

SAN JOSE STATE UNIVERSITY Electrical Engineering Department

UNIX and CDE Tutorial

IC DESIGN GROUP SAN JOSE STATE UNIVERSITY

A supplemental guide for using UNIX and the Common Desktop Environment (CDE)

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Acknowledgements:

Chapter

Getting Started With Common Desktop:

Logging in to your Account:

To log into your account enter your userid into the form shown in Figure 1, press enter and then enter in your password at the promt.

	in Sum			
	Please enter your us I	er name		microsystems
ОК	Start Over	Options V	Help	SOLARIS [™] 8

Figure 1: Login Screen for Sun Workstations.

After a few moments, the CDE (Common Desktop Environment) should come up (Figure 2). The CDE is GUI based environment used to start programs, and manage files. Shells (csh is set up for you automatically) can be started as terminals. Terminals are used to enter in UNIX commands.

2M/	Mr.	Mr.	M	M	Mr.	Mr.	M	M	M	Mr.	
Solaris"	Solaris"	Solaris"									
JM/	Mr.	M	Mr	M	Mr.	M	M	M	M	M	
Solaris"	Solaris"	Solaris"	Solaris"	Solaris	Solaris"	Solaris	Solaris"	Solaris"	Solaris"	Solaris"	
JM/	Mr.	M	M	M	M	M	M	M	M	M	
Solaris"	Solaris"	Solaris"									
JM/	Mr.	M	Mr	M	Mr.	Mr.	M	M	M	M	
Solaris"	Solaris"	Solaris"									
JM/	July -	Mr.	M	Mr.	July	July -	M	M	Mr.	Mr.	
Solaris"	Solaris	Solaris"	Solaris"	Solaris							
July -	Mr.	M	Mar	M	Mr.	Mr.	M	M	M	M	
Solaris"	Solaris"	Solaris"									
JH-	J.M.	M	Mr	M	Mr.	Mr.	M	M	M	M	
Solaris"	Solaris"	Solaris"									
July -	Mr.	M	M	M	My	Mr.	M	M	M	Mr.	
Solaris"	Solaris"	Solaris"									
JM/	Mr.	M	Ma	M	Mr.	Mr.	M	M	M	M	
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July -	Mr.	J.M.	Mr	July -	July -	July -	M	M	July -	Mr.	
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SM				J.14/	Jul	July		Course I			

Figure 2: CDE Screen.

Logging Off:

To log off simply click the left mouse button on the word exit in the bottom center of the CDE screen (Figure 2). A warning should appear like in Figure 3. **Remember to log out! The screen will lock, preventing anyone else from using the workstation. Failure to log out will result in your account being terminated.**



Figure 3: Logging Out.

Starting a terminal:

To start a terminal right click in the middle of the screen of the CDE. While holding the right mouse button down move, the mouse down until tools is highlighted, and then move the mouse over to tools and highlight terminal. (This should look like Figure 4) Let up the right mouse button and a terminal should start.

J.	Mr.	Mr.	Mr.	M	×M/	Mr.	Mr.	SM/	Mr.	M	
Solaris:											Sc
Mr.	M	M	M	M	Mr.	M	Mr.	M	M	Mr.	
SOLARIS"											Sc
Mr	Mr.	Mr.	Mr.	JM-	JM/	M	Mr.	Mr.	Mr.	M	
Solaris:											Sc
M	Mr.	Mr.	Mr.	M	Mr.	Mr.	Mr.	Mr.	Mr.	Mr.	
SOLARIS"											Sc
Mr.	Mr.	Mr.	Mr.	M/	JM-	Mr.	Mr.	Mr.	Mr.	Mr.	
Solaris:											Sc
Mr	Mr.	Mr.	Mr.	M	Workspace	Menu	M	M/	Mr.	Mr.	
Solaris"				Solarie	Applications Cards	RIS"					Sc
Mr	Mr.	Mr.	Mr.	Mr.	Files Folders		M	M/	Mr.	Mr.	
Solaris"				Solaris	Help Hosts	RIS.					Sc
Mr	Mr.	JM/	Mr.	Mr I	.inks Mail		Mr.	Mr.	Mr.	Mr.	
Solaris				Solarie	Fools Hindows		Tools	ARIS			Sc
Mr	Mr.	Mr.	M/	M	Add Item to I	Menu SCr	mintool eate Action	1/	Mr.	M	
Solaris:				Solarie	acustomizeim ≌Lock Display	enu 🖆 De ' 🖉 Ho	sktop Control otkey Editor	s			Sc
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Solaris"						SOLA BP	inter Administ	rator ARIS			Sc
Mr.	×M-				PPEN/	Sm Thurso	nart Card			14	
SOLARIS	SOLA	Jun 21	6		Four	innae 🖭 re 19Wa	atch Errors		2	ARIS"	Sc
				1112							

Figure 4.: Starting a Terminal

A terminal should appear like in Figure 5. You may start more than one terminal.

\rightarrow	4	SM	SM	SM	SM	SM	JM-	JM/	JM/	JM1	JM1	~
Sot	- Windo	v Edit Optic	one	Terminal			Help ARIS	SOLARIS	SOLARIS	SOLARIS	SOLARIS	
2	cadence	1%	5115					SM	SM	S	Sommas	
Sol Sol							A DIC	SOLADIC	SOLADIC	SOLADIC	SOLADIC	
201							ARIS	SOLARIS	SOLARIS		SOLARIS	
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\geq							1/2	Mr.	SM-	Mr.	Mr.	
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4							4	SM	SM4	JM-	SM	
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Sol		Solaris	Solaris"		Solaris"	Solaris"		Solaris"	Solaris"			
1	4	SM	SM	SM	SM	SM	SM	SM	SM	SM	SM	
		COLADIC	COLADIC	COLADIC	COLADIC	COLADIC	COLADIC	COLADIC	COLADIC	COLADIC	COLADIC	
		VIARDS	SOLARIS		SOLARIS	SOLARIS		-SOLARIS		SOLARIS	V M	
Z	1				A (PREM	Three					
SOL		SOLA	Jun 21			Four		di 😂		2	ARIS	
$\Box $		J.M.	14	14	144	1241	141	144	1241	141		

Figure 5: Terminal

Starting a text editor:

Using the CDE

To start a text editor right click in the middle of the screen of the CDE. While holding the right mouse button down, move the mouse down until the application title is highlighted, and then move the mouse over to applications and highlight text editor. (This should look like Figure 6) Let up the right mouse button and a terminal should start.

Mr.	Mr.	M	M	M	Mr.	M	M	M	M	Mr.	
SOLARIS"											
Mr.	M	M	M	M	Mr.	M	M	M	M	Mr.	
SOLARIS"											
M	Mr.	M	Mr.	workspace Me	enu 💯	M	Mr.	M	M	JH-	
Solaris"			SOLAF Car	lications ds	At Appli	oplications cation Manag	er OLARIS"				
Mr	J.M.	J.M.	File Fol	s ders	Maudio Audio	Control	VM-	J.M.	July-	JH-	
Solaris"	Solaris"	Solaris"	SOLAP Hel	p :ts	Calci	ulator	OLARIS"	Solaris"	Solaris"	Solaris	
Mr	VM-	JH-	Lini Mai	(S I	& Icon	Editor	VM-	J.M.	July-	JH-	
Solaris"	Solaris"	Solaris"	SOLAP	ls dows	⊡ Imag ∭OW C	e Viewer Jock	OLARIS"	Solaris"	Solaris"	Solaris	
Mr	JM-	JM/		dd Item to Me	enu	shot Editor	JM/	JM/	JM-	JM/	
Solaris"	Solaris"	Solaris"	SOLAP	ock Display		Note Note	OLARIS"	Solaris"	Solaris"	Solaris	
Mr	Mr.	Mr.	₩S ₩ <u>₩</u>	uspend System og out	1/	Mr	Mr.	Mr.	M	JH-	
Solaris"											
J.M.	Mr.	Mr.	Mr	Mr.	July	M	Mr.	Mr.	Mr.	JH-	
Solaris"											
J.M.	Mr.	Mr.	Mr	Mr.	Mr.	M	Mr.	Mr.	M	JH-	
Solaris"											
Mr	JM-	JM/	J.M.	J.M.	July-	JM-	JM-	JM/	JH-	VM-	
Solaris"	Solaris"			Solaris"	Solaris"		Solaris"	Solaris"		Solaris	
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SOLARIS"	SOLA		rê 🛒		FOUR	Inree			?	ARIS	
NM-				A MAR	1112		iem i				

Figure 6: Starting a Text Editor from the CDE.

Using nedit from a terminal

To start a text editor such as nedit or vi from a terminal, first start a terminal and type in the command: nedit & (See Figure 7.) Your CDE should look something like Figure 8.

The & symbol means start the program and let the terminal or shell be used for further commands.



Figure 7: Starting a Text Editor form a Terminal

Mr.	JM/	Mr.	Mr	JM/	July_	Mr	M	JM/	Mr	July_	
Solaris	Solaris	Solaris"	Solaris	Solaris	Solaris	Solaris	Solaris	Solaris	Solaris	Solaris	
JM/	- Window Edit	Ontions	Termin	al			SM	JM-	M	JM/	
Solaris	cadence1% nedi	t &					Solaris"	Solaris"	Solaris"	SOLARIS"	
Mr.	[1] 815 cadence1% ∎						2Mr	2Mr	Mr.	Mr.	
Solaris	SOLARIS	JOLARIS	SOFWRI?	JOLARIS	OULARIS	SOLARIS					
Mr.	M	SM	SM	JM_	SM	SM	SME	Mr.	M	JH-	
SOLARIS"	<u>File</u> Edit S	earch <u>P</u> referen	ces She <u>l</u> l Mag	ro <u>W</u> indows			<u>H</u> elp <u>IS</u>				
JH-	I							JM-	Mr	JM/	
Solaris:							IS.	Solaris"	Solaris"	Solaris"	
JM-								JM-	M	JM/	
Solaris"							IS	Solaris"	Solaris"	Solaris	
JM/								SM	SM	SM	
SOLARIS"							TS"	SOLARIS"	SOLARIS"	SOLARIS	
SM								JM_	JM_	JM/	
SOLARIS							15	SOLARIS	SOLARIS	SOLARIS	
Sommas M	<pre>4</pre>							S	JM.	Sommus	
SOLADIS.	SOLARIS"	SOLADIC.	SOLADIC.	SOLADIS.	SOLADIS.	SOLADIS"	SOLADIS"	SOLARIS"	SOLADIS"	SOLARIS	
JOLARIS	JOLANIS	VIV.	SOLARIA	VM	JOLARIS	VIL	JOLANIS	VM	JOLANDS	JULANIS	
Cot LDTO						Corter	COLUDIO	Contant	Cot A Date	Cot A D TOT	
JOLARIS	SOLARIS"	SOLARIS"	SOLARIS	SOLARIS'	SOLARIS"	SOLARIS"	SOLARIS	SOLARIS"	SOLARIS	SOLARIS	
2					PREM	Three					
SOLARIS	SOLA				Four]	MI 😂	Garas	2	ARIS	
	July	141	- May	141	1411	141	141	241	141	Jul	

Figure 8: The Text Editor nedit.

Grabbing an image for insertion into a document:

You will want to save some of your outputs and designs an image that can be imported into a word-processing program. This instruction will show you how to grab an image and save it to a floppy disk for importing into a document or just plain printing.

Start CDS tools and open up the figure or plot you want to save an image of. For example, use the inverter layout as in Figure 9.

You will need to add some text to identify the image as your own. In the layout tool you create a label, in the schematic tool you add notes. In the layout goto Create.. label. Fill out the pop-up like Figure 10. Except change the info to your name!

		Vi	rtuoso)® La	ayout	Editing: Al	MI16 IN	IV layout		•
X: -	20.8	Y: 32	.0	(F)	Select:	0 dX:		dY:	Dist:	Cr 2
Tools	Design	Window	Create	Edit	Verify	Connectivity	Options	Route NCS	SU	Help
										· · ·
Q										
C				6 #						
				Ĺ						
片片										• •
40.00 M										
י"ר	mouse L	:			M	:		R:		

Figure 9: Grabbing the image of your inverter layout.

🗙 Create Labels	×
OK Cancel Defaults	Help
Label(s): David Parent EE-166	Height: 4
Font:	: None 🖃
Create label array 🔲 Spacing (X:Y) (5 0) Overbar 🔳 La	yer text dg 🖃

Figure 10: Creating a label.

The software thinks each work is a separate object so click down with the left mouse button to place each word you want displayed, like in Figure 11.

		Vi	rtuosc	o® La	wout	Editing: Al	MI16 IN	IV layout		•
X: -	-20.0	Y: 31	.2	(F)	Select:	0 dX:	4.0	dY: 18.4	Dist: 18.83	2
Tools	Design	Window	Create	Edit	Verify	Connectivity	Options	Route NCSU		Help
										•
Q										
e O										
										•
							·			•
	•									•
1999 1999				•	•					
٦,	mouse L	:			M	:		R :		
	Select la	ıbel origin								

Figure 11: Inverter with text.

You will need to start the image grabber software that comes with the Sun OS.

Right click any where on the screen that is not an application. You should see a pop-up like Figure 12. Highlight Applications and come down to Snapshot like in Figure 13. Left click on Snapshot to start the program. Pop-ups like Figure 14 and Figure 15 should appear on screen.

Workspace Menu	
Applications	\triangleright
Cards	\triangleright
Files	\triangleright
Folders	\triangleright
Help	\triangleright
Hosts	\triangleright
Links	\triangleright
Mail	\triangleright
Tools	\triangleright
Windows	\triangleright
🖻 Add Item to Menu	
🖻 Customize Menu	
🖹 Lock Display	
🙈 Suspend System	
⊠Log out	

Figure 12: Starting Sun's Snapshot.

Applications

Application Manager

Audio

Calculator

Calendar

Ca

Figure 13: Starting Snapshot continued.

— Image Viewer – Snapshot
Snap Type: 🔎 Window 🔵 Region 🔵 Screen
Snap Delay: 🛛 🗸 Seconds
🖌 Beep During Countdown
🖌 Hide Window During Capture
Snap Cancel Help
8 sec. delay required for Hide option.

Figure 14: Setting up Snapshot Features.

Fill out the pop-up according to Figure 14.



Figure 15: Snap Shot File Manager.

Left click on Snap, and then left click on the inverter image before the beeping ends. After some time the Snapshot file manager should display an image like Figure 16.

-		Image Viewer – Unti	tled	
<u>F</u> ile	Edit View			<u>H</u> elp
Page				€ €
	Virtu	oso® Layout Editing: AMI	16 INV layout	- 🗆
X:	-34.0 Y: 13.2 (F) Select: 0	dX: dY:	Dist: Cmd:	4
Tools	s Design Window Create Edit Verify Con	nectivity Options Route NCSU		Help
8				
Q	· · · · · · · · · · · · · · · · · · ·			
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Q	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
	mouse L: showClickInfo()	M: mousePopUp()	R: doCreateLa	bels()
Ľ	>			,

Figure 16: The image of the inverter.

In the Snapshot file manager goto File... Save as. A pop-up like Figure 17 should appear.

Make sure you select TIFF, GIF or JPEG as the image format. Enter in the name of the image file you want to save. Make sure you enter in the .tiff (.gif, or .jpeg) extension like in Figure 17.

— Image V	ïewer – Save As
Enter path or folder na	me:
/home/dparent/	
Filter	Files
[^.]*	AdobeFnt.Ist
Folders	CDS.log CDS.log.1
 .artist_states	DRE_CDS.log DRE_CDS.log
.cdpcache .cdsdoc	FM2.399 TEST
File Format:	
Sun Raster	
APM	
Compression: LZW	- Colors: 256 -
Enter file name:	
inv.tiff	
OKUpdate	Cancel Help

Figure 17: Saving the image.

Saving a file to Floppy:

Start the file manager by right clicking anywhere on the screen that is not an application. You should see a pop-up like in Figure 12. Goto Files... File Manager to start the file manager. You should get a pop-up like Figure 18.

— File Mana	ager – eecad10:dparent	•
File Selected View		<u>H</u> elp
/ home dparent		
/home/dparent		
- <u>s</u> (go up)	Mail	
TEST2	cadence	
cell	cell_design	
115 Items 38 Hidden		

Figure 18: Starting the file manager.

— File Ma	nager – dparent	•
<u>File</u> <u>Selected</u> <u>View</u>		<u>H</u> elp
/ home dparent		
/home/dparent		
environment	merror.txt	
leapfrog.key	libManager.log	
	1 A A A A A A A A A A A A A A A A A A A	
license.txt	local.cshrc	
116 Items 39 Hidden		

Figure 19: File manager showing TIFF file.

Scroll down until you see your inv.tiff image like in Figure 19.

In the file manager window go o file... open floppy like in Figure 20.

File 🕅	Manager – dparent 🛛 👘 🔲
File Selected View	<u>H</u> elp
<u>N</u> ew Folder	
Ne <u>w</u> File	
Go Home Ctrl+H	
Go <u>U</u> p Ctrl+U	
<u>G</u> о То	
<u>F</u> ind Ctrl+F	error.txt
Open Terminal	TE
Open Floppy	inv.tiff
Open CD-ROM	
Close Alt+F4	txt leapfrog.key
libManager.log	license.txt
117 Items 39 Hidden	

Figure 20: Opening up the floppy drive.

Draw a rectangle around the figures you wan to copy and drag and drop them into the floppy window like in Figure 21. Note: Figure 21 is showing more files than you will have if you follow this tutorial.

Now you can print the TIFF image or import it into Power Point or Word, for a professional looking document. You could even start writing Cadence Tutorials yourself!

🦳 🛛 File Ma	nager – no_name	•
File Selected View		<u>H</u> el p
no_name		
//no_name/		
Financial Aid Expl.doc f1.tiff f3.tiff	Major_form_F00.doc f2.tiff inv.tiff	
8 Items 2 Hidden		

Figure 21: The floppy drive with the inverter images.

Starting an Internet browser

Using the CDE:

To Start netscape just left click on the picture of the Earth with a clock on the left hand side of the CDE tool bar (Figure 22). A Browser window should appear similar to Figure 23.



Figure 22: CDE Tool Bar.



Figure 23: Netscape Browser.

USING a terminal: Start a terminal and type in: *netscape &* as in Figure 24.

Terminal	•
<u>W</u> indow <u>E</u> dit <u>O</u> ptions	<u>H</u> elp
cadence1% netscape & [1] 10532 cadence1%	

Figure 24: Starting Netscape from a Terminal.

Using an Internet browser to back up or transfer your files:

To send files to a PC, it is usually easier to send them to yourself at an email account, rather than copy them to floppy disk or even use an ftp program. What follows is an example of emailing a file to yourself using an internet email site such at hotmail.

Start a web browser by any method, and log into your email site. In this example, hotmail is used (Figure 25).



Figure 25: Internet Mail Login Screen.

After logging in, compose a message to your account (Figure 26).

-			Nets	cape: Ho	tmail C	tompose			•
F	ile Edit	View G	o Commu	nicator					Help
1	4	X							N
	Back	Forward	Reload	Home	Search	Netscape	Print	Security	
1	🌿 🕻 Bool	kmarks 🤳	Location: 🏂	ttp://lw11	fd.law11	.hotmail.m	sn. con 🏹 🦿	🔎 What's F	Related
1	🧷 WebMa	ail 🥠 Cale	endar 🥠 Ra	adio 🥠 Peop	ple 🥒 Yel	llow Pages	🖉 Download	📹 Chann	els 📹
	MSN Home	n	IV M5N	Notmail	Search	Shoppiny	Money	Peo	ple & Ch 📥
	lwp34@hotmai	all il.com	Home Inb	ox Compo	se Addı	ess Book O	ptions Help		
	<u>To</u> :	[dwp34@ł	notmail.com					Quick Ad	lress Li:
		Y						 ■ adat ■ adat 	iren
	<u>cc</u> :	Ţ						ang	el
	<u>Bcc</u> :	I						🖌 angi	ie
	Subject :	I						Show All	Edit
A	ttachments :	Add/Edit	Attachment	s					
	Tool	s 🗖	Сору Ме	essage to Sent Fold	er		Send	ave Draft	Car
, N							- A		
	10	0%					- 🛛 🖗 🧏	. d¤ 🖽) 🥩

Figure 26: Composing a Message.

Click on Add/Edit attachments (Figure 26) and your screen should change to the add attachments view (Figure 27).

Click on Browse view (Figure 27), and a pop-up like Figure 28 should appear. In this case, the file to be transferred is a VHDL representation of a full adder. Any type of file can be transferred this way.

Select the file you want to send and click OK (Figure 28). The Browser should go back to a view like Figure 29.

Click attach (Figure 29) and the file to be transferred should appear in the right hand side of the viewer (Figure 30).

Click OK once all the files to be transferred are in the right hand side of the viewer (Figure 30). Click Send (like in Figure 26) and the mail message should appear in your inbox (Figure 31).

-			Net	tscape:	Hotn	nail At	tachme	nts			•
File	Edit	View	Go Co	mmunicat	tor						Help
Ba	ک ack	Forwar	d Reloa	d	Home	Search	Netscape	e Pri	nt Sec	Surity	Ν
1 🦋	* Boo	kmarks -	🤳 Locatio	on: h ttp	://lw11	fd.law11	.hotmail	msn.con 🦷	(🍘 🕷	'hat's R	Related
۰ 🎤	WebMa	ail 🥒 C	Calendar 🚽	🗶 Radio	🧷 Peop	ole 🥠 Ye	llow Page:	s 🥠 Down	- Ioad 📺	Channe	els 📹
n N	ISN Hom NSI otm	n.	My MSN Home	not	Compo	Search	Shoppin ress Book	y Mc Options He	ney	Peop	ie & Ch
1											
Atta you 1. C	ich a tile are doni Click Bro icx belov	10 your me e. mee 1 0 ae v.	essage in two lect the tile, o	steps, reper	ating the ste ath to the fik	apaaan eedeo ein the 2. h T	d to attach mu fove the tile to ransfer times va	htiple files. Clic hte Attach me ry (30 seconds up	KOK 10 retur ntebox by c o to 10 minute:	rn 10 your :licking Al s).	messa ttach.
F	ind File:							Attachmer	nta:		
N	Notice: A	itachmente	a are automati	Brown ically scanne FEE 1	se schorviruse	ka waing	Attach Remove	Mes	sage Attai	chments	3
								Total size = (0 K (1024K ma	ximum)	_
, — Disc dow	laimer: Ti	he McAfee.c	om virus scanne	r may not be a	able to detect	all known virus	es and variants.	Please be aware	that there is a l	OK I	Ca
deci	sion to de	5.50									
	10	0%							48. d	P 🔝	1

Figure 27: Attaching a File.

Filter	Browse	
/home/dparent/*vhd		
Directories design	Files Addprocedure. vhd	
doc download ee296q etc example fminit gaas	fulladder.vhd SerialAdder.vhd Tb_SerialAdder.vhd	
Selection		
/home/dparent/		_
ок	Filter	Cancel

Figure 28: Browsing for a File to Attach.

-			Netsca	ipe: Hotr	nail At	tachmer	nts			• 🗆
F	ile Edit	View	Go Commu	nicator						Help
	A	Forward	Poload	Homo	Soarch	Notecono		a Vint	Socuritu	N
8 2	Daux	Forward	Loootion 5		3earch	heteril			J un ere i	Deleted
<u></u> ▼	S00	ikmarks 🤜	Lucation: P	.ccp://1W11	LIG. LAWII	. notmail.	msn. con		, whats i	Related
	🧷 WebM	ail 🥠 Ca	lendar 🥠 Ra	adio 🥠 Peo	ple 🥠 Ye	llow Pages	n 🖉 Dow	/nload	🖆 Chann	iels 📹
	MSN Hom MSI	n <mark>.</mark>	My MSN	Hotmail	5earch	Shopping		Money	Peo	ple & Ch
	Hotm	ail	Home int	ox Compo	se Add	ress Book	Options I	Help		
	lwp34@hotma	ul.com	L							Att
	Attach a tile you are don 1. Click Br box belov) to your meas e. owee to selec ø.	age in two steps, 1 the tile, or type	repeating the st he path to the ti	eps as needed le in the 2. _M Ti	d to attach mult fove the file to ransfer times vary	iple files. Cl the Attach i y(30 seconds	lick OK 14 mente bo sup to 101	o return to you x by clicking 4 minutes).	ir meass
	Find File	:					Attachm	enta:		
	∛home Notice: A	e/dparent/f	ulladder.v E re automatically a MCAFEE	rowse canned for virua	ea uaing	Attach	Me	essage	Attachment	:s
						Remove				
							Total size	= 0K (102	24K maximum)	
									ОК	Са
an D	Disclaimer: I downloading decision to d	he McAfee.com I e-mail attachm O so	virus scanner may n ients to your comput	ot be able to detec er and that, as pro	t all known virus vided in the <u>TER</u>	es and variants. I <u>MSOFUSE</u> , Mi	Please be awa crosoft is not	re that the responsib	re is a risk involu de for any damas	ved wher ges cause
	10	10%						£ 42	d¤ 🖪	1 🥒

Figure 29: Preparing to Attach a file.

-	-		Netso	cape: Hoti	mail At	tachme	nts		•
	File Edi	t View	Go Comm	nunicator					Help
F	Back	Forward	i Reload	Home	Search		e Prir	nt Security	N
11000	🌿 🖁 Bo	okmarks 🤌	🎄 Location:	http://lw1	1fd.law11	hotmail.	msn. con 🗸	👘 What's	Related
- F 1111	🥒 WebN	vlail 🥠 C:	alendar 🥠	Radio 🥠 Pe	ople 🥠 Ye	llow Pages	🥠 Downl	oad 🖆 Chan	inels 📹
	MSN HO MS Hotr	ne nail	My MSN Home	Retmail Inbox Comp	Search ose Add	Shoppini Iress Book	y Mon Options Hel	ney Pe	ople & Ch
dwp34@hotmail.com Attach Attach a file to your message in two steps, repeating the steps as needed to attach multiple files. Click OK to return to your messaryou are done. 1. Click Browse to select the file, or type the path to the file in the 2. Move the file to the Attach ments box by clicking Attach.							Att: our meass Attach.		
	Find Fi	le: Attachmenta	are automatical MCAFE	Browse y acanned for viru	aea using	Attach	Attachment Mess fulladdex Total size = 1	ia: sage Attachmei vhd (<1k) K (1024K maximum)	ats
	Disclaimen downloadir decision to	The McAfee.co 19 e-mail attach do so	m virus scanner ma iments to your com	whot be able to dete puter and that, as pro	ct all known virus ovided in the <u>TEF</u>	ses and variants. RMSOFUSE, Mi	Please be aware t crosoft is not res	DK hat there is a risk inv ponsible for any dam	olved wher ages cause

Figure 30: File Attached.

-	N	letscape: Hotr	nail Inbox			•
File Edit Vie	w Go Communicator					Help
i 🗳 🧯	ž 🚦			14	<u> </u>	PSG NT
Back Forv	vard Reload Ho	me Search Ne	tscape Print	Security	Shop	Str 📥
🥑 Bookmarl	ks 🮄 Location: ۡ http://	'lw11fd. law11. hot	mail.msn.com/cg	-bin/HoTMai	/ 🍘 🕻 Wha	t's Related
🛛 🥒 WebMail 🦼	🖢 Calendar 🥒 Radio 🥠	People 🥠 Yellow	Pages 🥠 Downloa	d 📺 Channels	📺 Sun	🥒 Netsca
msn					1	Search the 1
Hotmail	Home Inbox	Compose Address B	ook Options Help			Ι
dwp34@hotmail.com		l				Calendar
< Hide Folder	rs					Hotmail Ser
						MSN Featur POP Mail
Junk Mail (13)	Delete	Put in Folder				Find Messac Reminders
<u>Sent Messages</u>						Directories
Drafts	From	Subject		▼ <u>Date</u>	<u>Size</u>	Explore MS
Trash Can (3)	David Parent	(none)	Jun 24	1k	Free Games
<u>ee128</u>	Sally Florence	Re:		Jun 21	2k	'Net Access
save	Polly IMc (Waol.	com Re:		Jun 21	3k	Sand Coch
100%				II 💥	- <mark>12</mark> d9	🛋 🤣

Figure 31: New Message Has Arrived.

Chapter

Getting Started with Unix Shell Commands:

Unix Fundamentals

Basic Unix Commands:

What follows is a practical exercise to help you learn the following Unix commands: **passwd**, **pwd**, **ls**, **mkdir**, **touch**, **nedit**, **more**, **copy**, **mv**, **rm**, **and man**. All items that you will enter in on the computer will appear in *bold italics*. Note: The syntax % command means enter the command in italics at the shell prompt.

Command	Function
passwd	changes your passwd on all the UNIX work stations on the network.
pwd	Present Working Directory. This prints to the screen which directory you are in.
ls	lists all the files in the current present working directory.
mkdir	makes a directory
touch	either creates an empty file with an up to date time stamp or changes the date on an existing file
more	a program used to view test files.
nedit	Not really a UNIX command. Use as a text editor.
ср	copies a file or directories from one location or an other.

mv	move a file from one location to another and it can be used to rename a file.
rm	remove files from the system NOTE: UNIX writes over the files that have been removed. There is no Norton utilities to retrieve files that have be deleted.
man	This is the UNIX help command. For help on ls for instance type at a terminal: <i>man ls</i>
df	Displays the disk usage. Use <i>df</i> - <i>bk</i> . To find out how much space is left on the disk drive in kBytes
du	Displays how large a file is.
	Use: <i>du</i> – <i>sk FILENAME</i> to see how large a file is in KB.
tar	Can be used to back up files to a tape or combine files into one file.
	To combine all the files in a directory use:
	tar -xvf DIRECTORYSOURCE FINAL_FILE_NAME.tar
	To extract all the files from an tar archive:
	tar -xvf DIRECTORYSOURCE FINAL_FILE_NAME.tar
gzip	Compresses and decompresses files
	Use: gzip FILENAME to compress.
	Use: gzip –d FILENAME to decompress.
	Note: gzip and tar are compatible with Winzip.

First Mini UNIX Tutorial:

Log in to a UNIX server and start a terminal. Note: The "%" symbol means type the **bold and** *italicized* text at the command line.

1. The first thing you want to do is change your password from the one you were given. It must be at least six characters long. To do this: enter at the command prompt: *passwd*. Follow the instructions from the computer.

- 2. % *pwd* This command will tell you the present working directory you are in. You could set your shell to display the current directory you are in at each command prompt, but as you go three or more directories deep the display becomes cumbersome.
- 3. % *Is* This command list all the files and directories in you current present working directory.
- 4. % *Is* -*a* With -a flag you can see all the '.' files such as .profile, .cshrc, and .forward, which are used to customize your Unix environment.
- 5. % *Is* -*al* The -l with an a, will give you the last time a file was modified and how large the file is, as well as who owns it(plus some other things).
- 6. % *mkdir exercise* The mkdir command makes a directory in the directory in which it is invoked.
- 7. % *ls* You will see the directory exercise has been created.
- 8. % *cd exercise* The cd command changes to the directory specified.
- 9. % *pwd* You should see that you are in your exercise directory.
- 10. % *cd* .. This changes your *pwd* to the next highest directory.
- 11. % *cd exercise*
- 12. % *touch test* The touch command creates an empty file, or updates the modification time of a file. (To check the time the file was last created or modified type in *ls l*)
- 13. % *nedit* test Enter the following in the window: Hello World
- 14. Save and exit.
- 15. % *more test* The more command displays the text of a file. If you more an binary file like a.out (for c programmers) you will see junk.
- 16. % *ls* -*al* > *test2* This piped the standard output of the ls command into a file called test. (Remember: to view it type, more test2.)
- 17. % *ls* -*al* > *test2* This piped the standard output of the ls command into a file called test. (Remember: to view it type, more test2.)
- 18. % *mv* test test1 This moves or renames the file test into test1. If you ls your directory you will see test no longer appears.
- 19. % *more test1 / grep ll* This pipes the standard output of more test1, into the grep command. The grep command returns only those lines of test1 with the letters ll in them.

- 20. % rm test1
- 21. % rm test2
- 22. % *exit* This kills your terminal session.
- 23. Exit from nedit.

This ends the practical exercise on basic *UNIX*. To get a more detailed descriptions of the each command type *man command*. Note: Command means the particular command you are interested in find more information about.

For example to learn more about the command *ls* type:

% man ls

You should see the output in Figure 32.



Figure 32: Output of man Is

Second Mini UNIX Tutorial:

In this tutorial you will use the UNIX commands df, du, and tar. You will also use the freeware program gzip. Note: The "%" symbol means type the **bold and italicized** text at the command line.

- 1. % *df* -sk. This will show you how full the file system is.
- 2. % du -sk This will show you how large large the current directory is:
- 3. % *cd* This will put you into your home directory
- 4. % *mkdir unix* This will create a directory called unix.
- 5. % *du –sk unix* This will show the size of the directory unix. An empty directory will come back as 1k large.
- 6. % *cd unix* This changes your pwd to unix.
- 7. % *pwd* This displays your pwd.
- 8. % *touch t1 t2 t3 t4 t5* This creates five empty files.
- 9. % *ls* This list the directory to your terminal.
- 10. % *ls t**>*list* This lists all files that begin with t, to a file called list.
- 11. % *more list* This shows the context of the file list.

The out put of steps 1-11 can be seen in Figure 33.

🚮 Telnet - cadence1	_ 🗆 🗵
<u>C</u> onnect <u>E</u> dit <u>I</u> erminal <u>H</u> elp	
cadence1% df -bk .	
df: (-bk) not a block device, directory or mounted resource	
Filesystem kbytes used avail capacity Mounted on	
/dev/dsk/c1t0d0s7 10814042 6635143 4070759 62% /export/home	
/dev/dsk/c1t0d0s7 10814042 6635143 4070759 62% /export/home	
cadence1% du -sk	
200394	
cadence1% cd	
cadence1% mkdir unix	
cadence1% du -sk unix	
/ nome/uparent/unix	
cadence 1% couch cr c2 ca c4 c3	
cadence12 is t+ Slist	
cadence12 more list	
t1	
t2	
13	
t4	
t5	
cadence1%	

Figure 33: Commands for Mini Unix Turorial 2.

Now we will use the tar command and the gzip command to manipulate files: Steps 12 –19 can be seen in Figure 34.

- 12. % *cd*
- 13. % *tar –cvf unix.tar unix* This archives the directory called unix into a file called unix.tar. Note: The orginal directory unix is left unchanged.
- 14. % *du* –*sk unix.tar* This will show you the size of the unix.tar file.
- 15. % *gzip unix.tar* This will compress the file unix.tar into a file named unix.tar.gz. The original unix.tar is replaced with a file that has the *.gz extension.
- 16. % *du* –*sk unix.tar.gz* This shows the size of the compressed file.
- 17. % *mv unix.tar.gz unix/.* This move the unix.tar.gz file into the unix directory.
- 18. % *cd unix* This changes your pwd to unix.
- 19. % *Is* This lists the content of the unix directory to your screen.
- 20. % *gzip d unix.tar.gz* This decompresses for unix.tar.gz file.
- 21. % *tar –xvf unix..tar* This extracts all the files from the unix.tar archive to a directory called unix (which is inside your original unix directory.
- 22. % *du* -*sk* * This shows the size of each file and directory.

The output of lines 20-24 can be seen in Figure 34 and Figure 35.

- 23. % *cd* This puts you back into your home directory.
- 24. % *rm –rf unix* This removed the directory and all the files in unix.

📑 Telnet - cadence1 📃 🗖 🔀
<u>Connect</u> <u>E</u> dit <u>T</u> erminal <u>H</u> elp
cadence1% cadence1% cadence1% cadence1% cadence1% cadence1% cadence1% tar -cvf unix.tar unix a unix/ 0K a unix//1 0K a unix/t1 0K
a unix/t3 OK
a unix/t4 eK
a unix/list 1K
adence1% du -sk unix.tar
> unix.tar cadence1% gzip unix.tar
adence1% du -sk unix.tar.gz
l unix.tar.gz
cadence1% mv unix.tar.gz unix/.
cadence1% cd unix
cadence1% ls
list t2 t4 unix.tar.gz
:1 t3 t5
cadence1%

Figure 34: Output for second UNIX Tutorial.

```
🚮 Telnet - cadence1
                                                                                                         _ 🗆 ×
 \underline{C} onnect \quad \underline{E} dit \quad \underline{T} erminal \quad \underline{H} elp
cadence1% gzip -d unix.tar.gz
cadence1% tar -xvf unix.tar
tar: blocksize = 10
x unix, 0 bytes, 0 tape blocks
x unix/t1, 0 bytes, 0 tape blocks
x unix/t2, 0 bytes, 0 tape blocks
x unix/t3, 0 bytes, 0 tape blocks
x unix/t4, 0 bytes, 0 tape blocks
x unix/t5, 0 bytes, 0 tape blocks
x unix/list, 15 bytes, 1 tape blocks
cadence1% du −sk ∗
           list
1
0
           t1
0
           t2
0
           t3
0
           t4
0
           t5
2
           unix
5
           unix.tar
cadence1%
cadence1%
cadence1%
cadence1%
cadence1%
cadence1%
```

Figure 35: Output for second UNIX Tutorial. Continued.

🛃 Telnet - cadence1	_ 🗆 🗙
<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
cadence1% cd cadence1% rm -rf unix cadence1% ∎	▲ ▼
	• <i>[]</i>

Figure 36: Removing the tutorial files.

Chapter

Remote Access to the Server:

Note: You will need a T1, DSL or cable modem connection. Yes, I have been able to access the tools with a dialup but it is not fast enough. The exception is if you are only doing command line type operations.

Secure Shell and Secure FTP

Remote access is achieved with secure shell. Secure shell operates like telnet except that information is encrypted. You can download a secure shell program free at:

http://shark.engr.sjsu.edu/ssh/

A \$60 version with an X-Windows emulator (The humming bird version is \$150) can be found at:

http://www.starnet.com/products/downloads.asp

Download ssh (secure shell) and install it on your PC. The rest of the tutorail will assume you have done this correctly.

Setting your PC's Display to USE CDS tools

To use Cadence or silvaco tools you have to set the PC's display to 256 or high-16 colors. You will get a error (**can't find 8 bit plane device**) if this is not done. To set your PC's colors right click anywhere there are no icons on your pc screen. A pop-up like Figure 37 should appear. Highlight properties and another pop-up should appear (Figure 38). If you want the best UNIX display then use 256 colors like in Figure 38. If you want a compromise between UNIX and PC choose High Color (16-bit) like in Figure 39. **Note: A DSL or Cable Modem is required to use the cad packages GUI.**



Figure 37: Changing the Properties of your display.

Display Properties ? 🗙
Background Screen Saver Appearance Effects Web Settings
Display:
Colors Screen area
256 Colors Image:
Extend my Windows desktop onto this monitor.
OK Cancel Apply

Figure 38: 256 colors (Use for Best Display Using CDS Tools.)

Display Properties
Background Screen Saver Appearance Effects Web Settings
Display: Dell P991 on ATI Xpert98 AGP 2X (English)
Colors High Color (16 bit) Screen area Less More 1280 by 1024 pixels
Extend my Windows desktop onto this monitor.
OK Cancel Apply

Figure 39: High Color (16 bit) Use as a compromise between UINX and PC.

X Windows from a PC Using Hummingbird Exceed (Commercial Software):

Install the software according to the installation wizard. Make sure your display is set to 256 or High Color (16-bit). There are two ways to use the software. Passive mode allows you to open up a terminal directly without the CDE running. This displays better and uses less system resources. The second method is XMDP-Query and this logs you into a server through the CDE. If you have a router at home you must turn it off for hummingbird to work.

Secure Shell Login:

To login to a UNIX server using passive mode, open up the directory where you installed Exceed.

Double click on the Xconfig Icon shown in Figure 40. A window should appear like in Figure 41.

Double Click on the communication Icon in Figure 41, and a pop-up like Figure 42 should appear. Set the mode to passive as in Figure 42, and click OK.



Figure 40: Xconfig Utility.



Figure 41: Choosing a Method to Communicate.

Communication		×
<u>Startup</u>		ОК
Mode:	Passive Configure	Cancel
Display Number:	0	
		<u>H</u> elp

Figure 42: Passive Communication.

To start an X-session: Click on the Exceed Icon in the directory where you installed Exceed (Figure 43).



Figure 43: Starting a Session.

A button like Figure 44 should appear on your task bar.



Figure 44: Pop-up to Start Passive Session.

Start SSH by clicking on the icon as in Figure 45. A window should appear like in Figure 46.



Figure 45: SSH icon.

•



Figure 46: SSH.

You need to turn on X11 tunneling for remote graphics to work. To turn on remote X11 Tunneling:

Go to Edit settings in the secure shell widow. A pop-up like Figure 47 should appear.

Click on tunneling in the settings tree of Figure 48 and click on tunnel X11 connections as in Figure 48.

Settings		×
 Host Settings Connection Cipher List Keyboard Tunneling Outgoing Incoming Global Settings Appearance Font Colors User Keys Host Keys File Transfer Firewall Security Printing 	Connection Configure the protocol settings for the connection. New settings will be effect the next time you login. Most Name: User Name: User Name: Compression: Authentication Method: Any Port Number: 2 Connect through Firewall	
Ssh	OK Cancel Help	

Figure 47: Editing the settings of your secure shell.

Settings		×
 Host Settings Connection Cipher List Keyboard Tunneling Outgoing Incoming Global Settings Appearance Font Colors User Keys Host Keys File Transfer Firewall Security Printing 	Tunneling If you want to enable secure X11 tunneling, check the box below. Tunnel X11 connections	
Ssh	OK Cancel Help	

Figure 48:X11 tunneling in ssh.

To connect left click in the SSH window and press return. Fill out the pop-up as in Figure 49 (using your own login name) and click connect. The valid addresses are eecad1.engr.sjsu.edu to eecad50.engr.sjsu.edu. If one machine does not work, try another.

Connect to Remote Host					
	<u>H</u> ost Name:	eecad24.engr.sjsu.edu	Connect		
	<u>U</u> ser Name:	dparent	Cancel		

Figure 49: Connecting to a remote host with SSH.

After you click connect a pop-up like Figure 50 will appear. Click yes and then enter your password as in Figure 51. You password will look like ******.

Host Ide	ntification X				
i	You are connecting to the host "eecad24.engr.sjsu.edu" for the first time. The host has provided you its identification, a host public key.				
	The fingerprint of the host public key is: "xucez-gynic-pozut-gacac-lezon-catun-datyn-vynak-kifed-fudes-lexyx"				
	You can save the host key to the local database by pressing YES. You can continue without saving the host key by pressing NO. You can also cancel the connection by pressing CANCEL.				
	Do you want to save the new host key to the local database?				
	Yes No Cancel Help				

Figure 50: Agreeing to use a host public key.

Enter Passwo	'd	×
Password:	*****	OK
		Lancei

Figure 51: Entering your password.

If all went well then you should your SSH should accept input from your keyboard and the text should be un-ghosted as in Figure 52.

😢 eecad24.engr.sjsu.edu - default - SSH S		. D X	
File Edit View Window Help			
🗅 📽 🖬 🗷 🍠 🏝 🖻 🞒 🗿	🗎 🎭 N?		
eesad24.engr.sjsu.edu%			-
1			
1			
1			
1			
1			
1			
1			
1			
1			
1			
1			
1			
1			
1			
1			-
Connected to eccad24.engr.sjsu.edu	SSH2 - 3des-cbc - hmac-md5 - none	B0x24	NLM //

Figure 52: Connected with SSH.

Using a trial version of an X-Windows server:

You can down load a trail version of the X-Windows emulator (It works for an hour and then drops you.) at:

<u>http://www.labtam-inc.com/index.php?act=products&pid=9</u> The product is X-Thin Pro.

Download and install it according to the instructions.

Go to Start... Programs... XTinPro v6.5 and click on the Xsession icon as in Figure 53.

Clcik no, when the pop-up asks you if you want to visit the LabTam site.

An Icon like Figure 54 should appear on your tool bar.

Start your SSH and you should be able to access the tools.



Figure 53: XSession.



Figure 54: Alternate X-Windows session.