| | Lightning Shutdown & Startup / Jun 19, 2025 / P Gabor | < X |
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| General Remark | This document is a draft, reflecting the state of the facility at the time of writing. Best practice is to print the latest version of this checklist, and go through the procedure with the printed copy in hand. | |
| | The term "Lightning Shutdown" as used on Mt Graham, refers to a complete facility shutdown, designed to award the scientific equipment as much protection as practical when facing the risk of a lightning storm. The "dirty" building power stays on, as does the wifi, etc. Typically, it is characterized by isolating sensitive and hard-to-replace equipment by physically disconnecting electrical conductors. | |
| | A "warm shutdown" can be seen as a subset of the full, "lightning" shutdown. It involves turning equipment off rather than physically disconnecting its electrical connections. | |
| General rule 0 | Call Gary Gray, Chris Johnson, Michael Franz or other members of the A-team <u>ahead of time</u> if it is not clear how to proceed! | |
| General rule 1 | Always make sure you will know how to reconnect any cables you disconnect! | |
| | 😎 Observatory is in "warm" shutdown. 😊 | |
| Prerequisite | Assumes Don's Automated Shutdown complete ⑦ (see Don's User Manual) ⑦ | |
| | Advice Secondary and Guidebox: Turn off AutoCollimate (this ensures that the latest values of TipX, TipY and Focus are written to a file and restored once the shutdown is over), and move the Top and Bottom filter wheels in the left-most positions (less confusing when charging the filters). You may also want to close browsers so that you can return to your windows/tabs. | |
| | Advice 😎 None of the other software needs to be turned off (including INDI server, camera, etc.) | |
| Control room | TomPack Viewer in Remote; double check that everything is off/inactive/disabled including the Main Don Power (red background in the status boxes), with the exception of the Oil System Temperature Regulation which may remain ON, and the Stow Pin which should remain Unlocked. | |
| Control room | TomPack Viewer > Service > General > Power Supply: turn off the Main Control Cabinet (the Dome Control Cabinet and the Altitude Control Cabinet will be turned off automatically as a consequence). | |
| Control room | TomPack Viewer > Service > General > Power Supply: turn off the Main PLC (turns off the switch; the previous action item has turned the power off already; see Don's User Manual). | |
| Control room | Pick one of the three new HP Thin Client X-terms. Status Advice Pick the one running the remote desktop on ProjectSoft PC 1. Then use CTRL-ALT-END to minimize the remote desktop and show the HP Thin Client's own "surfer" desktop. On the X-term's own desktop, open a terminal. In the terminal type either ./haltvatt and hit ENTER. The shutdown script will run, and it will power down every computer, including all three HP Thin Client Xterms. | |
| Server (Instrument) room | Open the computer rack. Check that the servers are off by inspecting their power indicators (they ought to be amber). | |

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| Server (Instrument) room | Press and hold the power button on each of the HP UPSs (bottom of rack, under the vattdata server), until you hear the power go off (~5 sec). | |
| Server (Instrument) room | Close the computer rack. (The doors are electrically bonded to the frames, and a closed rack provides more protection for people and for the computers.) | |
| 10kVA UPS room | Press the Power button (top right) until a pop-up screen appears, titled Option with three bullet points: Turn to bypass, Turn off output and Turn off UPS; select the latter using the arrow keys (bottom center) and press Enter (bottom right) | |
| 10kVA UPS room | Another pop-up screen appears, this time asking for confirmation. Confirm by selecting Yes (moving the cursor right) and press Enter (bottom right). | |
| 10kVA UPS room | Another pop-up screen appears, titled Notify, advising to Open input breaker to turn off UPS. | |
| 10kVA UPS room | Go to Panel C, and open (switch off) the two bound-together circuit breakers marked 10 kVA UPS (top left). | |
| 10kVA UPS room | The UPS continues beeping, showing a new pop-up screen, titled Notify, advising that Shutdown in progress. The shutdown concludes in a couple of minutes: the screen goes dark and the beeping stops. | |
| Lvl 1, Telecom room | Go to Panel A, and open (switch off) the three bound-together 100 A circuit breakers marked Panel C (bottom right) in red. | |
| STARTUP | | |
| Lvl 1, Telecom room | Go to Panel A, and close (turn on) the three bound-together 100 A circuit breakers marked Panel C (bottom right) in red. | |
| 10kVA UPS room | Go to Panel C, and close (turn on) the two bound-together circuit breakers marked 10 kVA UPS (top left). | |
| 10kVA UPS room | The UPS starts making noises, showing a pop-up screen, titled Confirm, advising that "New alarm present", and asking, "Show log?" Select No using the left arrow and Enter. | |
| 10kVA UPS room | While the UPS continues to beep, press the Power button (top right) until a pop-up screen appears, titled Confirm, asking, "Turn on UPS?" Select Yes using the right arrow and Enter. The UPS will stop beeping and more subtle noises (clicking) will accompany the startup process. | |
| Server (Instrument) room | Open the computer rack. Press and hold the power button on each of the HP UPSs (bottom of rack, under the vattdata server), until you hear the power go start (~5 sec). | |
| Server (Instrument) room | Turn on the HP servers by pushing their power indicators (they ought to be amber; push them for no longer than 1 sec; they ought to turn green). Other servers have different activation buttons. The two ProjectSoft PC servers have diamond-shaped buttons with a dim white LED. Monitor the process on the KVM as needed. | |
| Control room | Don's main control panel by the door leading to the elevator etc. Check that the turn switch is in the Remote position (at this point, no lights are lit on the control panel). | |
| Control room | Turn on one of the HP Thin Clients. Check that the screen refresh rate is 30Hz (see What's New at VATT > AOC 4k monitors and the HP Thin Client xterminals). Start a remote desktop session on ProjectSoft PC 1 (user PC-VATT-1) (launcher on desktop). | |

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| Control room | The TomPack Viewer application ought to be running (autostart at Windows boot). If not, use the launcher on the desktop. | |
| Control room | Log in to the TomPack Viewer application using the pictogram of two silhouettes (top right). Select your username (vattobs) from the pulldown menu, and type the customary password. | |
| Control room | Tom Pack > Service > General > Power Supply turn on the Main Control Cabinet (MCC) followed by the Main PLC (the other two, Altitude and Dome cabinets, start automatically later when the Main 'Don' Power is switched on; if you need them on without turning on the Main 'Don' Power, feel free to do so after turning on the MCC and Main PLC). The main control panel by the door: The blue light marked Remote comes on. | |
| Control room | It is possible that Don will display the following alarm: GENE AL 2, emergency stop (emergency stop is active) When this happens take the following action: | |
| Silo, level 2 | On the Master Control Cabinet's left door, there is a button marked Reset ESTOP2. If it is flashing blue, press it. | |
| Note 1 😃 | Booting up vattdata is slow (approx. 10 mins). You can follow the process on its terminal: On the KVM (keyboard-video-mouse) console (Tips on how to use the unit.), highlight the entry labeled vattdata using the up/down arrow keys, and press Enter. When the RISC drives are mounted and the system is fully booted, the text stops scrolling on the screen and an ASCII list of 12 options appears. This indicates that all is well and no further action is required. | |
| Note 2 😃 | vattdata is no longer a prerequisite for the boot-up of other servers. | |
| Note 3 😃 | Booting up the servers in the computer racks in the Instrument Room. Slide out the KVM (keyboard-video-mouse) console. (Tips on how to use the unit.) Proceed to the other servers and power them all up. You may monitor the progress of this operation using the KVM. If you are still connected to vattdata, hit prn sc and then Alt+D to disconnect from the vattdata text interface. Green or red status indicators appear in the KVM's list of computers. Now you may also connect the KVM to the servers listed (scroll and Enter). | |
| Note 4 😃 | The GPS unit can take up to 10 minutes to startup fully (two blue lights: Ready and Power). It used to be critical because when VATTtel was booting, it needed the GPS unit to be ready. Don has its own GPS unit. Our old GPS unit feeds only our NTP server. | |
| Note 5 😃 | Coming out of lightning shutdown the guide box is likely to run into communication problems. The remedy is to run the INDImon script (its launcher on VATTcontrol's desktop is labeled Restart indidriver), selecting option (3) Filter/Guidebox driver. See What's New at VATT for more details. | |

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