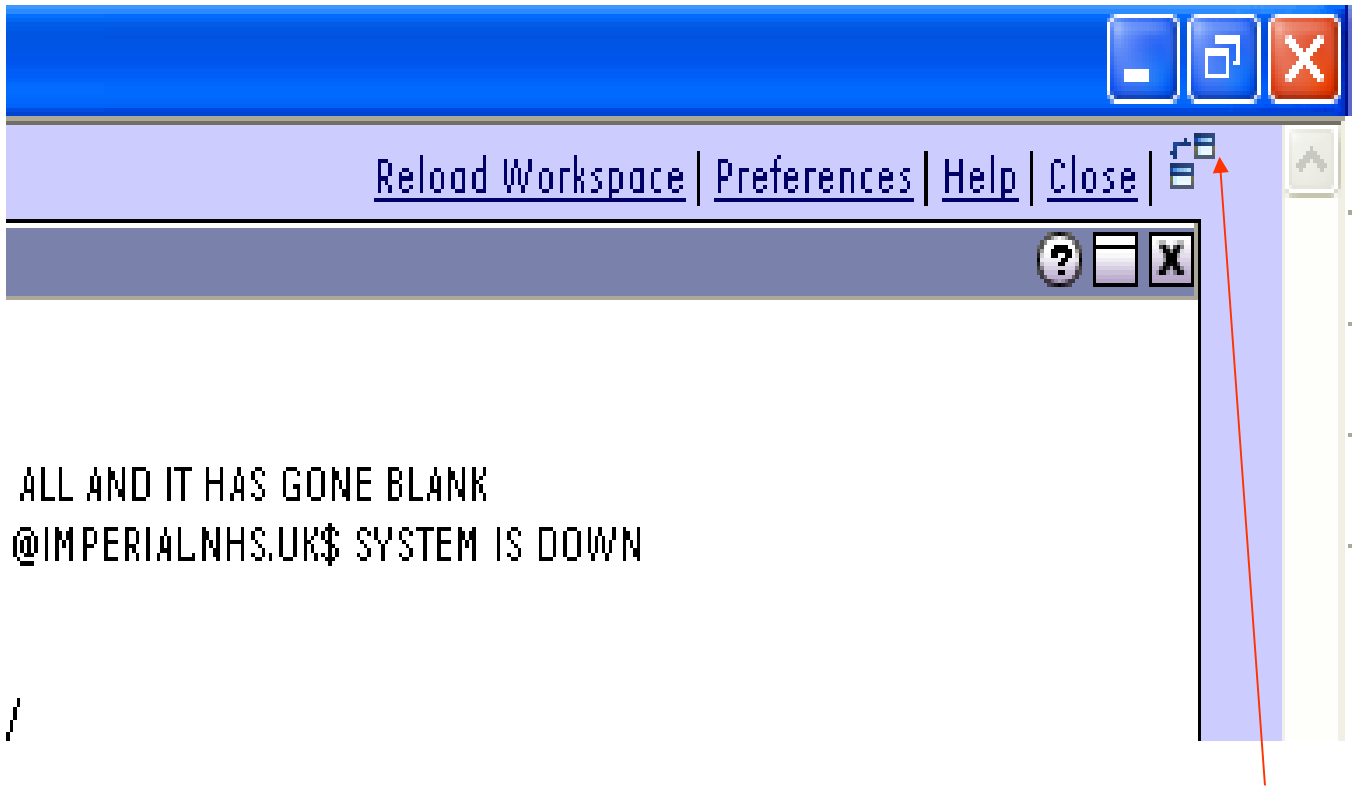
Remote Service Tools Guide

This guide is intended as a reference document for ROLE/RSL's and as such is not updated. Please refer to equipment specific documentation for detailed procedures.

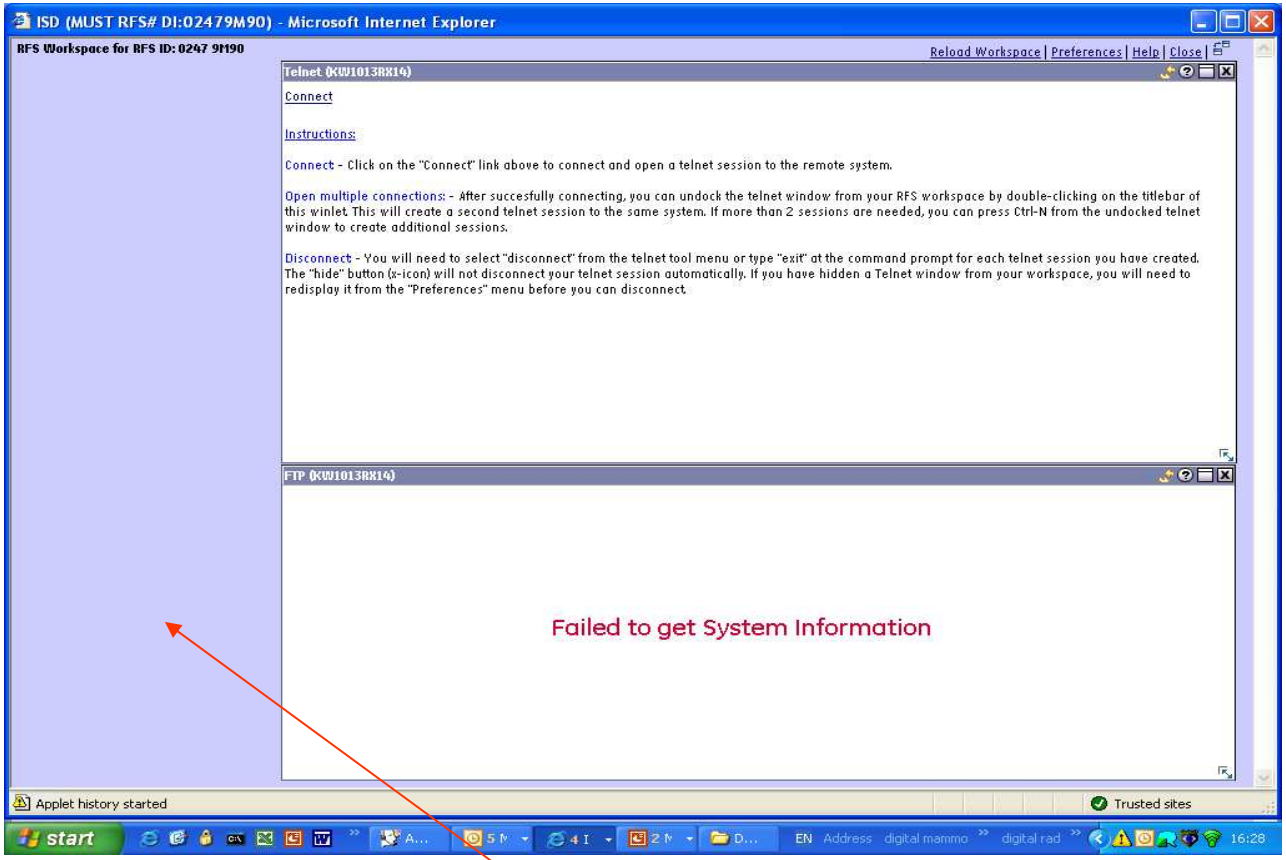
Start remote diagnostic tools



To Access service tools select RFS from queue then click on the toggle Icon on top right hand corner of RFS screen

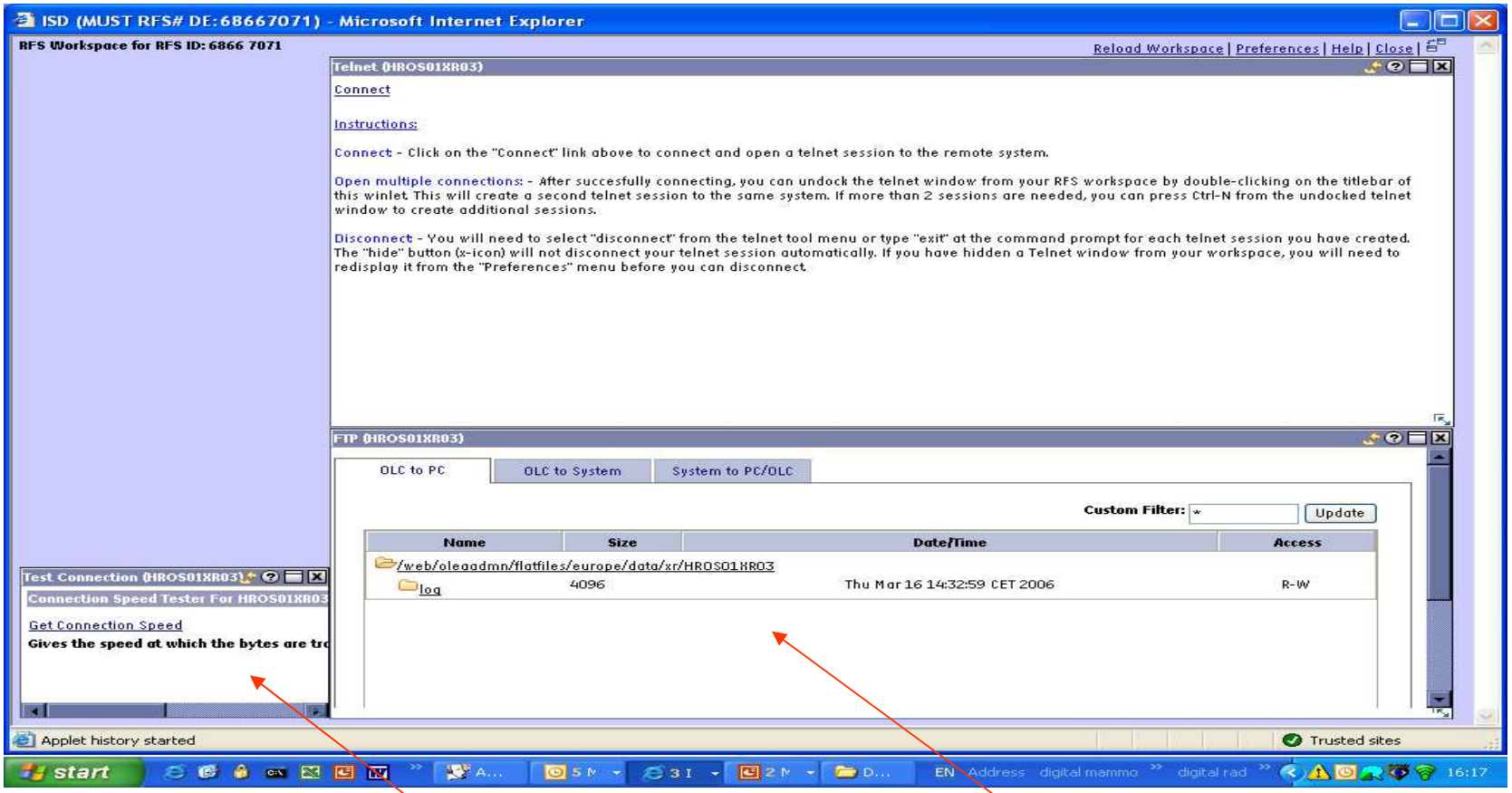
(you can also select from preferences but the toggle icon keeps it neater)

System is not connected to insite



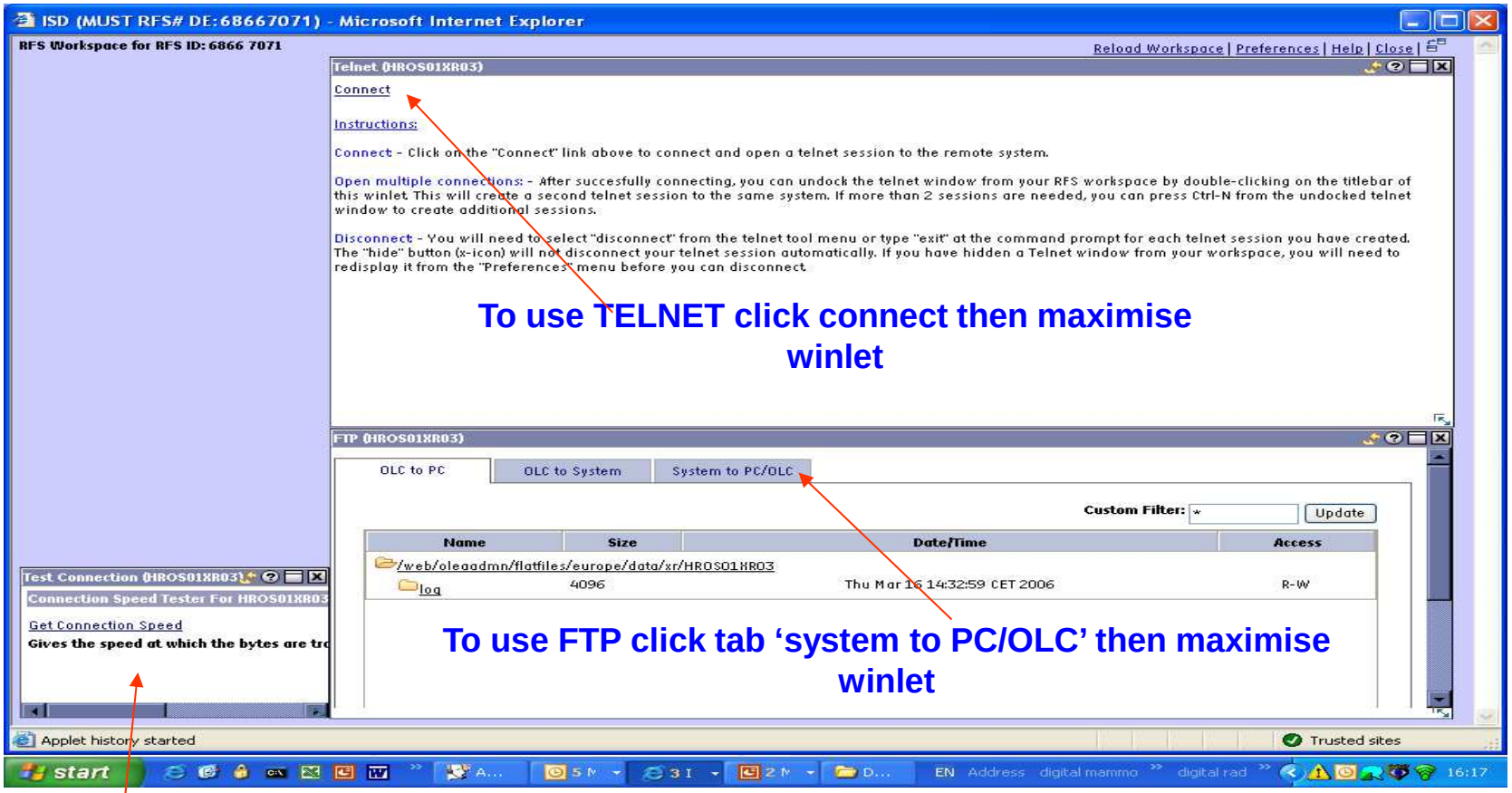
If system is not connected to insite you will see Fail message in FTP screen but also no Test connection winlet – see later section on connecting via another system.

System is connected to insite



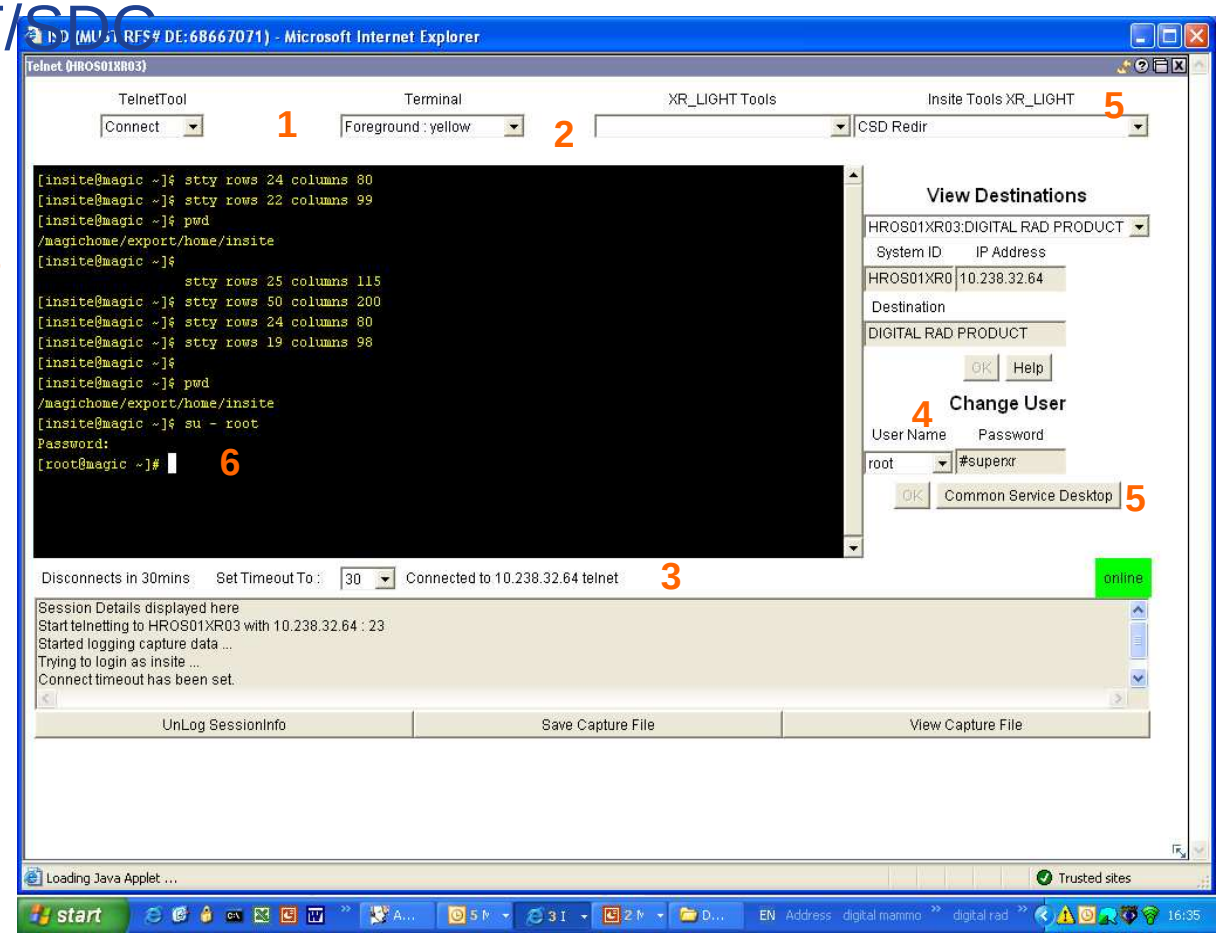
In this case the Connection Winlet is present and FTP winlet has server info

Start tools

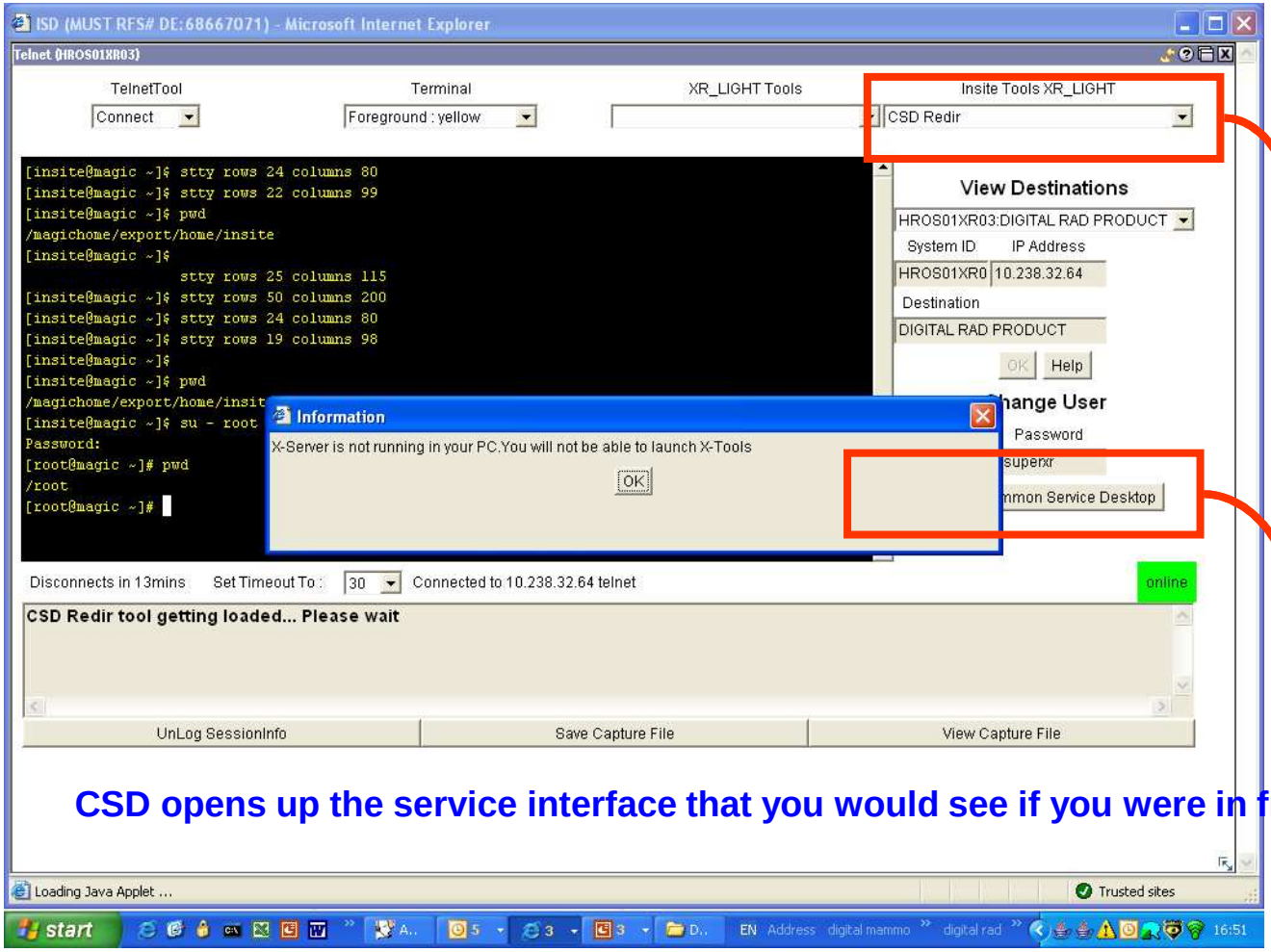

ISD (MUST RFS# DE:68667071) - Microsoft Internet Explorer
RFS Workspace for RFS ID: 6866 7071
Reload Workspace | Preferences | Help | Close |
Telnet (HROS01XR03)
Connect
Instructions:
Connect - Click on the "Connect" link above to connect and open a telnet session to the remote system.
Open multiple connections: - After succesfully connecting, you can undock the telnet window from your RFS workspace by double-clicking on the titlebar of this winlet. This will create a second telnet session to the same system. If more than 2 sessions are needed, you can press Ctrl-N from the undocked telnet window to create additional sessions.
Disconnect - You will need to select "disconnect" from the telnet tool menu or type "exit" at the command prompt for each telnet session you have created. The "hide" button (x-icon) will not disconnect your telnet session automatically. If you have hidden a Telnet window from your workspace, you will need to redisplay it from the "Preferences" menu before you can disconnect.
To use TELNET click connect then maximise winlet
FTP (HROS01XR03)
OLC to PC
OLC to System
System to PC/OLC
Custom Filter: *
Update
Name
Size
Date/Time
Access
/web/oleqadmn/flatfiles/europe/data/xr/HROS01HR03
log
4096
Thu Mar 16 14:32:59 CET 2006
R-W
To use FTP click tab 'system to PC/OLC' then maximise winlet
Test Connection (HROS01XR03)
Connection Speed Tester For HROS01XR03
Get Connection Speed
Gives the speed at which the bytes are tr
Applet history started
Trusted sites
start
EN
Address
digital mammo
digital rad
16:17
TEST connection is a quick verification that the system is on and available for connection

Telnet tool

Connect/disconnect 1
Format font 2
Connection time out setting 3
Change user ROOT/SDC etc 4
CSD LAUNCH 5
Workspace cursor 6



Common Service Desktop



Common Service Desktop is 'Redirected to your local IE browser.

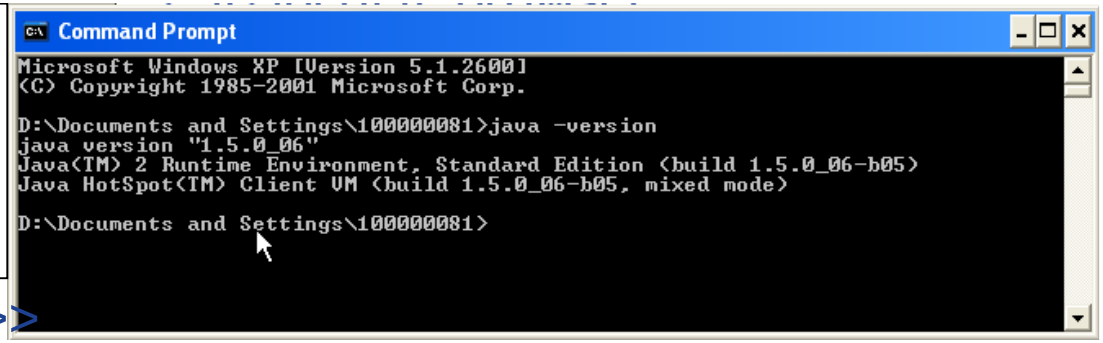
Common Service Desktop is Displayed in remote Netscape browser

CSD opens up the service interface that you would see if you were in front of the unit on site

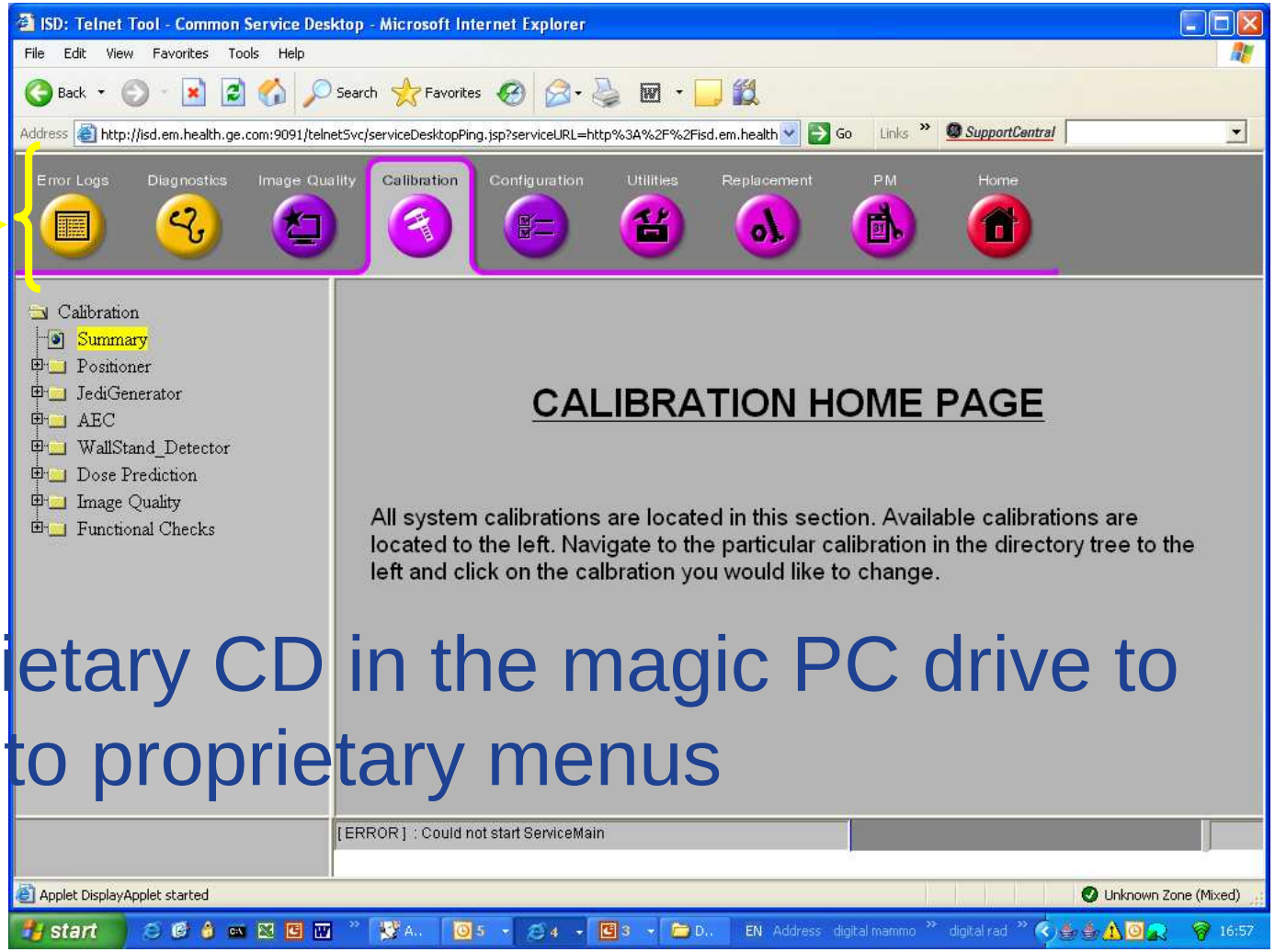
IE local browser more convenient, Netscape remote browser may be used in case some screens cannot be displayed. If both fail see sheet in appendix to turn off pf filter.

CSD local IE browser

Check Java version >>



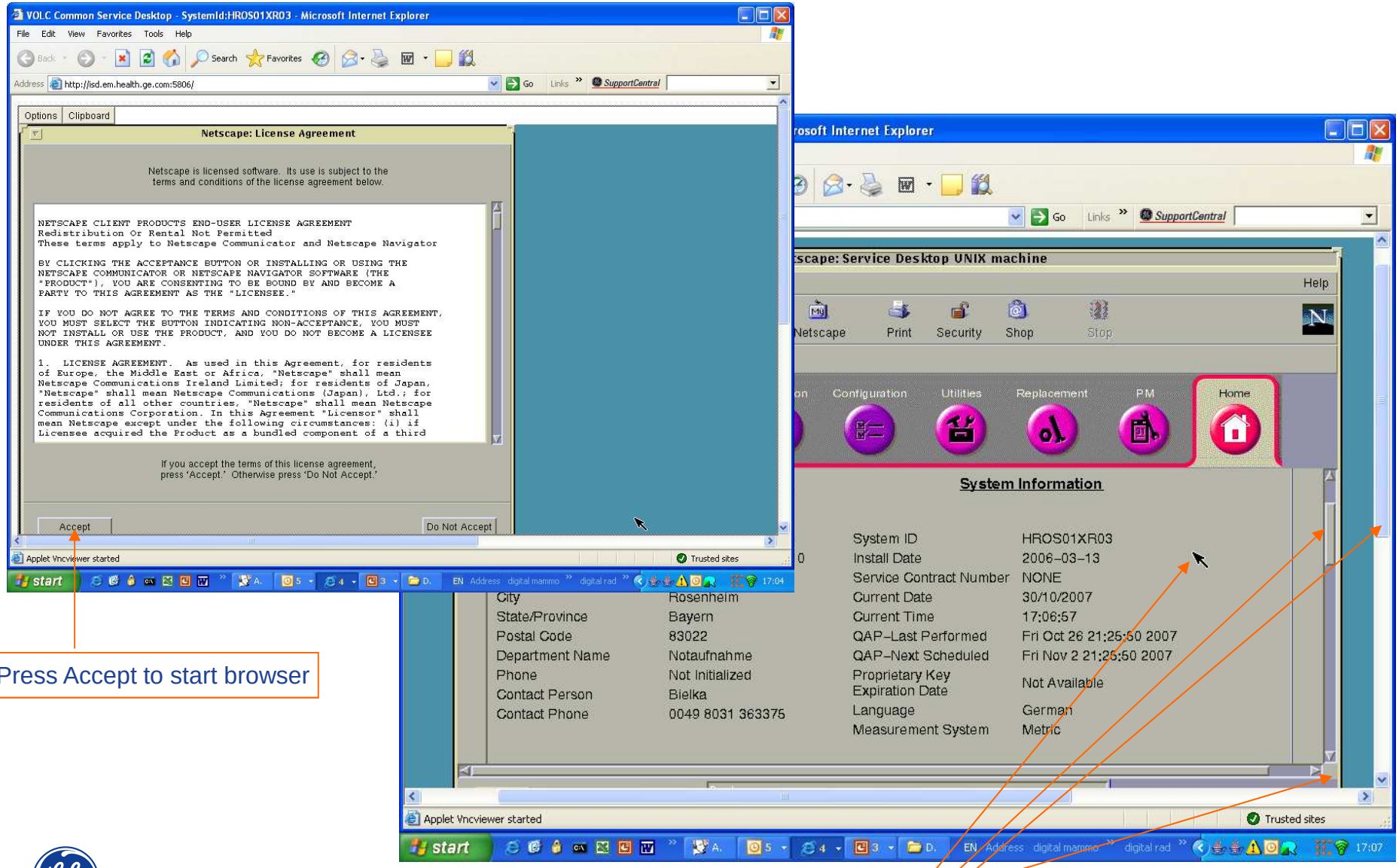
Navigating through these icons will FAIL unless you have JRE 1.4/1.5/1.6 (Java Runtime Env.)



Need proprietary CD in the magic PC drive to get access to proprietary menus

imagination at work

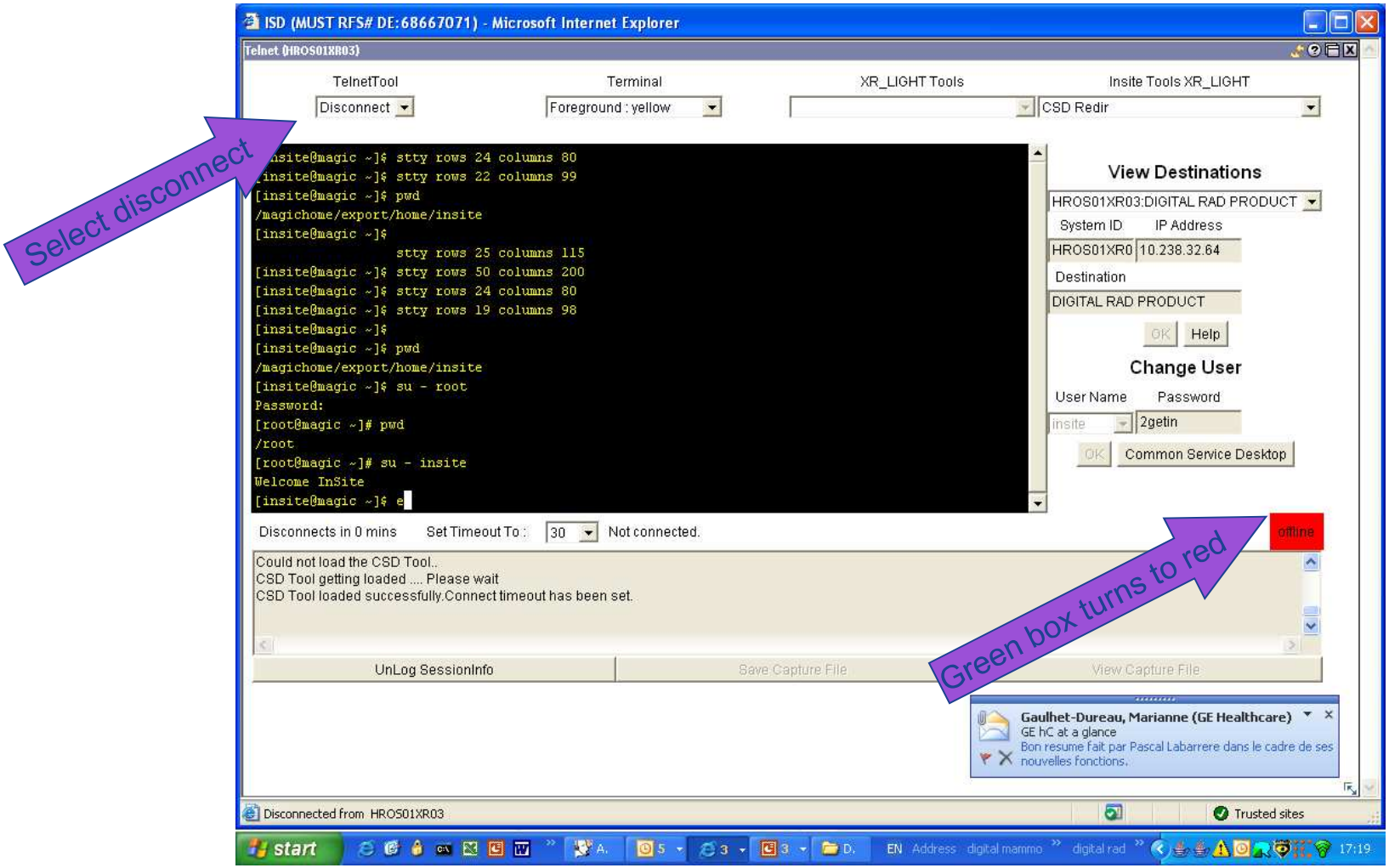
CSD remote Netscape browser



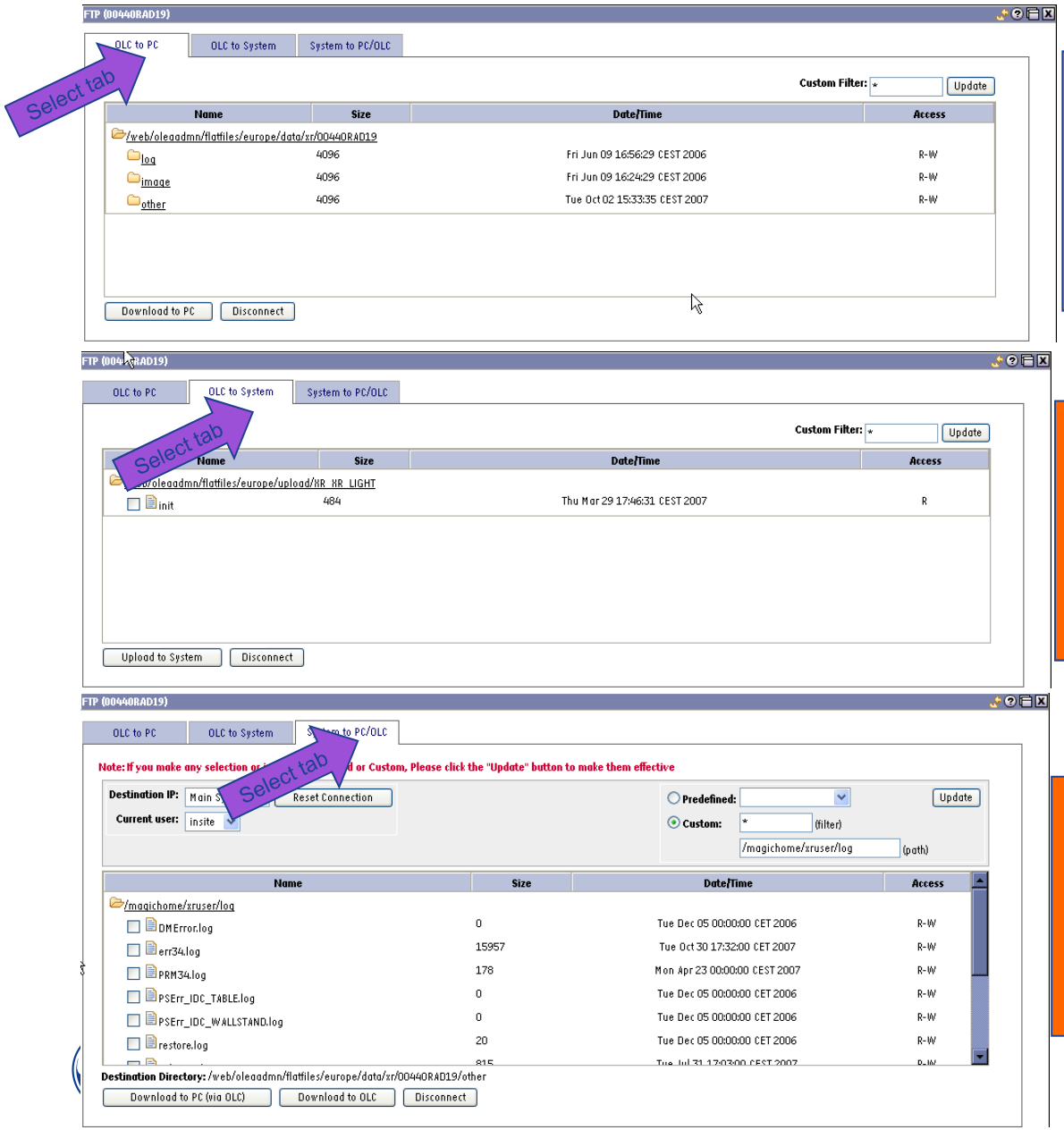
Press Accept to start browser

Need to resize window and scroll to navigate

Close CSD / telnet



FTP tool



Retrieve from olc server, previously downloaded files. Server is flushed out every 6 month or so.

Upload files from olc server into the system, files. This is for upgrade or patch purpose.

Download files from the system to olc server and PC. This is the option you will almost always choose

FTP system to PC/OLC

1- Select a predefined path or enter any path manually, you may filter file name. Press UPDATE.

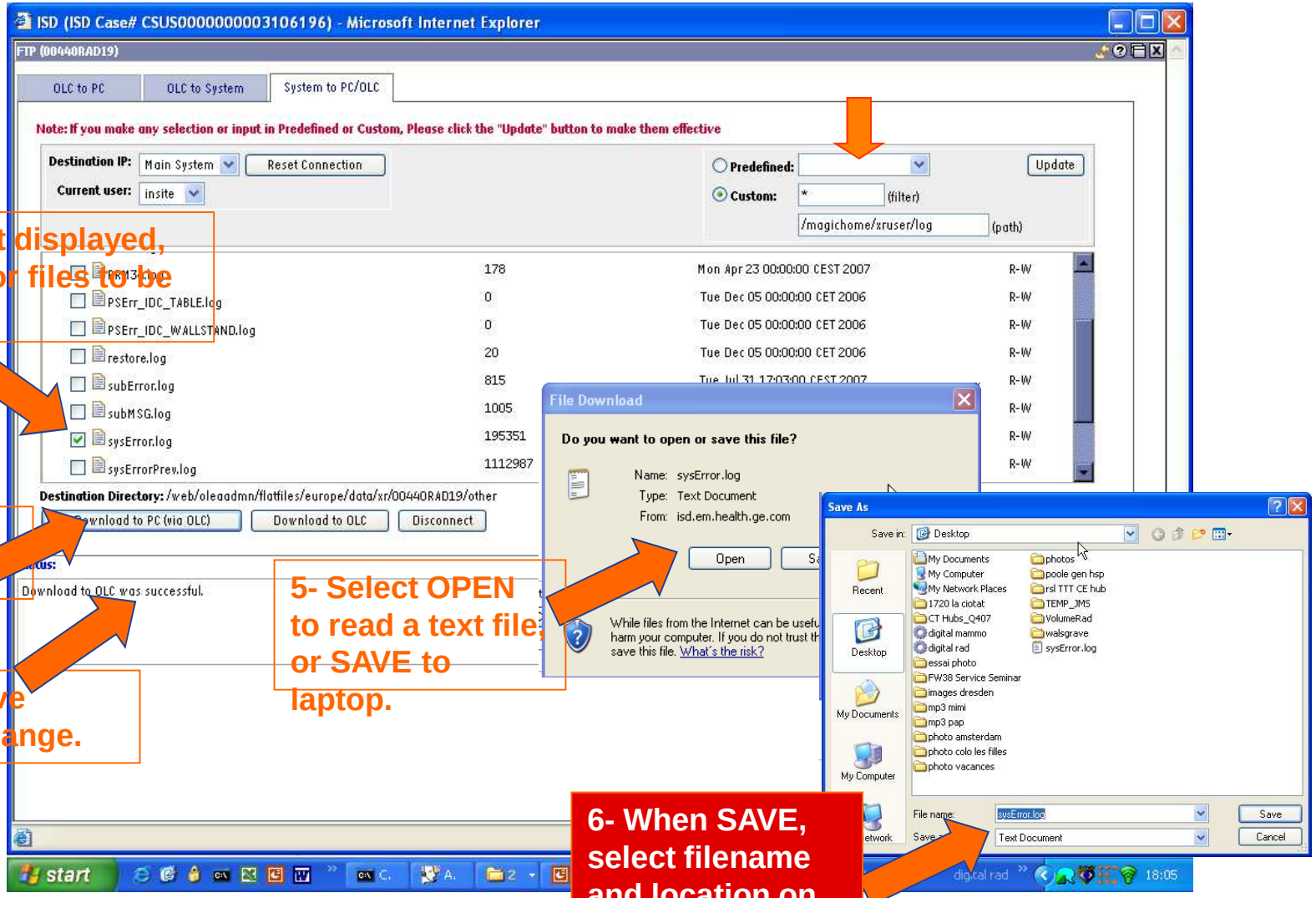
2- From the list displayed, check boxes for files to be downloaded

3- press DOWNLOAD

4- Observe status change.

5- Select OPEN to read a text file, or SAVE to laptop.

6- When SAVE, select filename and location on your laptop.



How to connect through another system

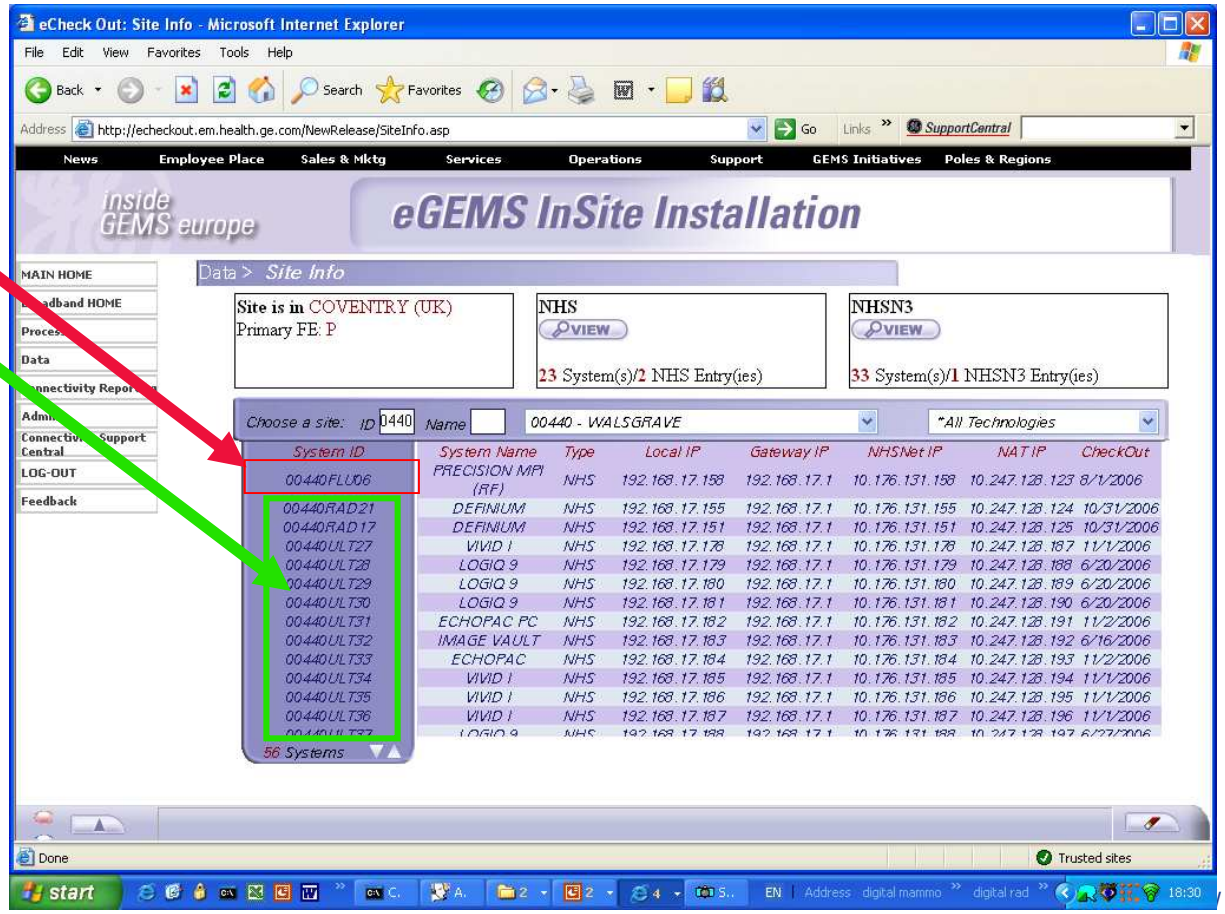
Applicable only if another GE equipment is insited at this site.

1- check at e-checkout, if another GE equipment exist at this site and is insited.
2- create a case for this system, and connect it.
3- perform a telnet or FTP to the desired system using local IP address.

IP address can be retrieve from e-checkout or from local FE.
Note all files FTP will be saved under the other GE system.

e.g 00440RAD21 is not reachable.
I can try to reach it through 00440RAD17 or any other systems.

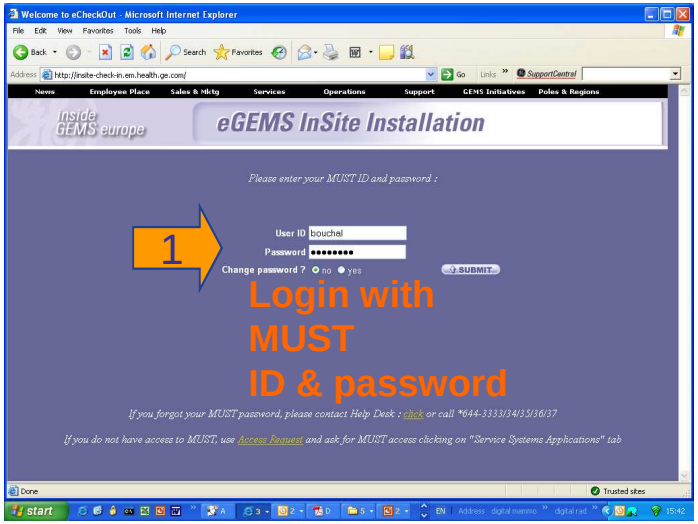
See next page for details

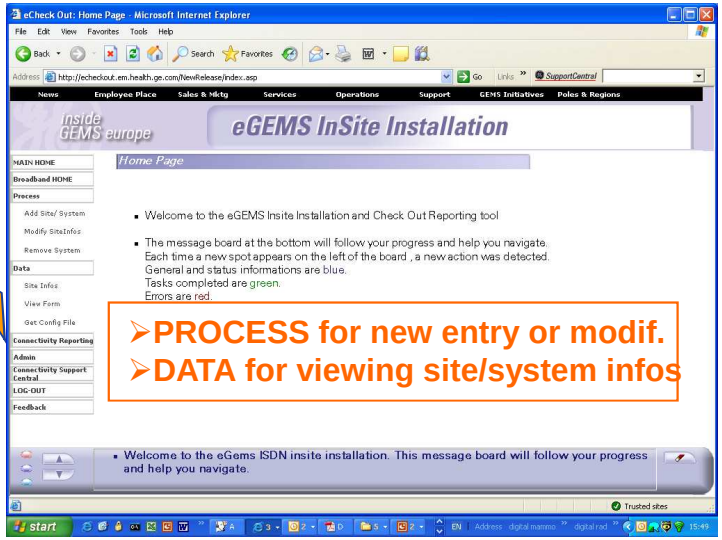


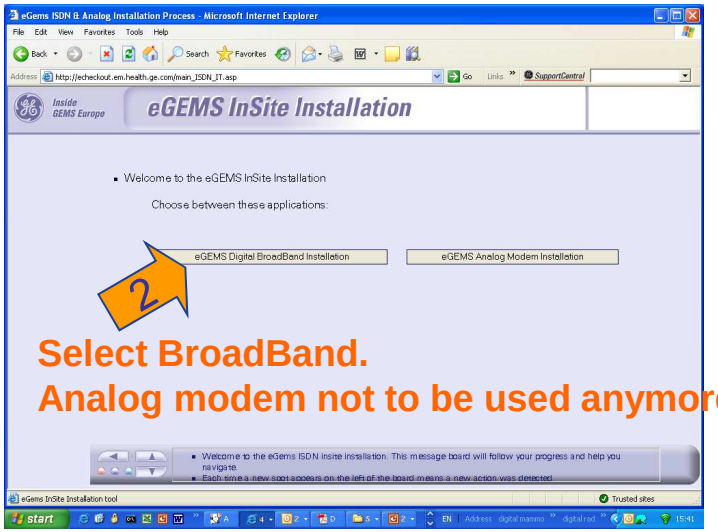
E-Checkout

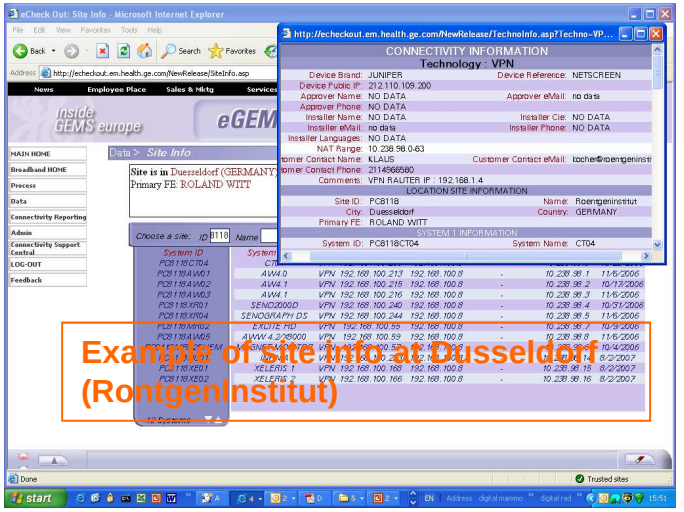
Link to the web site:

http://insite-check-in.euro.med.ge.com/

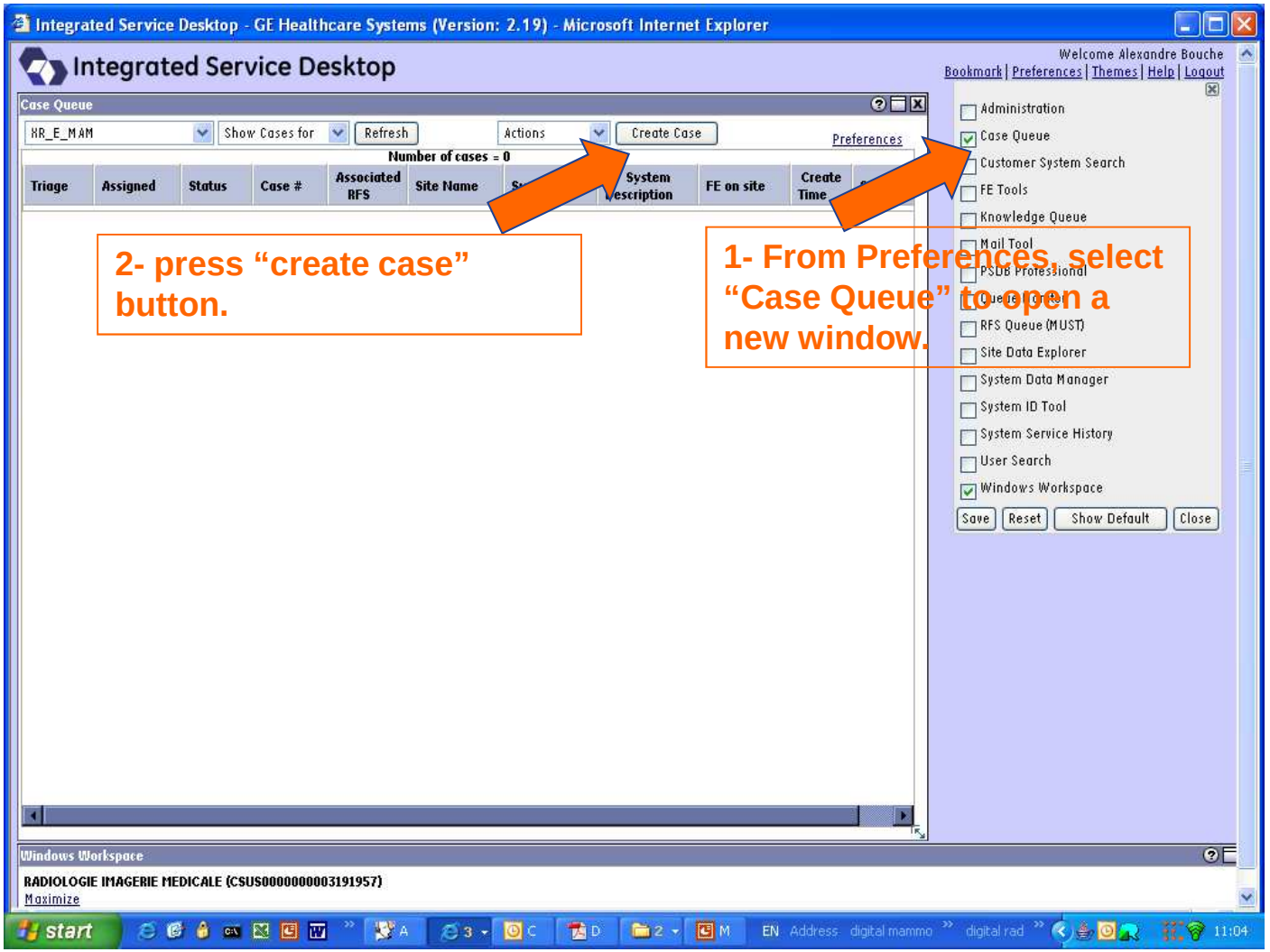




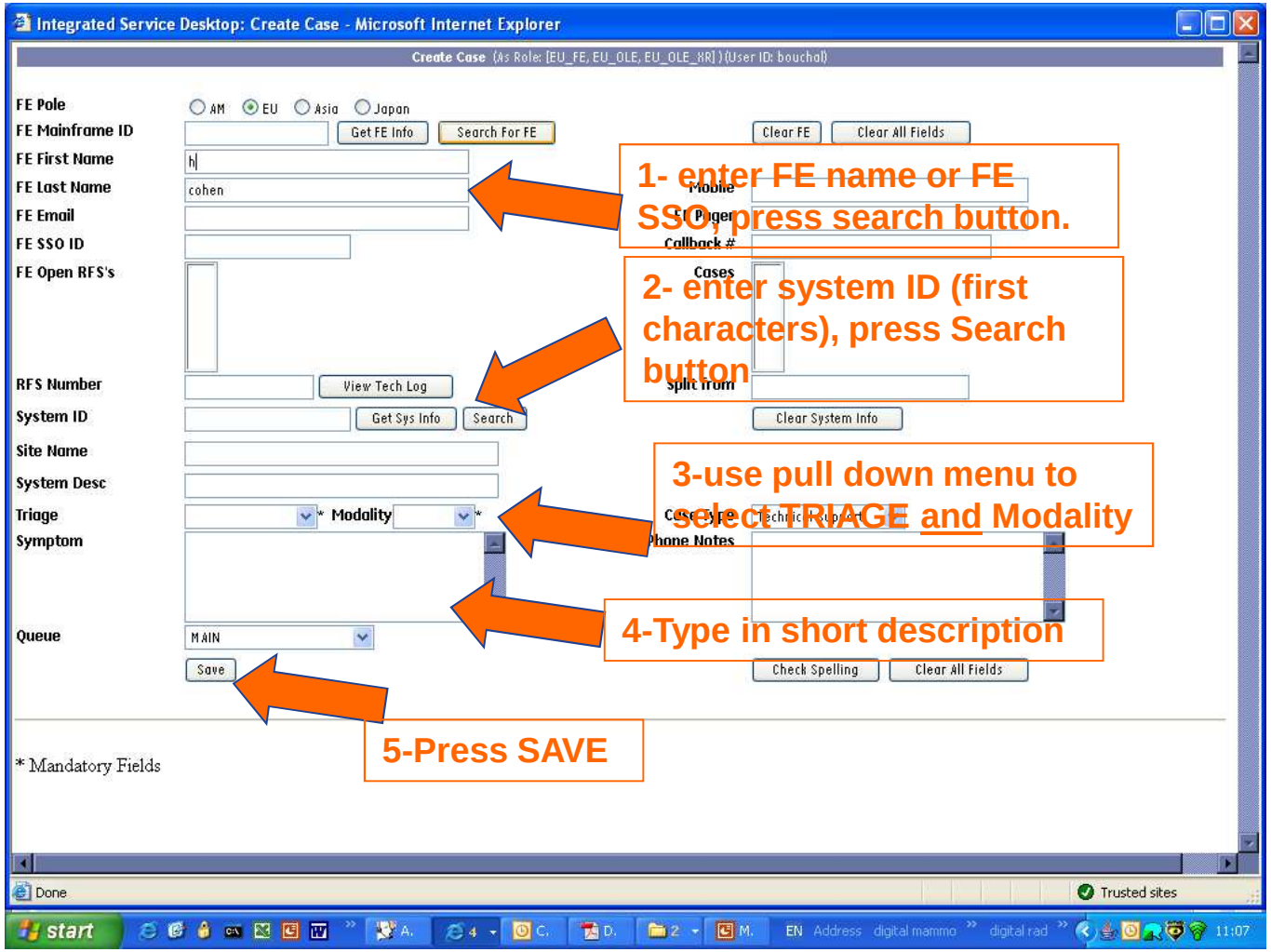




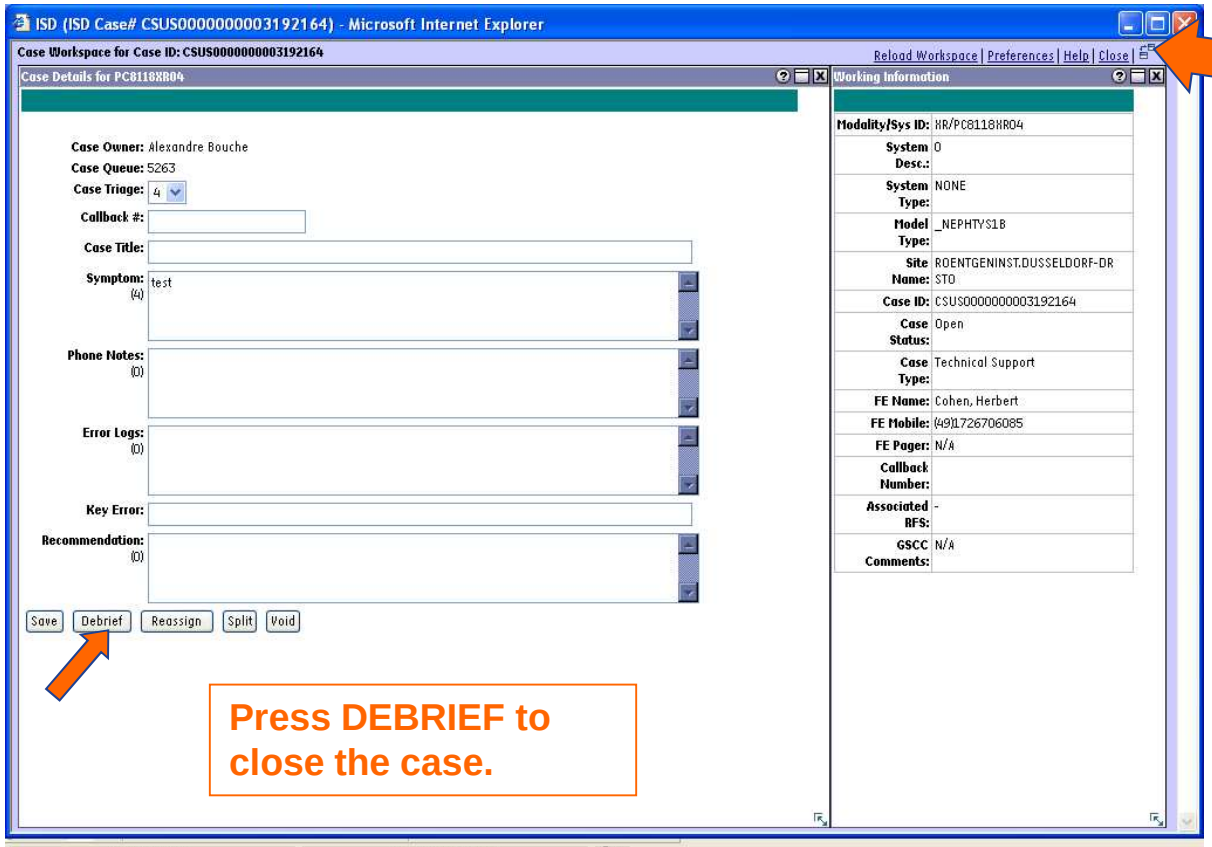
Create a case- step 1



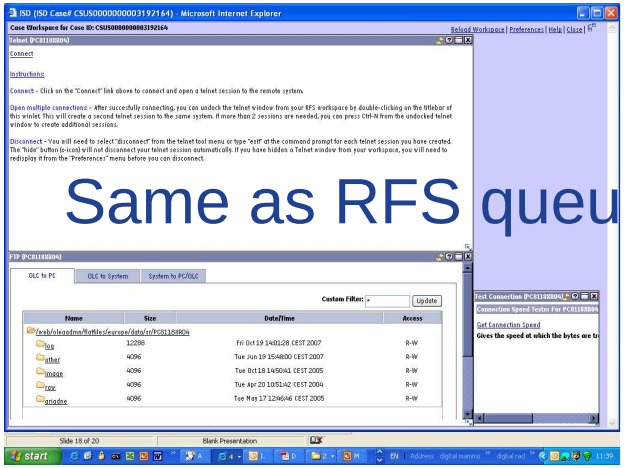
Create a case – step 2



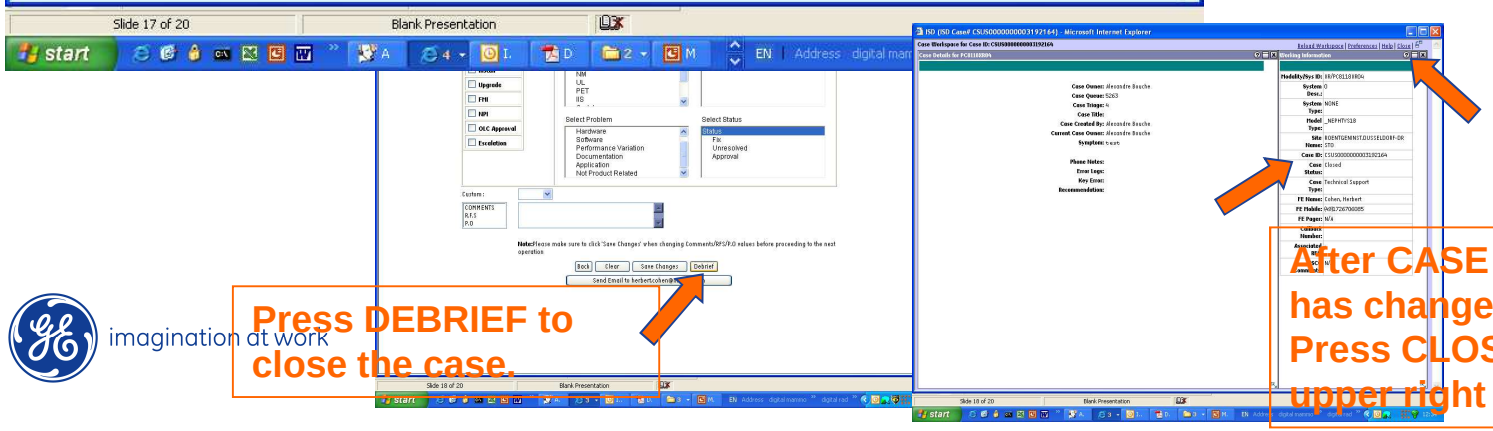
Create a case – step 3



Press upper right for Diagnostic tools



Press DEBRIEF to close the case.



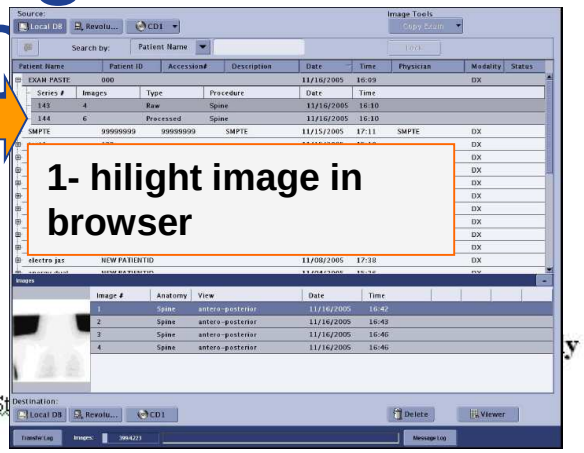
Press DEBRIEF to close the case.

After CASE STATUS has change to close. Press CLOSE at upper right corner.

Main system files

<table>
<tr><th></th><th>OS ADS</th><th>OS IDC</th><th>main system log</th><th>IDC log</th><th>boot/hardw error</th><th>image download</th></tr>
<tr><td>revolution Xqi/XRd (Gipeto)</td><td>unix</td><td>vxWorks</td><td rowspan="3">text file present in aws at:
/export/home/sdc/senovision/logfiles/error.log</td><td rowspan="2">file to be ftped in IDC:
ftp IDC (tbl or ws)
cd /idc
bin
get errorlog.txt
get sensor.txt
bye
>>to laptop from ISD</td><td rowspan="2">file present at:
/var/adm/messages</td><td rowspan="2">1-select image in browser
2-dumpSel to identify image file (e.g. i52612.MGDC.1)
3-download image file at /export/home1/sdc_image_pool/buf_image/i52612.MGDC.1</td></tr>
<tr><td>seno 2000D (FFDM)</td><td>unix</td><td>vxWorks</td></tr>
<tr><td>Seno DS (Nephtys)</td><td>unix</td><td>vxWorks</td><td></td></tr>
<tr><td>Revolution 2x platform (Lightning)</td><td>linux</td><td>N.A.</td><td rowspan="2">text files present at:
/magichome/xruser/log/
sysError.log >> system errors
sysMSG.log >> application messages</td><td rowspan="2">file present at:
/var/log/messages.x
x is 0,1, 2, ...</td><td rowspan="2">1-select image at right monitor
2-start engineering tool ctl+shift+f5
3-click Dicom/export/file/exit/quit
4-file (e.g. 03.00001e0d.dcm) is at /database/image_export/</td></tr>
<tr><td>Definium 8000 (thunder)</td><td>linux</td><td>N.A.</td><td>file present at:
cd /enggdata/IDC/(WS or TBL)/</td></tr>
<tr><td>seno Essential (sirius)</td><td>unix</td><td>linux</td><td>text file present in aws at:
/export/home/sdc/senovision/logfiles/error.log</td><td>file to be ftped at IDC:
ftp IDC
username=xruser / psswd=4$xray
bin
cd /enggdata/log
get IDC.log
bye
>>to laptop from ISD</td><td>file present at:
/var/adm/messages</td><td>1-select image in browser
2-dumpSel to identify image file (e.g. i52612.MGDC.1)
3-download image file at /export/home1/sdc_image_pool/buf_image/i52612.MGDC.1</td></tr>
</table>

Image download at Definium 800



1. On the viewer screen (right-hand monitor), select the desired image or exam. A word of caution: selecting a complete exam could result in a large number of files to upload.

2. Press **Ctrl+Shift+F5** to open the XR/d Engineering UI. It is recommended that you move the mouse to the left-hand monitor so the XR/d Engineering UI opens there. This will allow you to view the image acquisitions list on the right-hand monitor without any obstructions.

   The following GUI will popup on the screen your mouse cursor is currently on:

3. Click on the DICOM tool icon. The following GUI will appear:

Note: Do not click on the **Import** or **Open** buttons! They do not work!

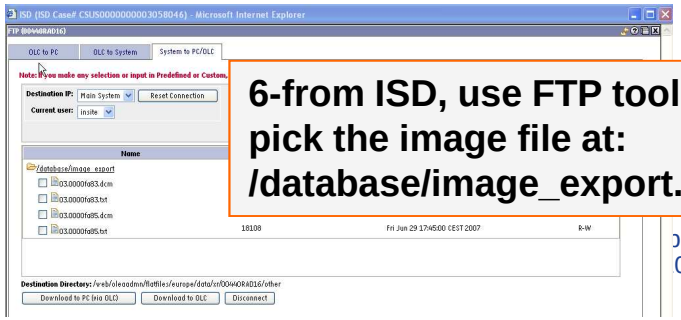
4. Click on the **Export** button. Click on **File** and then **Exit** to close the DICOM info browser window that pops up.

5. The DICOM tool will still be open. You can highlight another image and press **Export** to store it, or you can press **Quit** to exit the DICOM tool.

6. Launch the InSite FTP Tool and connect to the site. Enter **/database/image_export** in the Remote Working Directory box and click the **Change Directory** button. Change the **Pre-defined Filters** to * and the **Select destination folder** to **image** using the pulldowns. The files will have the following format:

```
-rw-rw-r-- 1 500 500 8184602 Feb 15 14:13 03.00001e0b.dcm
-rw-rw-r-- 1 500 500 21606 Feb 15 14:13 03.00001e0b.txt
-rw-rw-r-- 1 500 500 8283846 Feb 15 14:13 03.00001e0d.dcm
-rw-rw-r-- 1 500 500 25176 Feb 15 14:13 03.00001e0d.txt
```

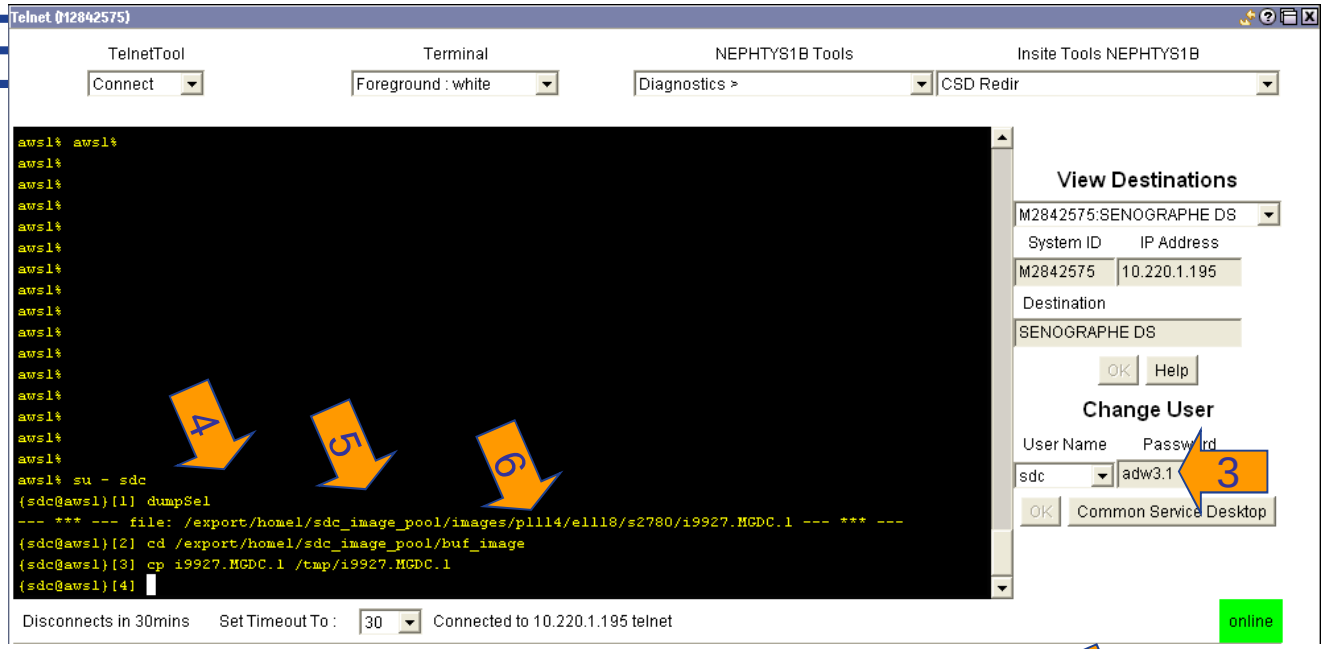
The ".dcm" file is the image and the ".txt" file is the DICOM header information for that image. Highlight the files of interest and click the **Get File(s)** button.



imagination at work

Image download at seno

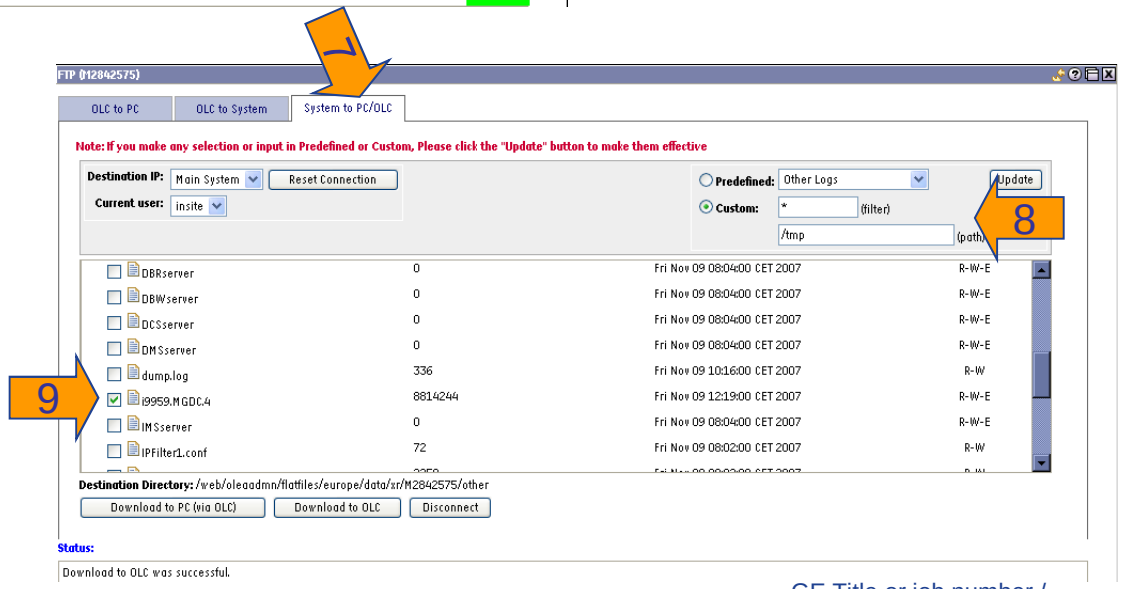
E



Alternate procedure

1. Ask cust to select image of interest and then press F5 on keyboard.
2. Open FTP – system to pc tab
3. Select ‘other logs’ from pull down and filter of *
4. Change working directory to /export/home1/seno_image_pool/outputImages
5. Select the image called scrn.img (or similar)
6. View with Javista

1. Ask customer to select image in browser
2. Start ISD / TELNET tool
3. Switch user to SDC
4. Type “dumpSel” to get image file name (e.g. i9927.MGDC.1
5. Type “cd /export/home1/sdc_image_pool/buf_image”
6. Type”cp /i9927.MGDC.1 /tmp/i9927.MGDC.1”
7. Start FTP tool, select system to PC/OLC
8. FTP custom filter = * , path = /tmp, press Update
9. Check box in front of image file, press download.
10. Save to laptop

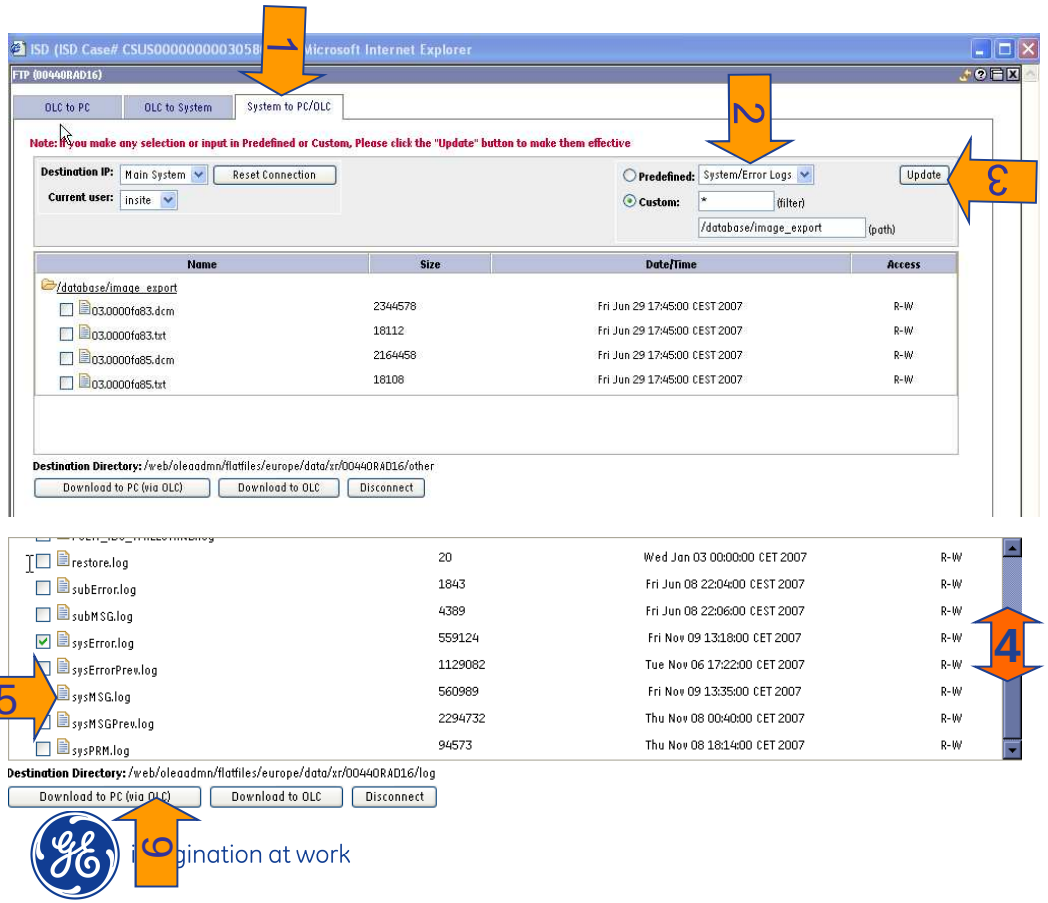


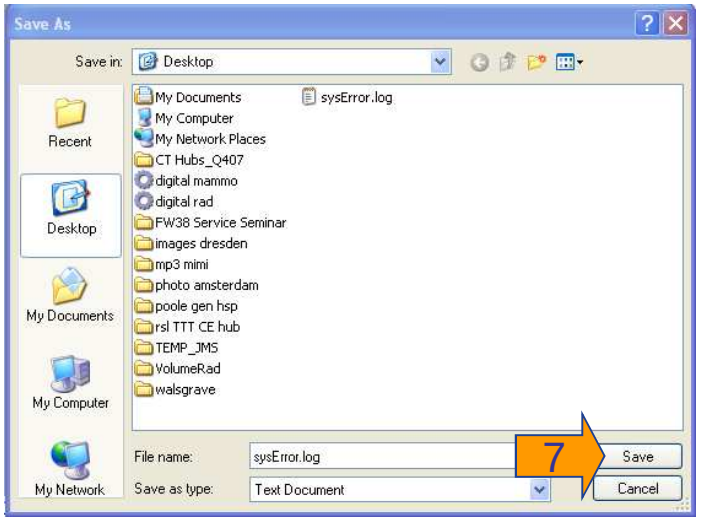
imagination at work

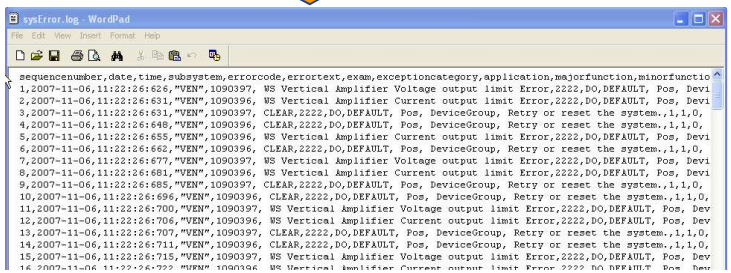
Errorlog at Definium 8000

Launch FTPtool at ISD.

1. press tab system to PC/OLC
2. select System Errorlog in Predefined pull down
3. press Update button
4. Scroll down to display required file
5. Check box in front of sysError.log
6. Press Download to PC
7. Save to your laptop
8. Read the file using Wordpad or excel





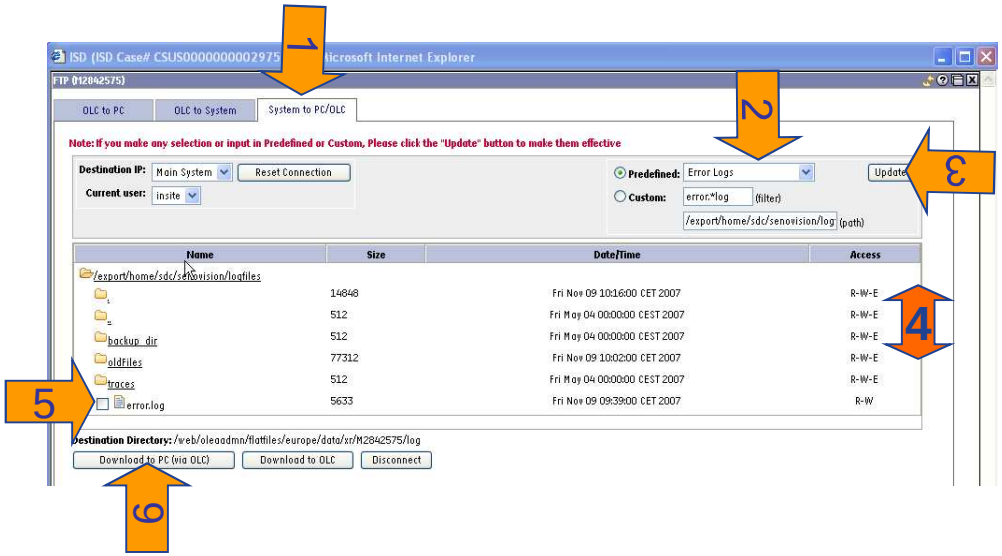


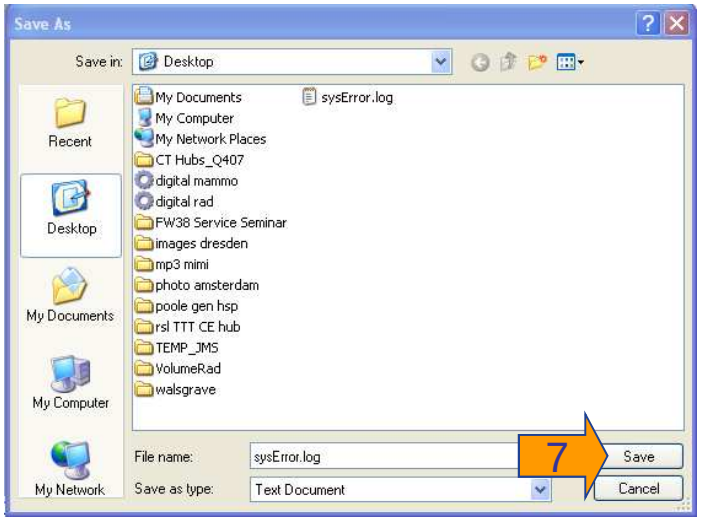
imagination at work

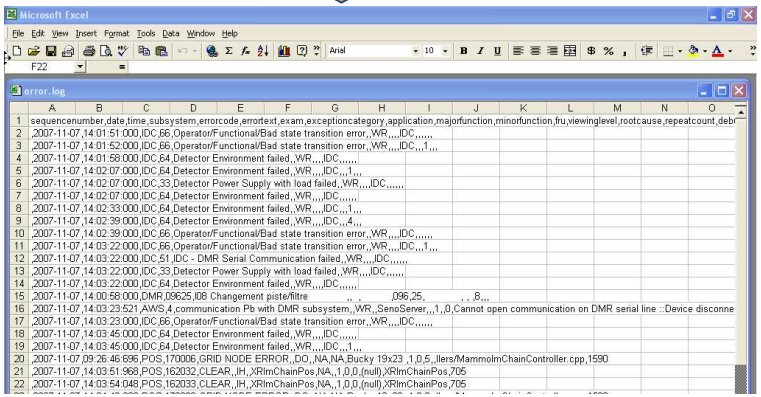
Errorlog at seno DS

Launch FTPtool at ISD.

1. press tab system to PC/OLC
2. select “Error Logs” in Predefined pull down
3. press Update button
4. Scroll down to display required file
5. Check box in front of error.log
6. Press Download to PC
7. Save to your laptop
8. Read the file using Wordpad or excel

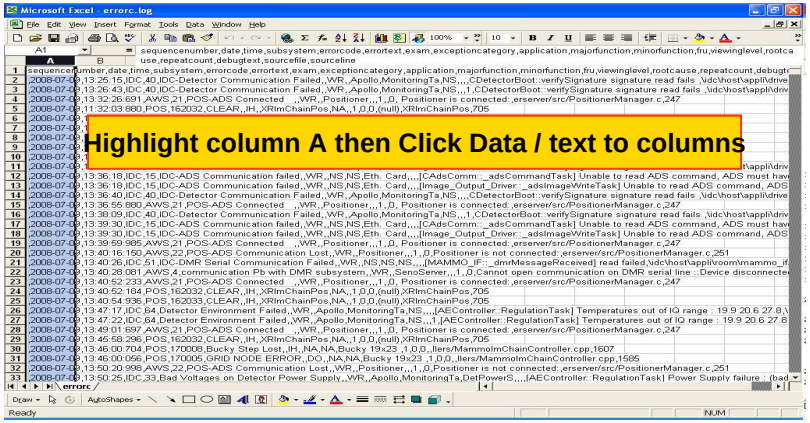


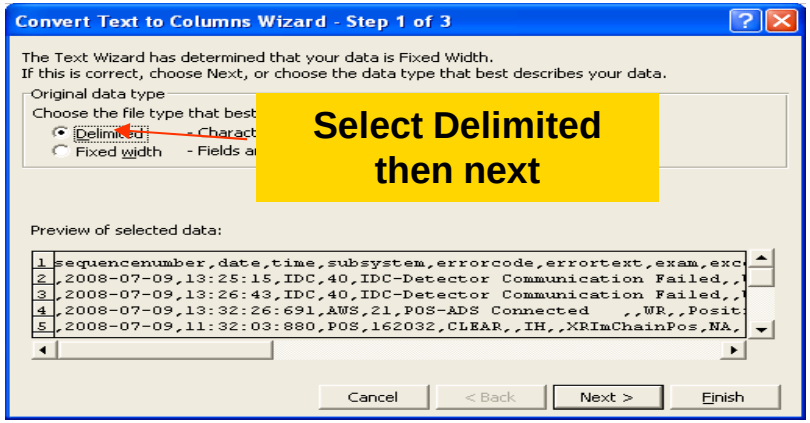




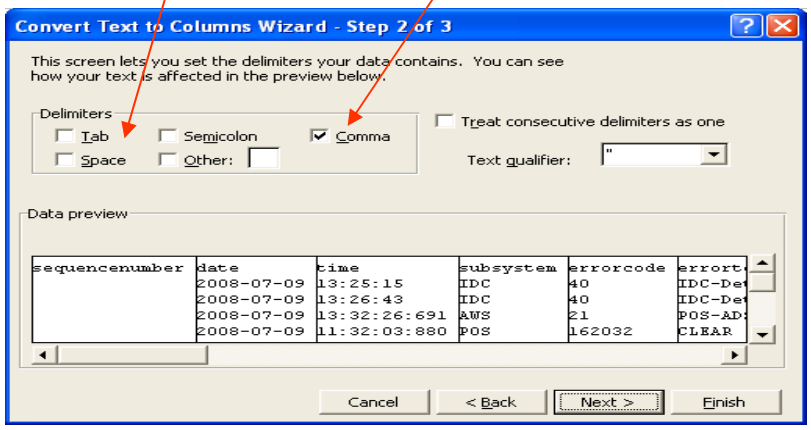
Make the error log readable

Right Click on saved file and 'open with excel'

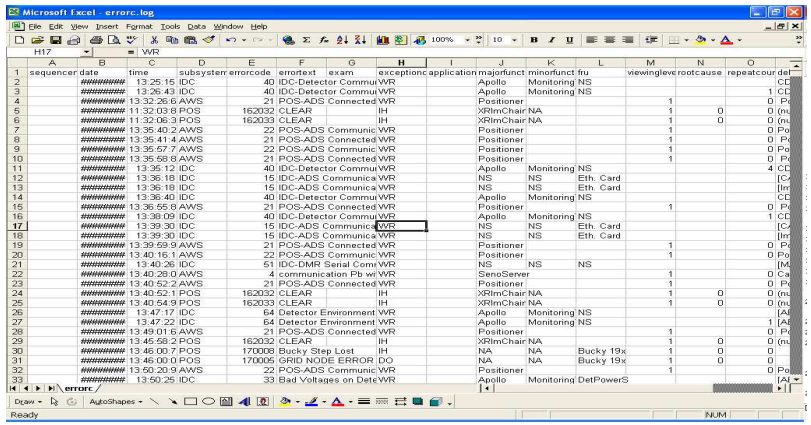




Uncheck tab and check comma then finish



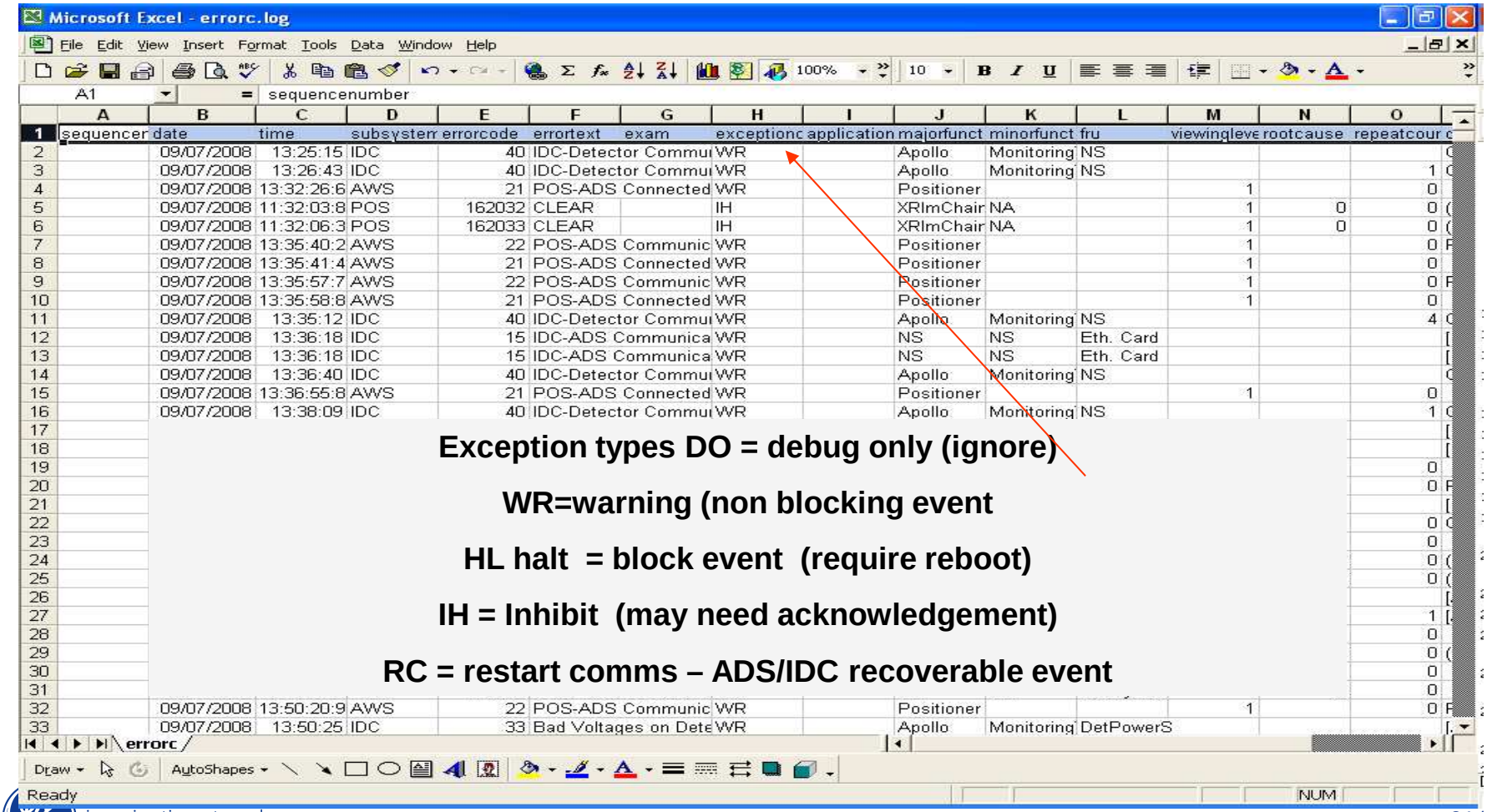
Now more readable but not finsihed yet



Make the error log readable (2)

Adjust width on column B then highlight row A, select Data, Filter, Auto filter.

You can then filter on todays date or on exception type I.e DO, IH, WR



Remote operation examples

Seno 2000D/DS/ESS – detector overtemperature

1- retrieval of file sensor.txt on Seno DS/2000D (troubleshooting temperature detector)

connect to the system (telnet)
su - root (log in as root, psswd operator)
cd / (go to the root directory /)
mkdir tmp (create a temporary directory to save our temporary file)
cd /tmp (go to directory tmp)
ftp idc (press "enter" at username and password)
cd /idc (move to directory /idc)
bin (switch to binary transfer mode)
get sensor.txt (download the file sensor.txt)
bye (get out of ftp)
more sensor.txt (display file sensor.txt)
the file can be later be copied on the FE laptop using FTPtool (select directory /tmp)

2- retrieval of file sensor.txt on Seno Essential (troubleshooting temperature detector)

Connect to the system (telnet)
Change directory to /export/home/sdc
Connect to IDC via FTP by entering ftp idc (press "enter" at username and password)
Change directory to /enggdata/log
bin (switch to binary transfer mode)
get NGD_IDC_TEMO_SENSOR0.log (download the file sensor.txt)
bye (get out of ftp)
more **NGD_IDC_TEMO_SENSOR0.log** (display file)
the file can be later be copied on the FE laptop using FTPtool (select directory /tmp)

To quickly view the temperature trending it is much simpler to FTP file Imagemeasures.stat as this records factors for every exposure including the detector temp at the time of exposure

Seno 2000D/DS – change chiller temperature setting

change detector temperature setting (temp.txt pour seno 2000D)

connect to the system (telnet)
su - root (log in as root, psswd operator)
cd / (go to the root directory /)
mkdir tmp (create a temporary directory to save our temporary file)
cd /tmp (go to directory tmp)
ftp idc (press "enter" at username and password)
cd /idc (move to directory /idc)
bin (switch to binary transfer mode)
get temp.txt (download the file)
more temp.txt (display the fichier)
to modify temperature setting change the 4 lines containing "stabilized). Values are in 1/10 of degrees celcius (200 = 20 degrees celcius).

Seno 2000D/DS – network issue

get declared remote hosts

how to find remote hosts declared on the station and check if those hosts can be reached (network troubleshooting).
connect to the system (telnet)
su - root
cd /export/home/sdc/Prefs
For network hosts (other workstations etc) more SdCRHosts
For RIS hosts (worklist broker etc) type more ScCRishosts
For PRINTERS type more xxxx.dev (use command ls –al to find name of printer file)
(display all declared hosts , note necessary IP addresses, AE titles and port numbers)
For your own AEtitle,ip address type cd /etc then type more hosts

ping/dicom echo (network troubleshooting)

Once you have the ip address type ping xxx.xxx.xxx.xxx you should see either xxx.xxx.xxx.xxx is alive or a list of transmissions with timings etc – if ping fails you have a basic network issue – if ping works then you can try a dicom ping
Change user to sdc on telnet drop down window then type sendecho and follow on screen instructions – failure can be due to incorrect AEtitle, system not declared on pacs etc

Seno 2000D/DS/ESS – remote hosts config

Digital-Mammo — Host-Worklist

Host :**Directory** /export/home/sdc/Prefs **File** :SdCRHosts

Worklist: **Directory** /export/home/sdc/Prefs **File** :SdCRisHosts

```
aws% cd Prefs
aws% ls
AdvantageUserPrefs@       SdCApplications*          SdCProtocols*
AiMIndexFile              SdCApplications.bak*      SdCRHosts*
BrowserMammoPrefs@        SdCArchiveDevice*         SdCRisHosts*
BrowserPrefs*             SdCAutoPush               Sessions@
BrowserUserPrefs@         SdCBrowserTypes*          Shared_Protocols/
CurrentProtocols@         SdCFilters@               UserPrefs@
KeypadUserPrefs@          SdCNotification*          config_db_file*
LicenseFileDescription    SdCPrefsList*             fujil.dev
Protocols@                SdCPreset@                fuji2.dev
aws% more ^M
: No such file or directory
aws%
aws% more SdCRHosts
cad
set_host_name "cad" "r2cad.r2mfg";set_host_app_entity_title "cad" "DICOMINBOX";s
et_host_address "cad" "41.100.0.72";set_host_protocol "cad" 3;set_host_port_numb
er "cad" "1115";set_host_provider_type "cad" 3;set_host_support_worklist "cad" 2
;set_host_storage_commitment "cad" 0;set_host_send_flag "cad" 0;set_host_comment
 "cad" "FFDM CAD System";
Radstore
set_host_name "Radstore" "1FRZX01";set_host_app_entity_title "Radstore" "AE_1FRZ
X01";set_host_address "Radstore" "41.100.0.73";set_host_protocol "Radstore" 3;se
t_host_port_number "Radstore" "104";set_host_provider_type "Radstore" 0;set_host
_support_worklist "Radstore" 2;set_host_storage_commitment "Radstore" 0;set_host
_send_flag "Radstore" 0;set_host_comment "Radstore" "";
St de Revue
set_host_name "St de Revue" "rws";set_host_app_entity_title "St de Revue" "rws";
set_host_address "St de Revue" "41.100.0.71";set_host_protocol "St de Revue" 3;s
et_host_port_number "St de Revue" "4006";set_host_provider_type "St de Revue" 3;
set_host_support_worklist "St de Revue" 2;set_host_storage_commitment "St de Rev
ue" 0;set_host_send_flag "St de Revue" 1;set_host_comment "St de Revue" "";
```

IP adress

AE title

Menetrier-Thierry

imagination at work

Seno 2000D/DS/ESS – dicom printer config

Digital-Mammo

Printer

Directory /export/home/sdc/Prefs **File-extension** : .dev

```
/export/home/sdc/Prefs
aws% more fujil.dev
set dName "fuji 26x36"
set dType dicom
set dColour greyscale
set dQueueType DICM
set dQueueName "dicom"
props canDoSaveOnDisk canDoMultiCopies canDoCustomResolution
set dFilmFormatMode standard
set dGreyscaleMode off
set dColourMode greyscale
set dResolutionMode custom
set dPixelDepth 8
set reviewroom ""
set dHostName "fujil"
set dAppTitle "LP_2636"
set medType "BLUE FILM"
set destination PROCESSOR
set filmOrientation PORTRAIT
set magType CUBIC
set netAddr "41.100.0.61"
set portNumber 105
set filmSize "8INx10IN"
pfilmSize "8INx10IN" 0 0
# If print priority is empty LOW is used as the default
# Available values : LOW, MED, HIGH
set printPriority ""
# If session label is empty it is not sent
set sessionLabel ""
# If smoothing factor is empty or mag type != CUBIC
# then smoothing factor is not sent
set smooth ""
# If border density is empty, it is not sent
# Available values : BLACK, WHITE
set borderDensity "BLACK"
# If empty img density is empty, it is not sent
# Available values : BLACK, WHITE
set emptyImgDensity ""
# If min density = -1, it is not sent
```

AE title

IP adress

Port number

Menetrier-Thierry

imagination at work

Seno 2000D/DS/ESS – check ADS software version

verify software versions (from CSD and command line)

Connect with telnet
cd /export/home/install/jumpstart
ls (1st file on ther top of the list has ADS version)

All Seno + RWS +revolution XQiXRd: cannot complete boot up.

File system recoverery if boot fails (usually says enter cntrl-d for normal boot or enter root password for normal boot – normal boot fails

Login and change user to root
Type fsck –y
You may need to run this more than once – I usually run twice by default then reboot
(if no connection the customer can easily run this with your advice)

boot issues (clean up of /reserved) to be applied if application start fails (no browser).
connect the system (telnet)
su - root
cd /export/home1/sdc_image_pool/reserved
ls -la (display content of directory /reserved) /reserved must be empty, if not delete any present file or directiory except ./ and .. / (rm for file removal, rmdir for directory removal)

This has also fixed systems when icons fail to work or applications behaves oddly in general

All systems – check partionning troubleshoot boot error or soft failure.

check partitionning (df -k) when sdc fails
To be checked if application does not start.
connect to system (telnet)
su - root
df -k (display partition) check all partitions /sdc and export/home1 exist. check no partition has reached 100% (or clean up files in the concerned partition)

If partition is >90% you may see odd errors and once full you may see things such as errors when attempting to open new patient etc

IOP Cleaner – if system gives errors such as very slow to view processed images, disk full, partition full, error during image declaration, patients & images not appearing on browser or DS hangs at 62% - then run IOP cleaner this will manually clear network and print queues and clear reserved disk space if found

Mammo – /export/home/sdc/scripts then iop_cleaner (need to be root)

Xr/d Xq/I cd scripts then enter then iop_cleaner

Seno 2000D/DS/ESS – workstation tips

•Recover database launch script **start.reinstall.images**

-Script path : /export/home/sdc/scripts (must be SDC user)

•UPS batteries at low level

Log in as root and execute the command **ups stop**

and let the system on to reload the batteries

•Check that the devices are responding

probe-ide or **probe-scsi** (at OK prompt)

•Boot errors logged in messages file – var/adm/messages

•If system appears to be totally hung – ask customer to press ‘front’ key on keyboard and make sure no page is behind the browser.

•To restart browser (apps software) change to user sdc

type cd /export/home/sdc/scripts

to stop kill.sdc

to start start.sdc

Seno 2000D/DS/ESS – bypass UPS

bypass de l'UPS

To be used if ups failure or ups battery flat.

This procedure can apply to Seno 2000D or Seno DS.

1- Hardware re-configuration:

Bypass the UPS by connecting all devices normally supplied by the UPS to a multi-plug, itself connected to the 220V.

In the generator, connect separately the conditionner to an external 220V outlet (as recommended for vacation period)

2- Software re-configuration:

power the system, and when the AWS login appears, immediately login as *root* (pwd = operator); then enter the command: `ups stop <return>;` this will stop the UPS daemon (you have 20 seconds to do all that !!)

to put the UPS in simulation mode, enter commands:

- `cd /export/home/sdc/senovision/scripts <return>`
- `configure.sh -U simul <return> (it is capital U !)`

then type: *reboot*`<return>` and after restart, login as usually, the system should be fully operational.

3- To switch on the system: use the main room switch

4- To switch off the system: shutdown the AWS as usually, when the *OK prompt* appears (and only then !!!), switch off with the main room switch (the conditionner should stay on)

5- Software re-reconfiguration when new UPS in place:

to put the UPS back to real mode, enter commands (being *root*):

- `cd /export/home/sdc/senovision/scripts <return>`
- `configure.sh -U real <return> and reboot the AWS`

IP Filter

IP filter applies to Seno Essential, Seno DS after FMI 12031 (M5B-**soft version:32.00**),

and to Seno 2000D after FMI 12063 (Alnitak-**soft version:17.4.5**)

- This filter does not forbid in any case the actions (ping, ftp, telnet...) of AWS toward remote hosts.

- DICOM transactions are ALWAYS authorized (no declaration in IP filter for printers & other servers like worklist or PACS, *sendecho* possible)

- BUT any host must be declared to allow a ftp or telnet session, for example from RWS to AWS.

- **The “ping” toward AWS remains forbidden in all cases.**

- About Insite, VPN or ISDN case, **it will be necessary to declare the LAN IP of the router**; by default only IP interval 150.2.0.0/16 is valid.

- Job cards of interest: ELE M056, REP C010, CFG C010

- Main commands to remember: *IPFadd.sh <IP_range>* & *IPFls.sh*

- Example: *IPFadd.sh 192.22.33.10/20*

Quick-Reference-Card-Unix doc_4736-quick-Reference-Card-unix-command.pdf

Quick-Reference-Card- Network doc_4735.-Quick-Reference-Card-network-card.pdf

Quick-Reference-Card- Dicom doc_4734-Quick-Reference-Card-Dicom.pdf

Useful link

Support-Central-X-Ray Mammo Online Center

http://supportcentral.ge.com/products/sup_products.asp?prod_id=46289

PRODUCT

2000d see ASM (yellow) job card TSG 004 Network Troubleshooting

DS-Essential see SIP-M job card TSG 004 Network Troubleshooting

JAVISTA :Image viewer

DTRACE : Trace Dicom analyzer

The Installation package of Javista: ftp://globe/globepro/javista/javista

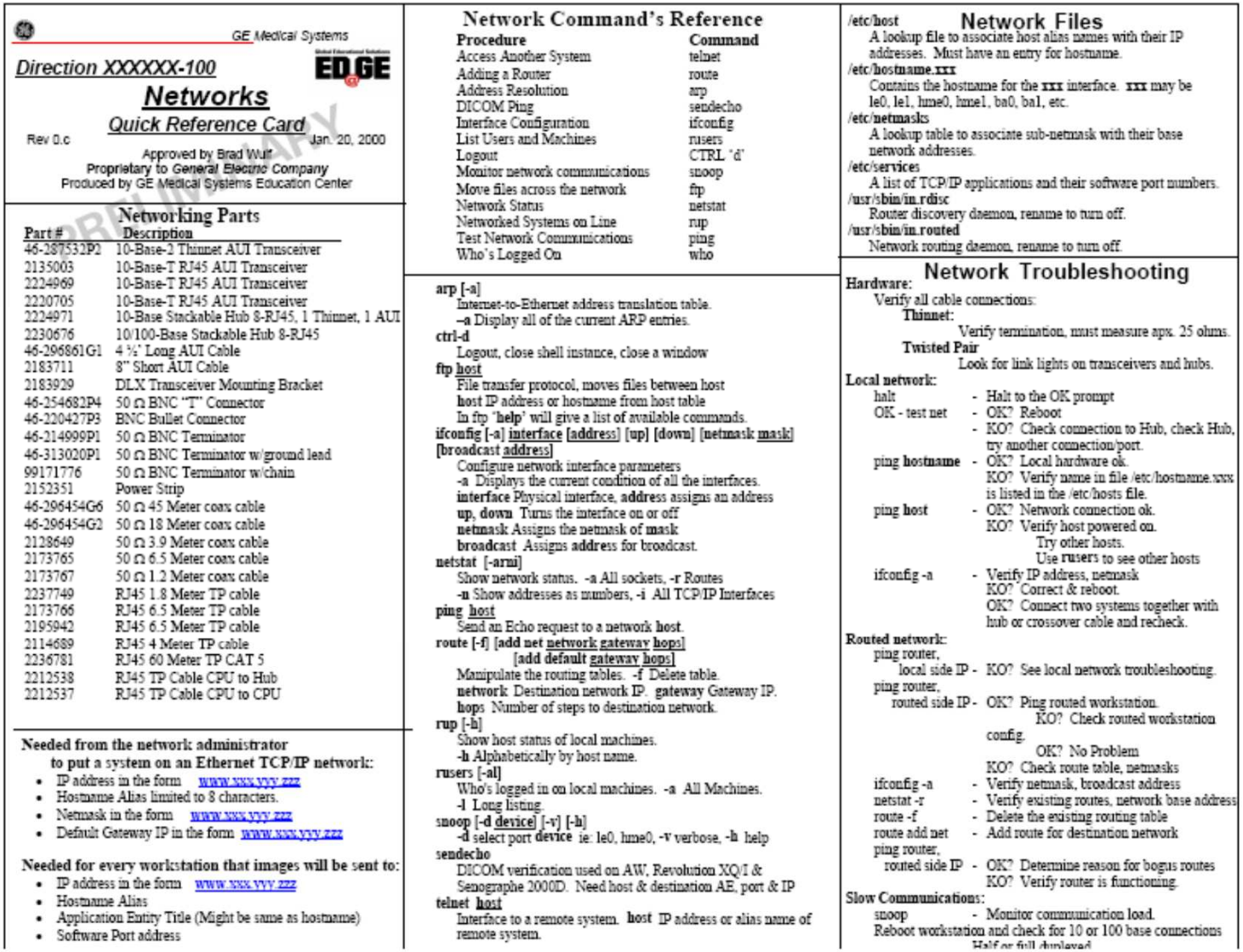
The Installation package of DTrace: ftp://globe/globepro/javista/DTrace/

The JRE (Java Runtime Environnement) V1.4:

ftp://globe/globepro/javista/JavaRuntimeEnvironment**%20v1.4/**

See H Baroukh for installation and training

QRC quick Reference card - Network



GE Medical Systems

Direction XXXXXX-100

EDGE

Networks

Quick Reference Card

Rev 0.c — Jan. 20, 2000

Approved by Brad Wulf
Proprietary to *General Electric Company*
Produced by GE Medical Systems Education Center

PRELIMINARY

Networking Parts

Part #	Description
46-287532P2	10-Base-2 Thinnet AUI Transceiver
2135003	10-Base-T RJ45 AUI Transceiver
2224969	10-Base-T RJ45 AUI Transceiver
2220705	10-Base-T RJ45 AUI Transceiver
2224971	10-Base Stackable Hub 8-RJ45, 1 Thinnet, 1 AUI
2230676	10/100-Base Stackable Hub 8-RJ45
46-296861G1	4 ½' Long AUI Cable
2183711	8" Short AUI Cable
2183929	DLX Transceiver Mounting Bracket
46-254682P4	50 Ω BNC "T" Connector
46-220427P3	BNC Bullet Connector
46-214999P1	50 Ω BNC Terminator
46-313020P1	50 Ω BNC Terminator w/ground lead
99171776	50 Ω BNC Terminator w/chain
2152351	Power Strip
46-296454G6	50 Ω 45 Meter coax cable
46-296454G2	50 Ω 18 Meter coax cable
2128649	50 Ω 3.9 Meter coax cable
2173765	50 Ω 6.5 Meter coax cable
2173767	50 Ω 1.2 Meter coax cable
2237749	RJ45 1.8 Meter TP cable
2173766	RJ45 6.5 Meter TP cable
2195942	RJ45 6.5 Meter TP cable
2114689	RJ45 4 Meter TP cable
2236781	RJ45 60 Meter TP CAT 5
2212538	RJ45 TP Cable CPU to Hub
2212537	RJ45 TP Cable CPU to CPU

Needed from the network administrator to put a system on an Ethernet TCP/IP network:

- IP address in the form www.xxx.yyy.zzz
- Hostname Alias limited to 8 characters.
- Netmask in the form www.xxx.yyy.zzz
- Default Gateway IP in the form www.xxx.yyy.zzz

Needed for every workstation that images will be sent to:

- IP address in the form www.xxx.yyy.zzz
- Hostname Alias
- Application Entity Title (Might be same as hostname)
- Software Port address

Network Command's Reference

Procedure	Command
Access Another System	telnet
Adding a Router	route
Address Resolution	arp
DICOM Ping	sendecho
Interface Configuration	ifconfig
List Users and Machines	rusers
Logout	CTRL 'd'
Monitor network communications	snoop
Move files across the network	ftp
Network Status	netstat
Networked Systems on Line	rup
Test Network Communications	ping
Who's Logged On	who

arp [-a]
Internet-to-Ethernet address translation table.
–a Display all of the current ARP entries.

ctrl-d
Logout, close shell instance, close a window

ftp host
File transfer protocol, moves files between host
host IP address or hostname from host table
In ftp '**help**' will give a list of available commands.

ifconfig [-a] interface [address] [up] [down] [netmask mask] [broadcast address]
Configure network interface parameters
-a Displays the current condition of all the interfaces.
interface Physical interface, **address** assigns an address
up, down Turns the interface on or off
netmask Assigns the netmask of **mask**
broadcast Assigns **address** for broadcast.

netstat [-arni]
Show network status. **-a** All sockets, **-r** Routes
-n Show addresses as numbers, **-i** All TCP/IP Interfaces

ping host
Send an Echo request to a network **host**.

route [-f] [add net network gateway hops] [add default gateway hops]
Manipulate the routing tables. **-f** Delete table.
network Destination network IP. **gateway** Gateway IP.
hops Number of steps to destination network.

rup [-h]
Show host status of local machines.
-h Alphabetically by host name.

rusers [-al]
Who's logged in on local machines. **-a** All Machines.
-l Long listing.

snoop [-d device] [-v] [-h]
-d select port **device** ie: le0, hme0, **-v** verbose, **-h** help

sendecho
DICOM verification used on AW, Revolution XQ/I & Senographe 2000D. Need host & destination AE, port & IP

telnet host
Interface to a remote system. **host** IP address or alias name of remote system.

Network Files

/etc/host
A lookup file to associate host alias names with their IP addresses. Must have an entry for hostname.

/etc/hostname.xxx
Contains the hostname for the **xxx** interface. **xxx** may be le0, le1, hme0, hme1, ba0, ba1, etc.

/etc/netmasks
A lookup table to associate sub-netmask with their base network addresses.

/etc/services
A list of TCP/IP applications and their software port numbers.

/usr/sbin/in.rdisc
Router discovery daemon, rename to turn off.

/usr/sbin/in.routed
Network routing daemon, rename to turn off.

Network Troubleshooting

Hardware:
Verify all cable connections:
Thinnet:
Verify termination, must measure apx. 25 ohms.
Twisted Pair
Look for link lights on transceivers and hubs.

Local network:

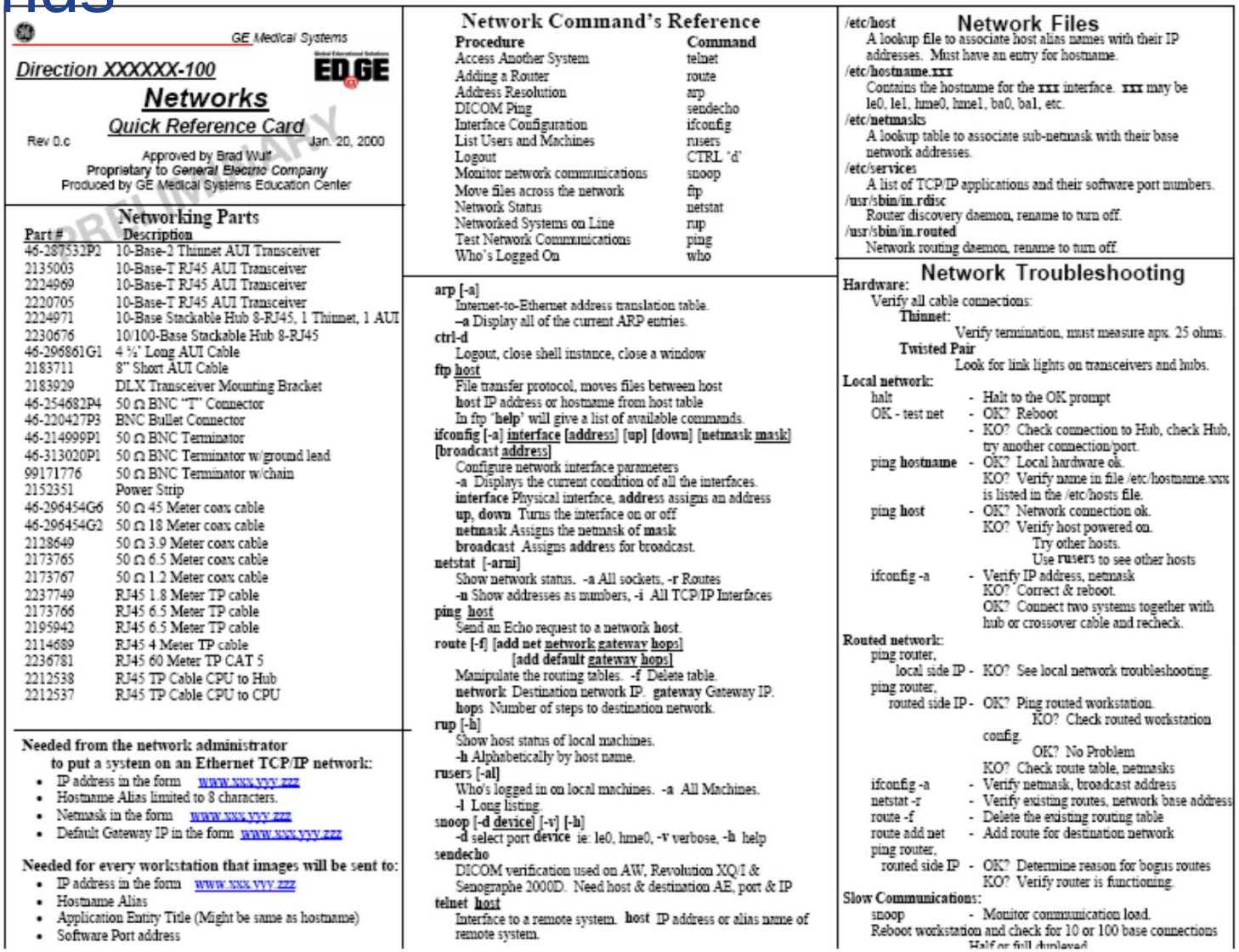
halt	-	Halt to the OK prompt
OK - test net	-	OK? Reboot
	-	KO? Check connection to Hub, check Hub, try another connection/port.
ping **hostname**	-	OK? Local hardware ok. KO? Verify name in file /etc/hostname.xxx is listed in the /etc/hosts file.
ping **host**	-	OK? Network connection ok. KO? Verify host powered on. Try other hosts. Use **rusers** to see other hosts
ifconfig -a	-	Verify IP address, netmask KO? Correct & reboot. OK? Connect two systems together with hub or crossover cable and recheck.

Routed network:

ping router, local side IP	-	KO? See local network troubleshooting.
ping router, routed side IP	-	OK? Ping routed workstation. KO? Check routed workstation config. OK? No Problem KO? Check route table, netmasks
ifconfig -a	-	Verify netmask, broadcast address
netstat -r	-	Verify existing routes, network base address
route -f	-	Delete the existing routing table
route add net	-	Add route for destination network
ping router, routed side IP	-	OK? Determine reason for bogus routes KO? Verify router is functioning.

Slow Communications:
snoop - Monitor communication load.
Reboot workstation and check for 10 or 100 base connections
Half or full duplexed

QRC quick reference card – unix commands



GE Medical Systems

Direction XXXXXX-100

EDGE

Networks

Quick Reference Card

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ping **host**	-	OK? Network connection ok. KO? Verify host powered on. Try other hosts. Use **rusers** to see other hosts
ifconfig -a	-	Verify IP address, netmask KO? Correct & reboot. OK? Connect two systems together with hub or crossover cable and recheck.

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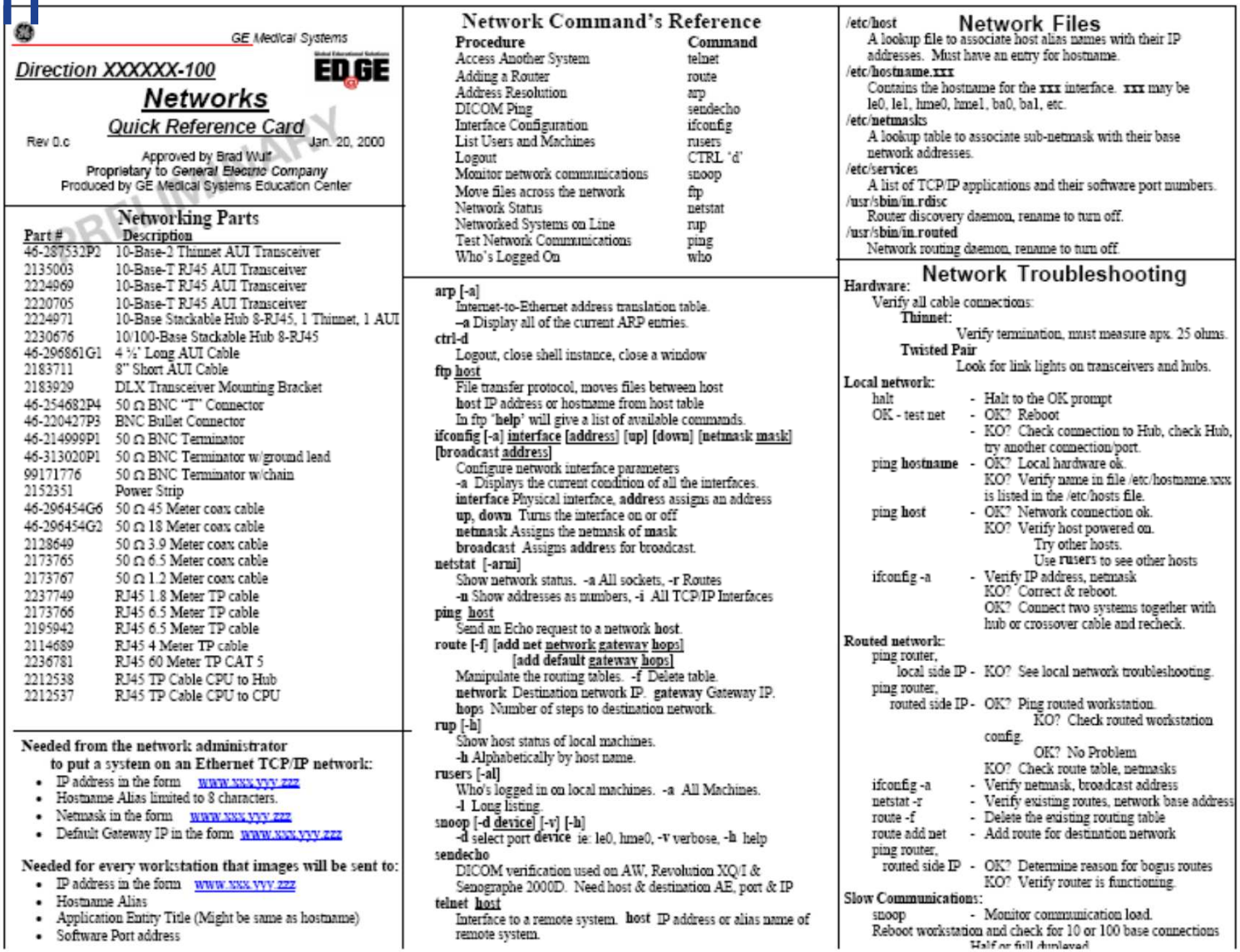
ping router, routed side IP	-	OK? Ping routed workstation. KO? Check routed workstation config. OK? No Problem KO? Check route table, netmasks
ifconfig -a	-	Verify netmask, broadcast address
netstat -r	-	Verify existing routes, network base address
route -f	-	Delete the existing routing table
route add net	-	Add route for destination network
ping router, routed side IP	-	OK? Determine reason for bogus routes KO? Verify router is functioning.

Slow Communications:

snoop	-	Monitor communication load.

Reboot workstation and check for 10 or 100 base connections
Half or full duplexed

QRC quick reference card - Dicom



GE Medical Systems

Direction XXXXXX-100

EDGE

Networks

Quick Reference Card

Rev 0.c — Jan. 20, 2000

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2183929	DLX Transceiver Mounting Bracket
46-254682P4	50 Ω BNC "T" Connector
46-220427P3	BNC Bullet Connector
46-214999P1	50 Ω BNC Terminator
46-313020P1	50 Ω BNC Terminator w/ground lead
99171776	50 Ω BNC Terminator w/chain
2152351	Power Strip
46-296454G6	50 Ω 45 Meter coax cable
46-296454G2	50 Ω 18 Meter coax cable
2128649	50 Ω 3.9 Meter coax cable
2173765	50 Ω 6.5 Meter coax cable
2173767	50 Ω 1.2 Meter coax cable
2237749	RJ45 1.8 Meter TP cable
2173766	RJ45 6.5 Meter TP cable
2195942	RJ45 6.5 Meter TP cable
2114689	RJ45 4 Meter TP cable
2236781	RJ45 60 Meter TP CAT 5
2212538	RJ45 TP Cable CPU to Hub
2212537	RJ45 TP Cable CPU to CPU

Needed from the network administrator
to put a system on an Ethernet TCP/IP network:

- IP address in the form www.xxx.yyy.zzz
- Hostname Alias limited to 8 characters.
- Netmask in the form www.xxx.yyy.zzz
- Default Gateway IP in the form www.xxx.yyy.zzz

Needed for every workstation that images will be sent to:

- IP address in the form www.xxx.yyy.zzz
- Hostname Alias
- Application Entity Title (Might be same as hostname)
- Software Port address

Network Command's Reference

Procedure	Command
Access Another System	telnet
Adding a Router	route
Address Resolution	arp
DICOM Ping	sendecho
Interface Configuration	ifconfig
List Users and Machines	rusers
Logout	CTRL 'd'
Monitor network communications	snoop
Move files across the network	ftp
Network Status	netstat
Networked Systems on Line	rup
Test Network Communications	ping
Who's Logged On	who

arp [-a]
Internet-to-Ethernet address translation table.
–a Display all of the current ARP entries.

ctrl-d
Logout, close shell instance, close a window

ftp host
File transfer protocol, moves files between host
host IP address or hostname from host table
In ftp '**help**' will give a list of available commands.

ifconfig [-a] interface [address] [up] [down] [netmask mask] [broadcast address]
Configure network interface parameters
-a Displays the current condition of all the interfaces.
interface Physical interface, **address** assigns an address
up, down Turns the interface on or off
netmask Assigns the netmask of **mask**
broadcast Assigns **address** for broadcast.

netstat [-arni]
Show network status. **-a** All sockets, **-r** Routes
-n Show addresses as numbers, **-i** All TCP/IP Interfaces

ping host
Send an Echo request to a network **host**.

route [-f] [add net network gateway hops] [add default gateway hops]
Manipulate the routing tables. **-f** Delete table.
network Destination network IP. **gateway** Gateway IP.
hops Number of steps to destination network.

rup [-h]
Show host status of local machines.
-h Alphabetically by host name.

rusers [-al]
Who's logged in on local machines. **-a** All Machines.
-l Long listing.

snoop [-d device] [-v] [-h]
-d select port **device** ie: le0, hme0, **-v** verbose, **-h** help

sendecho
DICOM verification used on AW, Revolution XQ/I & Senographe 2000D. Need host & destination AE, port & IP

telnet host
Interface to a remote system. **host** IP address or alias name of remote system.

Network Files

/etc/host
A lookup file to associate host alias names with their IP addresses. Must have an entry for hostname.

/etc/hostname.xxx
Contains the hostname for the **xxx** interface. **xxx** may be le0, le1, hme0, hme1, ba0, ba1, etc.

/etc/netmasks
A lookup table to associate sub-netmask with their base network addresses.

/etc/services
A list of TCP/IP applications and their software port numbers.

/usr/sbin/in.rdisc
Router discovery daemon, rename to turn off.

/usr/sbin/in.routed
Network routing daemon, rename to turn off.

Network Troubleshooting

Hardware:
Verify all cable connections:
Thinnet:
Verify termination, must measure apx. 25 ohms.
Twisted Pair
Look for link lights on transceivers and hubs.

Local network:

halt	-	Halt to the OK prompt
OK - test net	-	OK? Reboot
	-	KO? Check connection to Hub, check Hub, try another connection/port.
ping **hostname**	-	OK? Local hardware ok. KO? Verify name in file /etc/hostname.xxx is listed in the /etc/hosts file.
ping **host**	-	OK? Network connection ok. KO? Verify host powered on. Try other hosts. Use **rusers** to see other hosts
ifconfig -a	-	Verify IP address, netmask KO? Correct & reboot. OK? Connect two systems together with hub or crossover cable and recheck.

Routed network:

ping router, local side IP	-	KO? See local network troubleshooting.
ping router, routed side IP	-	OK? Ping routed workstation. KO? Check routed workstation config. OK? No Problem KO? Check route table, netmasks
ifconfig -a	-	Verify netmask, broadcast address
netstat -r	-	Verify existing routes, network base address
route -f	-	Delete the existing routing table
route add net	-	Add route for destination network
ping router, routed side IP	-	OK? Determine reason for bogus routes KO? Verify router is functioning.

Slow Communications:

snoop	-	Monitor communication load.

Reboot workstation and check for 10 or 100 base connections
Half or full duplexed

Check ethernet connection

To Check the Active Ethernet Connections for HPower System

Open a Shell and type : ifconfig <enter> The following list below should display

Eth0 is the Hospital backbone- dual card #2 port labeled "A"

eth0 Link encap:Ethernet HWaddr 00:07:E9:0D:03:24
inet addr:*3.231.48.2* Bcast:*3.231.48.0* Mask:255.255.252.0
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:16497 errors:0 dropped:0 overruns:0 frame:0
TX packets:450 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:100
RX bytes:1596730 (1.5 Mb) TX bytes:66981 (65.4 Kb)
Interrupt:28 Base address:0x2800 Memory:da140000-0

Eth2 is the DARC connection - dual card #1 port labeled "C"

eth2 Link encap:Ethernet HWaddr 00:07:E9:0D:06:DC
inet addr:172.16.0.1 Bcast:172.16.0.255 Mask:255.255.255.0
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:8721 errors:0 dropped:0 overruns:0 frame:0
TX packets:7041 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:100
RX bytes:4921088 (4.6 Mb) TX bytes:7502277 (7.1 Mb)
Interrupt:24 Base address:0x2880 Memory:da180000-0

Eht3 is the Gantry TGP connection - dual card #2 port labeled "B" HPower

eth3 Link encap:Ethernet HWaddr 00:07:E9:0D:06:DD
inet addr:192.9.220.1 Bcast:192.9.220.255 Mask:255.255.255.0
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:6047 errors:0 dropped:0 overruns:0 frame:0
TX packets:6022 errors:0 dropped:0 overruns:0 carrier:0
collisions:10 txqueuelen:100
RX bytes:801454 (782.6 Kb) TX bytes:846248 (826.4 Kb)
Interrupt:25 Base address:0x28c0 Memory:da1a0000-0

Under Unix/Linux there is always the local device that is the local system (Software pseudo device)

lo Link encap:Local Loopback
inet addr:127.0.0.1 Mask:255.0.0.0
UP LOOPBACK RUNNING MTU:16436 Metric:1
RX packets:173978 errors:0 dropped:0 overruns:0 frame:0
TX packets:173978 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0
RX bytes:76737700 (73.1 Mb) TX bytes:76737700 (73.1 Mb)

Definium Workstation tips

- Fails to boot (usually after power black out, incorrect shutdown etc

  login as root then type fsck –y (you may need to run twice)

  (customer can easily do this on your behalf from command window)

- Perform Database recovery (run automatically at start up)

force recovery only if files present in directory below

cd /database/DBHeader/localdb/composites1/dir0000000000/

ls –al to view files

If some files are listed, you can probably recover the DB by forcing a db recovery during startup. To force the recovery, edit the file /magichome/xruser/bin/start.dm.cots using gedit or vi. Edit the line:
${PKG_HOME}/resources/db/startLocaldb.cmd start >&! $ATH_LOG_DIR/startLocaldb.log
Tomake it :
${PKG_HOME}/resources/db/startLocaldb.cmd start -**f** >&! $ATH_LOG_DIR/startLocaldb.log

Save file and exit -do a soft reset – db recovery may take quite a while
IMPORTANT - Whether or not this fixes the problem change the file back to original data line

Definium Workstation tips (2)

Restart apps software

/magichome/xruser/bin/kilall (cust will see a blue screen)

/magichome/xruser/bin/start.magic (to restart

Check network and RIS hosts

Hosts are found at /magichome/cots/terra/resources/NETWORK/

RIS server info is in file mwl_pps_cfg.xml

Other hosts in file network-cfg.xml

Boot errors

/var/log/messages

Software versions

magichome/enggdata/config.txt (ftp to laptop)

Display Sensors and encoder values

Change user to xruser, cd bin command is showStatus (capital S in status)

HOW TO MAKE A SCREEN CAPTURE ON DEFINIUM 8000

1. Get the desired left and/or right screen (to be printed) on the system.

2. Open a command window, i.e. press **Ctrl+Shift+F5** and click on the leftmost (one with a window) icon on the resulting pop-up. A blank (white-colored) screen will be displayed with the following "xruser@magic engg]$"

3. Now, to print left screen type **import -window root -display :0.0 /enggdata/name.gif** and press the **Enter** key

4. Similarly, to print right screen type **import -window root -display :0.1 /enggdata/name.gif** and press the **Enter** key

5. The .gif images will be stored in the directory **/enggdata/** on the system. You can then transfer these files through a USB drive/internet to your laptop/PC.

Definium 8000 – remote snapshot

A GUI that is invoked with hot-key combination Ctrl+Shift+F5

Can take snapshot, export/import DICOM files, do software-only reset, etc

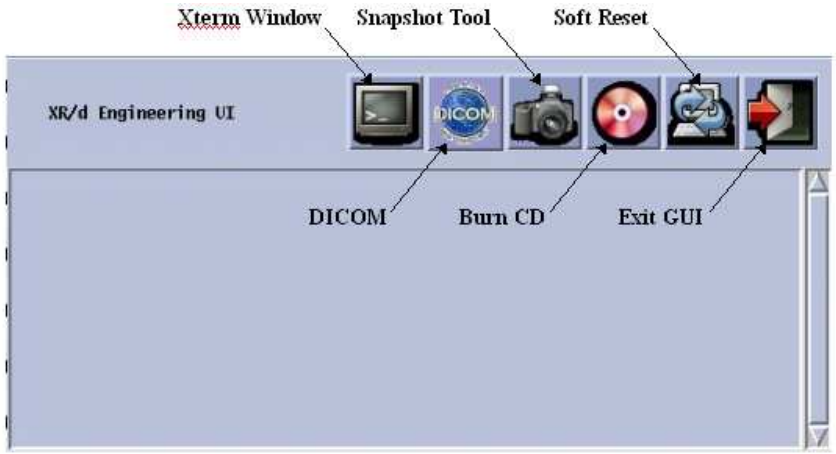
Command line tools exist for each function

/magichome/xruser/engg/collectLogs.sh – Creates snapshots

/magichome/xruser/engg/dicomExport.sh – Exports images selected on browser as DICOM images to /database/image_export directory (Copy the images to /enggdata/log before invoking a manual snapshot, if the issue is related to the image or IQ)

/magichome/xruser/engg/restartapps – Performs a SW-only restart (no OS restart)

Snapshots on : /magichome/ enggdata/Snapshots

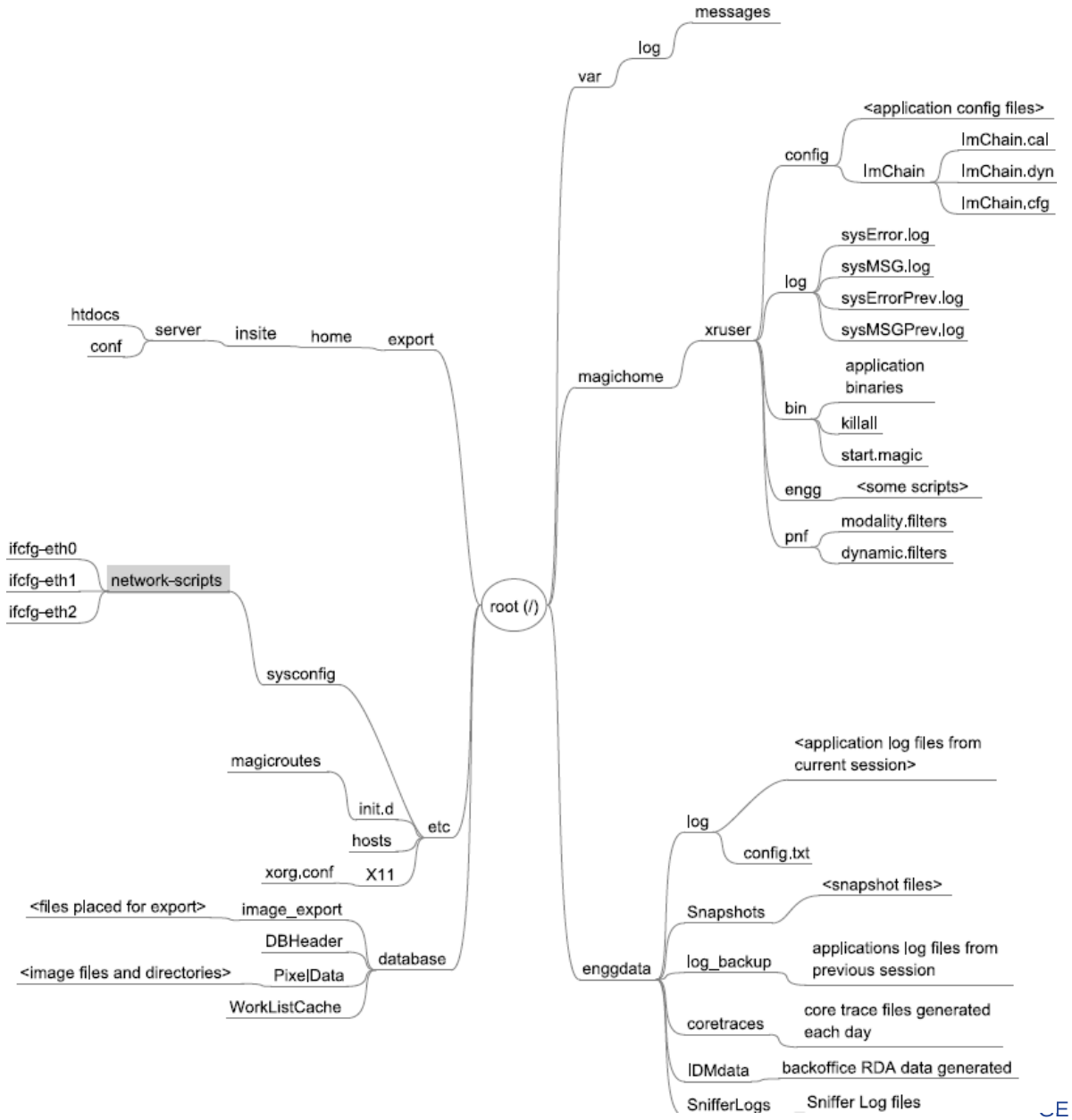


imagination at work

Magic PC – usefull commands

man command	=>	prints help for a given command
/bin/df	=>	Show information about the filesystems
/sbin/ifconfig		network configuration about all ethernet interfaces
/sbin/ethtool **/sbin/ethtool eth0**	=>	will print out eth0 settings such as (duplex level, speed, Link status etc) run as root user
/usr/bin/locate		
/usr/bin/locate filename	=>	will print the full path of all files matching the name filename
/bin/netstat **netstat –i** **netstat –s** **netstat –r**	=> => => =>	prints network statistics prints packet statistics for all interfaces overall stats routing table
/sbin/route	=>	prints network routing table
/bin/ps | grep –i "Executable"	=>	lists the process information
/usr/bin/free	=>	prints the amount of memory and swap space used
/usr/bin/top –d 1	=>	prints all processes, memory use, keeps updating every 1 second. Press Ctrl+C to quit
rpm –qa | grep –i "Platform"	=>	prints the package version / name
Copying snapshot files to usb drive: **/bin/mount /mnt/usbdisk** **cd /enggdata/Snapshots** **cp <snapshot name> /mnt/usbdisk** **umount /mnt/usbdisk**		
CDROM **/bin/mount /dev/cdrom** **/bin/umount**		

Magic PC – software tree



Magic PC- copy files to USB flash

Procedure to copy files to a USB Jumpdrive:

1. Press **Ctrl+Shift+F5.** The Engineering UI will pop up.
2. Click on the first icon to open an xterm (command) window.
3. Type in: **tail[space]-f[space]/var/log/messages <enter>.**
4. Plug the USB device into one of the USB ports on the front of the Magic PC.
5. Look at the messages displayed on the screen and locate the line containing “new high speed USB device”. A few lines after this will be an “added mount point … for /dev/xxxx” statement; for example, “added mount point LEXAR_Media for /dev/uba1”. Take note of the “/dev/xxxx” at the end of this statement for later use.
6. Press **Ctrl+C.**
7. Type in: **su[space]-[space]root <enter>.**
8. At the password prompt, type in **#superxr.**
9. Type in: **mkdir[space]/mnt/usbdisk** <enter>.
10. Type in: **mount[space]/dev/xxxx[space]/mnt/usbdisk** <enter>, where **/dev/xxxx is what was noted in Step 5.**
11. Type in: **cd[space]/mnt/usbdisk** <enter>.
12. Type in: **cp[space]~xruser/bin/gain0.img[space]. <enter>** where **~xruser/bin/gain0.img is the directory path and the specific file to be copied and “.” means the current directory (/mnt/usbdisk).**
13. Type in: **ls[space]-l** <enter> and verify the file is present.
14. Type in: **cd** <enter>.
15. Type in: **umount[space]/mnt/usbdisk** <enter>.
16. Unplug the USB device.
17. Type in: **exit** <enter> to exit root.
18. Type in: **exit** <enter> to close the xterm window.
19. Click on the door icon to exit the Engineering UI.

Magic PC – copy files to CD

Procedure to copy files to a CD:

1. Press **Ctrl+Shift+F5.** The Engineering UI will pop up.
2. Click on the first icon to open an xterm (command) window.
3. Type in: **su[space]-[space]root <enter>.**
4. At the password prompt, type in **#superxr.**
5. Type in: **mkdir[space]temp** <enter>.
6. Type in: **cd[space]temp** <enter>.
7. Type in: **cp[space]~xruser/bin/gain0.img[space]. <enter>** where **~xruser/bin/gain0.img is the directory path and the specific file to be copied and "." means the current directory (temp).**
8. Type in: **mkisofs[space]-r[space]-o[space]../cdrom.iso[space].** <enter>.
9. **Type in: cd[space].. <enter>.**
10. **Insert the CD in the drive and wait for the drive to spin up.**
11. **Type in: cdrecord[space]-v[space]cdrom.iso** <enter>. At this point, the file will be written to the CD.
12. **Type in: mount[space]/mnt/cdrom** <enter>.
13. **Type in: cd[space]/mnt/cdrom** <enter>.
14. **Type in: ls[space]-l** <enter> and verify the file is present.
15. **Type in: cd** <enter>.
16. **Type in: umount[space]/mnt/cdrom** <enter>.
17. Type in: **eject** <enter>. The CD should be ejected.
18. Type in: **exit** <enter> to exit root.
19. **Type in: exit** <enter> to close the xterm window.
20. **Click on the door icon to exit the Engineering UI.**

Magic PC – IDC calib files

calib.hst and calib.log.

they are both located in IDC.

you need to ftp in idc and pick them up using get command

ftp idc
cd /idc
get calib.hst
get calib.log

Magic PC – browse a CD

Browse a CD:

- Insert CD in Magic PC
- Type **cntrl + Alt + F2** to get to shell
- Login *:* **root**
- *password:* #**superxr**
- Type ***mount***<*space*>***/mnt/cdrom***
- Type ***cd***<*space*>***/mnt/cdrom***
- Type ***cksum***<*space*>***** *(* The following will be the contents of the CD)

	2730415866		1498378	Athena_Thunder_Magic_Release_patch_2-5.3-15.rpm
	1833959969		904058	ATLASIDC_PLATFORM-5.3-15_PATCH1.i386.rpm
	389674997		42893	iui_thunder_m3_patch-1.0-1.i386.rpm
	158308521		2949	M3patchInstall.sh
	1927960340		1042	restartapps
	2757657023		316	systemState.sh
	3135689314		1087	updateANR.sh

Definium 8000 – annotation size too small

Problem: The annotation font is too small. The Default is set to N, and Customer wants +3. For every annotation they are having to adjust the Font Size. Need to change the Default Annotation Size to +3.

Solution/Workaround: This is now configurable. Please follow the instructions below:

The Default Annotation Size is made configurable and the options available are +3, +2, +1, N, -1, -2.

1. Logon to the System:
Login: xruser
Password: 4$xray

2. Go to the Directory /magichome/xruser/config
$ cd /magichome/xruser/config

3. Edit the FONT_ COMBO_DEFAULT_SELECT_OPTION value from the default value to the desired value (+3, +2, +1, N, -1, -2) in the PrintFontSize.prop file using vi Editor

$ vi PrintFontSize.prop

FONT_SIZE_MAGNIFICATION_FACTOR = 1
(Font Size Magnification factor options: 1,2,3)
FONT_COMBO_DEFAULT_SELECT_OPTION = +1
(Font Combo options: +3,+2,+1, N, -1, -2)

Definium 8000 – worklist not populated

Problem: The Worklist is not populating. The worklist responses from the HIS/RIS system have invalid entries per DICOM, which causes the System to reject the WL entries during the Validation.

Solution/Workaround: ***(NOTE: THE FOLLOWING TURNS OFF DICOM VALIDATION!! LEAVING THE SYSTEM IN THIS STATE RENDERS THE UNIT NON-DICOM PART 14 COMPLIANT!!)***

1. Make sure all exams and work is saved before continuing.
2. Press Ctrl+Alt+F2
3. Login as `root`. Password is `#superxr`.
4. Navigate to `magichome/xruser/bin` directory
5. Type the following command; `./kilall`
6. All of the running software will be stopped. Now navigate to the following directory

`magichome/cots/terra/resources/NETWORK`

7. Type the following into the prompt, `vi mwl_pps_cfg.xml`
8. Using the `vi editor`, change the following line:

<ValidateMwlResult>true</ValidateMwlResult>

to

<ValidateMwlResult>false</ValidateMwlResult>

9. Exit and save the file
10. Reset the system.

After the reset, if you see the worklist now fill in the issue is inside the DICOM header being sent by the HIS/RIS. It is either a value with incorrect data or is a null field. The field will need to be fixed on the HIS/RIS side and then the validation algorithm must be turned back on.

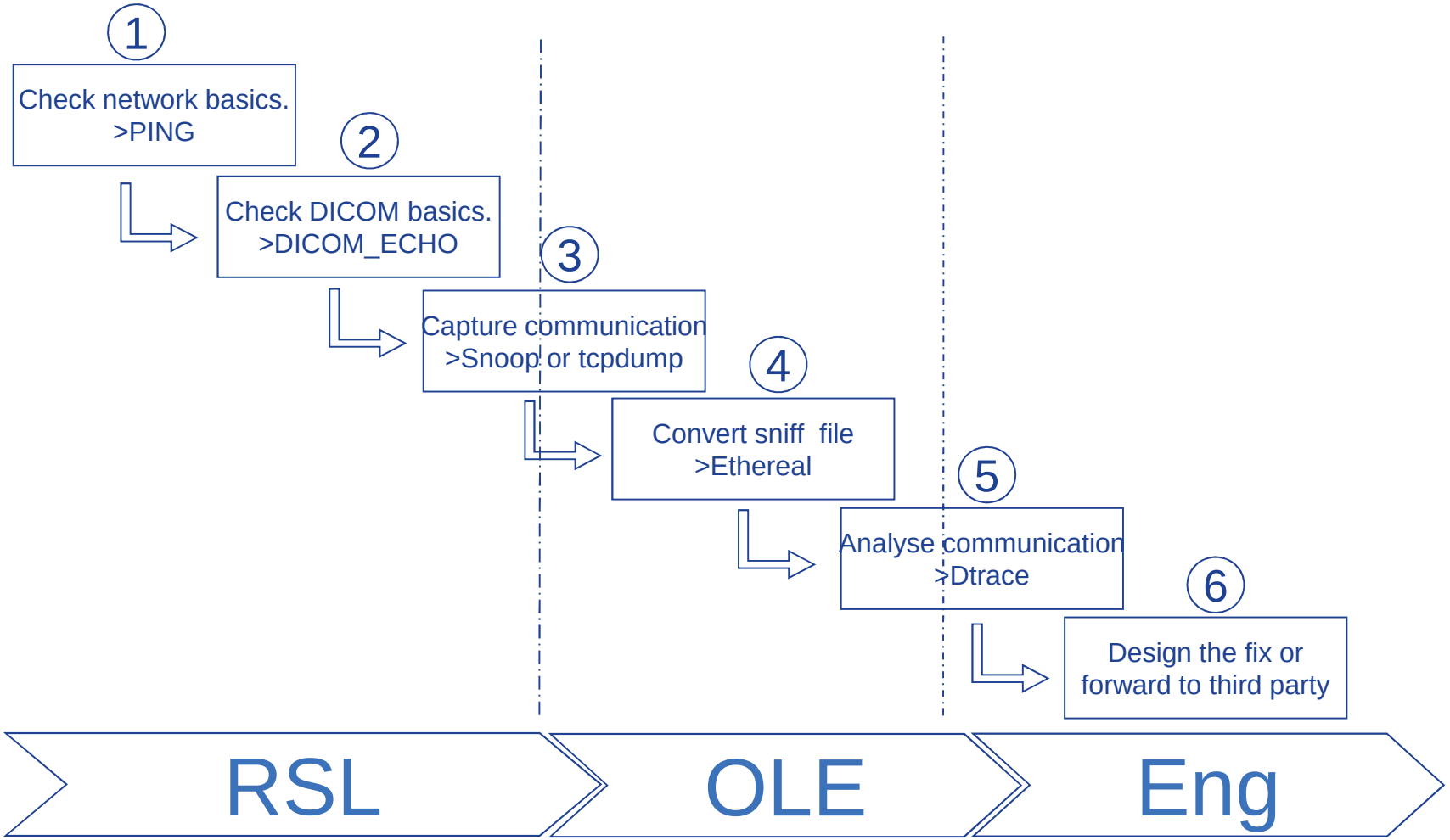
To turn the validation back on, follow the process but change the value back to true from false.

If turning off the validation did not resolve the issue, the root cause is something else. Hence, turn the validation ON and troubleshoot further.

Dicom troubleshooting

The following slides show how to capture a dicom session (sniff/snoop) – this dicom communication is very complex and it is simpler to download snoop file then send to OLC for analysis of tags etc

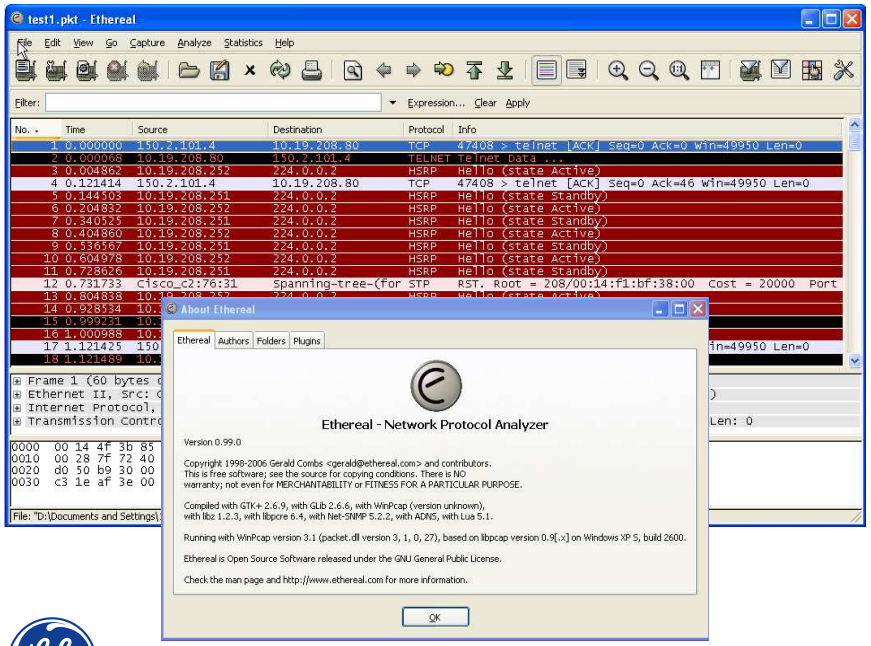
DICOM troubleshooting Process overview



imagination at work

DICOM troubleshooting Tools

- Ping & Dicom_echo >> at system level.
- Snoop/Tcpdump >> at system level.
- Ethereal >> download from the web, run on your laptop.
- Dtrace >> GE tool, run on your laptop.
- Design fix or further analysis >> adv tools need expert help.



Capture DICOM communication (snoop/tcpdump)

Objective : create a file (e.g. capture.pkt) on the system that contains the trace of a Dicom communication between local host and a remote host.
The file is downloaded for data conversion and then analysis using Dtrace.

- Unix systems (Seno DS ESS 2000D, revol XRd) > snoop
- Linux systems (Definium 8000, SenoAdvantage)> tcpdump

Step 1:	Step 2:	Step 3:	Step 4:
Type command snoop/tcpdump Listening for dicom dialog.	While snoop/tcpdump is listening, Operate the system to reproduce the fault (e.g. refresh worklist)	Stop listening (press ctl+C). The file (capture.pkt) is created.	Download using ISD the file created during listening

Next steps are at your laptop:

1. Convert data (Ethereal)
2. Analysis (Dtrace)

snoop/tcpdump synthax

How to use the tcpdump command ?

tcpdump -w myCapture.pkt -s 2000 -i <network port>

Example for AW4.2_04:

```
{awpc-7}[2]# tcpdump -w test.pkt -s 2000 -i eth0
tcpdump: listening on eth0
```

1. **STOP the capture :**

To stop listening press CTRL+C. That will return you to the command prompt

2. **Check the file :**

{lass}[5] ls -al test*
-rw-r--r-- 1 root other **1731468** Jul 21 16:07 **test.pkt**
{lass}[6]

It is recommended to Zip the file.

3. **Transfer the file in your laptop by FTP, using the binary mode!**

4. **In your Laptop, Unzip the file and open it with DTrace.**

How to use the snoop command?

snoop -d <network port> -o myCapture.pkt

Example for AW3.1 & AW4.0:
snoop -d eth0 -o test.pkt

The name of the port is displayed by the ifconfig command

Example for AW4.0:

{lass}[3] ifconfig -a
lo0: flags=849<UP,LOOPBACK,RUNNING,MULTICAST> mtu 8232
inet 127.0.0.1 netmask ff000000
hme0: flags=863<UP,BROADCAST,NOTRAILERS,RUNNING,MULTICAST> mtu 1500
inet 3.249.116.135 netmask ffffff00 broadcast 3.249.116.255
ether 0:3:ba:3:75:34

Example of result:

1. **Run the snoop command:**

{lass}[4] **snoop -d hme0 -o test.pkt**
Using device /dev/hme (promiscuous mode)
2534

2. **STOP the capture :**

To stop listening press CTRL+C. That will return you to the command prompt

3. **Check the file :**

{lass}[5] ls -al test*
-rw-r--r-- 1 root other **1731468** Jul 21 16:07 **test.pkt**
{lass}[6]

It is recommended to Zip the file.

4. **Transfer the file in your laptop by FTP, using the binary mode!**

5. **In your Laptop, Unzip the file and convert your file to libpcap format**

The snoop format is not directly compatible with DTrace software.
DTrace software can use only **libpcap** format.
You must use the **ethereal Software** to convert your snoop file to libpcap format. (see below)

Appendix

CSD Fails to launch by any method (but telnet/ftp works)

This is most likely due to incorrect settings of pf filter.

This can be overcome temporarily but Fe needs to configure correctly when next onsite.

For mammo systems to disable firewall (pf)

Login as root

/etc/rc2.d/S65ipfboot stop

to re-enable reboot or type /etc/rc2.d/S65ipfboot

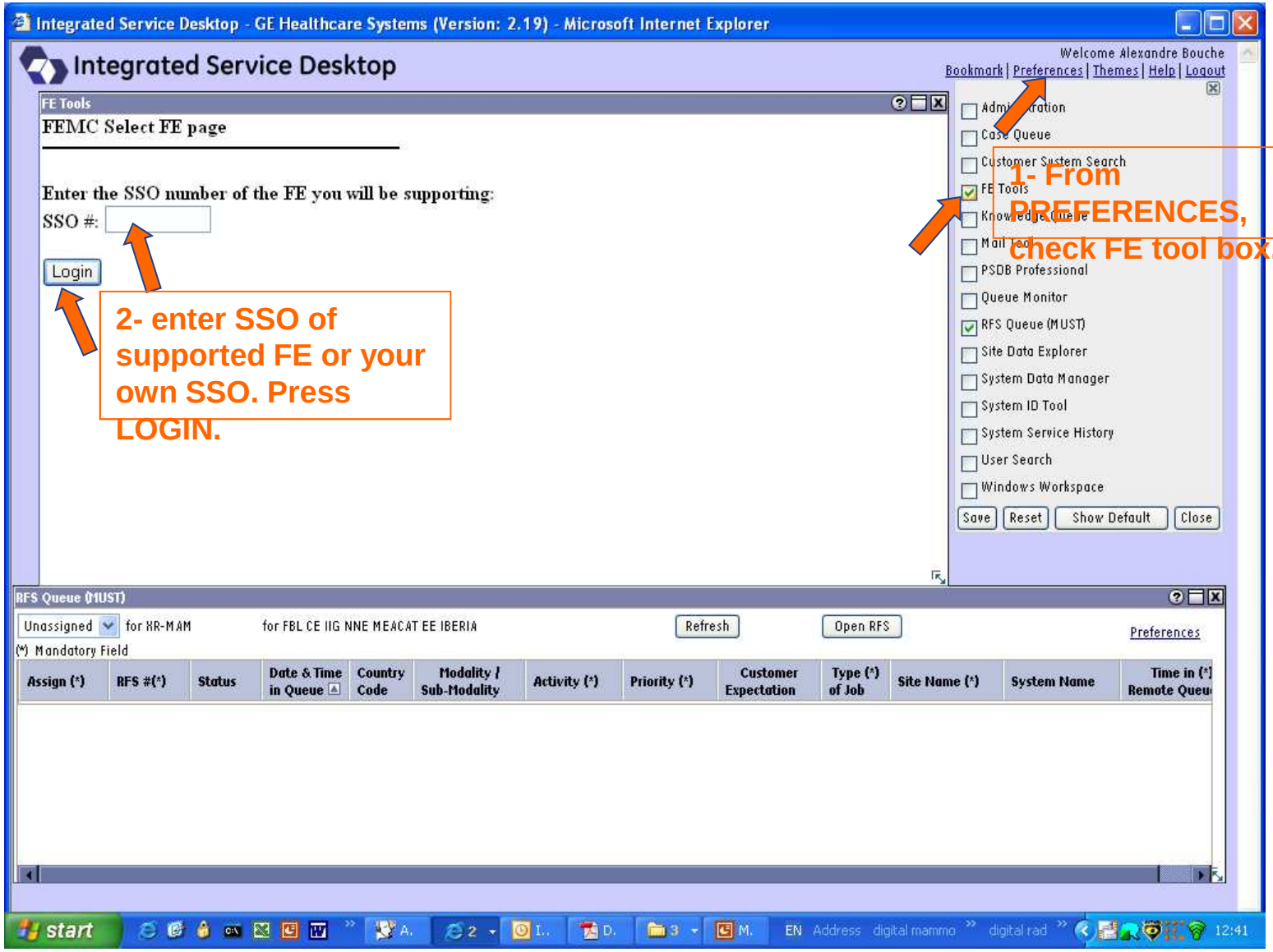
For definium systems to disable firewall (pf)

Login as root

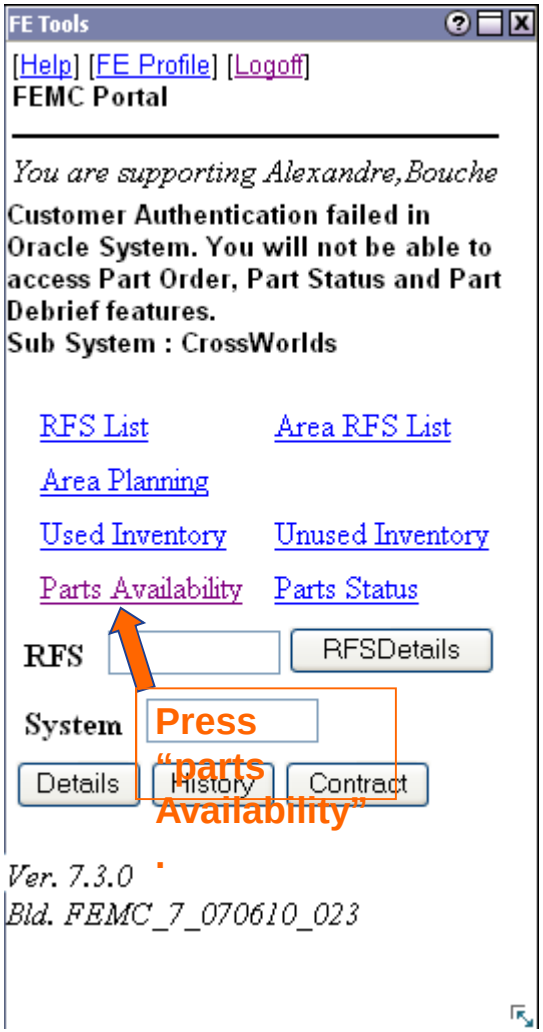
/usr/share/pnf/manager off

To re-enable type /usr/share/pnf/manager off

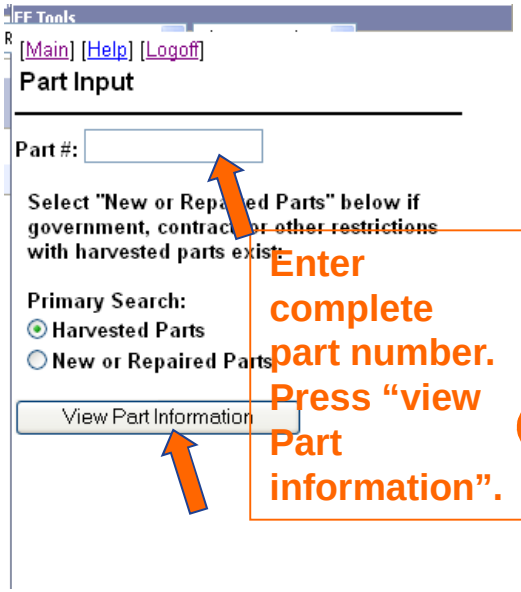
Check part availability – FE tool



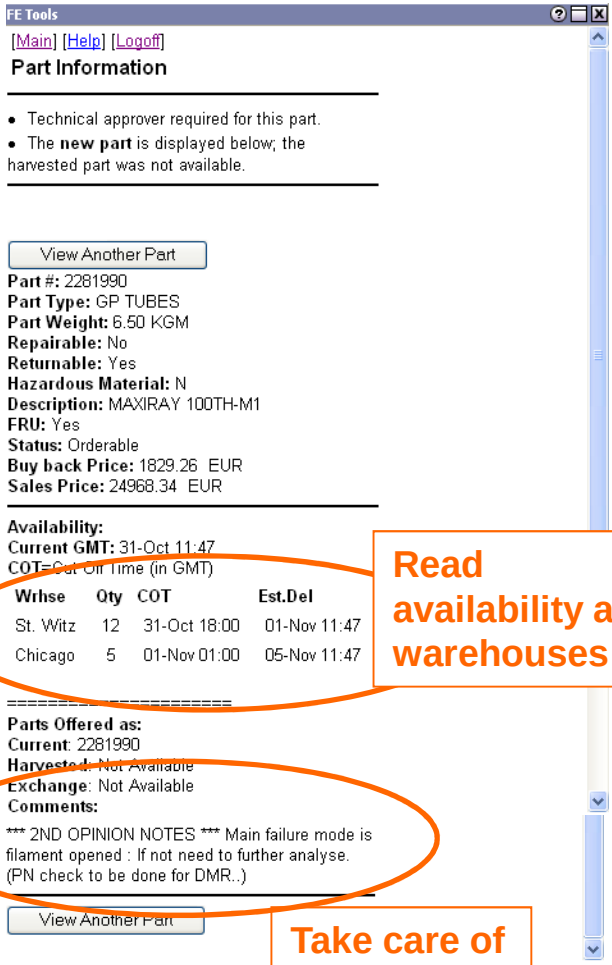
Check part availability



Press "parts Availability"



Enter complete part number. Press "view Part information".

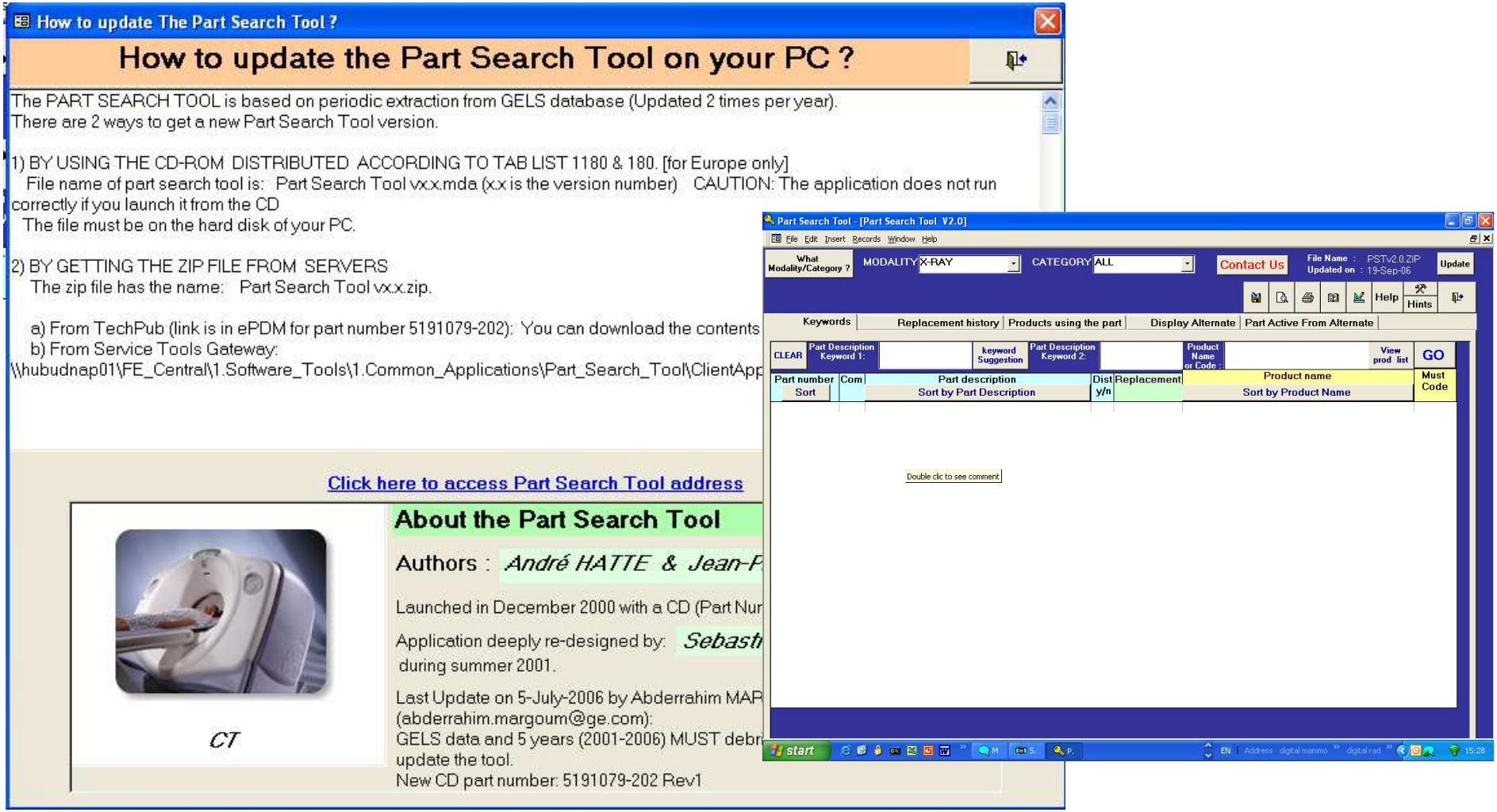


Read availability at warehouses

Take care of comments.

Part Search Tool - PST

You can get PST from CD or from Server (access application included)

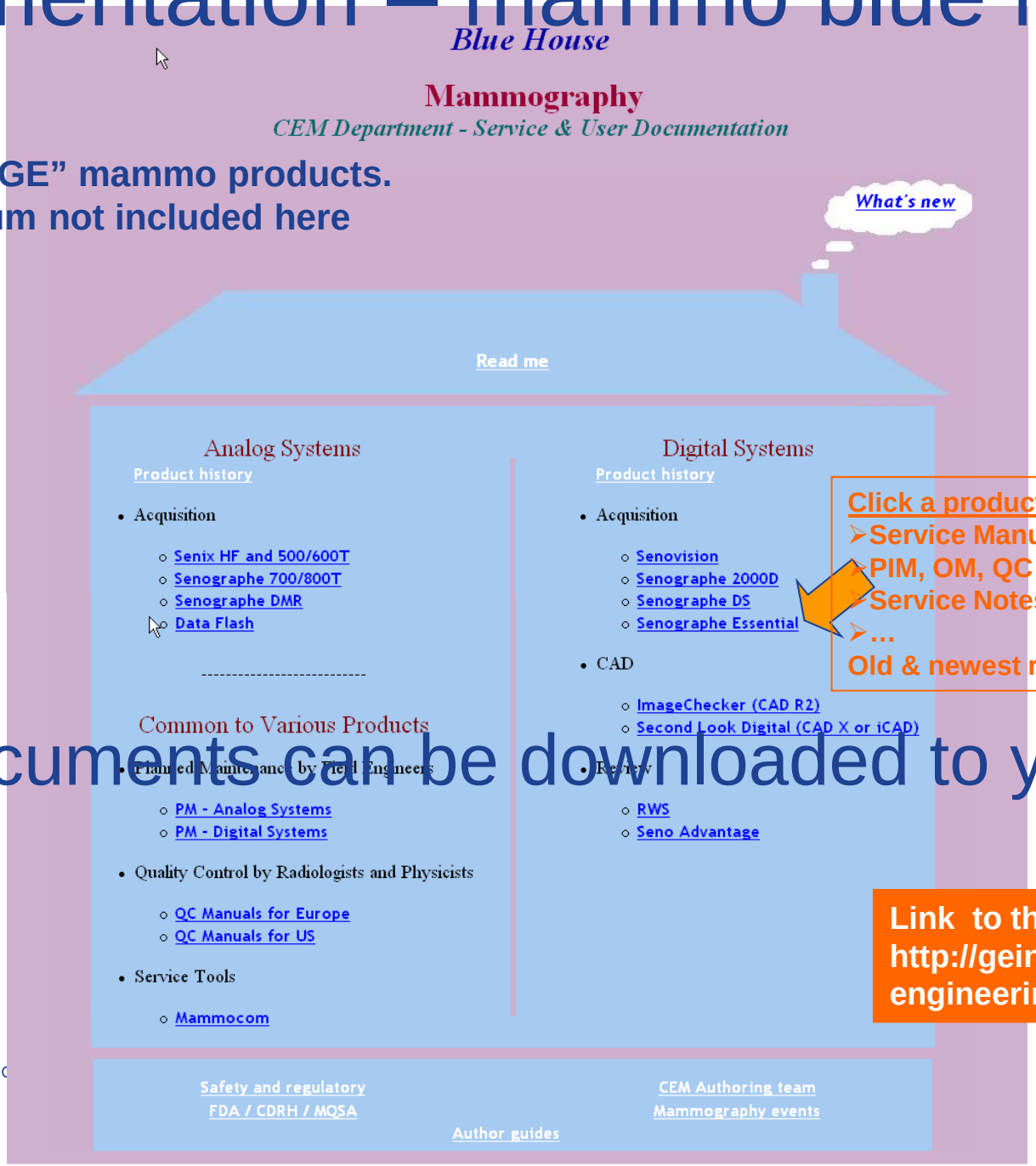


Link to PST >>

\\hubudnap01\FE_Central\1.Software_Tools\1.Common_Applications\Part_Search_Tool

Documentation – mammo blue house

Dedicated to "GE" mammo products.
Instrumentarium not included here
(cf.CDL)



Click a product to get to :
- **Service Manuals, Adv Service Manuals**
- **PIM, OM, QC manuals, Dicom CS,**
- **Service Notes, FMI.**
- **…**

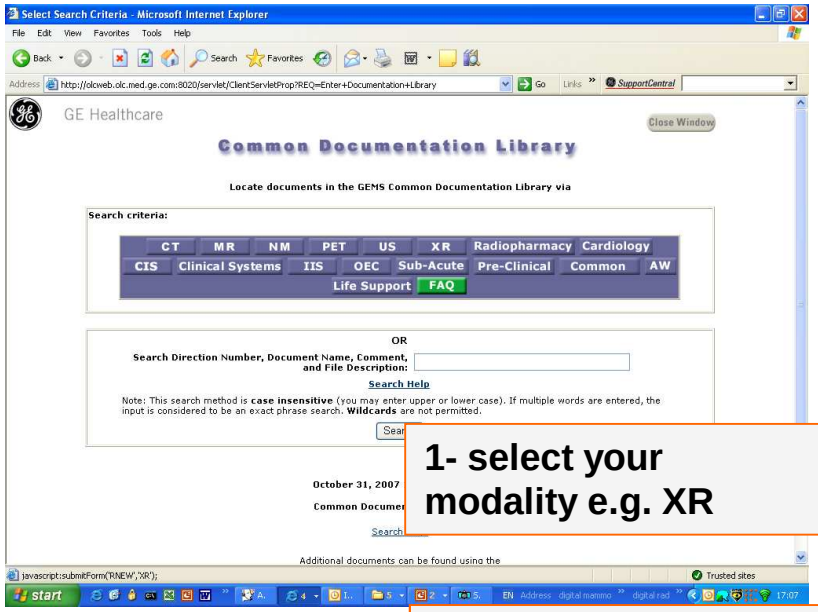
Old & newest revisions.

All documents can be downloaded to your laptop

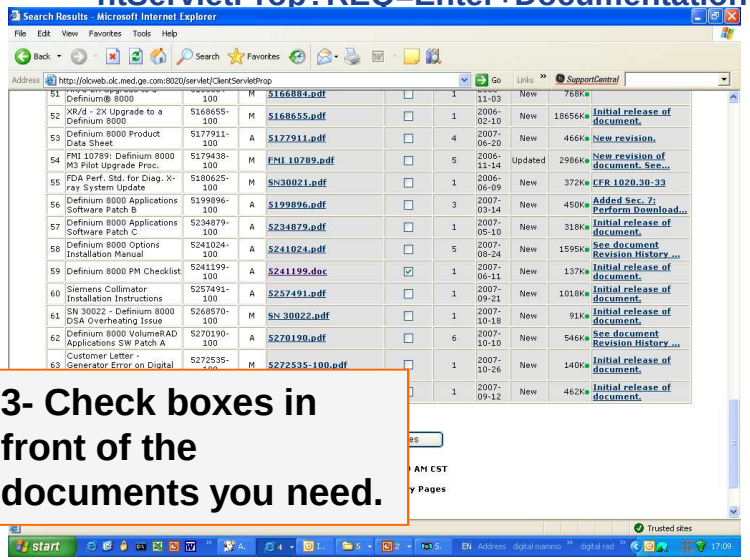
Link to the blue house:
http://gein.euro.med.ge.com/engineering/bluehouse/

Documentation – CDL

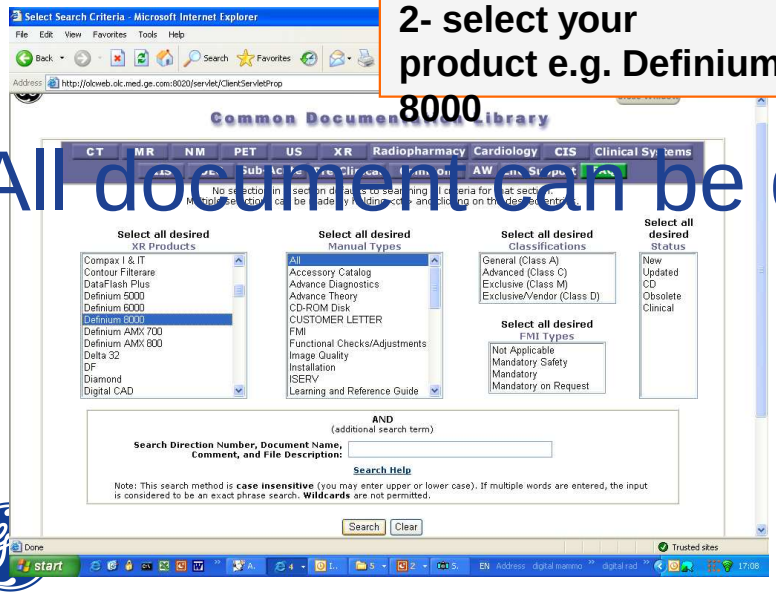
Link to CDL server :
http://olcweb.olc.med.ge.com:8020/servlet/ClientServletProp?REQ=Enter+Documentation+Lib



1- select your modality e.g. XR

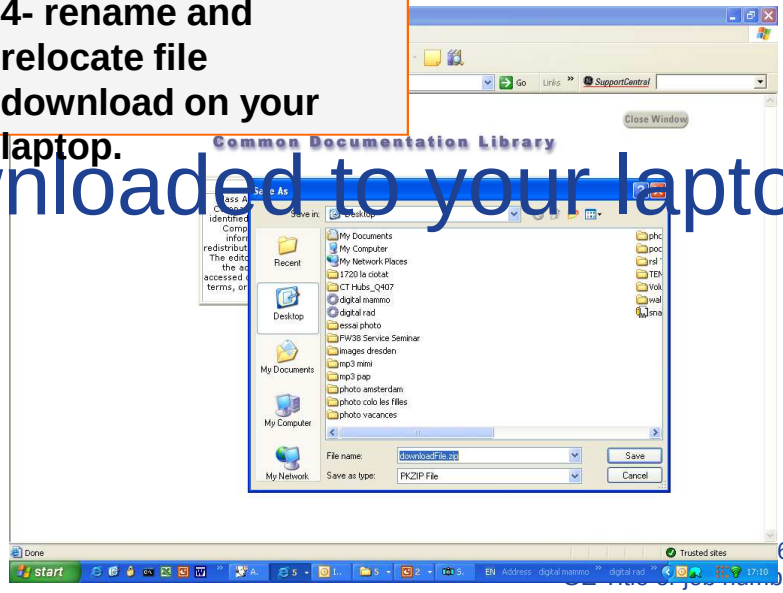


3- Check boxes in front of the documents you need.



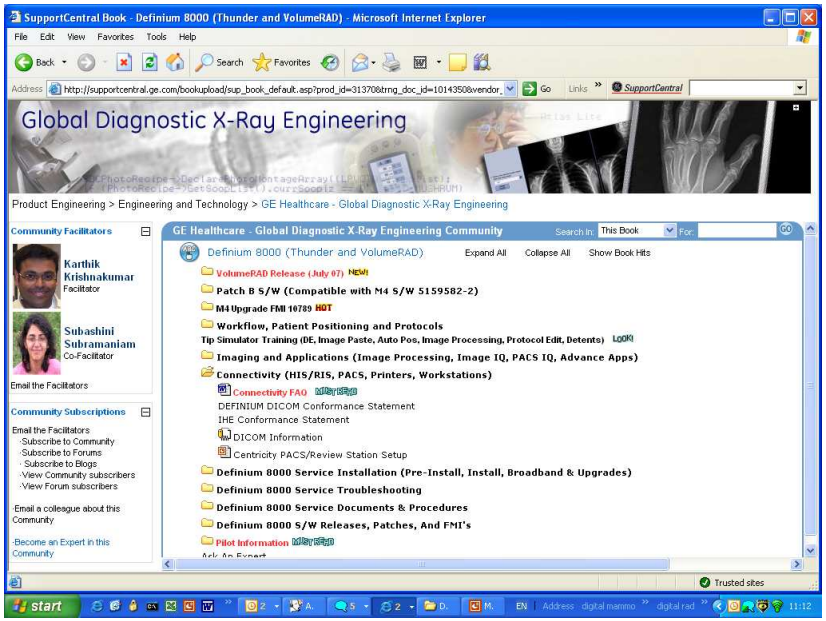
2- select your product e.g. Definium 8000

4- rename and relocate file download on your laptop.



All document can be downloaded to your laptop

Documentation – Support Central



Link to Support Central Definium 8000:

http://supportcentral.ge.com/bookupload/sup_book_default.asp?prod_id=31370&trng_doc_id=1014350&vendor_flag=11

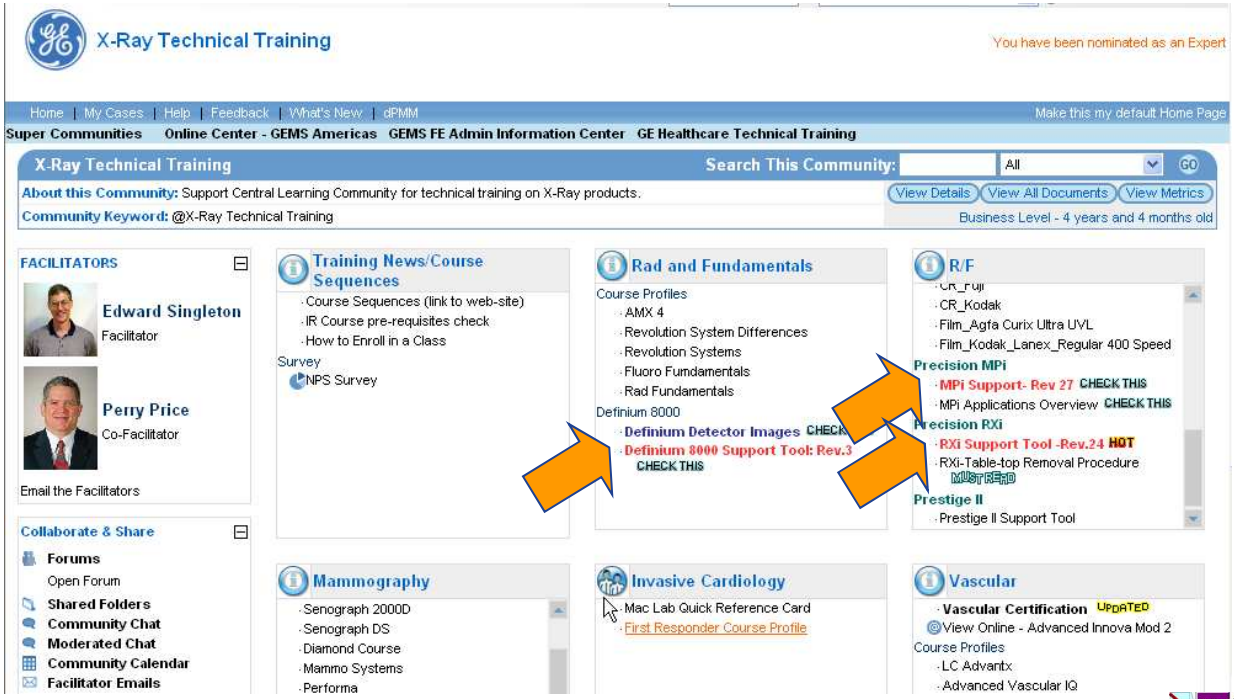
Tips & FAQ from engineering related to:

- Dicom connectivity
- imaging & application
- Installation
- Service troubleshooting
- …

Similar pages exist for:

Lightning	>	http://supportcentral.ge.com/bookupload/sup_book_default.asp?prod_id=31370&trng_(
Precision 500D	>	http://supportcentral.ge.com/bookupload/sup_book_default.asp?prod_id=31370&trng_(
Definium 700	>	http://supportcentral.ge.com/bookupload/sup_book_default.asp?prod_id=31370&trng_(
Definium 6000	>	http://supportcentral.ge.com/bookupload/sup_book_default.asp?prod_id=31370&trng_(
Definium 5000	>	http://supportcentral.ge.com/bookupload/sup_book_default.asp?prod_id=31370&trng_(

Documentation – support CDs



Download support CDs from Edward Singleton at:

http://supportcentral.ge.com/products/sup_products.asp?prod_id=21148

>> troubleshooting tips, photo tour, service and application screen captures, LED view, block diagram, error codes, …
-for definium 8000
-Precision 500D
-Precision RXi
-Precision MPi