# Installing SUA Commands, Utilities and Libraries

### Tech Note #2 in the "Interop Components in Windows" series

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The Subsystem for Unix-based Applications (SUA) is part of the Windows OS distribution, so installing the subsystem requires no additional CD. It's a component/feature of the base distribution of Windows Server 2008, Windows Server 2003 R2 and Windows Vista Ultimate and Enterprise. All you need to do is turn the features on. After this, you download the package from Microsoft that has the utilities and libraries.

Let's go through the screen-by-screen images of what you need to do with helpful comments about each step.

#### Adding the SUA Components

First, from the Control Panel, select Programs and Features (on earlier Windows systems this was called Add/Remove Programs). From the Programs and Features window select "Turn Windows features on or off":



Scroll through the list presented in the next window and check the box for "Subsystem for UNIX-based Applications." Similarly, you can choose NFS client and other features before clicking OK to proceed.



Let the selected features complete installing before rebooting.

Please wait while the features are configured. This might take several minutes.	You must restart your computer to apply these changes
	Before restarting, save any open files and close all programs.
Cancel	Restart Now Restart Later

## Installing the Utilities and Libraries

From the Start menu, under All Programs then under Subsystem for Unix-based Applications you can find the link that will automatically retrieve the commands and SDK from the Microsoft web site.

After you have downloaded the install package you need to unzip the file to a local disk. Usually it's a good idea to place it somewhere that you'll remember in case you want to run it again later to install more parts or to do a repair.

To unzip all files in this self-extractor file to the specified folder press the Unzip button.	Unzip
linzin to folder	Run <u>₩</u> inZip
C:\ftp\Interix-6.0-x86	<u>C</u> lose
Qverwrite files without prompting	About
When done unzipping open: setup exe	Help

Now start the unzip and watch it run for a while:

To uncip all like in this self exhault operated taking press the Uncip by	te life to the afters	Undp
there is table		Panty/sZp
STREET, STREET	hoves.	Que
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Vitran gine undpoint open: 1	10.0.00	Fields

...until it's done.



The installer for the utilities and libraries will now start. For most people the beginning will have no surprises:

With they and SEK for LAD	A Second Applications Setup Wased	Distance and SOK for UNIX-based Applications Setup Woard
	Welcome to the Utilities and SDK for UNIX-based Applications Setup Wicad The start Net re in stall Utilities and SDK for UNIS-based Applications and the practice comparison of the Utilities and SDK (1990) UNIX-based Applications and allow practice comparison of applications and allow practice reports UNIX and Applications and allow practice reports and applications and allow practice and applications and allow practice and applications applications and applications applications and applications applications and applications applications and applications and applications and applications and applications and applications and applications applications and applications applications and applications and applications applicatio	Cardyneen Information Ny Cardyneen Information Geneficity on Cardy of Utilities and SD4 for UHDReased Recention Type your Cultoner information: University Dependence
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The first screen requiring a decision asks you if you want a standard installation or a custom installation. For the greatest amount of utility power the custom installation is recommended. This provides the largest number of installed utilities from this installation itself and the greatest operability with any third-party application you may install later. If you are a developer this path will provide you with the **gcc** compiler, libraries and manual pages.



The custom installation choice will display a window with a tree-like set of choices. The first screen below shows the tree with the default choices. The "Base Utilities" are what most Unix users (BSD and Linux) expect for behavior. The "SVR-5 Utilities" are more rarely used and are suggested only for IT shops that have pre-existing scripts needing exit codes and error messages to match exactly. Otherwise the Base Utilities provide more functionality.

You can choose the	ents components of Utilities and SDK for UNI	X-based
Applications that you want to install.		
Click a component t	see its description. Click the arrow next	to it or press the space ba
for installation option	5.	
Components:		
8 <b>()</b>	ies and SDK for UNIX-based Application	·
	Base Utilities     CVD.5 Likiting	
	Base SDK	E
×	GNU Utilities	
×	<ul> <li>GNU SDK</li> </ul>	
×	- Ped	-
Description:		
Provides interoperat	ility with UNIX. Provides remote connecti	vity, UNIX utilities.
K. K. K.		

For more interoperability, selecting the "GNU Utilities" is usually an easy choice. Adding the "GNU SDK" is also a good choice because it provides the shared libraries that many third-party applications require to run. Of course if you are a developer you will want both SDKs to have access to programs such as **gcc** and **gdb** as well as the ability to use the Microsoft Visual C compiler for creating binaries.

You may notice with the screen below that "Perl" has not been selected. If you need Perl for any of your scripts you can select this option as well. Since Perl is one of the Open Source tools that changes regularly you may want to install the version of Perl kept up to date at the Interop Community website instead. (It's a free download).

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Applications that you want to install.	ed Q
Click a component to see its description. Click the arrow next to it or for installation options.	r press the space bar
Components:	
Utilities and SDK for UNIX-based Applications	*
Base Utities	
Base SDK	8
GNU Utities	
GNU SDK	
X - Perl	-
Description:	
Installs essential SUA GNU SDK Components like gcc, g++, dynam	ic shared libraries
etc.	

Because the GNU components have been selected you will get the next window as a warning. Before this scares you, don't panic. Using the GNU utilities does not require you give up family secrets nor reveal your company's private code. Being just a user does not put any additional responsibilities on you. As the warning window clearly states, the GPL and LGPL only place obligations on you if link with libraries that specifically have the GPL or LGPL license. If someone else does the linking and you just use the program then it's the obligation of that someone else to follow the GPL or LGPL license.

<b>剀</b> Utili	ties and SDK for UNIX-based Applications Setup Wizard
GNU	SDK GNU SDK installs libraries covered under GNU LGPL. Some additional details are described below.
	GNU SDK feature includes a GNU C++ compiler and several GNU C++ libraries and associated header files (i.e. libg++.a and libstdc++.a). There is a GNU LIBRARY GENERAL PUBLIC LICENSE (LGPL) that applies to these libraries which defines any restrictions and/or warranties governing the use of these libraries. A copy of this license is installed in the docs folder under the root of your installation. This license is also available in the product media in the docs folder located in the root
	of the media. Please read this license before you use the GNU C++ compiler. If you do not want to install GNU SDK, click Back and deselect GNU SDK under Components.
	< Back Next > Cancel

The next window will seem a little unusual for most Unix users. It's unusual because on the vast majority of Unix and Unix-like systems this set of options never arises. In fact, if these options are not actively chosen, then behavior

issues and problems can happen when an application is run. As such, it's best to always make sure that all of these options are checked so that programs run with the same behavior and correctness on Unix systems. If you do not choose these options then some programs will not be able to run correctly -- **cron** and friends are an example.

Sec	urity Settings
	Setup needs to change low-level default security settings.
	User Account Control is enabled by default. When User Account Control is enabled, by default, applications cannot impersonate root(Administrator) user. You can allow applications to impersonate the root(Administrator) user, even when User Account Control is enabled, by selecting Enable Su ToRoot below.
	Enable SuToRoot behavior for SUA programs.
	Some SUA programs rely on the setuid mode bit which allows an executing program to take on the identity of the owner of the program file itself. Setup can enable this mechanism. This has security implications, which are explained in Install.htm that is present in the same directory as setup.exe.
	Enable setuid behavior for SUA programs.
	You have chosen to install Base Utilities, Base SDK, GNU Utilities, GNU SDK. These features require support for case-sensitive file names to provide complete compatibility with UNIX. Setup can change a Windows security setting so that object names are handled in a case-sensitive manner. This has security implications, which are explained in Install htm that is present in the same directory as setup.exe.
	I ghange the default behavior to case sensitive.
_	< Back Next > Cancel

The last window before the installation really starts is a basic summary of your choices:

Summary You have chosen following (	omponents	Ì	
To be installed now:	To be uninstalled now:		
BaseUbis: 144189 KB GNUUbis: 14192 KB GNUSDK: 56940 KB BaseSDK: 72328 KB	None		
Enable SuToRoot: Yes C Disk Usage:	se Senstive: Yes Setuid:Yes		
Enable SuToRoot: Yes C Disk Usage: Volume	se Sensitive: Yes Setuid:Yes Disk Size Available Required Difference		
Enable SuToRoot: Yes C Disk Usage: Volume C:	se Sensitive: Yes Setuid:Yes Disk Size Available Required Difference 74GB 58GB 284MB 58GB		

Now the installation begins:

Inst	alling
	Please wait while Setup installs Utilities and SDK for UNIX-based Applications. This will take a few minutes.
	Installing Utilities and SDK for UNIX-based Applications

...and proceeds for quite a while. You can watch it if you want or go get a coffee because it will take some time and it requires no babysitting.

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Piece out shie Teke Paids Die The official artys ninutes.	ins and 1200 in UND Issuel Applications	વય
Pataling Elitible and SERViar UNIX	hand Applications	
Comprise the Cristeleving Universit Filling	OTForty Education And	

Now several thousand files have been installed:



And it's time to reboot the system to allow special actions that will complete only with a reboot.

A	You must restart your system i changes made to Utilities and Applications to take effect. Cl No if you plan to manually rest	or the configuration SDK for UNIX-based ick Yes to restart now or lart later.
	Yes	No

#### Using SUA

Once the installation is complete and you have logged back onto the system you can see the new entries in the Start menu:



You can start one of the shells from this menu to access and run all of the installed utilities. When the **ksh** or **csh** is started it will look like this:

Administrator:Kom Shell	
Welcone to the SUA utilities.	-
DISPLAY-localhost:0.0	
	-
	and a considerate



# Summary

As you can see from the above descriptions the installation is not difficult. You now have a powerful environment with, in effect, two operating systems that can work together on the same machine.

Feel free to post a question in the <u>SUA Community</u> forums.