

e-RemotCtrl software

In times of e-VLBI, live monitoring of system states or system health and a dedicated control access by session schedulers can increase the efficiency of observations.

At the [GeodeticObservatory Wettzell](#) a software extension to the existing [NASA Field System](#) has been developed for remote control of telescope observations in cooperation with the Max-Planck-Institute for Radio Astronomy in Bonn. It uses the principle of a remotely accessible, autonomous process cell as server extension to the Field System. The communication is realized also for low transfer rates on the basis of Remote Procedure Calls (RPC) and uses generative programming with the interface software generator *idl2rpc.pl* developed at Wettzell. The user interacts with this system over a modern graphical user interface realized with wxWidgets. For security reasons the communication is automatically tunnelled through a Secure Shell (SSH) session to the telescope. The software is successfully tested in observations with the telescopes at [O'Higgins/Antarctica, Concepción/Chile](#), and [Wettzell/Germany](#). While it is already regularly used at Wettzell, also other institutions (e.g. at [Hobart/Tasmanie](#) or [NyAlesund/Norway](#)) are interested in or already use it for their telescope operations. Future developments for safe and secure authentication and user role management procedures are realized within the European FP7 project [NEXPREs](#).

Because of the remote locations especially in case of the telescope in the Antarctica a first concept was developed, to control sites remotely on the basis of the current equipment, which is controlled by the [NASA Field System](#) (FS) software package. Therefore Wettzell is developing a software extension for remote control to the existing FS in direct cooperation with the [Max-Planck-Institute for Radio Astronomy \(Bonn/Germany\)](#) and the FS designers at Goddard to offer new technical observation strategies. To give an impression, the Graphical User Interface (GUI) for remote controlling radio telescopes is depicted in figures 1.1 to 1.5.

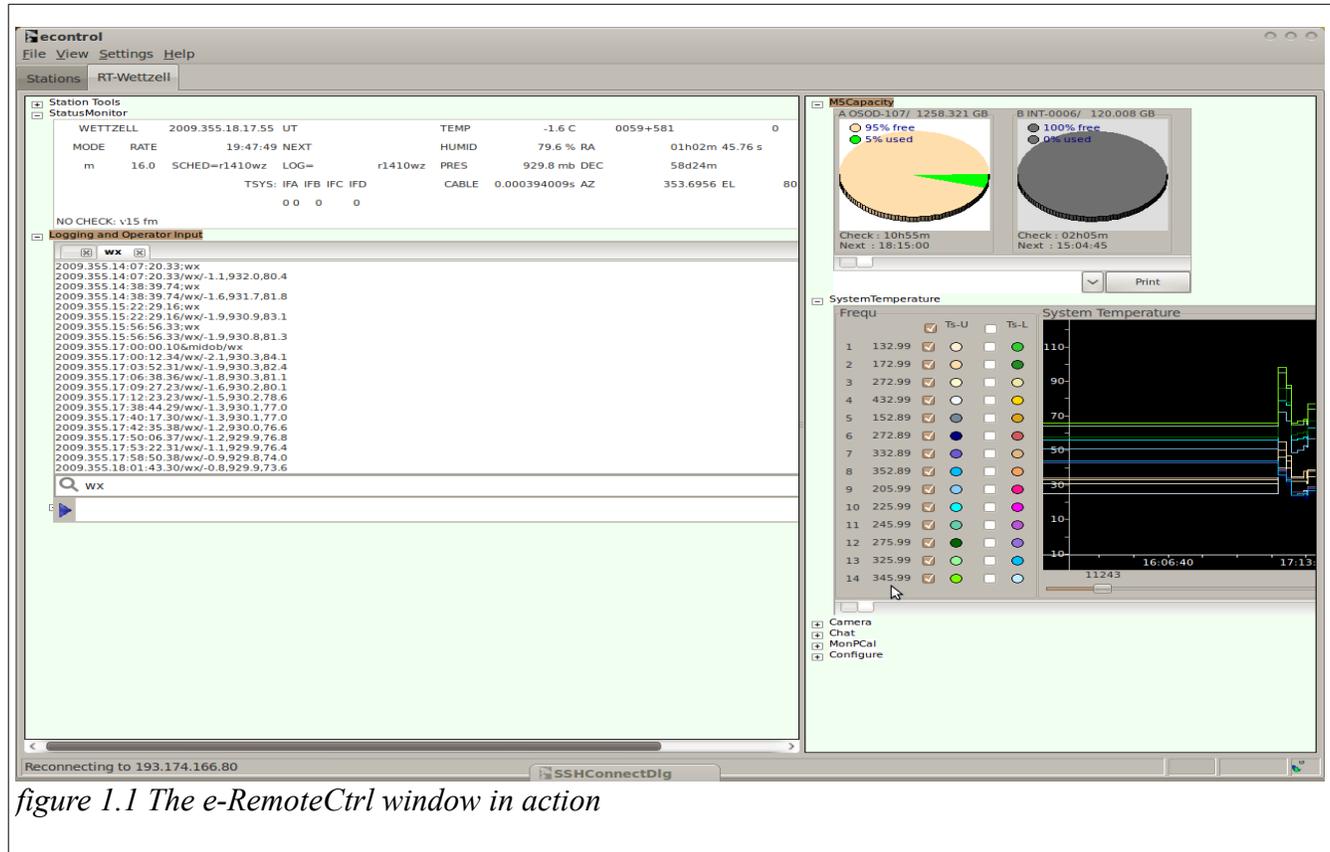


figure 1.1 The e-RemoteCtrl window in action

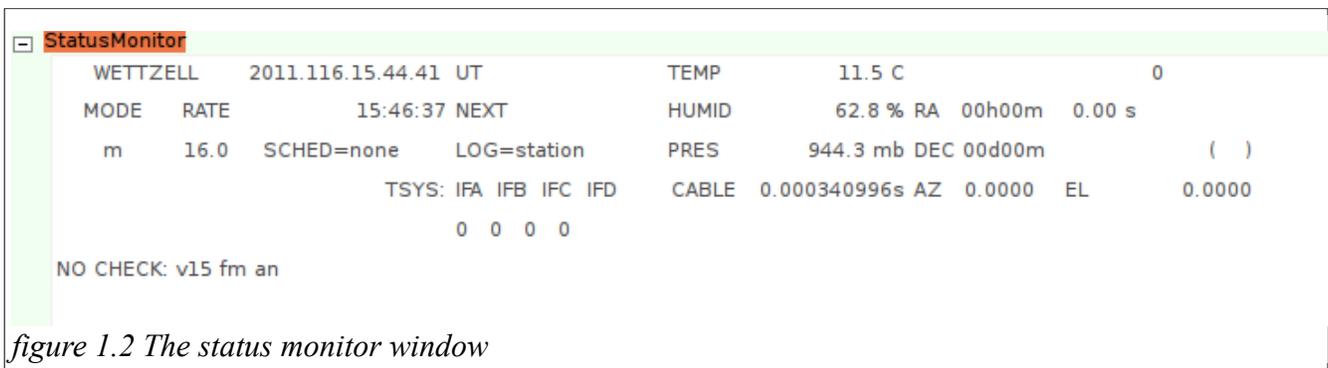


figure 1.2 The status monitor window

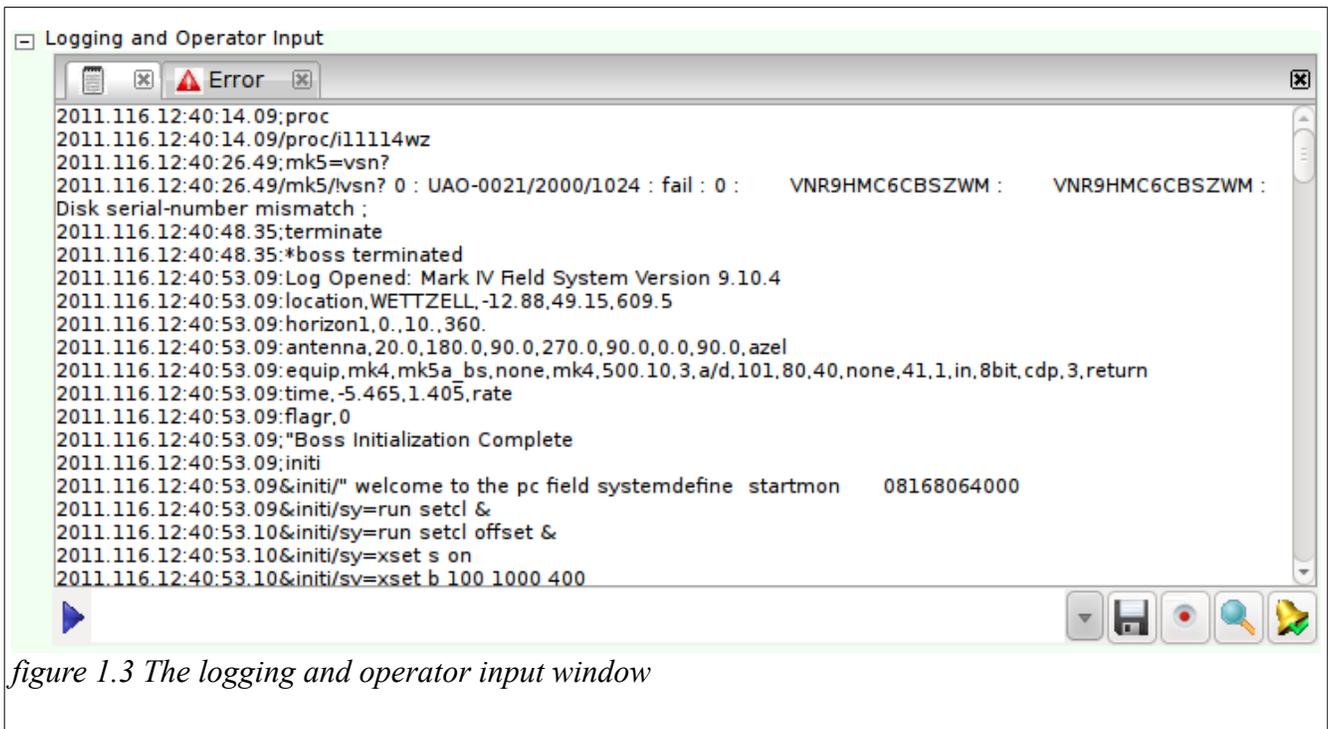


figure 1.3 The logging and operator input window

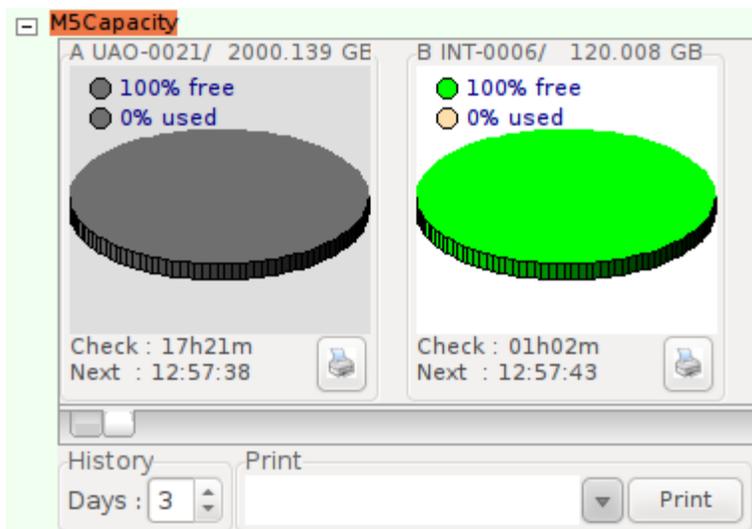


figure 1.4a Mark 4 capacity window (new)

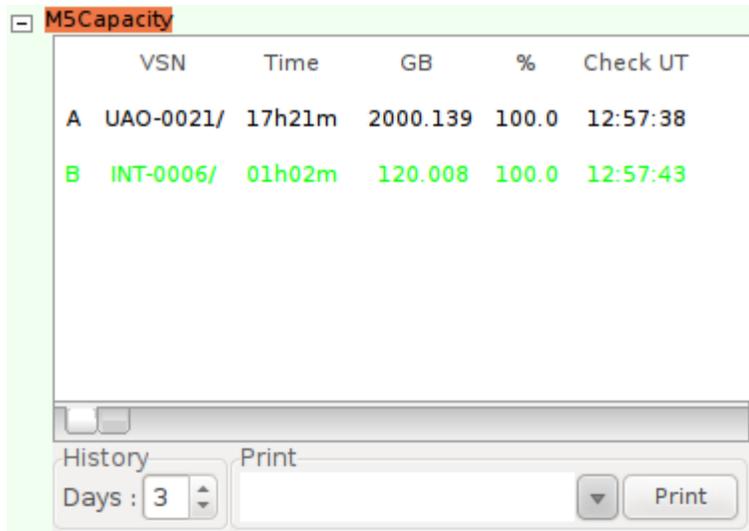


figure 1.4b The Mark 4 capacity window (classic)

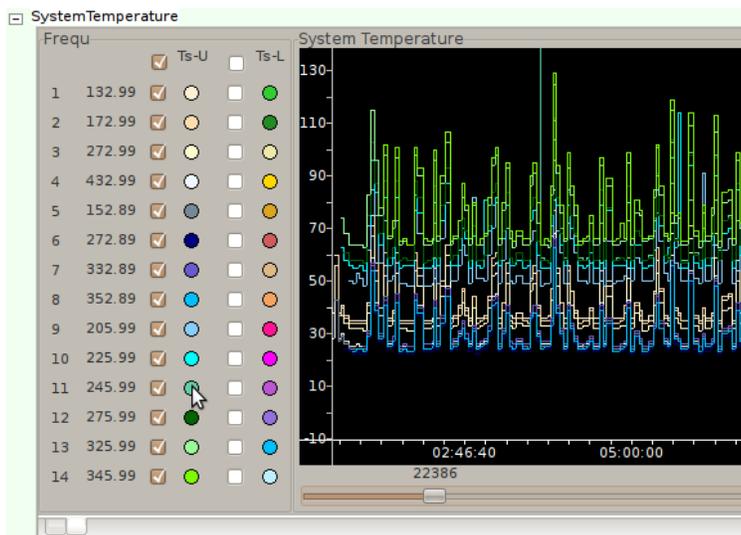


figure 1.5a The system temperature window (new)

SystemTemperature			
Tsys	35.6721 (IF1)	77.5856 (IF2)	
	28.265 (IF3)	0 (VC)	
	Freq	Ts-U	Ts-L
1	132.99	40.4033	0
2	172.99	40.5536	0
3	272.99	36.7627	0
4	432.99	30.6402	0
5	152.89	29.6597	0
6	272.89	27.2098	0
7	332.89	30.5121	0
8	352.89	28.7326	0
9	205.99	59.6541	0
10	225.99	66.4643	0
11	245.99	71.4272	0
12	275.99	71.2699	0
13	325.99	78.2127	0

figure 1.5b The system temperature window (classic)

In order to get more information and download the software, manuals and information, please go to our homepage: <http://econtrolsw.wetzell.de>

The screenshot shows the homepage of the e-RemoteCtrl/VLBI project. At the top, there are logos for TUM (Technische Universität München) and FESG (Forschungseinrichtung Satellitengeodäsie). Below the logos is a navigation bar with tabs for Home, VLBI, SLR, SysMon, and Tools. The main content area is titled "e-RemoteCtrl/VLBI Downloads" and contains several sections:

- Regular require method:** A paragraph explaining that the regular method involves installing the NASA Field System, which will be part of future releases proposed for summer 2011.
- Download of the server part:** A section with "Requirements" (Operating System Linux, NASA Field System, ONC/Sun RPC, ONC/Sun RPC Portmapper, and wxWidgets) and a "Quick installation guide" with a list of terminal commands.
- Download stable releases:** Labeled as "n.a."
- Download latest version:** A link to "Download .tar.gz-archive" with a size of 2.1M and a date of 2011-05-01 00:00.

On the left side of the page, there is a sidebar with links for Introduction, Downloads, Manuals & Testreports, Developers & Cooperations, References & publications, Licenses, and Email exploder.

figure 1.6 The e-RemoteCtrl homepage (download area)