations with numerous connectivity software vendors have been able to consolidate their needs into one single solution with Hummingbird Connectivity, helping them realize significant savings on their overall IT budgets



Migration

Regardless of your current connectivity solution, Hummingbird Connectivity offers you a smooth migration path with minimal business disruption and immediate return on investment.



Security

Hummingbird Connectivity features a robust and complete security set across all of its components, in order to help organizations meet their security and compliance objectives.



Productivity

Employees are companies' most important assets. Hummingbird Connectivity provides users with unique ways of increasing their productivity while reducing the complexity associated with implementation and delivery.

Exceed[®] Product Family

The unique features of Exceed 2008 have been designed and developed with the objective to improve the product's leadership in the following domains.

Features of Exceed Product Family

Consolidation



Exceed product family is the world renown "Gold Standard" of PC X server which is credited with 71.5% of the market share by IDC (IDC – PC X Server Market forecast and Analysis 1999-2004).

Exceed product family can satisfy most corporate connectivity needs by providing X11, TN3270, TN5250, VT, NFS Client and FTP in a single software package.

Companies can achieve significant cost savings by reducing the number of different solutions in use and replacing them with a single complete connectivity solution.

It can also be used with any supported 32-bit and 64-bit Microsoft[®] Operating System, including Citrix[®] Presentation Server and Windows[®] Terminal Server.

Migration



HostExplorer[®], either as a major component of Exceed or a standalone, full-feature terminal emulation software, offers the best migration path from Attachmate[™] Extra, NetManage Rumba,[®] IBM[®] Personal Communications[™] and WRQ Reflection[®] on the market.

Not only does it allow organizations to convert existing macros automatically (Extra, Rumba and PCOM only), it also offers unparalleled integration with HLLAPI based 3rd party applications.

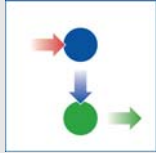
With HostExplorer version 2008, Hummingbird Connectivity raises the bar again by offering the administrator with the ability to distribute "Themes" to his users.

HostExplorer Themes contain pre-packaged settings for a variety of terminal settings such as menus, toolbars, keyboard, colors, sounds and many others.

By using themes, the administrator will be able to quickly re-create a familiar environment to its users, thus reducing the cost of migration and business disruption.

HostExplorer 2008 comes with standard themes for Attachmate Extra, NetManage Rumba, IBM Personal Communication and WRQ Reflection.

Security



Exceed offers best-of-breed security features. Security conscious customers will be able to choose from a variety of supported protocols such as SSL, Kerberos or Secure Shell 2 (available with Connectivity Secure Shell™ 2008).

Exceed is also the first in the industry to have integrated support for smart card solutions from smart card vendors, including Rainbow Technologies Inc., Axalto™ (formerly known as Schlumberger) and ActivCard.® These extra security features are added on top of all the X Window standard security features that Exceed supports, such as host and user-based security.

Administrators can pre-configure and lock-down settings to prevent unauthorized access and modification, thus enhancing security while lowering the administrative overhead.

Productivity



Exceed productivity features allow companies to improve employee's efficiency.

Xweb® Wizard is a new, wizard-driven application that helps users publish X applications on the web. X application can be launched from web browsers in embedded mode (embedded in web browsers) or in stand-alone mode.

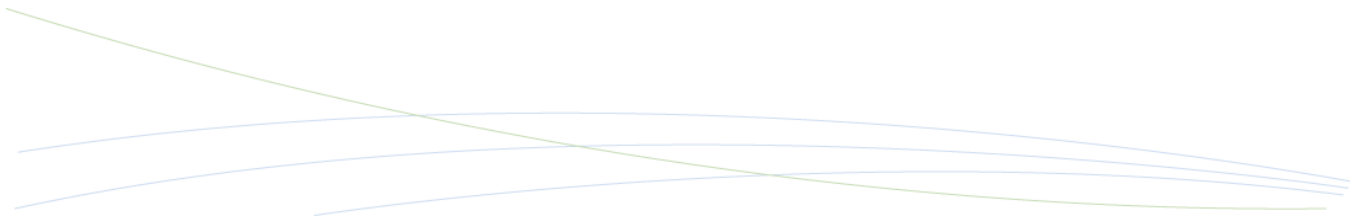
Exceed provides a bird's-eye view of everything there is to know about Exceed configuration through a new application called Exceed Connection Manager. Users can conveniently create, modify, group and launch any Exceed-related configuration files from a single interface. By reducing the users' need to launch and switch between applications, Exceed Connection Manager can dramatically improve productivity.

In addition to the newly implemented productivity features, Exceed also reviews and rejuvenates existing applications and levitates them to a higher level. Applications such as Xstart and Xsession have been redesigned to improve the usability.

Features Summary

General Features	Summary
Windows Vista Certification	The Hummingbird Connectivity 2008 products have received the “Certified for Windows Vista” Logo and were vigorously and exhaustively tested by a Microsoft-authorized third-party laboratory under their finalization.
Multiple Profile Space	Multiple Profile Space allows organizations to manage multiple locations to store profiles and connection settings. Storage locations include local drives, remote file systems or LDAP directories. User access rights are enforced through a seamless integration with Microsoft® Windows® ACLs or LDAP ACLs.
Integration with Hummingbird Neighborhood	Hummingbird Neighborhood is your new command centre where you can connect to any host in your organization using X, Telnet, TN3270, TN5250 or FTP.
X11R7.2 Support	First in the industry to have the commercial support for X11R7.2, the newest X Window® release.
Advanced Display Number Control	A new tool that helps administrators control the usage of the display number in Citrix or Microsoft Terminal Services environments. Administrators can even manage static display number allocation using this new tool!
Multiple-thread Window Message	Helps improve users’ productivity through the improvement in the way Exceed handles window messaging.
Non-X Window Support in Virtual Desktop	Work smarter with the new virtual desktop. It manages your Microsoft and X window applications easily.
Font Related Improvements	New fonts. New encoding engine. New utility.
Additional Extensions and Enhancements	Xinerama — A common set of APIs for X applications to support multiple monitor configurations. X Video — An extension that made video resizing in hardware possible.
New Application Window Properties	GNOME and KDE are now the hottest X Window environments that sport their own window manage that supports the newest and the latest technology.

Ad Hoc Edits to XDMCP Chooser	This feature allows users to directly add new hosts to the XDMCP Broadcast dialog and connects to those hosts without modifying the XDMCP host file.
Xconfig Profile Specific Toolbars	Now Exceed Toolbar settings become part of Xconfig profile, and it can make the busy life of the professionals just a little less busy!
Optimal Dialog Placements	The feature will benefit users with multiple monitor environments as it can strategically place pop-up dialogs on one monitor instead of riding on multiple ones.
Media Application Server (MAS) Support	Media Application Server is one of the latest projects developed by X.Org. It provides an infrastructure for delivering hi-fidelity media.
X Print X Server	Following the norm in the industry, X Print is now removed from the standard list of X extension supported by Exceed. Instead, a separate instance of Exceed will be dedicated to service the X Print capability.
Event Monitoring Server	The Event Monitoring Server is an IIS-based service that monitors events generated by Hummingbird Connectivity client applications (e.g. Exceed, HostExplorer, Hummingbird FTP™, Connectivity Secure Shell, etc.). It logs client-specific actions like Xstart connecting to a host or CSS starting a tunnel into an event database and offer various administrative views to analyze that information.



Features Details

Windows Vista Certification

The following Hummingbird Connectivity solutions have received the “Certified for Windows Vista” certification and are available on both 32-bit and 64-bit platforms:

- Exceed PowerSuite™ 2008
- Exceed 2008
- HostExplorer 2008
- NFS Maestro Solo™ 2008
- NFS Maestro Client™ 2008
- NFS Maestro Server™ 2008 Enterprise Edition
- Connectivity Secure Shell 2008
- Connectivity SecureTerm® 2008



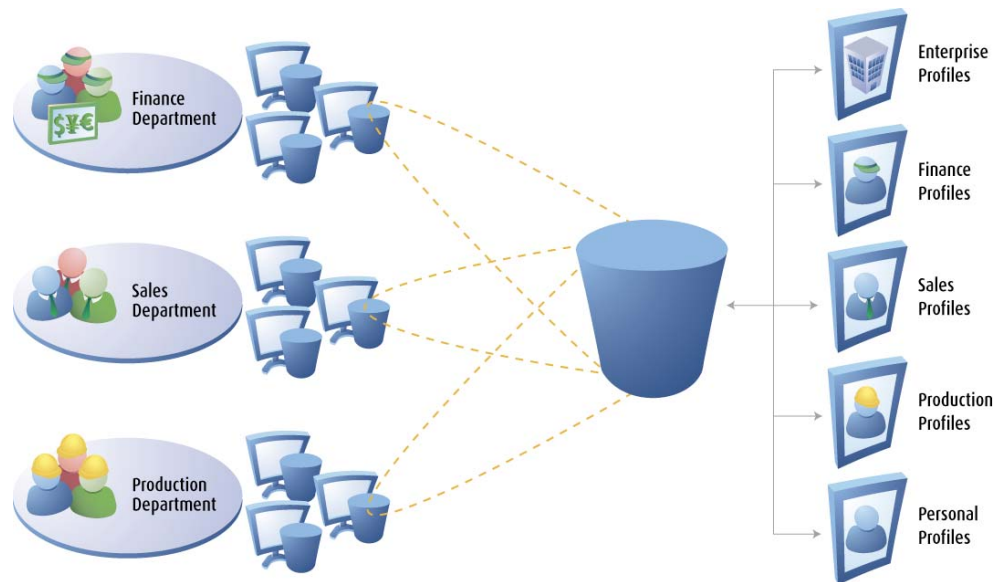
Multiple Profile Space

Exceed multiple profile architecture is a major innovation in the PC X Server market space. It provides an elegant and secure framework for central administration without requiring organizations to set up costly proprietary administrative servers as is the case with other PC X Server solutions.

Current Industry Practices

Many large organizations manage their X server connection profiles, such as Xstart and Xsession, fairly rudimentarily. With a large number of desktops to manage, such organizations are often left with no other choice than copying all X server connection profiles on every single desktop. This method is called decentralized profile management.

Figure 1 — An example of decentralized profile management — all profiles are copied on each desktop.



Such profile management practices are not without drawbacks:

- **All-or-nothing approach** — to keep the chaos at a reasonable level, there is no other choice left to the administrator than to make sure every desktop is strictly identical. This task in itself can be daunting. Every new profile or every modification to an existing profile will need to be deployed on every desktop. When confronted with such situations, many organizations will decide on maintaining the status quo rather than implementing profile changes which would come at a significant administrative cost in time and effort.
- **Unnecessary data replication** — similar to the database normalization approach, there is no reason why the same profile should be replicated over and over on hundreds or thousands of desktops. Replication becomes even more meaningless if the profiles that are distributed are locked-down for modifications.
- **No “single version of the truth”** — assuming that all profiles are not locked down and despite the administrator’s best effort; it is very likely that each PC will have a slightly different version of the profile settings than his neighbor thanks to the customization skills of its user. In other instances different administrators will create different profiles for the same connection and distribute it to the users under their jurisdiction.
- **No flexibility** — copying the software and profiles to the desktop is often done through a standardized desktop image. Administrators create a deployable image of all software components required on the desktops from the operating system

to the business line applications. The image gets installed either by the organization's own teams or by a 3rd party system integrator. This replication process requires every image to be the same for everybody. With such constraints in mind, it becomes impossible for administrators to manage different groups of profiles, short of creating different desktop images which would obviously send the deployment costs skyrocketing.

- **No granularity** — decentralized profile management leaves little room for granularity. Managing specific requirements at the group level or at the user level is an impossible task. As impossible is the ability to fine tune user rights, giving them the ability to modify some parameters such as the terminal colors and preventing them from altering others such as the security settings.
- **Policy-adverse** — in a decentralized profile management system, it is all but possible to implement proper policies. With every machine being equal, administrators are unable to manage profiles and access these profiles in the same way they manage their group policies.
- **Security-adverse** — there's a saying in the security that the less is known about a potential target the better it is. In a decentralized profile management scheme, host information is distributed all over the place. There's no doubt that every host will offer an adequate level of authentication before allowing users to log in, but is it really necessary for the production people to know the IP address, port and security methods for the accounting mainframe?
- **User-adverse** — being a user in a decentralized profile management based organization can be somewhat confusing and frustrating. Because all desktops receive the same image, users find themselves saturated with profiles that are not relevant to their tasks.

Additionally, the all-or-nothing approach leaves the administrator with few choices: either he lets users modify the profiles and incur the risk of saturating the help desk with calls from inexperienced users that have just changed their colors to black on black, or he locks down the profiles with the guarantee that power users will be frustrated and dissatisfied with the tool.

- All-or-nothing approach
- Unnecessary data replication
- No "single version of the truth"
- No flexibility
- No granularity
- Policy-adverse
- Security-adverse
- User-adverse

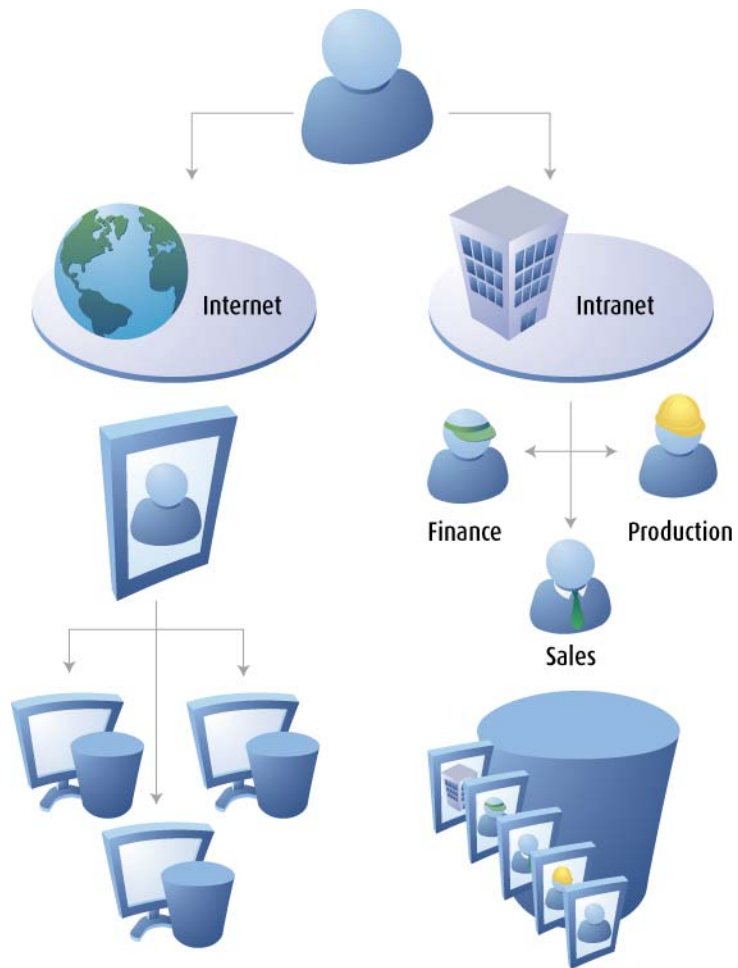


Figure 2 — Disadvantages of decentralized profile management architectures

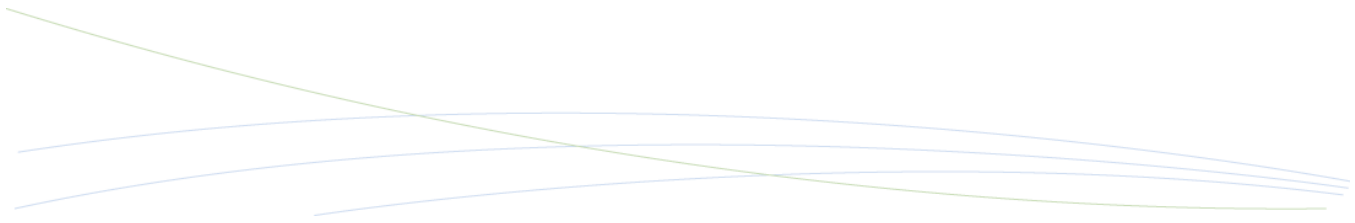
Introducing Multiple Profile Spaces

“Multiple Profile Spaces” is the name for the Hummingbird Connectivity technology that allows administrators to manage and deploy profiles from central or distributed repositories.

A profile space can be accessed by Exceed users to read or write profiles. There is no limit to the number of profile spaces that a particular user can access and there is no limit to the number of profile spaces that can be set up.

Profile spaces are extremely flexible and allow administrators to adapt the repository architecture to suit their needs. For instance:

- **Single profile space** — users do not have any profiles stored on their desktops. All profiles are located in a central repository making it easy for the administrator to create new profiles or modify existing ones without redeploying any of them.
- **Multiple profile spaces** — users are split into groups (by business unit for instance). Each group has its own profile space and can not access other group's spaces. This kind of architecture helps the administrator specialize profiles by publishing them only to the relevant group of users.
- **Combined profile spaces** — this architecture consists of setting up multiple profile spaces with specialized profiles in them and allowing users to access one or more of these spaces. This model presents the advantage of keeping profiles organized and secured by specialization (line of business or geography for instance), while letting users access them seamlessly.
- **Combined and personal profile spaces** — in addition to letting users access global repositories, administrators also have the ability to allocate them a personal area where they can store, retrieve and modify their own profiles and settings. This setup constitutes the ultimate profile space experience, giving users transparent access to private and global profiles.



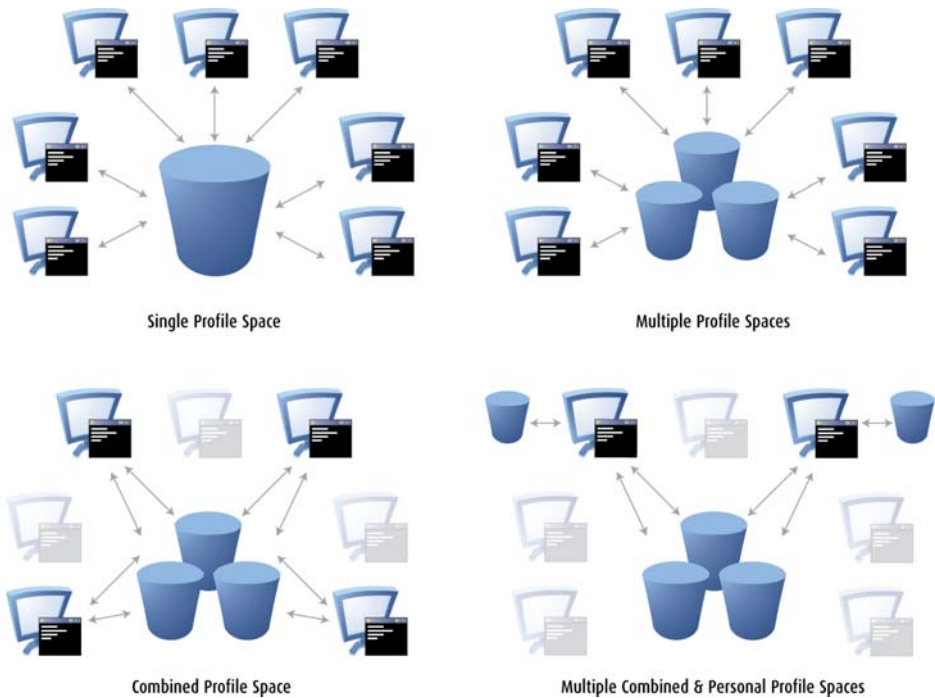


Figure 3 — Examples of profile spaces architectures

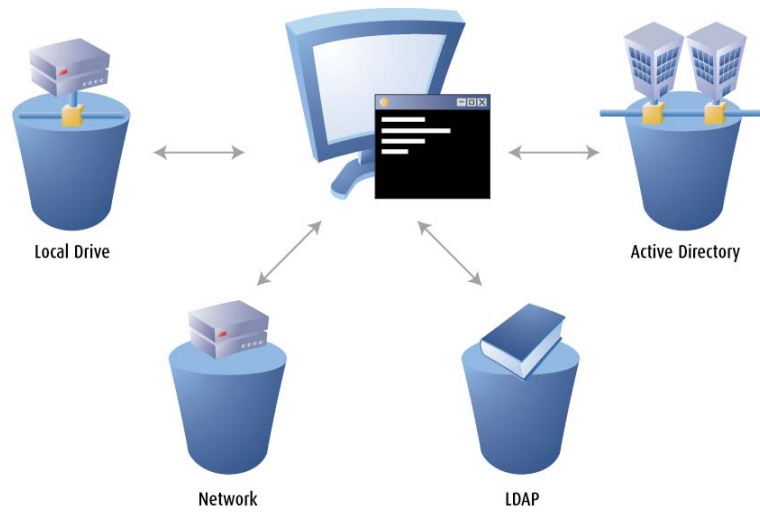
Profile Spaces Types

Contrary to other PC X server software, Hummingbird Connectivity designed Profile Spaces to leverage existing IT infrastructures without introducing a proprietary repository.

Profile Spaces can be set up on four different types of repositories:

- **Local storage** — this includes hard drives, removable drives and any other fixed or removable media that is physically connected to the user desktop.
- **Network storage** — this includes network drives, UNC paths, NFS shares and any remote location that can be accessed from the operating system.
- **LDAP Directories** — any directory service that supports the Lightweight Directory Access Protocol.
- **Active Directory** — the Microsoft® directory service for use in Windows® environment is tightly integrated with all Microsoft Operating Systems, Management Tools and Security Policies.

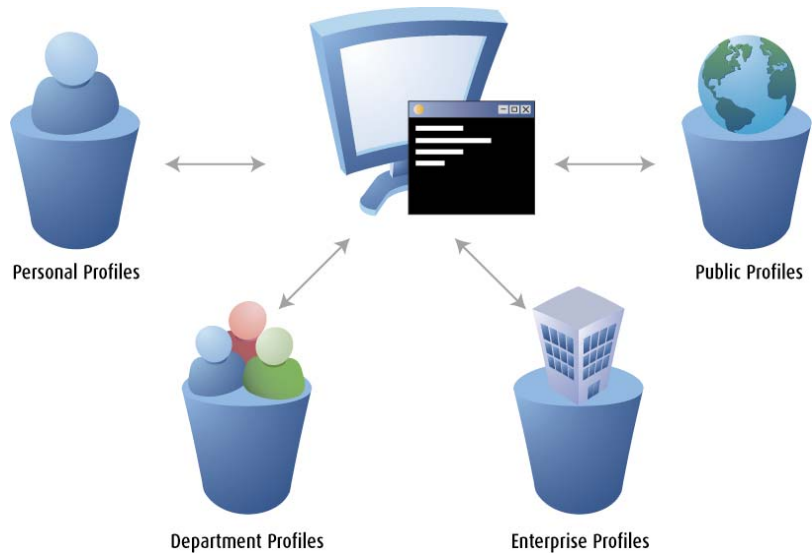
Figure 4 — Available profile spaces types



Profile Spaces: An Example

The major advantage of profile spaces is their versatility and their flexibility. There is no limit to what a profile space can be used for as shown by the example below.

Figure 5 — Profile Spaces can be organized in many logical configurations



In a classic decentralized management environment, such configurations would have been hard to set up without creating a multitude of desktop images to suit each group requirement.

Multiple Profile Spaces allow administrators to centrally and logically organize the profiles in multiple repositories as shown in the two scenarios below.

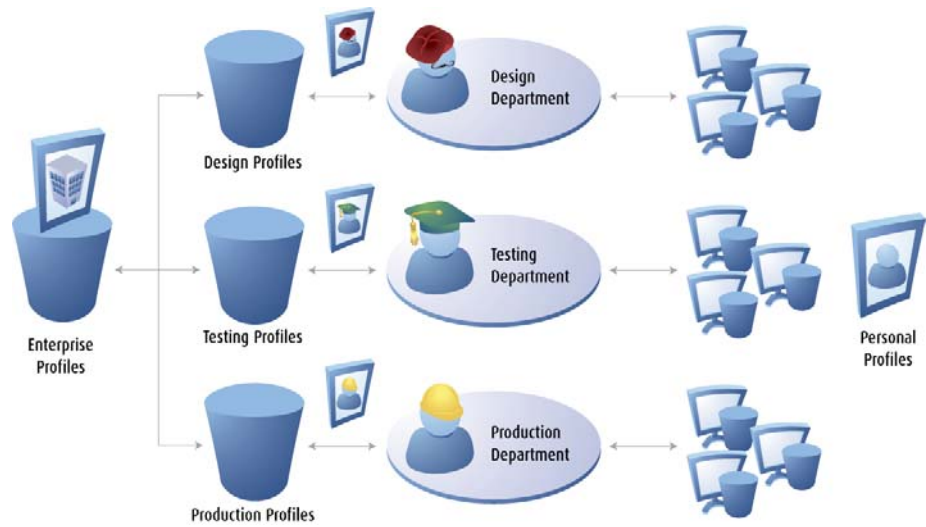
Scenario 1: ACME Inc. is a typical manufacturing company with employees working in 3 areas:

- Design
- Testing
- Production

X Server is used at different levels by all employees:

- All users, regardless of the division they work in, need to access the enterprise scheduling application which is an X application. This is where they enter their schedules and work hours that are used for rebilling purposes.
- Users in the Design group need to access various CAD/CAM applications for designing parts. Those applications reside on a farm of Sun[®] Enterprise Servers.
- The Testing group put those parts through simulation software running on a separate farm of UNIX[®] servers to ensure the design is sound.
- Production takes the approved designs and commits them to production. Production cycles are monitored by a series of applications running on Linux[®].
- Finally, all employees have access to specific UNIX applications depending on their roles and use FTP file transfer to save their personal data.

Figure 6 — ACME Inc Profile Spaces are organized by Business Unit



Scenario 2: ACME Inc. is a global company with operations on 3 continents:

- North America
- Europe
- Asia

Figure 7 — ACME Inc Profile Spaces are organized by geographical locations



Rights Management

Profile Spaces have been designed to leverage the existing IT infrastructure and policies in place. Profile Spaces will take advantage of the native Access Control Lists (ACLs) available for each profile space type:

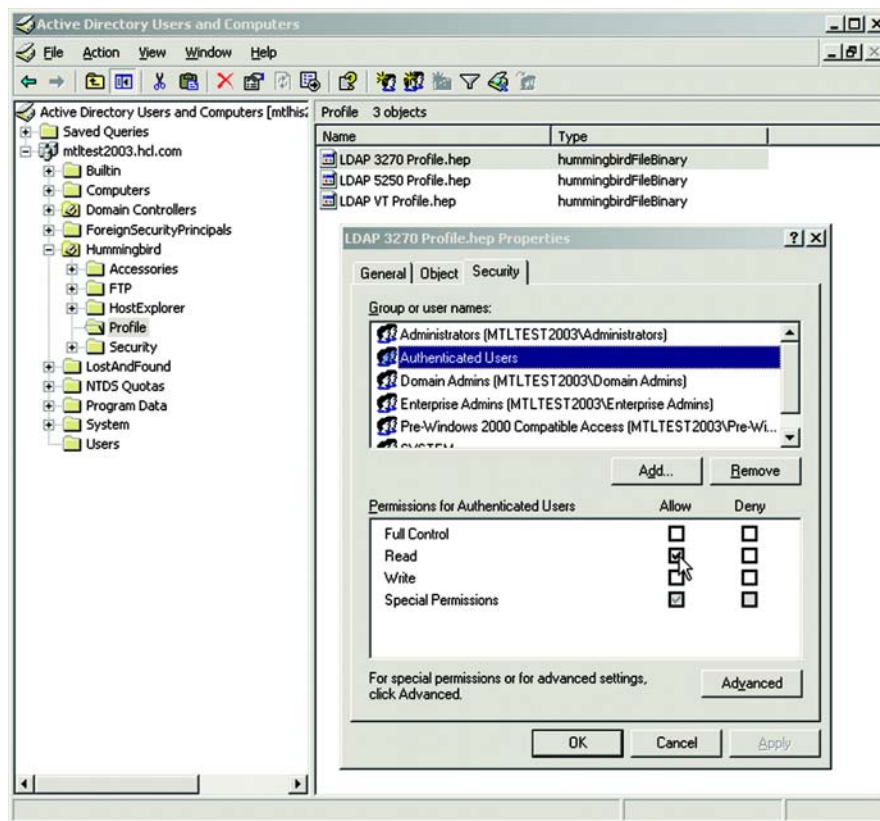
- **Local Storage** — local or domain Windows ACLs
- **Network Storage** — local or domain Windows ACLs
- **LDAP Directory** — LDAP ACLs
- **Active Directory** — AD ACLs

Using the native right management system for each profile space type offers a number of advantages both for the administrator and the users.

Administrator:

- **Full administrative control over users' rights** — Profile Spaces will comply to the ACL rules giving users read or write access to profiles only when authorized by the ACLs.
- **No paradigm shift** — no proprietary (i.e. different) users and groups management system that would create administrative overhead.
- **No need to learn new administrative tools** — user rights can be managed with the same tools that are used to manage the file system rights or the directory rights.

Figure 8 — Profile Spaces as seen from the Active Directory administrative console



User:

- **Transparency** — in contrast to proprietary profile management systems the user will see no difference between accessing profiles stored on profile spaces or traditional profiles.
- **No unnecessary login** — since Windows credentials are being used to determine Profile Spaces rights, there is no need for additional authentication before accessing the profiles.
- **Easier access to profiles** — with Multiple Profile Spaces users can only see the profiles they have access to. It reduces the risk of errors while simplifying the user interface.

Multiple Profile Spaces Management

Administrators can manage Multiple Profile Spaces with easy powerful tools that come with Exceed.

The Profile Space Editor

The Profile Space Editor allows administrators to add, edit and remove Profile Spaces. Each profile Space can be assigned a name and a distinct icon that will help users identify it easily.

A particular Profile Space can contain references to multiple locations. When the first location is not available, Exceed will automatically look for the next online location. This allows administrators to set up a fault-tolerant Profile Space and guarantee that their users will always have access to their profiles.

When choosing the location for a particular Profile Space, the administrator is also allowed to use system replacers (in the form of \$Keyword\$). Those replacers will transparently be converted into real values when using the Profile Space. For instance the \$USERNAME\$ replacer will be converted to the Windows user name of the currently logged in user.

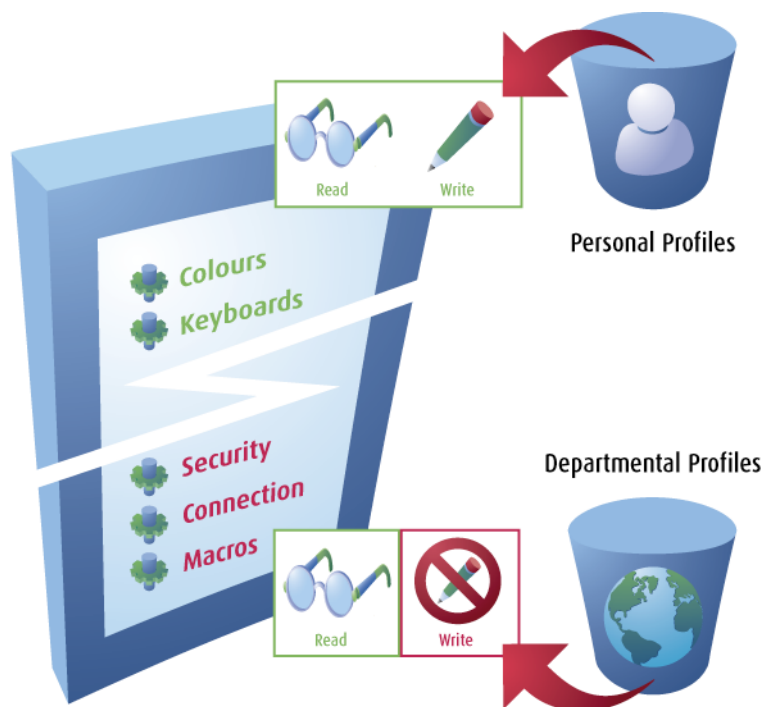


Figure 9 — Creating a Profile Space with a primary and a backup location in the Profile Space Editor tool

The Profile Publishing Wizard

The profile publishing wizard is an administrative tool that allows profiles stored locally on a desktop to be published to an existing Profile Space.

Administrators who use that tool will be able to set up the profiles and test them locally on their desktop before making them available to their user community.

This tool can also be used to publish modifications to already-published profiles in a Profile Space.

Conclusion

Multiple Profile Spaces offer new perspectives on organizations' profile management practices. They offer countless benefits to users and administrators.

Flexibility

- Profile Spaces can be organized in any physical and logical combinations.
- There is no limit to the number of spaces that can be created.
- There is no limit to the number of users that can access a particular Profile Space.
- Profile Spaces can be deployed on local file systems, network file systems, LDAP directories and Active Directory.

Security

- Profile Spaces leverage existing user rights and do not require administrators to create (or recreate) a particular user's and group's hierarchy to suit the deployment model.
- User rights are managed through existing ACLs offering administrators total control over the distribution and access to the profiles.
- Individual settings of a particular profile (also known as schemes) can be stored on different Profile Spaces and have their own ACL, allowing for maximum granularity in the access rights.

No Disruption

- Profile Spaces do not require specialized software to be installed on servers.
- Profile Spaces live within the existing infrastructure not requiring dedicated hardware.
- Profile Spaces will not increase the workload of existing network and hardware infrastructures besides normal I/O operations.

Integration with the Hummingbird Neighborhood

Hummingbird Neighborhood has now become the Grand Central Station of Hummingbird Connectivity. In this convenient location you can access and manipulate the Profile Spaces, profiles and directories associated with HostExplorer, FTP and Exceed. Using Hummingbird Neighborhood, you can now connect to a host and launch an X application as easily as you would a mainframe session.

Figure 10 — You can find Exceed related profiles in Hummingbird Neighborhood



Can't find an Xstart profile that suits your needs? Create one! Simply double click on New Xstart File or New Xsession File object and you can create an Xstart or Xsession profile that launches X applications the way you want it. Full Windows support, seamless integration to the operating system, Hummingbird Neighborhood gives you instant access to Hummingbird Connectivity core technologies, and facilitates higher productivity and better profile manageability.

First in the Market with X11R7.2 Support

Hummingbird Connectivity is the first vendor in the market to have commercial support for X11R7.1. Released by the X.Org Foundation on Feb 15, 2007, X11R7.2 is the latest in the X Window System technology. X11R7.2 is built upon the R7.0 which was released late 2005.

Arguably, Linux is the main driving force behind the growth of UNIX/Linux market, and an indirect result of this is the rapid development of the X Window System, such

as the development of new extensions or enhancements to existing ones in order to enrich users' experiences. The activity level is high and the number of contributing developers is huge; an overhaul of the source code management is much needed. Modularization was introduced in X11R7.0 to offer focused development and rapid and independent updates. More frequent updates will greatly improve the adoption rate of new features or enhancements by vendor and user communities. As a testimony of the success of the shift of paradigm, numerous revisions were released over a relatively short span of time, as opposed to the historical biennial maintenance release timetable.

But why does this concern you? As the next generation of UNIX and Linux servers are being established in back offices across the globe, and begin hosting new or revised X applications, they will be able to reap the benefits of new functionalities and possibilities present in the new X11 release. Functionalities such as the ability to freely and quickly render, resize and rotate displays, and possibilities of improving the usability of applications and productivity of users. To take advantage of such functionalities and possibilities, you and your users will need the most powerful and most advanced PC X server on the market, and that is Exceed.

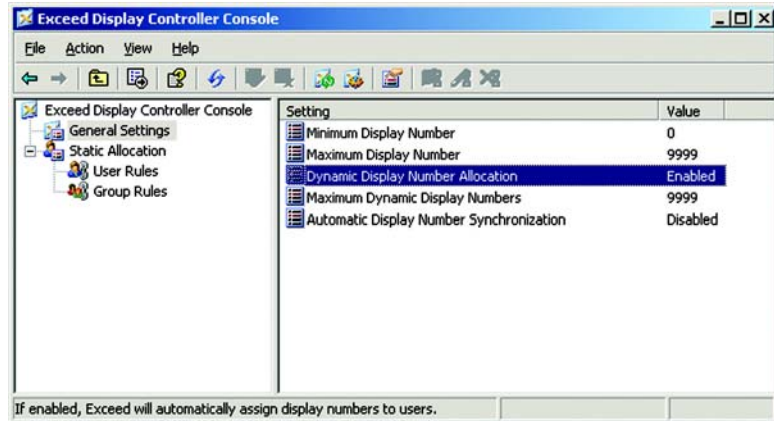
Advanced Display Number Control

Many organizations rely on Citrix® Presentation Server® or Microsoft Terminal Services technology to centrally distribute and manage the deployment and the usage of Exceed.

Each instance of Exceed launched by a user must be assigned with a unique display number so that it can uniquely identify itself when communicating with UNIX hosts. Administrators have the option to set the display number assignment mechanism to dynamic, static or a combination of both. In a dynamic assignment scenario, Exceed will withdraw the lowest available display number from a pool and assign it to an Exceed session for temporary use; the display number is then returned to the pool after the usage is over. Alternatively, the static assignment permanently reserves specific display numbers for specific users. All of these configuration options are under the control of a text file DISPLAY MANAGER.INI, managed by administrators.

A new management utility is created, called Exceed Display Controller Console. It is a Microsoft Management Console plug-in that provides a graphical interface for setting parameters that are found in DISPLAY MANAGER.INI. The new tool can even graphically display all active and inactive display numbers.

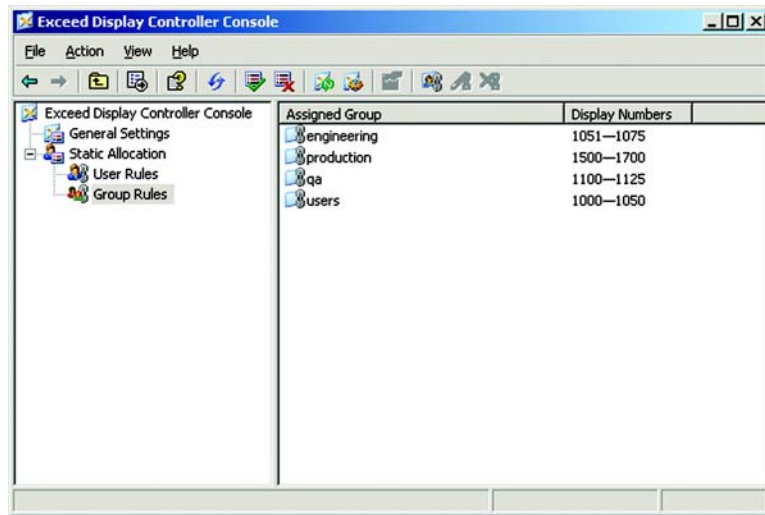
Figure 11 — Exceed Display Controller Console is partly a front end tool to the DISPLAY MANAGER.INI file



Exceed Display Controller Console is more than a mere front end tool to the INI file, it also brings new features to administrators, most notably is the ability to assign display on a group basis. Manually assigning a unique display number to each user is as tedious as it is powerful. To some, it is an overkill approach which ends up wasting more valuable resources than it is saving. To others, it is a necessary evil that they have to live with because some X applications control license usage by means of limiting the access to some particular IP addresses and display numbers. The only way to launch the stated application is to own one of those display numbers.

Group assignment mechanism is designed to provide a well-balanced combination of control and convenient solution. Administrators can still have a high level of control regarding who gets what display number, but the control shifts from the user to the group level. Instead of assigning an individual display number to each user, users who belong to a particular group can access a specific pool of display numbers.

Figure 12 — The ability of assigning display numbers to a group of users is one of the possibilities offered by this new feature



Referring back to the previous example of the application that requires prior knowledge of all IP addresses and display numbers of all sessions for licensing purposes, group assignment can greatly reduce the managerial overhead. An administrator can first predefine a range of display numbers; the size of the display number pool will reflect the number of software licenses that the company has. The administrator will register those display numbers with the engineering application, and then allocate those display numbers to a Windows group using Exceed Display Controller Console. That's it! It is that easy.

Any change to the roster of engineers requires only the updating of the Windows group because, thanks to the group assignment feature, Exceed does not have a separate database that contains a static user-to-display-number relationship. Using the group assignment function, for as long as a user belongs to a Windows group, he or she will always be automatically assigned a unique display number which has the permission to run that engineering application.

Multiple-Thread Window Message

We have seen Exceed being used by clients in the automotive sector for parts design; clients in the aerospace industry for aerodynamic simulation; financial institute clients for handling thousands of business transactions; clients in the utility sector for maintaining the efficiency and safety of power grids, and the list goes on. It is critical to those clients to be able to process, generate or simply display business data in a timely manner in order to remain competitive and maintain a wide profit

margin. Any improvement on any segment of the overall workflow can potentially yield tremendous results therefore it should not be underestimated.

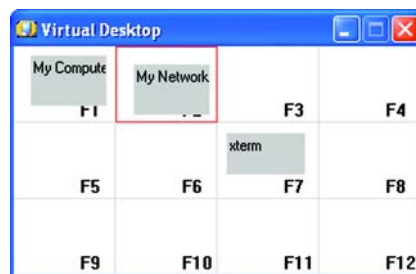
A seemingly minor improvement such as multiple-thread window messaging is extremely important to applications that interact with users frequently while rendering the display constantly. With the aid of this feature, Exceed can continue to render X applications while other events, such as displaying a drop-down menu, occur. Increase in the efficiency of the product usage can lead to overall improvement in users' productivity.

Non-X Window Support in Virtual Desktop

Over the years the number of applications required in order to achieve your day-to-day objectives has increased. Maybe it is the aftermath of the recent economic crisis; but regardless, there are more windows on your screen. With the growing number of applications the desktop landscape becomes a premium. An extra monitor will come in handy and can make you more productive because you don't have to keep switching from one window to another. But even with the ever declining price of monitors and the inclusion of multi-head capabilities to many lower end video cards, it is still hard to get those purchase requisitions approved. Yes, we all know what a monumental task that can be and we sympathize with you.

Work smarter with the new Virtual Desktop! This feature has been a god-send to many of you as it can easily multiply your desktop real estate many times over and saves you the trouble of engaging in a battle with your boss and IT for new hardware! In its latest revision, Virtual Desktop further expands its reach to let you also manage Windows applications. You can now open X and Microsoft applications in any virtual desktop workareas, as well, you can organize your workareas by moving applications from one workarea to another. In addition, using keyboard shortcuts F1 through F12, you can toggle between workareas on the fly, so you will never lose your way when navigating through those applications.

Figure 13 — Expand your desktop real estate without spending a single dime. Each workarea can be mapped to a keyboard shortcut for added convenience

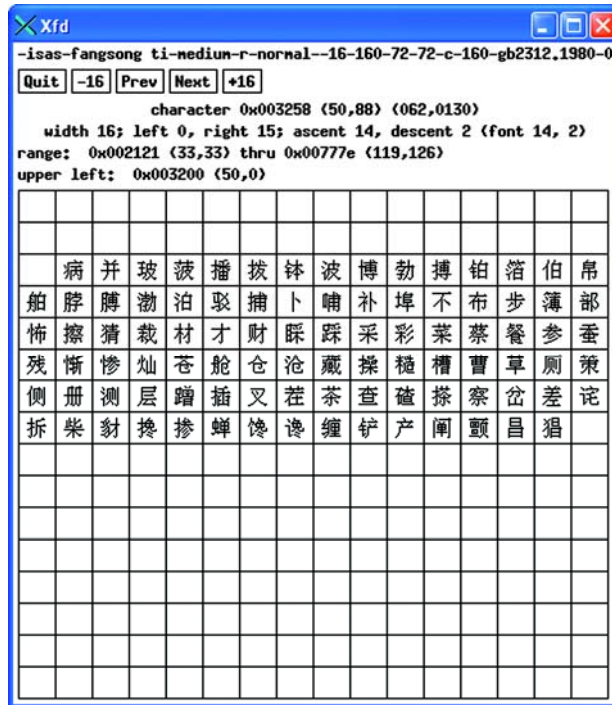


Font Related Improvements

Font improvements in Exceed 2008 are threefold:

- **New Fonts** — over four dozen new fonts are added to Exceed 2008. This feature highlights the improvements on the out-of-the-box support for Unicode and Asian Double Byte Character Sets fonts.
- **New Encoding Engine** — Unicode is the universal character encoding which provides the basis for processing, storage and interchange of text data in any language in all modern software. Some new X Window applications also embraced the Unicode encoding standard. However, the Unicode font collection is huge and ever increasing therefore it is impossible for any software company to present a complete collection of Unicode fonts. Instead, Exceed 2008 offers users the unique capability of creating special aliases for Unicode fonts. As a user, you can add more aliases to solve any problem you may find related to missing fonts on the fly. Also, taking the fact that all Windows Pseudo fonts are in fact Unicode fonts, the possibility is virtually endless.
- **New Utility** — XFD is a local X application, which clearly displays additional information that are not shown in the standard view, including a row of command buttons, character metrics, and a table containing all characters in the font.

Figure 14 — New X-based font tools display all relevant information of the selected font



Additional Extensions and Enhancements

The support for two additional extensions is included in Exceed 2008:

- **Xinerama** — Xinerama is an extension which allows X applications and window managers to properly recognize multiple physical monitors and adjust the behavior of applications accordingly. Applications that take advantage of this new extension will be able to efficiently utilize multiple physical screens from the protocol level.
- **X Video** — the X video extension utilizes hardware capacities to speed up video playback and to reduce total CPU time on both systems running Exceed and the X client. It also provides server-side video adjustment for brightness, contrast and hue if the hardware supports it.

New Application Window Properties

GNOME and KDE are standard desktop environments that can be found on all Linux operating systems. They interface users with applications with their highly appealing and effective displays and functions. Even Sun Microsystems' new Java Desktop System (JDS), which can be found on the new Solaris 10 operating systems, is also based on GNOME technology and phases out the aging Common Desktop Environment (CDE) in the process.

Hummingbird Connectivity has been closely following the developments in the UNIX and Linux communities. In anticipation of the ever growing adoption of GNOME and KDE environments, Exceed supports the following new application window properties:

<code>_NET_WM_VISIBLE_NAME</code>	<code>_NET_WM_NAME</code>
<code>_NET_WM_VISIBLE_ICON_NAME</code>	<code>_NET_WM_ICON_NAME</code>
<code>_NET_WM_WINDOW_TYPE</code>	<code>_NET_WM_DESKTOP</code>
<code>_NET_WM_ICON</code>	<code>_NET_WM_STATE</code>

These properties ensure Exceed's ability to better communicate and more effectively interact with GNOME and KDE, so our users can immediately benefit from all the exciting enhancements promised by those environments.

Ad Hoc Edits to XDMCP Chooser

Loyal Exceed users will agree that XDMCP Broadcast is one of the most wonderful tools because of the simplicity of the idea and execution! Just by clicking on an icon, hosts that are willing to manage a user's session will fill the dialog box and the user can pick a host from that list.

XDMCP Broadcast is not without restrictions: because of the limitation of the protocol, only hosts within the same subnet as the PC will show up on the list. A mechanism that relies on a file called XDMCP.TXT helps work around this limitation. This file is created by users or administrators and is filled with frequently accessed hosts that are outside of the user's subnet. Exceed can extend its reach with the help of this mechanism.

However, modifying XDMCP.TXT every time a user wants to connect to not-so-frequently accessed hosts may not be the most convenient option or the most efficient use of time.

In order to provide a greater level of flexibility, the new XDMCP dialog now allows users to make ad hoc edits to the list and connect to any of those hosts without resorting to manually editing the XDMCP.TXT file. In the end, the host list in the XDMCP Chooser dialog box will contain hosts from three sources: results of the XDMCP Broadcast, hosts listed in the XDMCP.TXT file and hosts added to the ad hoc list.

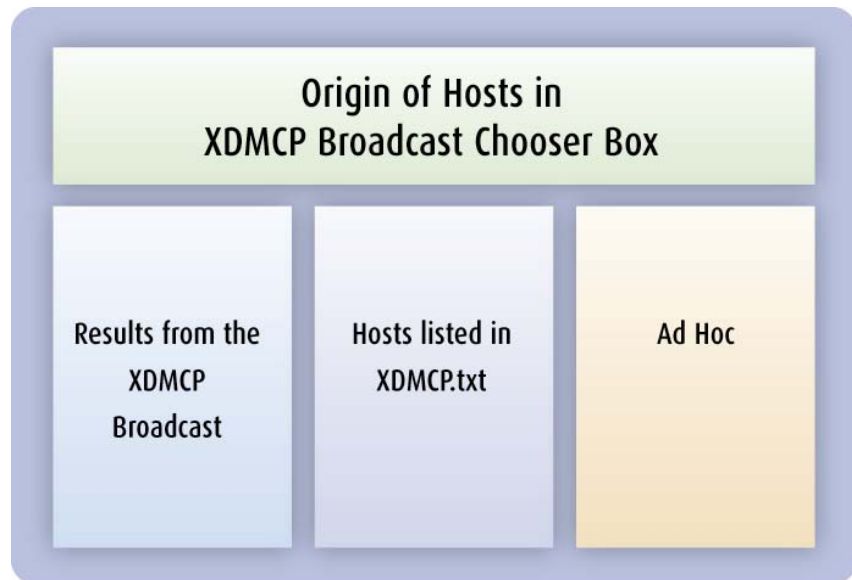


Figure 15 — Hosts listed in the Exceed XDMCP Broadcast Chooser box composed of three separate sources

Xconfig Profile Specific Toolbars

Exceed offers the capability to allow users to create multiple Xconfig profiles. Many enterprise-class X applications have unique and often conflicting requirements therefore Exceed must be configured in a way that allows those applications to be successfully executed. For instance, one Xconfig profile can have a different server visual setting than the other, and each profile loads different keyboard configuration files.

Exceed 2008 extends the configurability by introducing Profile-Specific Exceed Toolbar. Just like the regular toolbar in previous versions of Exceed, it allows users to attach Exceed functionalities as well as external programs to the toolbar. But in

addition to that, users can create many toolbars with different configuration and tie a toolbar to an Xconfig profile. So each Xconfig will be truly tailored to the needs of the X applications and users.

Optimal Dialog Placements

For those of you who are fortunate enough to have multiple monitor environments setup to run complex X applications, you will be pleased to know that a special feature is implemented in the new version of Exceed.

When Exceed spans the root window across multiple monitors, Exceed treats it as one giant display and at the same time acknowledges the physical boundaries of each monitor. Armed with this tidbit of knowledge, Exceed can take extra precautions to make sure that X application dialog boxes will be strategically placed to avoid the centre of the viewing area. Dialogs will be displayed within one physical monitor spanning across two or more monitors.

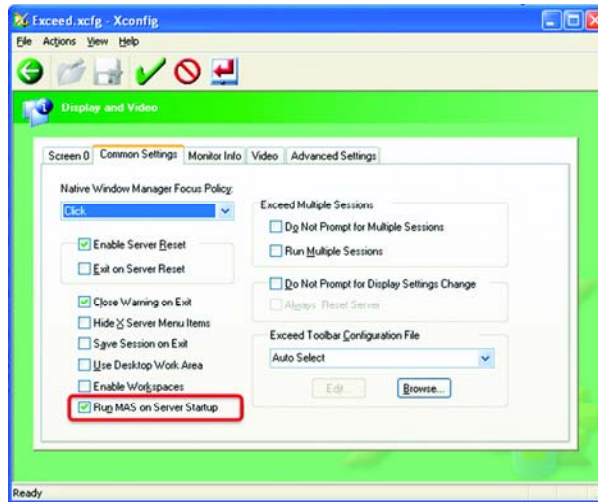
Figure 16 — Avoid split images, Exceed will automatically place the dialog box within one physical monitor



Media Application Server (MAS) Support

Media Application Server (MAS) is one of the newest projects sponsored by X.Org. Its goal is to provide a platform independent and network transparent mechanism to deliver hi-fidelity and real time audio data. Potential usages of MAS include channeling audio cues generated by X applications and accessibility tools to remote users who are visually impaired.

Figure 17 — MAS can be launched on Server startup or independently.



MAS can either be launched independent of or in conjunction with Exceed. Once enabled, MAS will run alongside Exceed and communicates with remote MAS clients using a protocol proprietary to MAS.

Xprint X Server

Xprint is an extension designed specifically for printing. For applications that support this extension, it allows them to render output to a printer just as it would to any display device. Exceed has been supporting Xprint since its introduction to X11R6.3. Recently, the trend in the industry is to detach the Xprint capability from the core X server, making Xprint a standalone X server which provides the benefit of reducing the complexity of the X server and may even improve the reliability. Exceed followed suit in the new version. Xprint is removed from the list of extensions in the Protocol page. Instead, Xprint can be accessed from a command line. Instead, Xprint can be launched from Xstart as a Local Application.

Event Monitoring Server

For the past 3 versions, Hummingbird Connectivity products have come with a built-in license metering functionality. With Connectivity 2008, Hummingbird Connectivity is taking metering one step further by introducing the event monitoring server.

The Event Monitoring Server (EMS) is a robust and scalable facility designed to help administrators gather information about their Hummingbird Connectivity 2008 infrastructure. EMS comes as a client/server architecture:

- The EMS Client is installed with every Connectivity 2008 software package. Its role is to report installation and activity information to the EMS Server.
- The EMS Server comes as an ASP.NET application that runs on Microsoft Internet Information Server. Its role is to collect information from the EMS clients, store it in a relational database (SQL Server or MySQL) and to offer several administrative views to display that information.

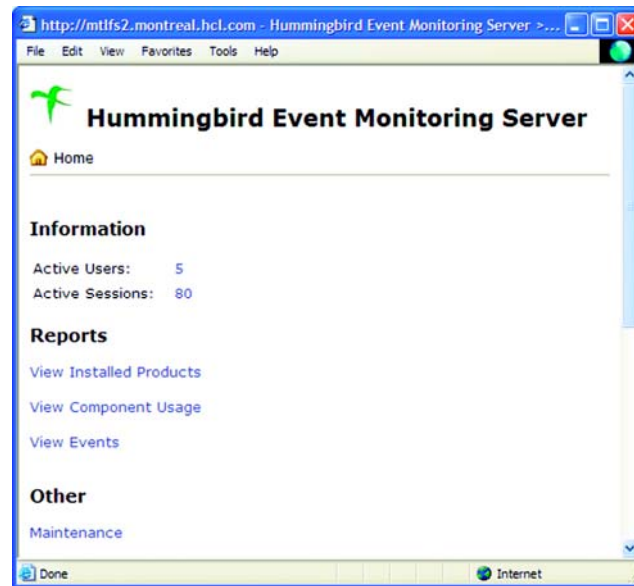
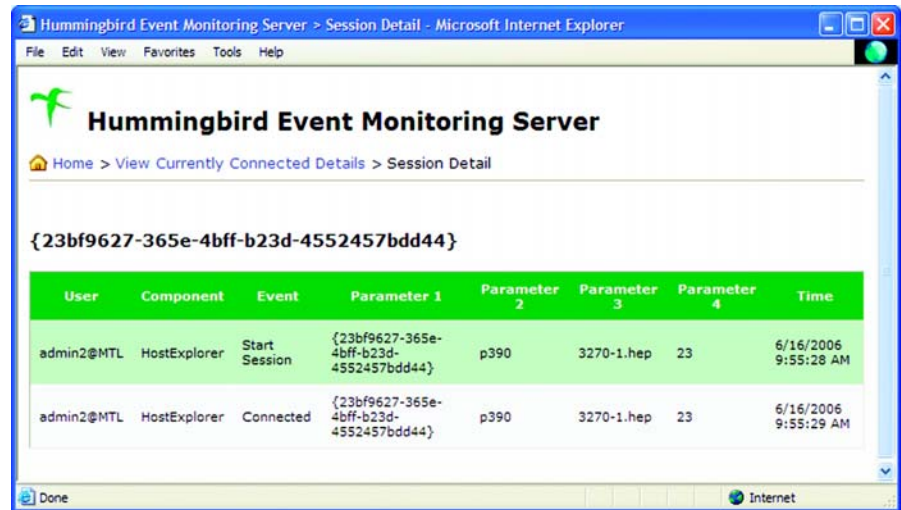


Figure 18 — The EMS Server main page

The EMS Server main screen provides administrator with the total number of active users and active sessions running. Administrators have the ability to drill down and isolate a specific user or machine in order to determine its activity.

Figure 19 — The EMS Server Session Detail

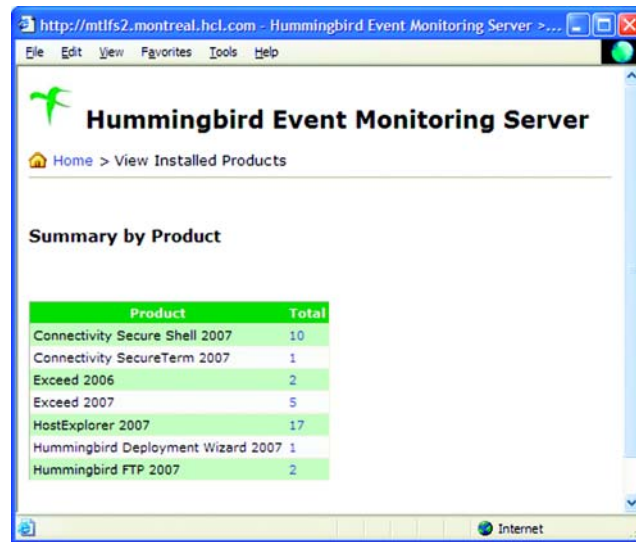


The screenshot shows the Hummingbird Event Monitoring Server interface in a Microsoft Internet Explorer browser window. The page title is "Hummingbird Event Monitoring Server" and the breadcrumb navigation is "Home > View Currently Connected Details > Session Detail". The session ID is "{23bf9627-365e-4bff-b23d-4552457bdd44}". Below this is a table with the following data:

User	Component	Event	Parameter 1	Parameter 2	Parameter 3	Parameter 4	Time
admin2@MTL	HostExplorer	Start Session	{23bf9627-365e-4bff-b23d-4552457bdd44}	p390	3270-1.hep	23	6/16/2006 9:55:28 AM
admin2@MTL	HostExplorer	Connected	{23bf9627-365e-4bff-b23d-4552457bdd44}	p390	3270-1.hep	23	6/16/2006 9:55:29 AM

Administrators also have the ability to see how many licenses of each product are installed on their network. Here again, the EMS server offers the ability to drill down and identify on which machines the products have been installed.

Figure 20 — Administrators have the ability to see how many licenses of the Connectivity 2008 software have been installed.



The screenshot shows a web browser window with the URL <http://mtlfs2.montreal.hcl.com>. The page title is "Hummingbird Event Monitoring Server". Below the title is a navigation menu with "Home" and "View Installed Products". The main content area is titled "Summary by Product" and contains a table with the following data:

Product	Total
Connectivity Secure Shell 2007	10
Connectivity SecureTerm 2007	1
Exceed 2006	2
Exceed 2007	5
HostExplorer 2007	17
Hummingbird Deployment Wizard 2007	1
Hummingbird FTP 2007	2

EMS is also capable of reporting the daily, or even hourly usage of a specific Connectivity 2008 component graphically.

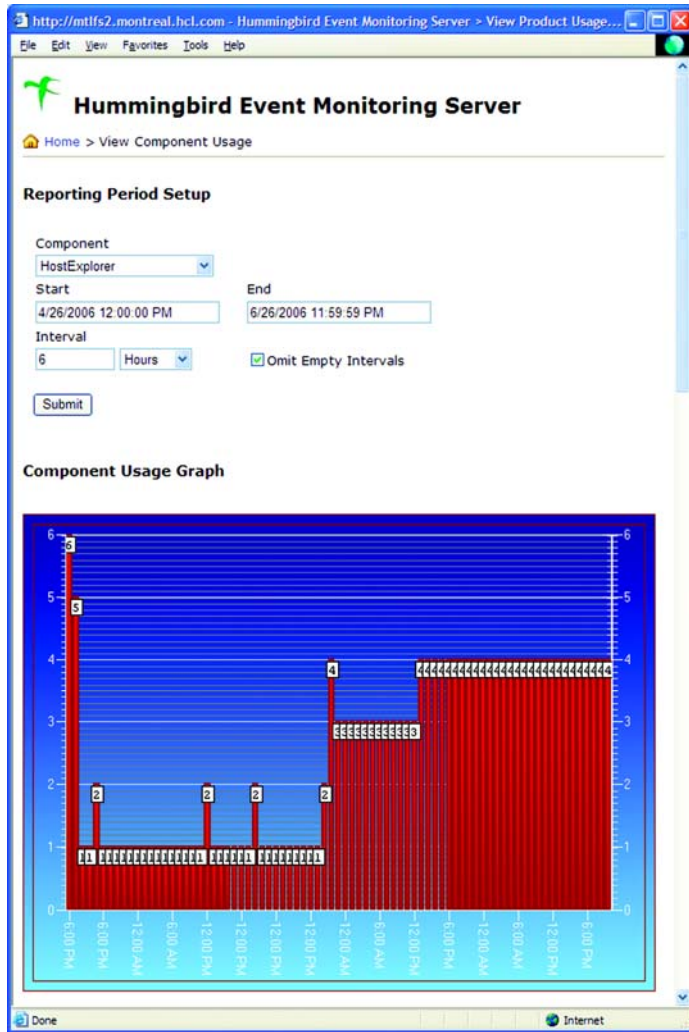


Figure 21 — The EMS Component Usage report window



Sales & Support		Corporate Head Office
Canada 1 Sparks Avenue, Toronto, Ontario, M2H 2W1 Phone: 416-496-2200 Fax: 416-496-2207 Toll Free: 1-877-359-4866	http://www.hummingbird.com getinfo@hummingbird.com support@hummingbird.com North America Support 1-800-486-0095 Worldwide Support 1-416-496-2200	www.opentext.com sales@opentext.com North America Sales 1-800-499-6544 International Sales +800-4996-5440

If you're a Hummingbird Connectivity partner or customer, visit www.hummingbird.com or online.opentext.com for more information about this and other Open Text solutions.

Open Text is a publicly traded company on the NASDAQ (OTEX) and the TSX (OTC).

Copyright © 2007 Hummingbird Ltd. All other trademarks or registered trademarks are the property of their respective owners. All rights reserved.
Hummingbird Connectivity is a Division of Open Text Corporation. Printed in Canada. WP-03-00-EN-0069-05/07