Swapping KMTN computers

The KMTN computers are nearly identical in hardware, operating system, and installed software, so it is a straightforward matter to swap their roles in the overall system.

K,M,T,N	G	Guide	Science
Acquires Science	Acquires Guide	Receives Guide	Receives Science
Images	Images	Images	Images
Uses Caliban to transfer images to Science	Uses Caliban to transfer images to Guide	No Caliban	No Caliban
Uses isisterm to	Uses isisterm to	Uses isisterm to	Runs isis, uses it to communicate with rest of system
communicate	communicate	communicate	
through isis to rest	through isis to rest	through isis to rest	
of system	of system	of system	

The virtual machines that run on all of the KMTN Camera Computers are identical – they do not need to be changed when swapping computers.

Swapping ICS Spare for Science

If swapping the Spare ICS for Science, three files (/home/dts/Config/IC.ini, /home/dts/bin/KMTN_Startup.bat, and /etc/sysconfig/network-scripts/ifcfg-eth0) need to be changed.

Screenshot of /home/dts/Config:

Nations Places System 🏮 🍕	k 🗾	Ē	Thu Feb 22, 12:43:12 PM	root
Browse and run installed applications	root@KMTN01:/home/dts/Config			. = x
File Edit View Search Terminal Help				
[root@KMTN01 Config]# cd /home/dts				^
[root@KMTN01 dts]# ls	internal made public reals			
Agents Contig Documents EXEC_ISIS	ISISPERI MUSIC PUBLIC TOOLS	ios VME	eos	
[root@KMTN01 dts]# cd Config	modsin_ic.20130304.tai Fictures Temptates Otitit	Te2 Aut	ocder	
[root@KMTN01 Config]# ls -al				
total 56				
drwxr-xr-x. 4 dts dts 4096 Dec 21	2015 .			
drwxrwxrwx. 37 dts dts 4096 Oct 24	2014			
-rw-rw-r I dts dts 1407 Aug II	2015 Callban.ini 2015 TC			
Irwxrwxrwx 1 root root 13 Aug 6	2015 IC ini -> IC/KICOSU INI			
-rw-rr 1 root root 736 Jul 29	2015 ICINI.gz.tar			
-rw-rr 1 dts dts 1216 Oct 21	2014 isis.ini			
-rw-rr 1 dts dts 533 Jun 16	2015 isisrelay.ini			
-rw-rw-r 1 dts dts 452 Oct 25	2014 iterm.ini			
-rw-rr 1 root root 1407 Jul 10	2015 K.caliban.ini			
-rw-rr 1 dts dts 886 1ul 1	2014 OLD 2014 octos direct			
-rw-rw-r 1 dts dts 2190 Jul 1	2014 petes.uni			
-rw-rw-r 1 dts dts 2190 Jul 1	2014 pctcs.kmtn			
-rw-rr 1 dts dts 909 Jul 1	2014 ttytool.ini			
[root@KMTN01 Config]#				
				=
				\sim
S root@KMTN01:/home/				

Note that IC.ini, which determines which software runs in the DOS virtual machine, and its identity, is a soft link to another file, in the case above the IC.ini file for the **K** acquisition computer when running at OSU. There is a separate IC.ini file for each acquisition computer at each observatory in the /home/dts/Config/IC directory, as well as for the three control computers (ICS, ICG, and ICS Spare).

Screenshot of /home/dts/Config/IC directory:

Number of the second state	🥑 🥸 🗾				📃 🛃 Thu Fel	b 22, 1:56:04 PM	root
E	root@KM	ITN30:/home/d	ts/Config/IC				. ¤ X
File Edit View Search Terminal	Help						
<pre>[root@KMTN30 IC]# cd /home/dts/ [root@KMTN30 IC]# ls</pre>	Config/IC						^
GICCTIO.INI GICSSO.INI ICX.in GICOSU.INI ICG.ini ICXINI GICSAAO.INI ICS.ini KICCTI Troot@KMTN30 IC]# ■	i KICOSU.INI . <mark>gz.tar</mark> KICSAAO.INI 0.INI KICSSO.INI	MICCTIO.INI MICOSU.INI MICOSU.INI MICSAAO.INI MICSAAO.	MICSSO.INI NICCTIO.INI NICOSU.INI	NICSAAO.INI NICSSO.INI temp	TICCTIO.INI TICOSU.INI TICSAAO.INI	TICSSO.INI	
							H
S root@KMTN30:/home/							

These files should not be edited! Instead, change the soft link /home/dts/Config/IC.ini to point to the correct file for the computer and observatory. In the case where the ICS Spare computer is being swapped in for the ICS, the soft link should point to ICS.ini in this case. Note that the names of these ini files may differ between computers and observatories, as they were a late addition to the systems and some naming "creep" that resulted has not been corrected.

Screenshot of KMTN_Startup:



🐝 Applications Places System 🟮 🥸 🗾	📃 🛃 Thu Fel	b 22, 12:51:30 PM root
E root(9KMTN30:/home/dts/bin	_ = ×
File Edit View Search Terminal Help		
# Open permissions to serial port used by ISIS #chmod 777 /dev/ttyS1		
# Add socat session that allows IC in VM to talk t #socat pty,link=/home/dts/VMFolder/socat/pty/ICLink, er=dts,group=dts,cr &	o ISIS user=root,group=root,cr pty,link=/home/dts/VMFolder/s	socat/pty/ISISLink,us
<pre># Add socat session for the IC terminal window #socat pty,link=/home/dts/VMFolder/socat/pty/ICTerm, ser=dts,group=dts,cr &</pre>	user=root,group=root,cr pty,link=/home/dts/VMFolder/	socat/pty/XTermLink,u
# Start ISIS in a new window #xterm -e "/home/dts/ISIS/relay/isisrelay" & xterm -e "/home/dts/ISIS/server/isis" &		
# Automount the data directory on electron #mount 172.16.3.44:/home/data /mnt/electrondata ↓		
<pre># Mount the data directory on the Rack#2 ICS compu #mount 192.168.14.109:/home/data /mnt/ICSdata</pre>	ter	
# Mount the data directory on the Rack#3 ICS compu #mount 192.168.15.109:/home/data /mnt/ICSData	ter	
# Set ramdisks to read/write for everybody chmod 666 /dev/ram0 chmod 666 /dev/ram1		
# Start caliban in a new window - not on the eXeec #xterm -e "/home/dts/Agents/Caliban/src/caliban" &	utive machines (ICG, ICS, ICGSpare)	
virsh start IC2		
chmod 666 /dev/ram0 chmod 666 /dev/ram1		
vncviewer :0 &		
[root@KMTN30 bin]#		
<pre>root@KMTN30:/home/</pre>		

This example script configures and starts the full ICS system on a KMTN computer. It differs from all the other machines in that the isis communication server is started, rather than isisrelay. This is the only change that will be needed when swapping in ICS Spare for ICS.

Because the acquisition machines K, M, T, and N need to mount the /data directory on ICS to write their data, the IP address of ICS Spare will need to be changed when swapping it in for ICS. This is done in /etc/sysconfig/network-scripts/ifcfg-eth0.

Screenshot of /etc/sysconfig/network-scripts/ifcfg-eth0:



This is the ifcfg-eth0 for the ICS computer at OSU. The ICS at the observatories have similar but different IP addresses: 192.168.13.109 at SAAO, 192.168.14.109 at CTIO, and 192.168.15.109 at SSO. These are the IP addresses that the ICS Spare will have to be changed to in order to receive science images as the ICS. In addition, the old ICS will have to be powered down or have its IP address changed as well, to prevent network collisions and possible loss of data.

After changing the ifcfg-eth0 file, restart the network with the command:

service network restart

This completes the reconfiguring of the ICS Spare to run as the ICS.

Note: If communication problems are encountered after the swap, check the file /home/dts/Config/isis.ini for errors in the IP addresses used. This file is site-specific, and may not have been updated for the correct observatory site on every computer.

Swapping ICS Spare for Guide

If swapping the Spare ICS for Guide, two files (/home/dts/Config/IC.ini and /etc/sysconfig/network-scripts/ifcfg-eth0) need to be changed.

Screenshot of /home/dts/Config:



Note that IC.ini, which determines which software runs in the DOS virtual machine, and its identity, is a soft link to another file, in the case above the IC.ini file for the **K** acquisition computer when running at OSU. There is a separate IC.ini file for each acquisition computer at each observatory in the /home/dts/Config/IC directory, as well as for the three control computers (ICS, ICG, and ICS Spare).

Screenshot of /home/dts/Config/IC directory:

🐝 Applications Places System 🏮 🥸					📃 🛃 Thu Fe	b 22, 1:56:04 PM	root
E	root@K	MTN30:/home/	dts/Config/IC				_ = ×
File Edit View Search Terminal Help							
<pre>[root@KMTN30 IC]# cd /home/dts/Config/ [root@KMTN30 IC]# ls</pre>	IC						^
GICCTIO.INI GICSSO.INI ICX.ini GICOSU.INI ICG.ini ICXINI.gz.tar FICSAAO.INI ICS.ini KICCTIO.INI Troot@KMTN30 IC]#	KICOSU.INI KICSAAO.INI KICSSO.INI	MICCTIO.INI MICOSU.INI MICSAAO.INI	MICSSO.INI NICCTIO.INI NICOSU.INI	NICSAAO.INI NICSSO.INI temp	TICCTIO.INI TICOSU.INI TICSAAO.INI	TICSS0.INI	
							H
S root@KMTN30:/home/						F	

These files should not be edited! Instead, change the soft link /home/dts/Config/IC.ini to point to the correct file for the computer and observatory. In the case where the ICS Spare computer is being swapped in for the ICG, the soft link should point to ICG.ini in this case. Note that the names of these ini files may differ between computers and observatories, as they were a late addition to the systems and some naming "creep" that resulted has not been corrected.

Because the acquisition machine **G** needs to mount the /data directory on ICG to write their data, the IP address of ICS Spare will need to be changed when swapping it in for ICG. This is done in /etc/sysconfig/network-scripts/ifcfg-eth0.

Screenshot of /etc/sysconfig/network-scripts/ifcfg-eth0:

Applications Places System	em 🍯 🥸 🗾				Thu Feb 22, 12:56	:51 PM roo	t
Σ	root@KMTN30:/	etc/sysconfig/netv	work-scripts			>	ĸ
File Edit View Search Termi	ninal Help						
File Edit View Search Termi [root@KMTN30 Config]# cd /et [root@KMTN30 network-scripts ifcfg-eth0 ifdown-ippp if ifcfg-lo ifdown-ippo if ifdown ifdown-isdn if ifdown bnep ifdown-post if [root@KMTN30 network-scripts DEVICE="eth0" TYPE="Ethernet" ONBOOT="yes" NM_CONTROLLED="yes" BOOTPROTO="none" IPADDR="172.16.16.109" NETMASK="255.255.224.0" GATEWAY="172.16.0.1" DNAIN="isl.astronomy.ohio-s DEFROUTE=yes IPV4 FAILURE FATAL=yes IPV6INIT=no	<pre>inal Help tc/sysconfig/network-script s]# ls fdown-ppp ifup-aliases fdown-routes ifup-bnep fdown-sit ifup-eth fdown-tunnel ifup-ippp fup ifup-ipv6 s]# cat ifcfg-eth0 state.edu astronomy.ohio-st</pre>	s/ ifup-isdn ifup ifup-plip ifup ifup-post ifup ifup-post ifup ifup-ppp init	r-routes n -sit n -tunnel n -wireless .ipv6-global	et.hotplug etwork-funct etwork-funct	ions ions-ipv6		~
[root@KMTN30 network-scripts	s]#						(4) III

This is the ifcfg-eth0 for the ICS computer at OSU. The ICG at the observatories have similar but different IP addresses: 192.168.13.108 at SAAO, 192.168.14.108 at CTIO, and 192.168.15.108 at SSO. These are the IP addresses that the ICS Spare will have to be changed to in order to receive guide images as the ICG. In addition, the old ICG will have to be powered down or have its IP address changed as well, to prevent network collisions and possible loss of data.

After changing the ifcfg-eth0 file, restart the network with the command:

service network restart

This completes the reconfiguring of the ICS Spare to run as the ICG.

Note: If communication problems are encountered after the swap, check the file /home/dts/Config/isisrelay.ini for errors in the IP addresses used. This file is site-specific, and may not have been updated for the correct observatory site on every computer.

Swapping IC Spare for an Acquisition Computer (K, M, T, N, or G)

If swapping the Spare IC for an acquisition computer (K, M, T, N, G), only /home/dts/Config/Caliban.ini and /home/dts/Config/IC.ini need to be changed.

Screenshot of /home/dts/Config:

Name and Applications Places System 🕘 🚳 🗾	Ē	Thu Feb 22, 12:43:12 PM	root
Browse and run installed applications root@KMTN01:/home/dts/Config			• ×
File Edit View Search Terminal Help			
[root@KMTN01 Config]# cd /home/dts [root@KMTN01 dts]# ls			^
Agents Config Documents EXEC_ISIS isisPerl Music Public Tools	Vid	leos	
<pre>pin Desktop Downloads 1515 modSiD_1C.20130504.tar Pictures Templates Utiliti [root@KMTN01 donfig]# ts -al</pre>	es VMF	older	
total 56			
drwxr-xr-x. 4 dts dts 4096 Dec 21 2015 . drwxrwxrwx 37 dts dts 4096 Oct 24 2014			
-rw-rw-r 1 dts dts 1407 Aug 11 2015 caliban.ini			
drwxr-xr-x 2 root root 4096 Nov 19 2015 IC			
lrwxrwxrwx 1 root root 13 Aug 6 2015 IC.ini -> IC/KICOSU.INI			
-rw-rr 1 root root 736 Jul 29 2015 ICINI.gZ.tar			
-rw-rr 1 dts dts 533 Jun 16 2015 isisrelav.ini			
-rw-rw-r 1 dts dts 452 Oct 25 2014 iterm.ini			
-rw-rr 1 root root 1407 Jul 10 2015 K.caliban.ini			
drwxrwxr-x 2 dts dts 4096 oct 24 2014 OLD			
-rw-rr 1 dts dts 886 Jul 1 2014 pctcs.direct			
-rw-rw-r 1 dts dts 2190 Jul 1 2014 pctcs.ini -rw-rw-r 1 dts dts 2190 Jul 1 2014 pctcs kmtn			
-rw-rr 1 dts dts 909 Jul 1 2014 ttvtool.ini			
[root@KMTN01 Config]#			
			=
			~
In root@KMTN01:/home/			

Note that IC.ini, which determines which software runs in the DOS virtual machine, and its identity, is a soft link to another file, in the case above the IC.ini file for the **K** acquisition computer when running at OSU. There is a separate IC.ini file for each acquisition computer at each observatory in the /home/dts/Config/IC directory, as well as for the three control computers (ICS, ICG, and ICS Spare).

Screenshot of /home/dts/Config/IC directory:

Number of the second state	🥑 🥸 🗾				📃 🛃 Thu Fel	b 22, 1:56:04 PM	root
E	root@KM	ITN30:/home/d	ts/Config/IC				. ¤ X
File Edit View Search Terminal	Help						
<pre>[root@KMTN30 IC]# cd /home/dts/ [root@KMTN30 IC]# ls</pre>	Config/IC						^
GICCTIO.INI GICSSO.INI ICX.in GICOSU.INI ICG.ini ICXINI GICSAAO.INI ICS.ini KICCTI Troot@KMTN30 IC]# ■	i KICOSU.INI . <mark>gz.tar</mark> KICSAAO.INI 0.INI KICSSO.INI	MICCTIO.INI MICOSU.INI MICOSU.INI MICSAAO.INI MICSAAO.	MICSSO.INI NICCTIO.INI NICOSU.INI	NICSAAO.INI NICSSO.INI temp	TICCTIO.INI TICOSU.INI TICSAAO.INI	TICSSO.INI	
							H
S root@KMTN30:/home/							

These files should not be edited! Instead, change the soft link /home/dts/Config/IC.ini to point to the correct file for the computer and observatory. In the case where the ICS Spare computer is being swapped in for the ICS, the soft link should point to ICS.ini in this case. Note that the names of these ini files may differ between computers and observatories, as they were a late addition to the systems and some naming "creep" that resulted has not been corrected.

After this change, the identity of the software running in the DOS virtual machine will change. This means that the Caliban agent that transfers the data to the correct data depository will not be able to0 transfer data until its identity is changed as well. This is done by editing the file /home/dts/Config/Caliban.ini

Screenshot of /home/dts/Config/Caliban.ini:





This is the Caliban.ini file for the **K** computer, so the LOCAL_HOST is set to K.CB and DISK_HOST is set to K.IC. Change these to match the correct machine you are replacing.

With these two files changed, KMTN_Startup will now start the system with its new identity.

This completes the reconfiguring of the IC Spare to run as an acquisition IC (K, M, T, N, or G).

Note: If communication problems are encountered after the swap, check the file /home/dts/Config/isisrelay.ini for errors in the IP address used. This file is site-specific, and may not have been updated for the correct observatory site on every computer.