

Software Levels

In international mode, the station has 4 software levels, but only 3 of which are used extensively. Levels are applied consecutively, so entering software level 3 will turn on any services that are normally turned on by software level 1 and 2.

Software level is described and configured with the `swlevel` command. The two main forms of the command you will use are `swlevel <level>` and `swlevel -S`. Examples of this command are given below.

```
user1@lcu$ # Get the current software level
user1@lcu$ swlevel -S
0
user1@lcu$ # Go to software level 2 for all-sky imaging or antenna statistics collection
user1@lcu$ swlevel 2
<start-up messages>
user1@lcu$ # Go to software level 3 for beamformed observations
user1@lcu$ swlevel 3
<start-up messages>
```

In some cases, there may be an error during startup, or a service may crash during an observation. If a critical service has been effected, the station will change the software level to be in an invalid state, normally represented by your intended software level multiplied by -1. So if you were in software level 3 and an error occurred, the `swlevel -S` command will describe the station as being in level -3. To resolve this issue, you can either go to level 0 and back to your target level, or attempt to re-initialise the target level. Often, going to level 0 and back is the safest option and will resolve more issues, though at the cost of time.

At I-LOFAR, a cycle from level 0 to level 3 typically takes between 2 and 3 minutes. Consider this delay when planning your observations.

Software Level 0 (Off)

Software level 0 is the default mode the station is in after handover, and should be returned to before hand-over. In this state, all of the RSP, beamforming and calibration services are stopped and the station is inactive. Between observations the station is sometimes returned to software level 0 to ensure there are no rogue beams, statistic collectors, etc, still running from a previous observation so that the station can be brought up in a fresh state for the next observer.

Software Level 1 (Station Monitoring)

Software level 1 initialises some low-level daemons and the station monitoring and control software. Observations cannot be performed in this mode.

Software Level 2 (Hardware Initialised)

Software level 2 loads images onto the RSPs, enables the RCUs and performs some other low-level operations to prepare the station. While correlation statistic observations should be taken in this mode (XST, ACC), no beamformed observations can be performed in this mode.

Software Level 3 (Software Initialised)

Software level 3 starts the beamforming and calibration services. This is the default mode the station should be in while performing any beamformed observations (any non-XST/ACC observations, though attempting to take these will generate output files, but the correlations may be applied to post-beamforming delayed voltages).

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