

# Information on the Multi-wavelength Data Analysis System

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## 1. Introduction

The Astronomy Data Center, National Astronomical Observatory of Japan (ADC / NAOJ) renewed the Multi-wavelength Data Analysis System (MDAS) and started its operation in July 2024. This document introduces the system and briefly describes how to use it. For more information about the system, please see the online user's guide.

MDAS Web: <https://www.adc.nao.ac.jp/MDAS/>

## 2. Login

### A) Access from inside NAOJ

When you log in to an analysis server of the MDAS from inside the NAOJ, you use "ssh" command on your own computer (PC) connected to the NAOJ network (KTnet).

e.g. To access `mana05.ana.nao.ac.jp`

```
$ ssh [-X] YOURID@mana[00-07].ana.nao.ac.jp
```

"YOURID" is your account name.

-X is an option to enable X11 forwarding.

e.g. `<account name>@mana05.ana.nao.ac.jp`

"mana05.ana.nao.ac.jp" shown in the example is the host name of one of the eight analysis servers. See the following section for the system configuration.

### B) Access from outside NAOJ

When you access the system from outside the NAOJ network (KTnet), you need to use a VPN (Virtual Private Network) service. After connecting to the VPN server with a VPN client software, log in to an analysis server with SSH. If you need the VPN service for MDAS, apply for the service after confirming the following notes.

- (1) Our VPN service is provided for users who belong to an institution other than NAOJ and already have an MDAS user account.

(\*) NAOJ staffs should use another VPN service provided by the network support group in NAOJ. See the following URL.  
<https://nethelp.mtk.nao.ac.jp/contents/en/node/4>

- (2) You can log in to the MDAS servers by using our VPN service (MDAS VPN), although you cannot access other computers inside the NAOJ network with this

VPN.

- (3) VPN use registration is required to use the VPN service. If you need the MDAS VPN service, please apply for it from the MDAS Web page.

### 3. How to change password, e-mail address, and login shell

Your password and registered e-mail address, which have been set when account application, and type of login shell (default is bash) can be changed on an analysis server using a dedicated command for the system, “*modify\_userinfo*”.

Passwords must follow the following rules.

Password Policy:

The password shall be a combination of 2 types or more of English lowercase letters, uppercase letters, numbers, and symbols, and it must be of the length of 12 characters or more.

Users who have forgotten their current password must contact the administrator.

You can see your current information (e-mail address and login shell) with “*userinfo*” command.

**Command usage:** `modify_userinfo [-hpmsv] [argument]`

This command changes login shell, registered e-mail address, and password.

Options are as follows.

(-p, -m, and -s can be used simultaneously)

-h print help message and exit.

-p change password.

-m <E-mail address> change registered e-mail address.

-s <login shell> change login shell. Available shells are as follows.

/bin/bash            /bin/tcsh

/bin/sh              /bin/csh

/bin/ksh             /bin/zsh

e.g. To change e-mail address and login shell

```
$ modify_userinfo -m mail@address -s /bin/tcsh
```

## 4. System configuration (Hardware)

The system configuration of the hardware is as follows.

### A) Interactive Analysis Servers

The interactive analysis servers consist of eight nodes that use Rocky Linux 8 as the OS, which is compatible with Red Hat Enterprise Linux 8.

#### 1. Host name (FQDN) and Specifications

##### (1) Computing nodes (Analysis Servers)

Host name : mana[00-07].ana.nao.ac.jp

Specification:

OS : Rocky Linux 8

CPU : AMD EPYC 7543 (32cores / 2.8GHZ/MAX3.7GHz) ×2

Memory : 1024GB (DDR4/3200Mhz ECC Registered 64GB ×16)

† The current usage of each analysis server (CPU usage, number of logged-in users, etc.) can be checked on the MDAS Web. You might want to use a server that is not busy.

Note: We may warn users who occupy many resources (CPU core, memory, disk etc.). Please be careful not to occupy them. Guidelines for maximum resources available to a single user is found on the MDAS web.

#### 2. Disk configurations (user's area)

<b>/home</b>	55TB	User home area (NFS mount)
<b>/lwk</b>	4329TB	Large volume work area (Lustre file system)
<b>/ext_nfs[1,2]</b>	393TB	Extended disk area (NFS mount)
<b>/ext_nfs3</b>	306TB	Extended disk area (NFS mount)

/home, /lwk, /ext\_nfs[1-3] are mounted on all analysis servers. They are accessible from all servers.

Every user's home directory is created in / home area.

The following quotas (usage limits per user) are set for each disk space.

The data retention period is currently under consideration. If a retention period is set, note that old files which have not been manipulated beyond the retention period will be targets for periodic deletion. The status change of the file is determined by the time stamp "ctime". When the status is changed, the elapsed time is counted from the time of the last change.

## Quotas and retention periods for disk space

	Mount name	quota	Retention period
Home area	/home	150GB	up to account deletion
Large volume work area	/lwk	30TB	under consideration
Extended disk area	/ext_nfs[1,2]	10TB	under consideration
Extended disk area	/ext_nfs3	10TB	under consideration

## B) Equipment in Open-Use Computer Rooms

There are some terminal computers, PCs, displays and printers in the open-use computer rooms (South bldg. 2F, Subaru bldg. 1F, and ALMA bldg. 1F) in Mitaka campus.

### **Terminal computers:**

There are terminal computers at the desks in the open-use rooms, which can be used to access the MDAS and Internet. The terminals in the South building are available for anyone to use. The terminals in the Subaru building and the ALMA building are dedicated terminals that require logging in with your MDAS account.

Remote login to these terminal computers and access to the inside of the NAOJ network other than the MDAS from them are not allowed.

The displays connected to the terminal computers can also be used as external monitors by connecting them to a PC brought in by users.

### **Network printers:**

Network printers compatible with A4 size paper are installed in all open-use computer rooms. These printers can also be used from terminal computers and PCs in the open-use rooms.

### **Large format printers:**

Large format printers that support A0+ and B0+ size are available in the open-use computer room in the South building. You can use them for poster printing, etc. Printing is possible from open-use PCs (Windows, Mac) in the room.

## 5. Software

You can use various software for astronomical data analysis and scientific calculations on the system. List of the installed software can be seen on the user's guide.

## 6. Changing user registration information

When your registration information such as affiliation, address, or phone number changes, please inform the ADC of the changes. You can submit your changes via an application form on the MDAS Web.

As for the change of E-mail address among the registration information, we ask you to change it yourself on an analysis server. To change your E-mail address registered in the system (which is included in "allusers" mailing list), you need to use the "*modify\_userinfo -m*" command after login to the system (see section 3).

Please keep your registered E-mail address up to date. It is very important because we use the address to inform you of essential information about the system.

## 7. Annual account update

All user accounts expire at the year-end of every fiscal year. An update application is necessary for continuous use. Information on the account update procedure will be announced by E-mail to your registered address every year.

If you do not submit the account update application by the deadline, your account will be locked and deleted.

## 8. Inquiries about the system

Details of the system and questions and answers about the system are described in the user's guide and FAQ web page. Please visit the following pages.

User's guide: [https://www.adc.nao.ac.jp/MDAS/ug/mdas-ug\\_e/](https://www.adc.nao.ac.jp/MDAS/ug/mdas-ug_e/)

FAQ: <https://www.adc.nao.ac.jp/cgi-bin/cfw/wiki.cgi/FAQ/FAQE>

If you have any questions, please contact us.

E-mail: [consult@ana.nao.ac.jp](mailto:consult@ana.nao.ac.jp)