

# CORAL SOFTWARE INSTALLATION AND USER GUIDE

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#### I. INSTALLING JAVA AND CORAL REMOTE

In order to run Remote Coral, it is necessary to download and install the <u>Java</u> (version 1.6 or higher which includes Java Web Start). Use web browser to access URL <u>http://nanofab.nist.gov/coral/etc/coral.jnlp</u> for the Coral Application. Java web start will autolaunch in Internet Explorer. Firefox will return a prompt to open the application with Java web start (*Figure 1*).

Opening coral. jnlp		×
You have chosen to op	ben	
📓 coral.jnlp		
which is a: JNL	File	
rrom: http://na	norab.nist.gov	
What should Firefox	do with this file?	
<ul> <li>Open with</li> </ul>	Java(TM) Web Start Launcher (defau 🗸	
O ≦ave File		
Do this auto	natically for files like this from now on.	
		5
	OK Cancel	

*Figure 1:* Fifefox Java Web Start prompt.

The first time Coral is run, it will ask for permission to trust the Coral Remote Digital signature, published by Nanofab (*Figure 2*). "Check box to Always trust content from this publisher," then click on "Run" to accept. It will then ask for permission to run Coral Remote published by The Legion of the Bouncy Castle (*Figure 3*). "Check box to Always trust content from this publisher," then click on "Run" to accept.

Warning - Security	Warning - Security
The application's digital signature cannot be verified. Do you want to run the application?	The application's digital signature cannot be verified. Do you want to run the application?
Name: Coral Remote	Name: Coral Remote
Publisher: Nanotab	Publisher: The Legion of the Bouncy Castle
Always trust content from this publisher.	Always trust content from this publisher.
Run Cancel	Run Cancel
The digital signature cannot be verified by a trusted source. Only run if you trust the origin of the application.	The digital signature cannot be verified by a trusted source. Only More Information
Figure 2: Digital signture dialog	Figure 3: Bouncy Castle security dialog

Refer to instructions for your operating system or web browser for instructions on creating desktop shortcuts.

#### **II. USING CORAL**



Launch the application and accept the login banner. Enter a username/password, and press "OK". Once the authentication is complete, the main Coral window will appear.

Before enabling equipment or making reservations it is necessary to complete the login process. Scroll down to find the section labeled "Users". Select the first user slot which is not currently enabled. For example, if there is one user currently in the lab, then select the second user slot and go to Equipment Actions -> Enable (*Figure 4*).

indow.	Equipment Actions	Process Actions	<b>Reservation Action</b>	is History A	ctions Staff A	ctions				
	Exable Disable		Reservations	History	Maintenanc	e Pelay	Earphie	t Status Summary	Staff Changes	
	Shutdown Regort Problem		User#2 Reso	rvations tays Per Maci	hine View 🗇 M	loltiple Macl	ines Per De	y Mew		
	Make Comment		1 20	Tus, AUG 9	Wed, AUG 10 T	ha, AUG 11	Fit, AUG 12	Sat AUO 13 Sun, J	433 14 Mon, AUG 15	Tue,
- Opti	QualityUser architegraphyre	1	0.30							
- Optic	al Lithography/2	100	1:30				-			
- E.bes	am Lithography		2.00							-
- Mont	foring		2.00							_
- Gene	ral Wet Chemistry		4.00							-
≻ Clear	n Silicon Wet Chemi	stry	4:30 5:00							
User	5		5:30							
- 1	User#1 (kbrady)	86	6.00 6.30							
1	User#2		7.00							-
1	🖥 User#3		B 00							
- 1	User#4		9.00 9.30					-		-
- 1	User#5		10:00							
-1	User#6		11:00							
1	User#Z	-	00.07	11	-		0 11	l	11	111

*Figure 4:* Completing the login process

A dialog box will appear containing machine enable information. Simply click on "OK" to complete the login process (*Figure 5*).

📲 CL2RRE 👛	Reservations History	Maintenance Policy Ed	upment Status Summary Staff Charges	
槽 F2RE 槽 KeF2EIch ≫ Metal Deposition	UserX2 Reservations  Multiple Days Per Mechin Tus, AUS 8 W Machine Enable Inform	e View 🗇 Multiple Machines I ed, AUG 10 Thu, AUG 11 Fin, A nation	Per Day View UG 12   Sat AUO 13   Sun, AUG 14   Mon, AUG 1	ś Tue
Optical Emography     Optical Emography     Optical Emography     Moniforing     General Wet Chemistry     Clean Silicon Wet Chemistry     Users     Users	Agent Machine Mamber Project Account Process/Comment	wsisburg UserA2 wsisburg Linewstith Project * BEDM * gefruit		
語 UserX2 語 UserX3 語 UserX4 語 UserX5 語 UserX6	000 000 000 000 10.00 11.00 11.00 11.00 11.00	Cancel		

*Figure 5:* Completing the login process



The login process is now complete. To verify this, ensure that your member name appears in parenthesis following the user slot that was enabled (*Figure 6*).

CL2RIE	* Reservation	s History	Maintenar	ce Pelicy	Economies	Status Summ	ary Stell	Charges	
F2RE	User#2 Re	servations							
KeF2 Elch	* Multiple	Days Per Mach	hine View 🖂	Moltiple Mach	ines Per Day	View			
8- Metal Deposition	0:00	Tus, AUB 9	Wed, AUG 10	Thu, AUG 11	FIL,AUG 12	Bat AUO 13 B	un, AUB 14	MDH, AUG 15 TL	39
Optical Lithographs#1	0:30								
Onlical ithographet2	1:00								-
Pr. E. burner I. Honoranber	2:00		-						-
e caedin Consynaphy	2.30								
<ul> <li>Monitoring</li> </ul>	3:30								-
General Wet Chemistry	4:00								
Clean Silicon Wet Chemistry	4.30		-						-
∲ Users	5:30								
B Derit Abrahi	6.00								_
	7:00								-
I User#2 (weisberg)	7:30								-
- 👪 User/K3	R.30	-							-
- I User#4	9.00								
18	10:00				1				-
and Oservo	10.30								
User//6	11:00								_
Illiser#7	aner	27	-	_	-			والتصحيا	-

Figure 6: User logged in to User#2 slot

#### **III. MAKING A RESERVATION**

Select the name of the machine to be reserved in the left panel. Machines for which you are privileged to use will be marked with an asterisk following the machine name. In the right panel, highlight a block of time to reserve. Click on **Reservation Actions –> Make** to open the machine reservation dialog (*Figure 7*).

		hake		Lastassances	-	00000000.000000000			norma asser	10/2010/02/02/02	
NIST Nanofabrication Facility		lettete	lions	History	Maintena	nce Pelic	A Edutumen	d Status Summa	sy Ste	ff Charges	
P Furnaces/CVD		apri	Clean	Reservation	69						
Orean Silicon Furnaces     Orean Silicon Furnace     Orean Silic	E	revious	lple D	nyis Per Mac	thine View 📋	Multiple Ma	chines Per De	yView		i	
Wet Ox Clean		0.00	36.97	Tus, AUB 9	Wed, AUG 10	Thu, AUG 11	1 Fil, AUG 12	Bat AUO 13 B	un, AUG 1	4 Mon, AUG 15 Ti	19
🐻 Dry Ox Clean*		0.30			-						
🗿 N-type		1:30									
P-type		2.30									
Φ- General Furnaces		3.30	-								-
- Low Pressure Chemical Vapar Dopos		4:00									-
• Plasma Enhanced Chemical Vapor De		5.00									-
Provide Thermal Annealer		5:30 6:00									
P Dry Etching		6.30									1
Sticon RE		7:30									-
Boop RE (ghenein)		R 00					-			-	-
CL2RIE		9.00					-				-
- 📳 F2RIE		10.00	g i								-
🗱 Kef2 Elch	T	11:00	ĝ i								-
D- Metal Deposition		17.00	2 11	27							1

*Figure 7:* Reserving equipment



Input all necessary information in the reservation dialog. Place any comments about the reservation in the **Process/Comment** field. When finished, click "OK" to complete the reservation (*Figure 8*).

NEST Nanofabrication Facility	Reservations History	Maintenance Pola	y Economient Sta	dus Summary St	off Changes
P Furnaces/CVD	Dry Ox Clean Reservat	ions			
Clean Silicon Furnaces	# Multiple Days Per M	lachine View 📋 Multiple M	schines Per Day Vie	w	2
- 🐻 Wet Ox Clean	Tus, AUG	9 Wed, AUG 10 Thu, AUG 1	1 Fil, AUG 12 Sat	AU013 Bun; AU01	A Mon, AUG 15 Tue
🐻 Dry Ox Clean*	Machine Reserva	tion Information			
I N-type	Agent	weisberg			
P-type	Machine	Dry Ox Clean			
General Furnaces	Momber	weisberg			
Dev Low Pressure Chemical Vapar Depos	Project	Linewidth Project			
Plasma Enhanced Chemical Vapor De	Account	HEDM			
Rapid Thermal Annealer	ProcessiComment	default			
φ Dry Etching	riscession	Decision.			
Silicon RE	12	OK Cancel			
E Deep RIE (ghenein)	8.90	1 1			
E CL2RIE	9.00				
F2RE	10.00				
a Xaf2 Etch	11:00				
The Address of Descent Street	11.50				

Figure 8: Machine Reservation dialog

When the reservation is complete, your member name will appear in every timeslot of the reservation for the specified machine (*Figure 9*).

NIST Nanafabrication Facility	Recentering	History	Maintena	nce Peircy	Fauntee	Status Sum	IN Sul	Charmen	
P. Bemaces (14)	Dry Ox Clear	Reservations		2000/02/2005			121111-04/		
- Internet and the second s									
Clean Silican Furnaces     Clean Silican Furnace     Clean Sil	· Multiple D	tays Per Machi	ine View	Moltiple Mac	hines Per Day	View			
Wet Ox Clean	0.00	Tus, AUB 9 V	Ved, AUG 10	Thu, AUG 11	Fil, AUG 12	Bat AU013	Sun, AUG 14	Mon, AUG 15	Tue,
a second	0.00						-		-
H DIY OK CIEAN	1:00								
N-type	1:30					-			
II on a	2.00								
1 1- type	2.00			mainhann			-		
General Furnaces	3.30			weisberg					
Low Pressure Chemical Vapor Depos	4:00			weisberg					
C Diama Caluma di Chamila dhi na sh	4:30			weisberg					
Plasma Enhanced Chemical Vapor De	5.00			weisberg					
Papid Thermal Annealer	6.00			weisherg					
P Dry Etching	6.30								
The second se	7:00								
B SOCONTE	7:30 P.00							-	
Deep RIE (ghenein)	R 30			-					
The second	9.00								
AR CLIME	9.30								
F2RIE	10.00							-	
	11:00			-			-		
H Xerz Elch	11:30								
Metal Deposition	1110	27							1000

Figure 9: Reservation complete



# **IV. DELETING A RESERVATION**

In the left panel, select the name of the machine from which to remove a reservation. In the right panel, highlight a reservation by clicking on any one of the individual slots within the reservation block. Click on **Reservation Actions** –> **Delete** (*Figure 10*).

Andow Equipment Actions Process Action	15	Reservation	Action	<ul> <li>History A</li> </ul>	ctions Staff	Actions					
NIST Nanofabrication Facility		Make	lions	History	Maintena	nce Pelicy	Economies	t Status Summa	sy Staff C	hanges	
Furnaces/CVD		Foreite	Diean	Reservation	s						
Clean Silican Furnaces		Pace	Inte D	nar Dar Mari	hine Mass	Multiple Mari	timer Dar De	-			
		Freedows	1000 C	THE MIG R	Word Bills 10	Thu ALK3 11	EN ALIG 12	Rat 4143 13 8	0.010 1a M	00 #10 16 T	140
B Wet Ox Clean		0.00		100,000.0	1104,24052.15	104 6650 110	110,0000.14	544 1000 10 10	an, 200 St. 14, 18	100,0000 10 1	1
📲 Dry Ox Clean*		0.30									
I N-type		1:30								-	-
		2.00									
1 P-0pe		2.30			-	Land Street					-
Φ- General Furnaces		3.30			-	weisberg					-
D- Low Pressure Chemical Vapor Depos		4:00			-	weisberg					
		4:30				weisberg					
Plasma Enhanced Chenacal Vapor De		5.00			-	weisberg	-				-
Provide Thermal Annealer		6.00			-	weisheng					-
P Dry Etching		6.30				measurery					
II course		7:00									
H Sucurre		P.00	-		-						-
Deep RIE (ghenein)		R.30			-						-
III co star		9.00									
CL2NE		9.30									_
F2RE		10.00									-
I Xef2 Etch		11:00	§								
Pro Ministel Deservatives		11.30	8 11								_
- Rental Deputation		10000				0.0		19			

Figure 10: Deleting a reservation

The reservation block will be removed from the schedule (Figure 11).

Vindow Equipment Actions Process Actions R	eservation Action	s History Ad	ctions Staff Acti	DATE			
NIST Nanofabrication Facility	Reservations	History	Maintenance	Pelicy	Equipment Status Summary	Stelf Charges	
Furnaces/CVD	Dry Ox Clean	Reservations					
Clean Silicon Furnaces	· Muttole D	ans Per Mach	ine View 🗌 Molt	ple Mach	ines Per Day View		
18 West On Clean	1 2	TUR, AUB 8	Wed, AUG 10 Thu	AUG 11	FR, AUG 12   Bat AUG 13   Bun	AUG 14 MON, AUG 15	Tue,
	0.00						
B Dry Ox Clean*	1:00						
1 N-type	1:30						
III Chan	2:00			_			
He to Obe	3.00			-			
General Furnaces	3.30			_			
Dev Low Pressure Chemical Vapor Depos	4:00						
P. Diasma Exhanced Chemical Value De	4:30						
Financia Calance Calance Vapar De	5.30			-			
P Rapid Thermal Annealer	6.00						
P Dry Etching	6.30						
Sticon PLE	7:30			-			
	B.00						
(ghanain)	R 30						
CL2RIE	9.00						
I court	10.00			-			
18 F24E	10.30						
🗱 XoF2 Etch	11:00						
D- Motal Deposition	11100	97					-
		.u.					

Figure 11: Reservation deleted



#### V. ENABLING EQUIPMENT

Select the name of the machine to be enabled in the left panel. Machines for which you are privileged to use will be marked with an asterisk following the machine name. Click on **Equipment Actions –> Enable** (*Figure 12*).

indow.	Equipment Actions	Process Action	16	Reservation /	lction	s History A	etions Staff	Actions					
UST Na	Enable			Reserval	tions	History	Maintenan	ce Pelcy	Eagmen	t Status Sum	nary Stat	T Changes	
Fun (	Disable Shutdown Regort Problem			Dry Ox	Clean tple D	Reservation nys Per Mac	is Nane View 🖂 I	Notiple Mac	hines Per De	/View			
	Make Comment			0.00	- 27	TUR, AUG 9	Wed, AUG 10	Thu, AUG 11	FII, AUG 12	Sat AU013	Bun; AUG 14	Mon, AUG 15	Tue,
	Quality User			0:00							-		
	m			1:00							-		
	N-type			1:30									
	1			2.00								-	
	He to Obe			3.00							-		
Ф 6	eneral Furnaces			3.30							-		
0 L	ow Pressure Chemi	ical Vapor Depos		4:00									
	lasma Enhancoli ("k	ensical Vanar De		4:30							-		
1		in the second second second		5:30							-		
- R	aper thereal Asnea	1001		6.00									
DryE	tching			6.30									
1	Silicon RE			7:30							-	-	
				B.00									
1	Deep RIE (ghene	80		R 30									
- 1	CL2RIE			9:00							-	-	
	E const			10.00									
1	B ranc			10.30									
14	KeF2 Etch			11:00							-	-	
- Meta	Deposition			1100		27	1		0.00				in a
	10				-								-

Figure 12: Enabling equipment

Input all necessary information in the enable dialog. Place any comments about the machine usage in the **Process/Comment** field. When finished, click "OK" to enable the machine (*Figure 13*).

NIST Nanofabrication Facility	Reservations H	Istory	Maintenance Pe	icy Eauto	nent Status Summ	ary Staff Changes	
♥ Furnaces/CVD	Dry Ox Clean Res	ervations					
Clean Silicon Furnaces     Clean Silicon Furnace     Clean Silicon Furna	* Multiple Days I	Per Machin	e View 🔅 Multiple I	Machines Per	Day View	- 12	
- 🐻 Wet Ox Clean	Tun	AUB 8 W	ed, AUG 10 Thu, AUG	11 FR, AUG	12 Sat AUO 13 B	un, AUG 14 Mon, AUG 15	Tue,
🚦 Dry Ox Clean*	Machine Ena	ble Inform	nation :	8			
📲 N-type	Agent		weisberg				
# P-type	Machine		Dry Ox Clean				
Φ= General Furnaces	Monber		weisberg				
Eaw Pressure Chemical Vapar Depos	Project		Linewidth Protect				
Plasma Enhanced Chemical Vapor De	Account		IEDM	-			
Rapid Thermal Annealer	ProcessiCom	uent .	default				
Ф Dry Etching		1.000					$\square$
Silicon PLE		05	Cancel				
🖶 Deep RIE (ghenein)	8.30			_			
E CL2RIE	9.30			-			+
F2RE	10:00	-					
🗱 XaF2 Elch	11:00	_					$\square$
Metal Deposition	aner			-			in the second



When the machine becomes enabled, your member name will appear in parenthesis following the name of the machine (*Figure 14*). The system has now logged the start time of your usage cycle for this machine.

and the second second second second		the second	the second s		Coloma Dalle	0.0	in concernation	
Dry Ox Clear	n Reservation	5						
* Muttple i	Days Per Mac	hine View 🗇 M	lutiple Mach	ines Per Day	View			
1 7	Tus, AUG 9	Wed, AUG 10 Th	hu, AUG 11	FH, AUG 12	Sat AUO 13	un, AUG 1-	A MON, AUG 15 T	19
0.00				<u></u>				-
1:00		+ +						-
1:30								
2.00								-
3.00		+ +						-
3:30								
4:00								_
5.00		+ +					-	-
5:30								_
6.00								_
7.00		+ +						-
7:30								
18.00 R 31								_
9.00		+ +					+ +	-
9.30								
10:00								_
11:00		+ +						-
11:30								_
111100	27	1		C/		-	111 112	15
	<ul> <li>Martiple ( 0.00 0.30 1:00 1:30 2:30 2:30 2:30 4:00 3:30 4:00 5:30 5:00 5:30 5:00 5:30 5:00 5:30 8:00 8:30 8:00 8:30 8:00 8:30 8:00 8:30 9:00 9:30 10:00 10:30 11:3</li></ul>	Multiple Days Per Mach     Tus, #J0 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Kalipie Days Per Machine View     Nov     Tue, AUG 9 Vied, AUG 10 T     C00     C30     C00     C	Matiple Days Per Machine View Matiple Machine View Matiple Days Per Machine View Matiple View	* Matiple Days Per Machine View         Matiple Machines Fer Days           Tue, AUS 8         Wead, AUS 10         This, AUS 12           00         100         100           1.00         100         100           2.00         100         100	• Multiple Days Pro Machine View         Multiple Machines Per Day View           Tus, AUG 8         Vied, AUG 10         Tus, AUG 12         Sat, AUG 13         Fin, AUG 13         Fin, AUG 14         Fin, AUG 14	Matiple Days Per Machines View Matiple Machines Per Day View Tus, AUG 9 (vest, AUG 10 Thu, AUG 11) Fin, AUG 12 (Sat, AUG 13) San, AUG 1      Tus, AUG 9 (vest, AUG 10 Thu, AUG 11) Fin, AUG 12 (Sat, AUG 13) San, AUG 1      Tus, AUG 9 (vest, AUG 10 Thu, AUG 11) Fin, AUG 12 (Sat, AUG 13)      Tus, AUG 9 (vest, AUG 10 Thu, AUG 11) Fin, AUG 12 (Sat, AUG 13)      Tus, AUG 9 (vest, AUG 10 Thu, AUG 11) Fin, AUG 12 (Sat, AUG 13)      Tus, AUG 9 (vest, AUG 10 Thu, AUG 11) Fin, AUG 12 (Sat, AUG 13)      Tus, AUG 9 (vest, AUG 10 Thu, AUG 11) Fin, AUG 12 (Sat, AUG 13)      Tus, AUG 9 (vest, AUG 10 Thu, AUG 11) Fin, AUG 12 (Sat, AUG 13)      Tus, AUG 9 (vest, AUG 10)      Tus, AUG 10 (vest, AUG 10)      Tus, AUG 11 (vest, AUG 10)      Tus, AUG 10      Tus, AU	• Multiple Days Per Machine View         Multiple Machines Per Day View           Tus, AUG 9 (vied, AUG 10 Thu, AUG 11 Fr, AUG 12 Sat, AUG 13 Bun, AUG 14 Mon, AUG 15 T           000         100           100         100           100         100           100         100           100         100           100         100           100         100           100         100           100         100           100         100           200

#### **VI. DISABLING EQUIPMENT**

Select the name of the machine to be disabled in the left panel. Click on **Equipment Actions &ndash> Disable** (*Figure 15*).

Indow Equipment Action	Process Actions	<b>Reservation Action</b>	is History A	ctions Staff A	tions				
NEST Na Disable		Reservations	History	Maintenanc	e Pelcy	Eauprice	t Stelus Summary	Staff Charges	
P Funi		Dry Ox Clean	Reservation teys Per Mad Tus, AUG 8	s hine View 🗇 M Wed, AUG 10 Ti	oltiple Mach	ines Per Da Fil, AUG 12	View Sat AUO 13 Sun, A	มจางโพยา, สมอาร์	Tue
Quality User	(weisberg)	0:00							
I N-type		1:30							
P-type		2.30							
General Furnaces	ana ana ana	2,30							
Dev Dev Pressure Cher Charges Cabacteria	nical Vapor Depos	4:30							
Rapid Thermal Ann	taller	5.30							
P Dry Etching	1999-10 1	6.30							
Silicon RE		7:30 R 00							
Deep FdE (ghe	uciin)	B 30							
CL2RIE		9.30							
F2RE		10:30							
KaF2 Etch		11:30							
Metal Deposition				09		0	10 - 10 -		

Figure 15: Disabling equipment



When the machine becomes disabled, your member name will no longer be displayed following the machine name (*Figure 16*). The system has now logged the end time of your usage cycle for this machine.

NEST Nanofabrication Facility	Reservations	History	Maintenance	Pelicy	Equipment	t Status Summ	ary Sta	ff Changes	
P Furnaces/CVD	Dry Ox Clean	Reservation	6						
Clean Silicon Furnaces	· Muttale D	ans Per Mac	hine View 🗆 Ma	Alipie Mach	ines Per Da	View			
The Met Dy Clean	1 2	Tus, AUG 9	Wed, AUG 10 Th	4, AUG 11	FILAUG 12	Bat AUO 13	an, AUG 1	MON, AUG 15 TH	90
<b>G H</b>	0.00		-			-			
Bry Ox Clean*	0.30								_
III Mittane	1:30		+ +						-
() right	2.00					-			-
P-type	2.30								
Φ- Conoral Fernarios	3.00				_				
	4:00					-			-
Dev Deposition Chemical Vapor Deposition	4:30							-	-
Plasma Enhanced Chemical Vapor De	5:00								
Provide Thermal Annealor	5:30								
	6.00							-	_
P- Dry Etching	7:00								-
Silicon RE	7:30					-			-
III on a first second s	B.00								
H Deeb (dr. (Greenen)	R 30								-
E CL2RIE	9.30							-	-
	10.00					-			-
18 F2HE	10.30								
Kaf2 Etch	11:00								_
The Minister Descentifican	11.30	27							-
··· Intera Depension	1		10 U.S.	_					

#### **VII.** REPORTING A PROBLEM

In the left panel, select the name of the machine which has a problem to be reported. Click on **Equipment Actions -> Report Problem** (*Figure 17*).

Andow Explanment Actions	Process Actions	<b>Reservation Action</b>	is History A	ctions Staff Acti	ONS			
NIST Na Disable		Reservations	History	Maintenance	Petcy	Economient Status Summ	nary Staff Changes	
P Furn Shutdown		Dry Ox Clear	Reservation	8				
P C Report Problem	8	· Muttple D	tars Per Maci	the View 🗋 Mak	iple Mach	ines Per Day View		
Make Comment	1		Tug. AUG 9	Wed, AUG 10 Thu	AUG 11	FILAUG 12 Bat AUG 13	Bun AUG 14 Mon AUG 1	S Tue
The second se		0.00		-				-
Quality User		0:30						
		1:00						
a v-type		2.00						-
I Pitote		2.30						-
and the second		3:00			_			
General Furnaces		3:30						
Dev Dressure Chemi	ical Vapar Depos	4:00						
Or Olacana Cabanana Ca	and all the set of the	4:30						-
<ul> <li>Presenta chinaricate ch</li> </ul>	ienircal vapar be	5.00						-
Rapid Thermal Annea	vier .	6.00						
Dry Etching		6.30						
		7:00						
E Salcon RE		7.30						-
B Deep RE rahene	an	R 31						-
		9.00						-
CL2RE		9.30						
a conc		10.00						
(B) FARE		10.30						
XeF2 Etch		11:00					-	-
The Minister Descent Minus		11.00						100
- Insta Deposition			44	11 C				•

Figure 17: Reporting a problem



Input all necessary information in the problem report dialog. When finished, click "Submit" to submit the problem report (*Figure 18*).

NIST Nanofabrication Facility	Problem	Report		8	Pelicy	Eauprile	it Status Summar	y Staff	Charges	
Furnaces/CVD	Eaupmen	t: Dry Ox Clean								
Clean Silicon Furnace	Fram	walsberg			ile Mach	nes Per De	vitew			
Wet Ox Clear	Ta	To Dry Ox Class	Problem Liste		10011	FR, AUG 12	Sat AUO 13 Bur	1, AUG 14	MON, AUG 15	Tue
B Dry Ox Clean	Subject	Misor Problem		-						
I N-type	Thicknes	swasoffby inm		11000						
I P-type		18								
Φ- General Furnaces										
- Low Pressure Chemi										
• Plasma Enhanced Ch		Submit	Cancel			-				
• Rapid Thermal Annea										
Dry Etching		6.30 7.00								E
Silicon RE		7:30								E
📕 Deep RIE (ghenein)		R 30				-				H
CL2RIE		9.00								F
I F2RE		10.00								
THE KOEZ FICE		10.30								
		11:30								

Figure 18: Problem report dialog

The status indicator beside the machine name will turn yellow indicating a problem has been reported (*Figure 19*). The machine is still available to be enabled/disabled as the problem is not critical.

NIST Nanofabrication Facility	Reservations	History	Maintenanc	e Pelcy	Equipment	t Status Summ	tary St	off Charges	
Fumaces/CVD	Dry Ox Clear	Reservation	s	04430.85	-3546.000		1000	meneed31024	
Clean Silicen Furnaces	* Muttole D	tes Per Maci	hine View	lultiple Mach	ines Per Da	New			
I Wet Ov Clean		Tus, AUG 9	Wed, AUG 10 T	HU, AUG 11	Fil, AUG 12	Bat AU0 13	an, AUG	14 MON, AUG 15 1	Tu?
() THIS CALL	0.00								_
Dry Ox Clean*	1:00								_
- III N-type	1:30					-		-	-
II com	2.00								
1 h-Ohe	2.00							-	-
General Furnaces	3:30								-
Low Pressure Chemical Vapor Depos     A	4:00								
@= Diasma Enhancioli Chomical Vanar Do	4:30							-	_
	5.30						_	-	-
P Rapid Thermal Annealer	6.00								
P Dry Etching	6.30								
Sticon RE	7:30		++		-			-	-
	B:00								-
Deep RiE (ghenein)	B 30								
- III CL2RIE	9.00							-	_
	10.00							-	-
槽 F2RE	10.30								
I XoF2 Etch	11:00								_
Co. Marcal Descarbles	17.00				1	-	_	-	-

*Figure 19:* Problem logged, stoplight indicator now yellow



## VIII. SHUTTING DOWN EQUIPMENT

In the left panel, select the name of the machine which has a critical problem to be reported. Click on **Equipment Actions -> Shutdown** (*Figure 20*).

indow.	Equipment Actions	Process Actions	Reservati	in Action	s History A	ctions Staff	Actions					
est Na P Furn	Enable Disable		Rese	rvations Ox Clean	History Reservation	Maintena	nce Pelicy	Eartmen	t Stetus Sumi	nary Stell	Charges	
	Dancert Drohlern			Auttole D	ans Per Mac	hine View	Multiple Mari	hines Per Da	Steen .			
11	Make Comment	r I	1		Tue AUG 9	Wed, AUG 10	Thu AUG 11	Fil.AUG 12	Bat AU0 13	Sun AUG 14	MON. AUG 15 T	·u9.
			0.00									
1	Quarry User		0.30									
	1 Harris		1:00			-	-					-
	1 wether		2.00			-						-
	P-type		2.30									
	or or of European		2.00			-						
1.	enter di l'ul nacios		3.30			-				_		-
• L	ow Pressure Chemi	ical Vapor Depos	4 30			-	-					-
e p	tasma Enhanceli Ch	iemical Vapor De	5.00			-				-		
	terist Thereast Barres	where	5,30									
	agrie circi inte statisti	200	6.00			-						-1
DIVE	tching		2.00				-					-
1	Silicon RE		7:30				-					-
			B.00									
1.1	B Deep POE (gneme	00	R.30									
- 1	CL2RIE		9.00				-					-
			10.0	0								-
	F2HE		10.3	D								
1	KeF2 Etch		11:0	0								
Meta	Deposition		110	n	97	-	-	-				nd.
-					<u>.</u>							111

*Figure 20:* Shutting down equipment

Input all necessary information in the problem report dialog. When finished, click "Submit" to submit the problem report (*Figure 21*).

NEST Nanofabrication Facility	Shutdow	n Report		8	Policy	Equipment	# Status Summ	ary Stat	t Charges	
P Furnaces/CVD	Equipmen	t: Dry Ox Clean								
Clean Silicon Furnace	From	waroberg			ale Maci	hines Per Da	View			
Wet Ox Clean	Ta:	-To Dri Os Claan Ilhi	Adown Liste		400.11	Fri ALX312	Bat, AUO 13	Sun, AUX3 14	Man, ALAD 15	Tue
B Dry Ox Clean	Subject:	Major Problem		1					1	
I N-type	No onge	flowing to machine.								
P-type						-			-	
◆ General Furnaces										F
* Low Pressure Chemi				_						
Plasma Enhanced Ch		Submit	Cancel							
Papet Thermal Annex		1000	115		-	-				
P Dry Etching		6.30							-	
Silicon RE		7.30								
Deep RIE (ghenein)		8 00								
TE CL 2REF		9.00								
IS cont		10:30								
and Parke		10:30		-						
XeF2 Etch		11:30								

Figure 21: Shutdown report dialog



The status indicator beside the machine name will turn red indicating a critical problem has been reported (*Figure 22*). The machine is not available to be enabled/disabled until the problem is remedied by a staff member.

	1.000		1.020000000			-		02000000000	
NIST Nanofabrication Facility	Reservation	s History	Maintenar	ce Pelicy	Equipment	t Status Sumi	nary Stat	f Changes	
P Furnaces/CVD	Dry Ox Clea	in Reservations	8						
Clean Silicon Furnaces	* Multiple	Days Per Mach	tine View	Multiple Mach	hines Per Da	New			
I Wet Ov Clean		Tus, AUG 9	Wed, AUG 10	Thu, AUO 11	FIL, AUG 12	Sat AUO 13	Sun, AUG 14	MON, AUG 15	Tue
	0.00		-						
E Dry Ox Clean*	1:00						-	-	
N-type	1:30		-						
III Dans	2:00								-
4 <b>3</b> - 314	200					-	-		
General Furnaces	3.30								
Dev Low Pressure Chemical Vapor Depos	4:31		-				-		-
Plasma Enhanced Chemical Vapar De	5:00						-		
Rapid Thermal Annealer	5:30						_		
D. Doc Etchine	6.30				-			-	
, uycaning	7:00								
Silicon RE	7:30								
Beep RIE (ghenein)	R 30		-			-	-		-
III (1.1996	9.00								
and CL27de	9.30						-	-	
F2RE	10.30						-		-
# XaF2 Elch	11:00		-						F
	17.00			_				10	-

Figure 22: Problem logged, stoplight indicator now red

## **IX.** UPDATING USER INFORMATION

Open the Resource Client by clicking on **Window -> Resource** (*Figure 23*).

comparison resource research	INUE AND	er venem Access	a many a	suerce search	state					
Residuation IL2RME	* 7	Reservations	History	Maintenan	ce Pelicy	Eaupmen	t Stelus Sum	nary St	off Changes	
IN F2RE		User#2 Rese	rvations							
		-	mar Day Mart	tern Maar	Autoria Mart	iner Der Der	Allow .			
R XeF2 Elch		- mangre o	Tuo 6110.0	INCA AND 10	Duo ALIO 11	DI MIG 11	0.11 21 10 1 0	Pue - 62 10 4	a and a second and	The second
8- Metal Deposition		0.00	104,905.0	110,700,10	104, 8550, 115	10,805.12	284,9620,12	aun, worden	4,800,90010	L L D Y
Control I Programmal 1		0.30						-		
Citer of Change shape 1		1:00								
Optical Lithography#2		1:30							-	_
8- E-beam Lithography		2.30			-			-	-	-
8- Monitoring		3.00			_			-		-
		3.30								
General Wet Chemistry		4:00				_		-	-	_
Clean Silicon Wet Chemistry		5.00						-	-	-
Users		5:30						-		-
		6.00								
and opening the second		7.00						-	-	_
B User#2		7:30						-	-	-
III Incola		8.00								
a oserva		R 30								
- B User#4		9.30				-		-	1	-
I Instit		10.00						-		-
( Oserab		10:30								
User//6		11:00								
I thereit?		11.30								
19 Operat		Same.	•			1		1.1	- 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999	

Figure 23: Opening the Resource Client



The Resource Client will initially display a panel on the left for searching and a panel on the right for viewing results. To view all the members in the system, type an asterisk into the input field and press "Search" (*Figure 14*). A listing of all currently active members will appear in the left panel.

Resource Clier	nt»	
Search for	Members	
by	name	
	•	
2 Active only	Search	
ahefner (Harlner, Al coak (Coak, Share crichter (Hichter, C gienein (Harah), G gienein (Narah), Hirady, Hirady, Hirady, Hirady, Charl, Inack (Huck, Lauro matciak (St. Clair, rhajda) (Hajda, Nur respond (Youpot, Fric) weisberg (Weisber	han) o) aut) esand) esa halissa) halissa) saell) fichard) (g, Phillip)	
Add o	ew member	_
View mon	ober information	-
View	verejects	
Ve	ew roles	
÷.	Pu4	

*Figure 24:* Searching for all members in the Resource Client

Highlight a particular member and click on "View Member Information" to display the user's information in the right panel (*Figure 25*). If you are viewing your own record, the information will be editable.

B Resource Clin	int.										
Search for	Members		Member into for weisb	erg					11.12		
by name 💌		٠	Name	weistrer	weisterg						
	•		University ID					7	1		
C Active only	Search	Ē.,	First name	Philip				.7	T.		
ohefner (Hofner, Allen) cook (Cook, Sharon) crichter (Richter, Curt)		Last name	Weisher	Weisberg							
ghenein (Henein, I	Curry Gerand)		Password	502317	251 n9+250 mm	6243706in153n		7			
jowen (Owen, James) kbrady (Brady, Kovin) buck (Buck, Laurence) mstclair (St. Clair, Melissa)		URL									
buck (Buck, Laur	icitar (Hichar, Curt) senein (Hienein, Gerand) wien (Owen, James) orady (Bacab, Kovin) suck (Buck, Laurence) sicitari (S. Clair, Melicsa) sicitari (J. Clair, Melicsa) sicitari (Hielia), Russell sipolo (Rospolo, Richard) sepolo (Rospolo, Richard) sepolo (Nospolo, Richard) sepolo (Weisberg, Phillip)		Autorisor								
henein (Henein, Gerard) zwen (Owen, James) brady (Brady, Kolin) brady (Brady, Kolin) brady (Hajda, Lauronce) brady (Hajda, Russel) regelo (Magad, Russel) regelo (Magad, Richard) regel (Magad, Eric) weisberg (Meisberg, Phillip)		Address 1	100 But	1 00 Bureau Drive							
rhajdaj (Hajdaj, Russell) rrappolo (Roppala, Richard) vagel (Vogel, Eric) weisberg (Weisberg, Philip)		Address 2	Bing 22	Bing 225, Room 8348							
			Mail code	8120	8120						
		City	Gathers	Gathersburg							
	Active only Nambers  Active only Search  Active only Search  arch (Cock, Sharoo)  act, Char, Alano)  act, Char, Alano)  act, Char, Sharoo)  act, Char, Lauronco)  act, Chard, Lauronco, La		State MD					7	10		
			Zipcode	20899				7	ī.		
Add		Phone 301-975-3246				7					
View and	ober information		Fate	301-875	-8069			7			
Vie	w projects		Email	philip.w	eisbergignistig	0Y	1	1			
V	iew roles		All offices								
-	Exit			Add project	Add role	inactivate member	Apply changes	Clos			

Figure 25: Viewing/Editing user information



# X. LOGGING OUT OF CORAL

Navigate to the user listing in the left panel of Coral and locate your username (*Figure 26*).

Indow Equipment Actions Process	Actions #	leservation Actio	ns History A	ctions Staff	Actions				
CL2RIE	*	Reservations	History	Maintener	ce Petry	Eauprier	t Status Sum	mary Stell	Charges
F2RE		User#2 Res	avations						
KeF2 Elch		· Multiple I	Anys Per Mac	hine View 🖂	Multiple Mac	hines Per Day	View		
Metal Deposition		0.00	Tus, AUG 9	Wed, AUG 10	Thu, AUG 11	Fil, AUB 12	Sat AUO 13	Bun; AUG 14	Mon, AUG 15 Tu
Columbus at		0.30					-	-	
<ul> <li>Opocal Liniography#1</li> </ul>		1:00							
<ul> <li>Optical Lithography/2</li> </ul>		1:30							
≻ E-beam Lithography		2.30						-	
≻ Monifering		3.00							
Constant Mind Characteria		3.30							
<ul> <li>General wer Chemistry</li> </ul>		4:30						-	-
Clean Silicon Wet Chemistry		5:00						-	
Users		5:30							
B Derrit Strate		6.00							-
() country parallel		7:00							
User#2 (weisberg)		7:30							
- I User#3		R 00		-	_		_		
		9.00					-	-	
· 据 User#4		9.30							
User#5		10:00							
I Unarth		11:00						-	
(B) OSERIO		11:30							
User#Z	-	aner	20	1		0 81			11

Figure 26: Listing of users currently in the lab

Click on Equipment Actions -> Disable to log out of Coral(Figure 27).

Ens Dis Str Pay Ma	able sable utdown		Descarations							
Elis Shi Pay Ma	utdown			History	Mantenance	Petry	Forment Status	Summary	Staff Charges	
Sh Pay Ma	utdown							10/2012/02/02	Contra Contra Marca 1	
Ma	port Problem		· Multiple	ervations Days Per Maci	tine View 🗇 Ma	ltiple Mach	ines Per Day View			
- Handlin	ike Comment		1 2	TUR, AUG 9	Wed, AUG 10 Thi	ALIG 11	FILAUG 12 Bat AUK	13 Bun, 4	UG 14 Mon, AUG 15	Tue,
Opticar:	ality User		0:00					_		
Optical L	thography/2	200	1:30							
- E-beam L	ithography		2.00 2.30 2.00							
<ul> <li>Monifortir</li> </ul>	all a		3.30							-
- General's	Wet Chemistry		4:00							
· Clean Sil	icon Wet Chemie	try .	4:30					_		
lieare			5.30							-
1 u	lser#1 (kbrady)	6	6.00 6.30							
調り	Iser//2 (weisber		7.00						-	-
摄口	lser#3		B 30							
- 語 -	Iser#4		9.00					_		
語い	liser#5		10.00					_		
摄い	Rer MG		11:00					-		
語い	Iser#7	-	0.01	1	4 AL		0 21			111

Figure 27: Logging out of Coral



Your username will no longer appear beside the user slot, signifying a successful logout (*Figure 28*).

CL2RAE	*	Reservations	History	Maintenar	ce Pelcy	Equipment	t Status Sum	nary Stal	T Charges	
I F2RE		User#2 Rese	rvations							
I WETER		* Multiple D	ays Per Mac	hine View	Multiple Mach	ines Per Da	New			
A Nort Close		1	TUR, AUG 9	Wed, AUG 10	Thu, AUG 11	Fil, AUG 12	Bat AUO 13	Bun, AUG 14	MON, AUG 15	Tu
<ul> <li>Metal Deposition</li> </ul>		0.00		-						4
Optical Lithography#1		1:00								+
P Optical Lithography//2		1:30								
8- E-beam Lithography		2:00			-					+
Monifering		3.00								-
Second Mint Chamietry		3.30		_						
ve deleta wet citelitistiy		4:30						-		+
Clean Silicon Wet Chemistry		5:00								
₽ Users		5:30						-		+
📕 User#1 (kbrady)		6.30						-		t
B User#2		7:00								F
- 🐻 Userit3		8.00 8.30					-			F
- 🐻 User#4		9.00								F
User#5		10.00								t
🐻 User#6		11:00					-			1
Illert 7		11.30	97		_	-			-	1
10 contra									1.00	

Figure 28: User has logged out

Select **Window** -> **Exit** to close Coral (*Figure 29*).

Andow Equipment Actions Process Actio	ms Reservation /	lctions History A	ctions Staff Act	ions				
L2RIE	* Reserva	tions History	Maintenance	Pelcy	Economien	Stelus Summary	Staff Charges	
IN F2RE	User#2	Reservations						
The Xu62 Elich	·* Mut	tole Days Per Mac	hine View 🗆 Ma	liple Mach	ines Per Day	View		
H HAT LINE		Tus, AUB 9	Wed, AUG 10 Thi	ALUG 11	Fil, AUG 12	Sat AUO 13 Bun,	AUG 14 Mon, AUG 1	Tue,
<ul> <li>Metal Deposition</li> </ul>	0.00				()			
Optical Lithography#1	1.00							
Optical Lithography/2	1:30							
- E beam Lithagraphy	2.00							
the second consignment of	2.00							-
<ul> <li>Romoning</li> </ul>	3:30							
General Wet Chemistry	4:00							
8- Clean Silicon Wet Chemistry	4.30 5.00							-
∲ Users	5:30							
IR Incohe Shareho	6.00							
and open a transmission	2.00							-
User#2	7:30							
· Illeritä	8.00							
	9.00							-
- B User#4	9.30							
User#5	10.00							
III III III IIII IIII IIIIIIIIIIIIIIII	10.30							-
an userno	11:30							
User#7	aher				0 21			100

Figure 29: Exit Coral