



W. M. KECK OBSERVATORY

MAGIQ Camera Trouble Shooting and Recovery Procedures

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Author(s):

Shui Hung Kwok

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65-1120 Mamalahoa Highway, Kamuela, Hawaii 96743



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MAGIQ Camera Trouble Shooting and Recovery Procedures

1 How-To's

1.1 To start/stop MAGIQ server

Start MAGIQ server via DCS GUI. See [1].

1.2 To start MAGIQ GUI

Start MAGIQ server via DCS GUI. See [1].

1.3 To check if MAGIQ is running

From kN-magiq-server, use ps or pgreg. See [2].

1.4 To check MAGIQ camera server and mech servers status

On kN-magiq-server as kNobs, enter:

```
magiq status CameraServer
```

The output should contain two rpcKey_server's and one cam_rpc_svc.

A sample output:

```
6271 rpcKey_server -s nrspcmgq -l rpc_service -l magiq_mtrctrl
6546 rpcKey_server -l mech_rpc_srv -r mech_rpc_srv -k nrspcmgq -s mechsrv -v 8
5321 cam_rpc_svc
```

Another way to show the status is through the MAGIQ status web page:

<http://www.keck.hawaii.edu/observing/magiq/index.php>

1.5 To restart MAGIQ camera server and mech servers

MAGIQ server starts the camera server and mech servers only if there is no camera server already running. To force a restart of the camera and mech servers use the "Restart" button. Only the cameras associated with the selected instruments are started.

The "Reconnect" button also tries to restart the camera server, but only if no camera server is running.

1.6 To check if Xguide is running.

On kNserver as kNobs:

```
ps -axlw | fgrep aut
```

This should show several processes with names like "cut_cam..." and autDcsI.

1.7 To start Xguide

Start Xguide via DCS GUI.



1.8 To stop Xguide

From Xguide Menu: File->Quit.

2 TROUBLE SHOOTING

2.1 You want Xguide and NO MAGIQ

- 1) Make sure MAGIQ is not running
- 2) If you are not sure, kill it again:
 - a. From DCSGUI stop MAGIQ server
- 3) Make sure MAGIQ is not running as another user on kN-magiq-server:
 - a. use `ps -axlw` or `pgrep -lf java`
 - b. and kill the process if necessary
- 4) Start or Restart Xguide

2.2 You want MAGIQ and NO Xguide

- 1) Quit Xguide if running, wait until all processes terminate.
- 2) Make sure there is no other instance of Xguide or aut-tasks:
 - a. use `ps` on kNserver
- 3) Restart MAGIQ server via DCSGUI
- 4) If MAGIQ GUI is running, wait until it reconnects, otherwise restart GUI.

2.3 You want both Xguide and MAGIQ

Follow the steps in the given order:

- 1) If Xguide is running
 - a. then restart Xguide
 - b. else start Xguide
- 2) Make sure Xguide is running at this point and NULL camera is selected.
- 3) If MAGIQ server is running:
 - a. then press reconnect
 - b. start MAGIQ server via DCS GUI
- 4) Make sure MAGIQ is running at this point.

2.3.1 You want to acquire/guide with Xguide and eavesdrop with MAGIQ

Follow the steps in the given order:

- 1) Make sure MAGIQ is not controlling the same camera as Xguide. If necessary stop exposure from MAGIQ GUI.
- 2) Select "Eavesdrop" from MAGIQ GUI
- 3) Select desired camera from Xguide GUI and start exposure and display.
- 4) Verify that images are shown on Xguide display window.
- 5) Verify that images are shown on MAGIQ OA GUI and Observer GUI.
- 6) If no images coming, press "Reset".



2.3.2 You want to acquire/guide with MAGIQ

- 1) Select NULL camera from Xguide.
- 2) Select desired camera and start exposure from MAGIQ OA GUI.

3 GUIDER CAMERA PROBLEMS

The general approach to resolve guider camera problems is by resetting and restarting successive software layers. This approach works for legacy cameras as well as MAGIQ cameras. The steps are:

- 1) Reselect camera from GUI.
- 2) Reset camera from GUI.
- 3) Restart camera server.
- 4) Restart Xguide/MAGIQ.
- 5) If problem persists at this point, call support. Additional steps involve hardware.
- 6) Check cable, fiber, AAA.
- 7) Hardware reset camera.
- 8) Power cycle camera and camera controller.

3.1 NIRSPEC

The name of the MAGIQ camera for NIRSPEC is **nirspecm**. It is only available from MAGIQ GUI and Camera Diagnostic GUI. It is not available from Xguide.

3.1.1 MAGIQ Camera

3.1.1.1 Can't select nirspecm

- From MAGIQ GUI press **Reconnect**.
This will start (if not already running) the camera server and the mech servers.
- To force a restart press "Restart".
- Select the nirspecm and enter exposure time, binning and start exposure.
- If the problem persists, restart MAGIQ server then select nirspecm.
- If the problem persists, restart MAGIQ server via DCSGUI
- Verify that camera server and mech servers are running. See Section 1.4.
- If the problem persists, call support.

3.1.1.2 Not getting images

- Verify that camera server and mech servers are running. See Section 1.4.
- Verify that nirspecm is the selected camera.
- Verify that camera is exposing.
 - Press **Expose** button.
- If problem persists, restart MAGIQ camera server. See Section 1.5.
- If problem persists, call support.



3.1.1.3 Out of sync images

Images are updating but they look “scrambled” like a puzzle.

- Press **Init Cam HW**.
- Verify camera settings and start exposure.
- If problem persists, restart MAGIQ camera server. See Section 1.5.

3.1.1.4 Noisy images

Images show parallel strips and move from image to image.

- Use MAGIQ Camera Diagnostic GUI to verify that filter wheel motors, focus motor and the IQL motor are off.
Turn motors off if necessary.
- Restart MAGIQ camera server. See 1.5.
- If problem persists, Press **Reset Galil** from MAGIQ GUI.
Wait 20sec.
Press **Reconnect** from MAGIQ GUI.
- If problem persists, call support.

3.1.1.5 SCAM images and MAGIQ camera images are displayed

SCAM exposure was not stopped.

- Stop exposure of selected camera.
- Select SCAM and stop exposure.
- Select MAGIQ camera **nirspecm** and start exposure.

3.1.1.6 Display shows guide box and the rest is black

- Verify that guide frames and full frames are updating.
- Verify that full frame update rate corresponds to the given period.
- Check and adjust contrast and brightness.
- Check and adjust zooming.
- If problem persists, then reset display to default.

3.1.1.7 No details/bad contrast

MAGIQ camera pixel values are 14bits long. The pixel values range from 0 to 16384.

- Verify with the mouse over the image that the pixel values are within the range of 0 and 16384.
- Reduce or increase exposure time within the range of 0.3s to 4.5s.
- Change neutral density filters and re-adjust exposure time if necessary.

3.1.2 SCAM

SCAM is still available for Xguide via the legacy camera server.



3.1.2.1 No images

SCAM is selected and exposing, but images are not being updated.

- Verify that observers are not using SCAM.
- Use NIRSPEC eavesdrop GUI to set SCAM for IR Guiding.
- Press Reconnect.
- Reselect SCAM and verify camera settings.

3.1.3 Mechanisms

The mechanisms of the MAGIQ camera are:

- IQL (image quality lense)
- ND and photometric filter wheels
- focusing mechanism

3.1.3.1 IQL doesn't move

If IQL doesn't move, then no IQ images are being displayed or only IQ images are displayed.

- If no images are being updated, then restart MAGIQ camera server. See 1.5.
- From MAGIQ Camera Diagnostic GUI verify that IQL motor can be turned on and off. If it cannot, verify power and call hardware support.
- From MAGIQ GUI, command the IQL to move out of beam. If IQL doesn't move, press **Reconnect**.
- If problem persists, restart MAGIQ camera server. See 1.5.
- If problem persists, press **Reset Galil**, wait 20sec, then try to move again.
- If problem persists, call support.

3.1.3.2 Filter wheel doesn't move

Images are vignettted by the filter wheel or filter wheel does not move on demand.

- From MAGIQ Camera Diagnostic GUI verify that the offending filter wheel motor can be turned on and off. If it cannot, verify power and call hardware support.
- Restart MAGIQ camera server. See 1.5.
- If problem persists, press **Reset Galil**, wait 20sec, then try to move again.
- If problem persists, call support.

3.1.3.3 Focus doesn't change

Focus doesn't change on demand or after new photometric filter is in beam.

- Verify that destination focus position is within limits. Correct current position if necessary.
- From MAGIQ Camera Diagnostic GUI verify that the focus motor can be turned on and off. If it cannot, verify power and call hardware support.



- Restart MAGIQ camera server. See 1.5.
- If problem persists, press **Reset Galil**, wait 20sec, then try to move again.
- If problem persists, call support.

3.1.4 PXL annular guider camera

The PXL annular guider camera is not longer available from Xguide.

3.2 LRIS

GPIB camera. See [6].

3.3 HIRES

GPIB camera. See [6].

3.4 DEIMOS

PXL camera. See [7].

3.5 ESI

PXL camera. See [7].

3.6 AO

PXL camera. See [7].

3.7 SSC

GPIB camera. See [6].

4 REFERENCES

- [1] <http://www/TWiki/pub/Projects/MagiqHowTos/StartingandStoppingMAGIQ.doc>
- [2] <http://www/TWiki/pub/Projects/MagiqHowTos/CheckingMAGIQStatus.doc>.
- [3] <http://www/TWiki/pub/Projects/MagiqHowTos/MAGIQCameraCheckout.doc>
- [4] <http://www/TWiki/pub/Projects/MagiqHowTos/MAGIQCameraDiagnosticsUserGuide.doc>
- [5] <http://www.keck.hawaii.edu/software/guider/problems/>
- [6] http://www.keck.hawaii.edu:8080/electron2/subsystems/Guiders/Troubleshooting/Guider_not_responding.htm
- [7] http://www.keck.hawaii.edu:8080/electron2/subsystems/Guiders/s200/s200_maint.html