



Professional Edition
Manual

Version 3.04

2013/10/20

Table of Contents

I.	Install and Uninstall.....	3
1.	System Requirements.....	3
2.	Installation.....	3
3.	Uninstallation.....	4
II.	Software Registration	6
III.	Setting machines to be connected.....	10
2.	Modify the Machine.....	10
3.	Delete the Machine	11
IV.	Using the SkyMars.....	13
1.	Connect to Machines.....	13
2.	Data Monitoring (FANUC)	14
3.	NC Uploading/Downloading.....	15
4.	Alarm History (FANUC).....	16
5.	Servo Spindle Load Monitoring	17
6.	Parameters (FANUC).....	18
(1)	Tool Offset	18
(2)	Workpiece Coordinates.....	18
(3)	Macro Variable	19
7.	Maintenance Management	20
8.	Tool Management	21
9.	Program downloading from machine tool.....	22
10.	Overall Machine Tool Utilization Rate Service.....	26
V.	Troubleshooting and Repair	31
1.	Delete Windows registry keys	31

I. Install and Uninstall

1. System Requirements

Controller model : FANUC 0i-C / 0i-D / 16i / 18i / 21i / 31i

CPU : Intel Pentium 1.2 GHz or higher. / (or equivalent AMD processor)

- Please use dual-core and high GHz CPU when connecting more machines.

RAM : 512MB is recommended

Hard disc space : 500MB available

Internet connection : Network interface card required

OS : Windows XP / Vista / Windows 7 / Windows 8

- SkyMars supports Chinese Traditional, Chinese Simple, and English.

2. Installation

Please run Install_SkyMarsPro.exe which is in the SkyMars CD.



After executing “Install_SkyMarsPro.exe”, a DOS installation window will come up.

```
C:\WINDOWS\system32\cmd.exe
1. Check .NET Framework 3.5 SP1 programs (Installs the program to need 10-15 minutes), Please wait...
2. Install Visual Basic PowerPacks
3. Install MsChart
4. Install ReportViewer 2010
5. Install SkyMars...
```

Installation is going to check Microsoft .NET Framework 3.5. If it doesn't exist, Microsoft .NET Framework 3.5 will be installed automatically. It may take 10 minutes for installation. If Microsoft .NET Framework 3.5 has been installed, the setup of SkyMars will start to run automatically.



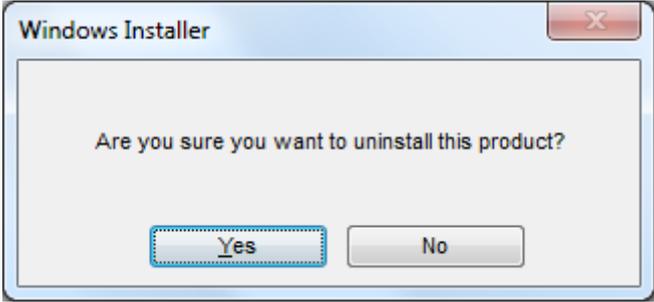
Please click [Next] until it is finished.

3. Uninstallation

Click[Start]-[Programs Menu]-[SkyMars CNC Monitor]-[Uninstall SkyMars Profession]

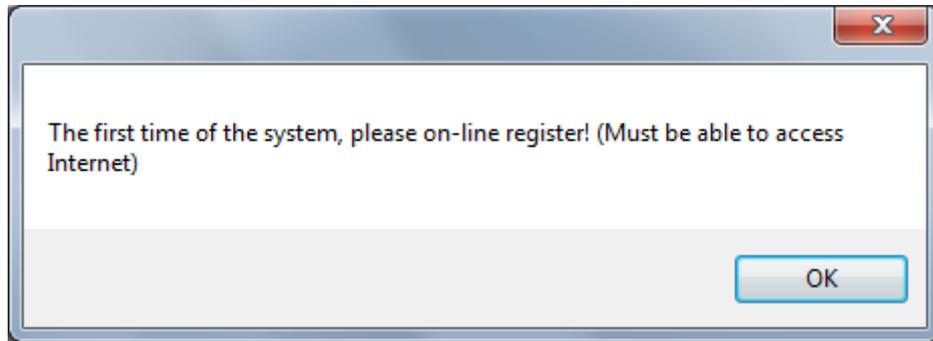


Click “Yes” to progress uninstallation.



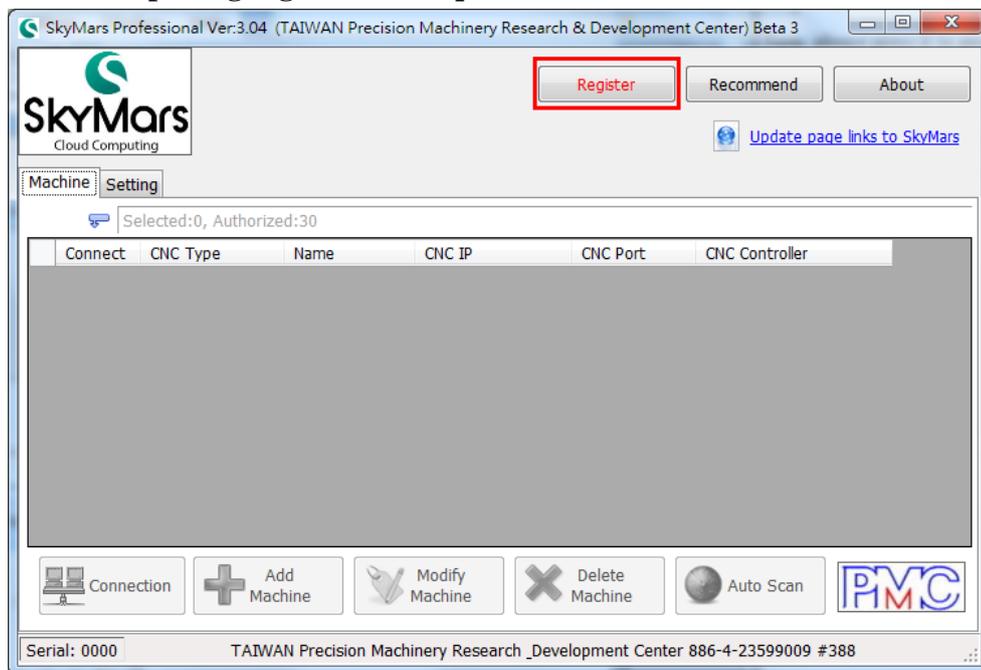
II. Software Registration

All applicants must first complete our registration before beginning SkyMars.

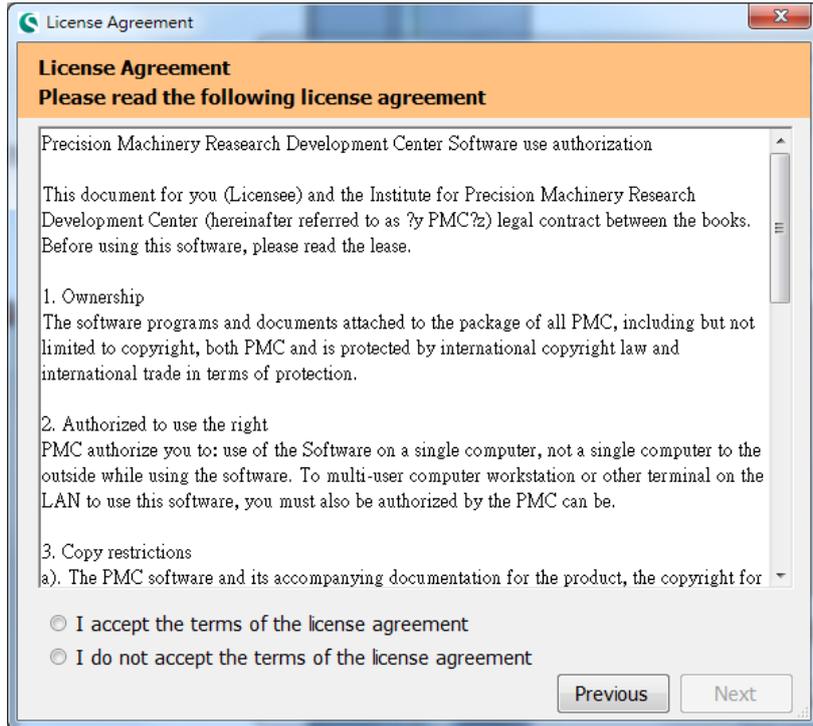


There is a button [Register] on the form, please press it to progress to registration.

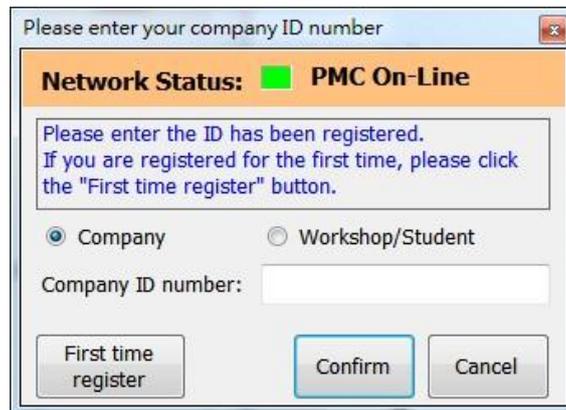
Notice: Completing registration requires an internet connection.



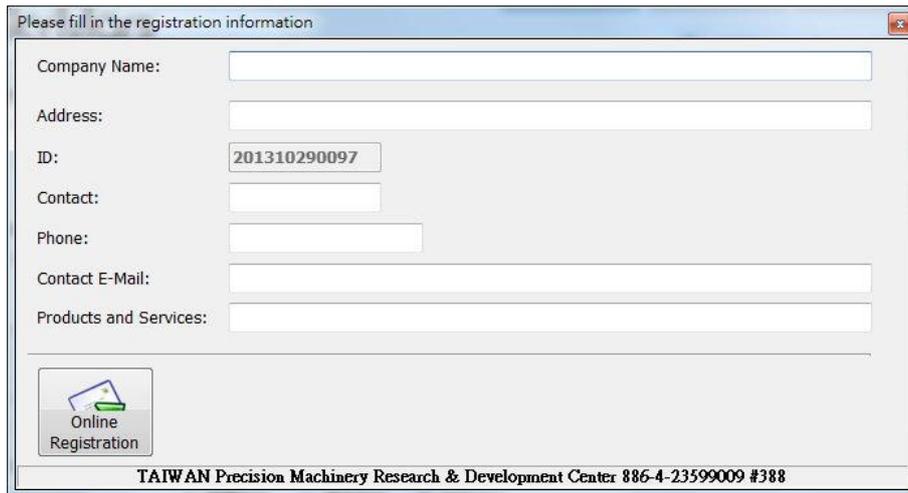
Read the terms of service, if you agree with it, please check [I accept the terms of service] and click [Next].



Next step, the application will scan the internet connection. If it is online which means it's ready to register, you will see a green light; otherwise, you will see a red light which means your internet might not be available. Please check your connection at that time. When you see the green light, choose your member type and enter your unified business number.



Please enter the information of your company, we will not disclose, sell or provide such information to other parties. After entering all information, please click [Online Registration], and then SkyMars will connect to PMC.



Please fill in the registration information

Company Name:

Address:

ID:

Contact:

Phone:

Contact E-Mail:

Products and Services:

 Online Registration

TAIWAN Precision Machinery Research & Development Center 886-4-23599009 #388

If data processing is correct, the sign-up window will come up. You have to create an account and password, and use it to apply for services. Please keep it properly. After entering all data, click [confirm] to finish the registration.



Create an account and password

Create an account and password (to increase the service function, use theAccount and password)

Account:

New Password:

New Password Again:

Notice :

If your company had been registered before, you will see the window below. Please enter the registered account and password. The registration will be finished without other information.



Username and Password confirmation

The company ID number already registered, please enter the registration Account and password.

Account:

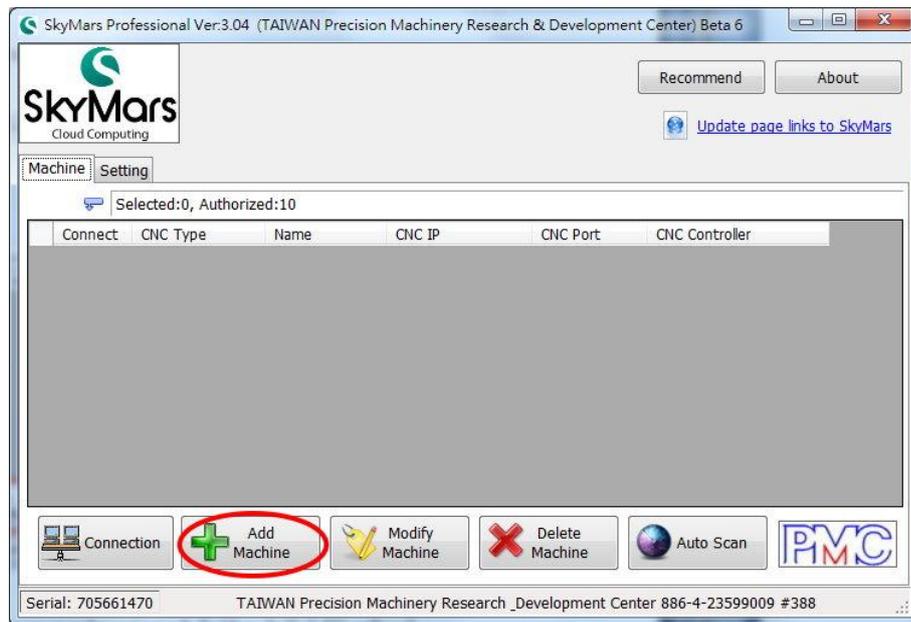
Password:

If you register multiple times up to 5 times, the registration will fail. Please contact PMC or send an e-mail to inform us.

E-mail:e9613@mail.pmc.org.tw

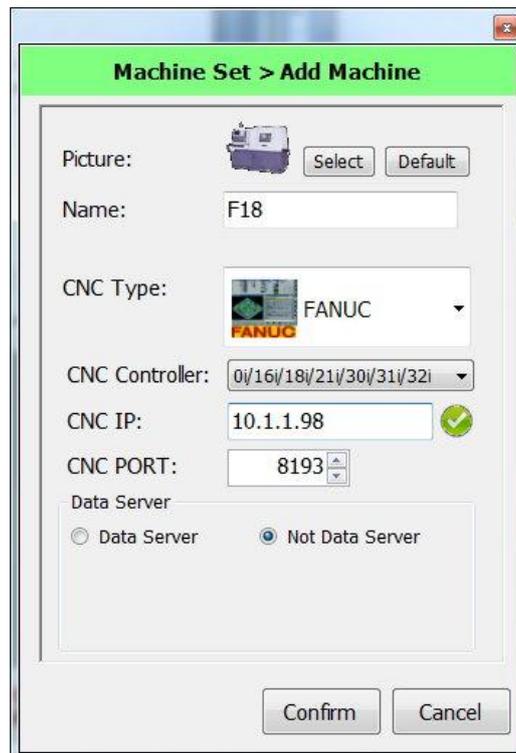
III. Setting machines to be connected

Click [Add Machine]



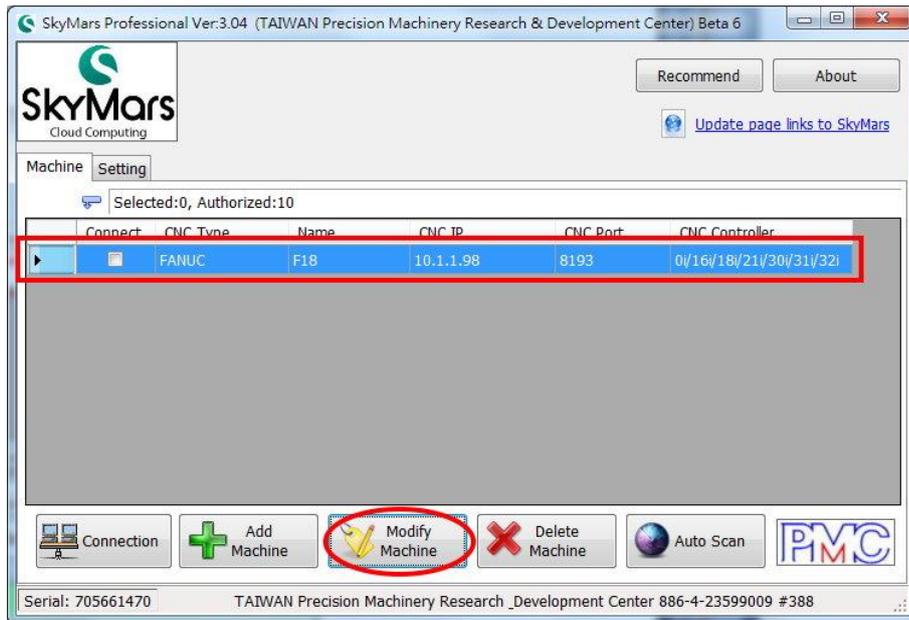
1. Add the Machine

Please enter data of your machine to each field and click [Confirm].

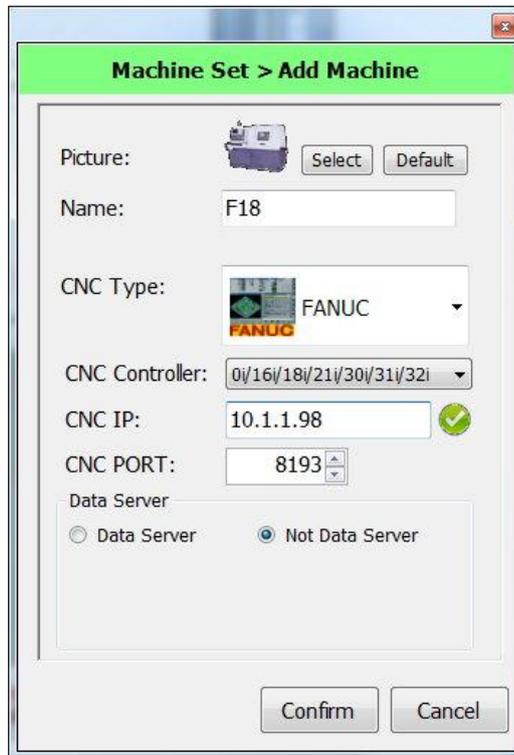


2. Modify the Machine

Select the machine you want to modify and click [Modify Machine].

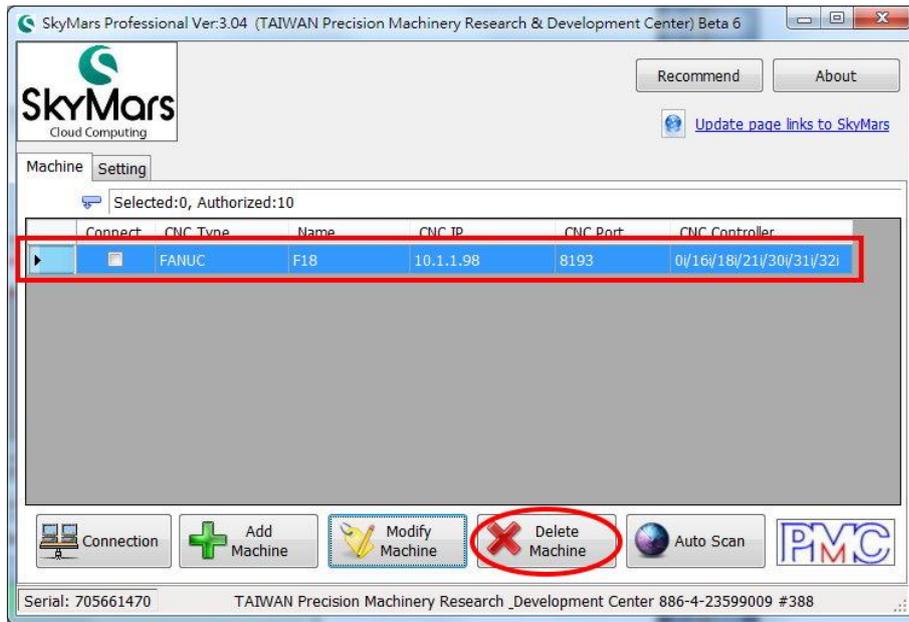


After, the data will be shown in each field, change it and click [Confirm].



3. Delete the Machine

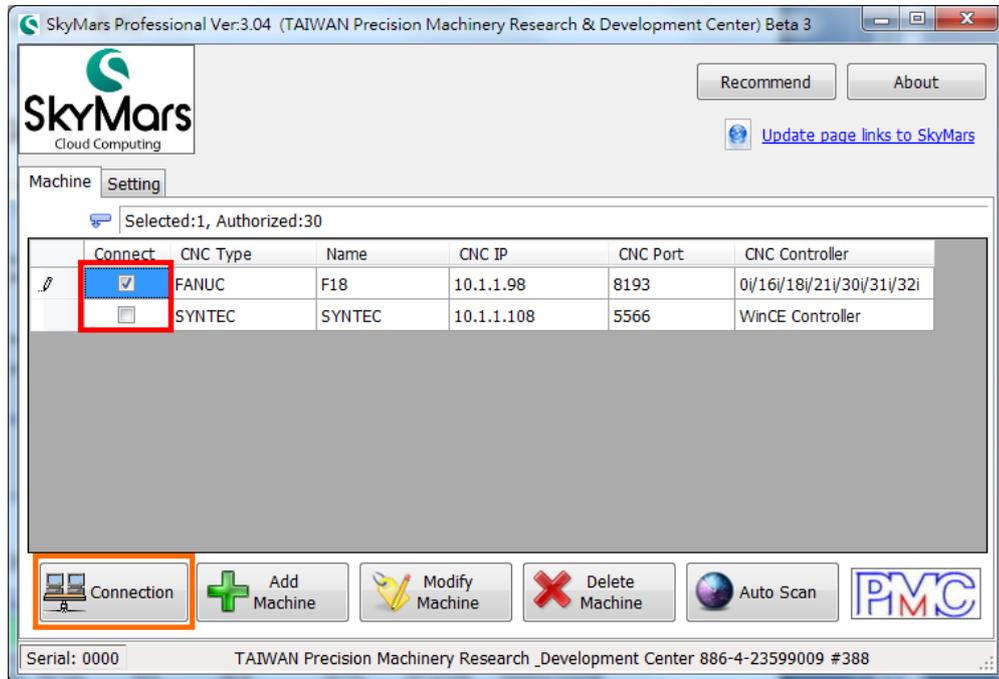
Select the machine you want to delete and click [Delete Machine].



IV. Using the SkyMars

1. Connect to Machines

Select machines you want SkyMars to connect, and click [Connection] to continue.



2. Data Monitoring (FANUC)

Data monitoring offers real-time data from connected machines, including CNC Status, Coordinates, NC Information, G-Code, Non-G-Code, Part Count, Time, Actual Feed Rate, and Actual Spindle Speed, etc. If Machine Utilization Rate Service is on, SkyMars will send data about CNC Status, Part Count, and Time to PMC Cloud.

SkyMars Professional Ver:3.04 (TAIWAN Precision Machinery Research & Development Center) Beta 3

SkyMars Cloud Computing

Server OFF-LINE

F18

00202 00202 000000 MEM START ****

F18

Absolute	Machine	Relative	Relative	DistanceToGo
X (mm)	117.650	X (mm)	379.684	
Y (mm)	0.000	Y (mm)	0.000	
Z (mm)	0.000	Z (mm)	0.000	

00202 BC:00151525

G01X500.
G04X3.
T2
N0G01Y100.
G04X3.
N0G01Z-200.F5000
N0M99

G01	G17	G90	G22	G94
G21	G40	G49	G80	G98
G50	G67	G97	G54	G64
G69	G15	G40.1	G25	G160
G13.1				

P Total: 4066 P Required: 12 P Count: 50

PowON Time: 16525H 15M
Cutting Time: 3830H 01M 39S
Cycle Time: 72H 08M 34S
Operation Time: 1967H 34M 21S

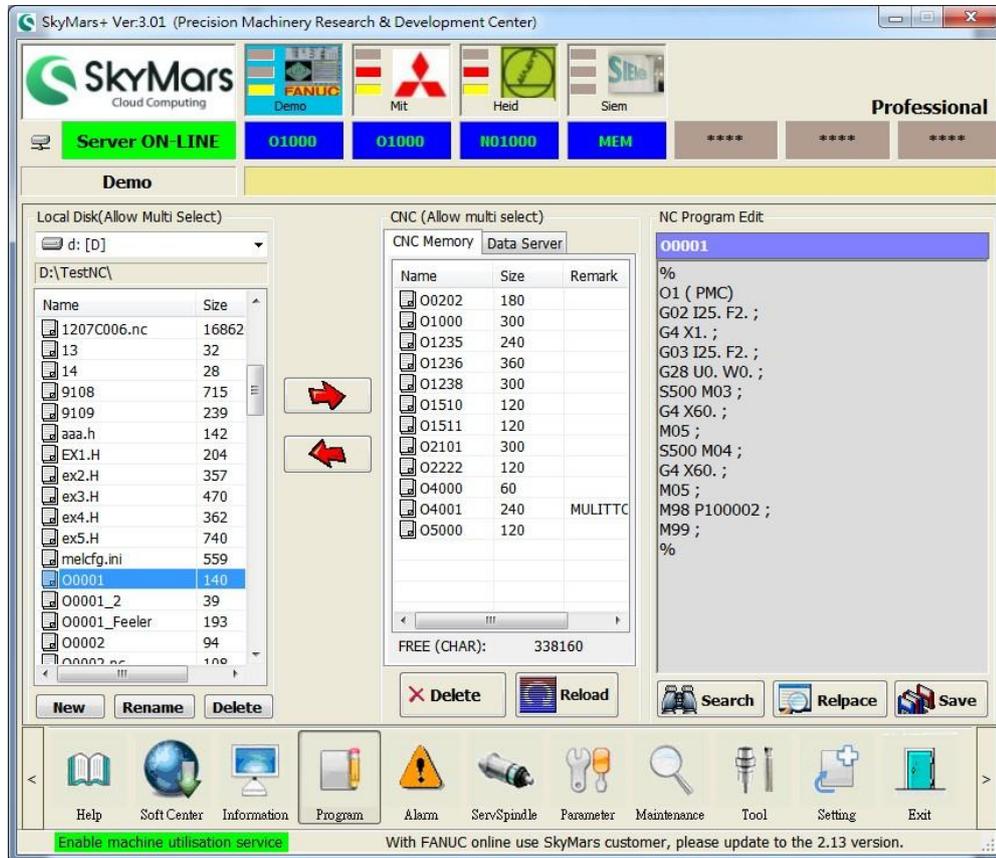
H: 0 F: 5000 T: 1
D: 0 S: 100 M: 99
F%: 200 S%: 100
Actual Feed: 10000 mm / min
Actual Speed: 0 RPM

Help Soft Center Information Program Alarm ServSpindle Parameter Maintenance Tool Setting Exit

Disable machine utilisation service

3. NC Uploading/Downloading

SkyMars offers NC uploading and downloading feature, allowing you to manage and edit NC programs on its user interface. It brings a lot of benefits for centralized program management.



4. Alarm History (FANUC)

SkyMars can get all alarm historical records from your machines, and show the last or the historical alarm data. Engineers can fix failures according to these messages as soon as possible.

The screenshot shows the SkyMars+ Ver:3.01 interface. At the top, there are logos for FANUC, Mit, Heid, and Siem. Below these are status indicators: 'Server ON-LINE', '01000', '01000', 'N01000', and 'MEM'. The main area displays an 'Alarm' table with the following data:

Alarm No.	Alarm Date Time	Alert Message
100	2012-10-18 09:45:36	PARAMETER WRITE ENABLE
0	2012-10-17 13:06:01	PLEASE TURN OFF POWER
100	2012-10-16 09:28:38	PARAMETER WRITE ENABLE

Below the table is a 'Warning Description' box with the text: 'On the PARAMETER(SETTING) screen, PWE(parameter writing enabled) is set to 1. Set it to 0, then reset the system.'

The bottom navigation bar includes icons for Help, Soft Center, Information, Program, Alarm, ServSpindle, Parameter, Maintenance, Tool, Setting, and Exit. A status bar at the very bottom contains the text: 'Enable machine utilisation service' and 'With FANUC online use SkyMars customer, please update to the 2.13 version.'

5. Servo Spindle Load Monitoring

SkyMars can monitor servo spindle load and speed. Operators can view the machining status at present.

- Start capturing :

It can capture servo spindle load data and draw it as a chart.

- Stop retrieving :

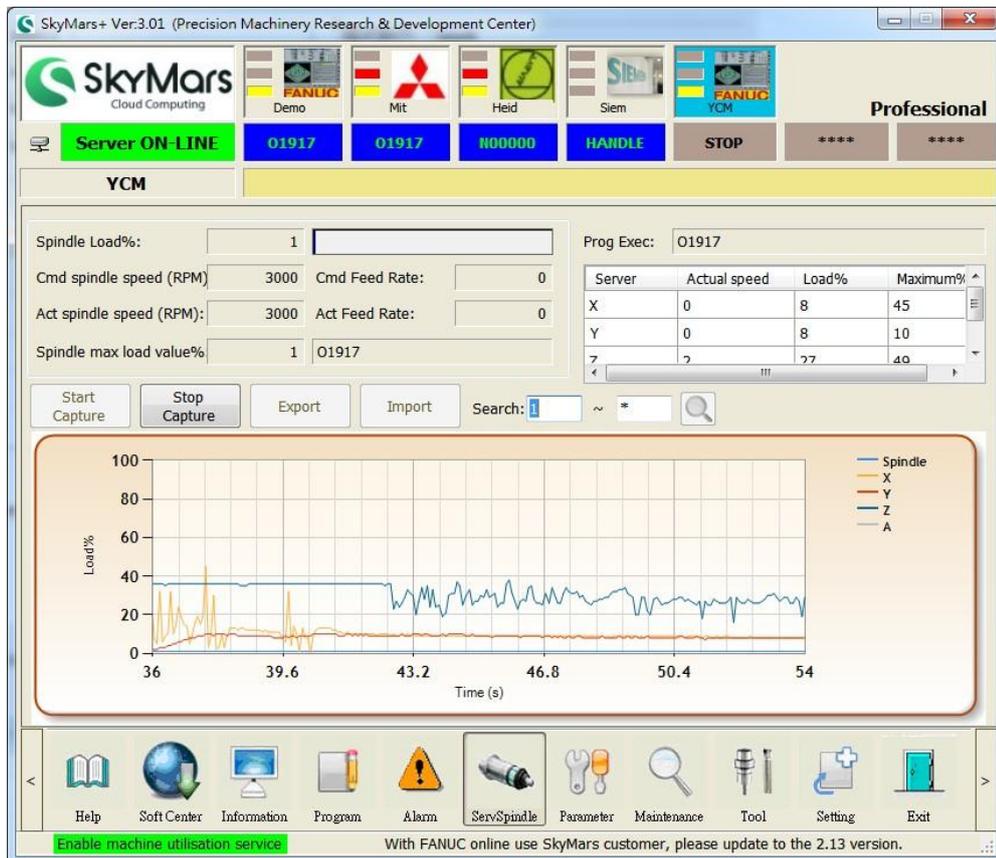
Stop capturing servo spindle load data.

- Export :

It can export the captured data to a text file so that it can be used to integrate with external applications. (Turn on “Start Capture” to enable the export function.)

- Import :

It features the ability to import a text file as a chart that you want to view.



PS: Current support controllers have Fanuc, Mitsubishi, Heidenhain and ITRI.

6. Parameters (FANUC)

If you want to write parameter data (e.g.: tool compensation, the workpiece coordinate table and Macro variables) to controller, you must enter [Settings] form.

Switch to [Settings] page, To [Permission settings], [Allow write] is select.



(1) Tool Offset

SkyMars features the ability of viewing the tool offset value.

The screenshot shows the 'Tool Offset' table in the SkyMars software. The table has five columns: ID, Length_GEO, Length_WEAR, Radius_GEO, and Radius_WEAR. The first row is highlighted in blue. Below the table are 'Write' and 'Reload' buttons.

ID	Length_GEO	Length_WEAR	Radius_GEO	Radius_WEAR
1	11.5	0.2	12	0.5
2	250	90	0.8	99.88
3	22	50	25	0
4	0	56	670	0
5	0	0	99.102	0
6	0	0	10	8790
7	300	0.5	50	0.95
8	6667	-29233.346	5556	6666
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0

(2) Workpiece Coordinates

SkyMars features the ability of viewing the workpiece coordinates.

Tool Offset Work Coordinates Macro

Mouse double click to the edit

ID	X	Y	Z
EXT	0	0	500
G54	0	0	-1.2
G55	-12	-200	-500
G56	2	5	0
G57	-560	-350	0
G58	1	2	3
G59	0	0	0
G54.1P1	0	0	0
G54.1P2	111	4534	555
G54.1P3	0	0	0
G54.1P4	100	100	0
G54.1P5	1000	200	300
G54.1P6	0	0	0

Write Reload

(3) Macro Variable

SkyMars features the ability of viewing the value of Macro variables.

Tool Offset Work Coordinates Macro

Mouse double click to the edit

ID	Value
27	0
28	0
29	0
30	0
31	0
32	0
33	0
100	0
101	0
102	0
103	0
104	0
105	0
106	0

Write Reload

7. Maintenance Management

SkyMars performs the component maintenance management feature.

If the maintenance item does not have value in “PLC node”, SkyMars will detect whether CNC is power-on or not and calculate the use of time.

If the maintenance item has value in “PLC node”, SkyMars will detect PLC and calculate the use of time when the bit is “On”.

Warnings will come up once the use of time is more than or equal to the life time.

SkyMars+ Ver:3.01 (Precision Machinery Research & Development Center)

SkyMars Cloud Computing

Server ON-LINE

YCM

Maintenance Management

Modify Save Abort Export Excel Import Excel

F2: modified for field Reset button: will use the time set to 0

Status	Maintenance Item	Use of time	Life Time (m)	PLC	Specifications
	Lubricating oil	5.406	20		
	Air filter	5.406	15		

Help Soft Center Information Program Alarm Serv/Spindle Parameter Maintenance Tool Setting Exit

Enable machine utilisation service With FANUC online use SkyMars customer, please update to the 2.13 version.

8. Tool Management

SkyMars performs the tool management feature. The processing time is measured when CNC is on the Cycle Start status. Warnings will come up once the processing time is more than or equal to the life time.

SkyMars+ Ver.3.01 (Precision Machinery Research & Development Center)

Server ON-LINE 01917 01917 N00000 HANDLE **** **** ****

YCM

Tool Management

Modify Save Abort Export Excel Import Excel

F2: modified for field Reset button: will use the time set to 0

Status	Tool	Knife type	Processing	Life Time (m)	Feed	Spindle	Work
▶	1	End Mill	0	300	3000	1000	S45C
	2	Facemilling	0	500	1500	600	S45C

Help Soft Center Information Program Alarm ServSpindle Parameter Maintenance Tool Setting Exit

Enable machine utilisation service With FANUC online use SkyMars customer, please update to the 2.13 version.

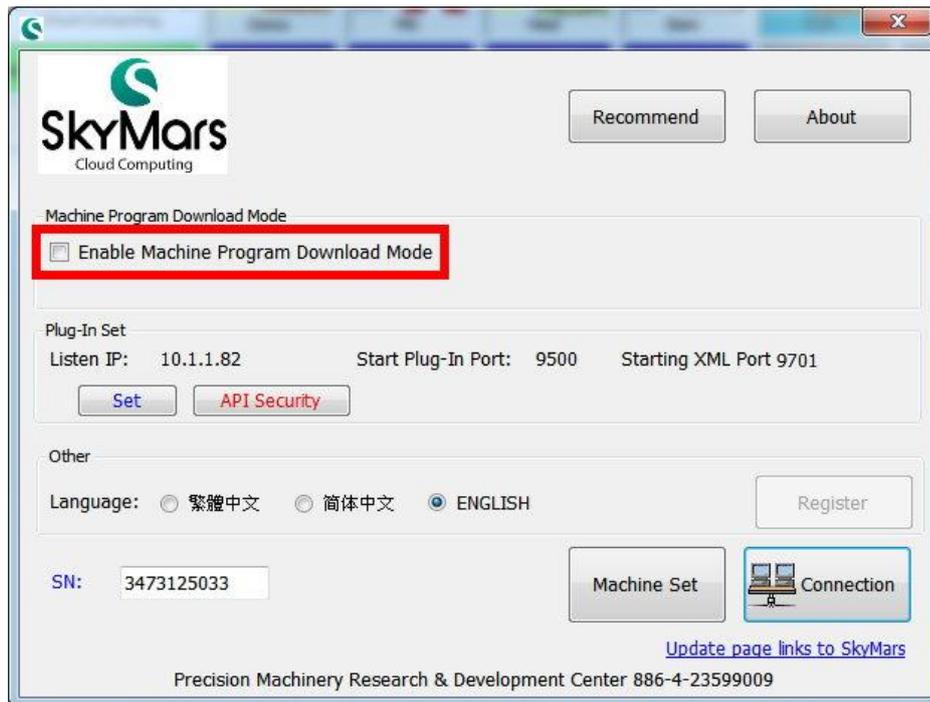
9. Program downloading from machine tool

When operators are using the machine tool, it is allowed for operators to download CNC programs directly without using a PC and operating SkyMars to upload or download CNC programs. At this time, SkyMars could be regarded as or be simulated a kind of a CNC program server.

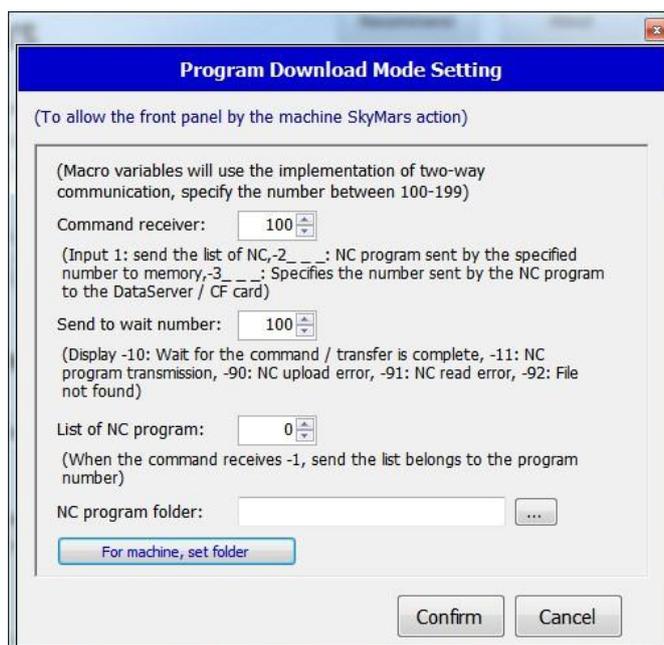
- SkyMars is supporting for FANUC and MITSUBISHI now.

Before starting this function, you need some setting up, as follows :

(1) Check “Enable Machine Program Download Mode”



(2) Click “Set”

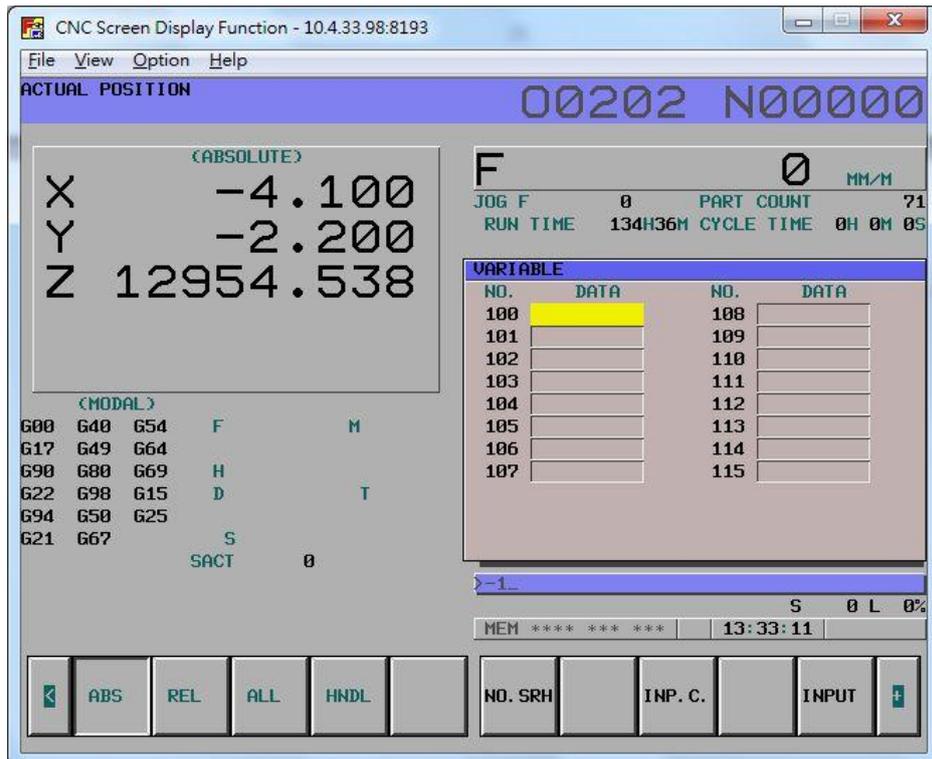


SkyMars can use Macro variables or common variables of MITSUBISHI to achieve the communication between machine tools. It has to be set up the variable numbers which are used to send commands and receive commands.

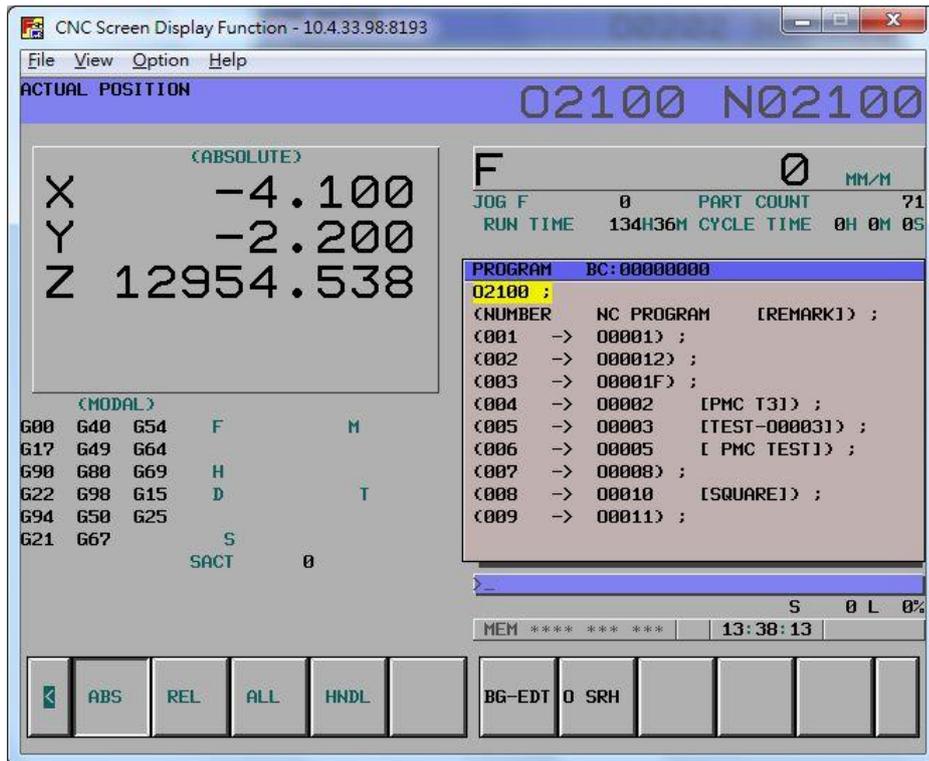
- Enter command receiving number “-1” on the machine tool : SkyMars will send a list of CNC programs to the machine tool, and the CNC program numbers in this list will be in order according to the setting, “NC program number list”. The content of CNC programs will also be composed according to “NC program folder”.
- Enter command receiving number “-2___ : ___” on the machine tool. It is the CNC program number of the list. After entering it, SkyMars will read NC from the specific “NC program folder” and upload to the controller.

(3) Use of “Read and write NC list to the machine tool”

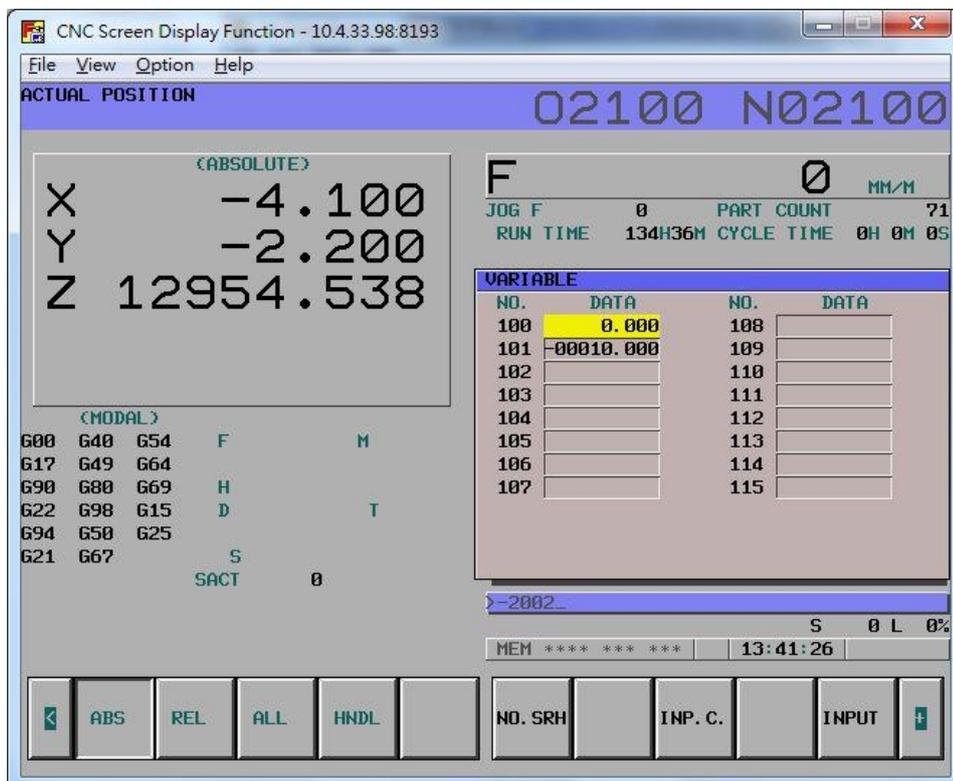
Please enter “-1” to a specific variable number.



(4) After entering, please open “the specific program number of NC list” in the setting page.



- (5) Please check the CNC program number which you want to acquire, and enter “-2___” to the Macro variable. If you want to acquire the CNC program number, “002”, please enter strings, “-2002”.

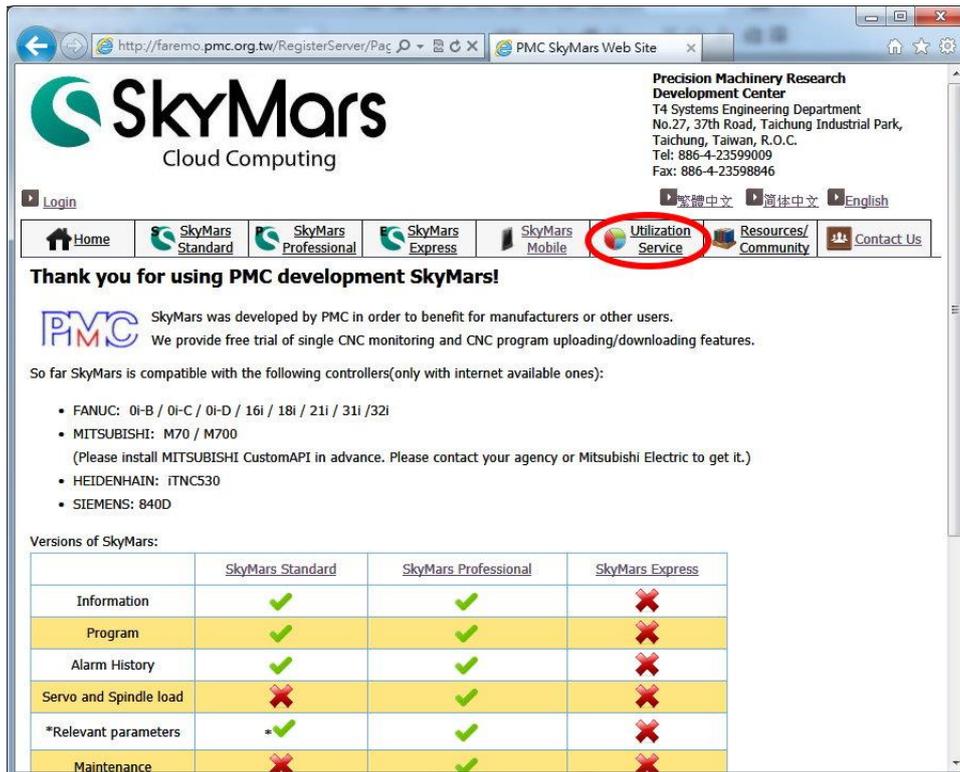


(6) After entering, SkyMars will send the CNC program, which number is 002, to the machine tool.

10. Overall Machine Tool Utilization Rate Service

When you go on business outside the office, you can use this kind of service in order to check the status of the online machines so that you can reply your customer the time for the shipment or offer your customer the visualized operation. It can enhance your trust and the core competitiveness of your enterprise for your customers.

- (1) Please open the website, <http://skymars.pmc.org.tw/>. Click on "Utilization Service".



The screenshot shows the SkyMars website interface. The header includes the SkyMars logo and the text "Cloud Computing". The navigation menu contains links for Home, SkyMars Standard, SkyMars Professional, SkyMars Express, SkyMars Mobile, Utilization Service (circled in red), Resources/Community, and Contact Us. Below the navigation menu, there is a section titled "Thank you for using PMC development SkyMars!" followed by a list of compatible controllers and a table showing the features supported by different versions of SkyMars.

Utilization Service

Thank you for using PMC development SkyMars!

SkyMars was developed by PMC in order to benefit for manufacturers or other users. We provide free trial of single CNC monitoring and CNC program uploading/downloading features.

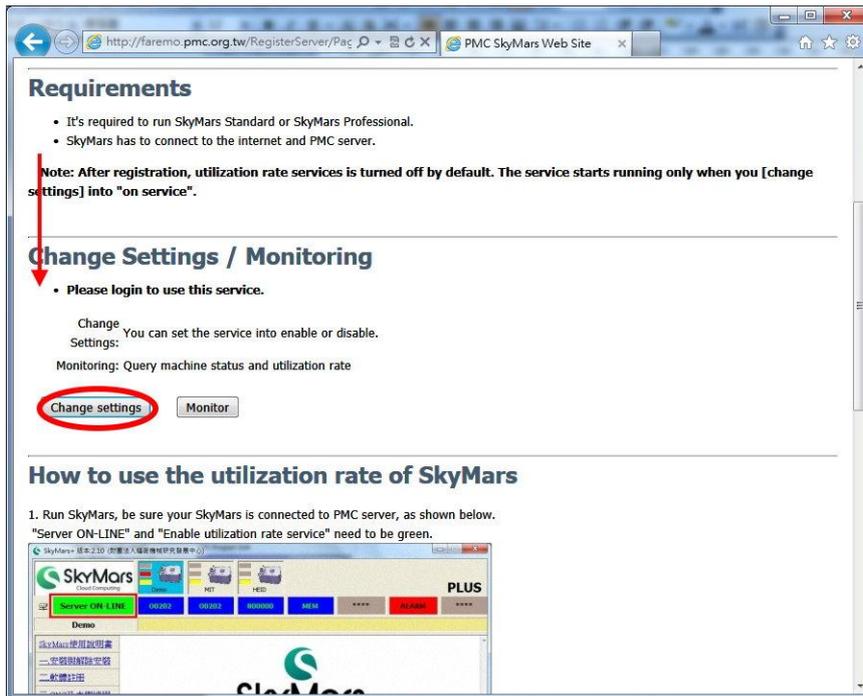
So far SkyMars is compatible with the following controllers(only with internet available ones):

- FANUC: 0i-B / 0i-C / 0i-D / 16i / 18i / 21i / 31i / 32i
- MITSUBISHI: M70 / M700
(Please install MITSUBISHI CustomAPI in advance. Please contact your agency or Mitsubishi Electric to get it.)
- HEIDENHAIN: iTNC530
- SIEMENS: 840D

Versions of SkyMars:

	SkyMars Standard	SkyMars Professional	SkyMars Express
Information	✓	✓	✗
Program	✓	✓	✗
Alarm History	✓	✓	✗
Servo and Spindle load	✗	✓	✗
*Relevant parameters	= ✓	✓	✗
Maintenance	✗	✓	✗

- (2) Open or close overall utilization rate transmission. Click on "Change settings", and login it.



Utilization Rate Service



[On Service]: Open utilization rate view, and then SkyMars will transmit data (the machine status) to a flash server of PMC (PMC cache server) to save it temporarily. It also provides a website to read utilization rate and show on the webpage.

[Off Service]: Close utilization rate view, and then SkyMars will stop transmitting data.

(3) Viewing utilization rate on the webpage

Please do the first step. Click on "Monitor".

http://faremo.pmc.org.tw/RegisterServer/Pag PMC SkyMars Web Site

Client SkyMars

Requirements

- It's required to run SkyMars Standard or SkyMars Professional.
- SkyMars has to connect to the internet and PMC server.

Note: After registration, utilization rate services is turned off by default. The service starts running only when you [change settings] into "on service".

Change Settings / Monitoring

- Please login to use this service.

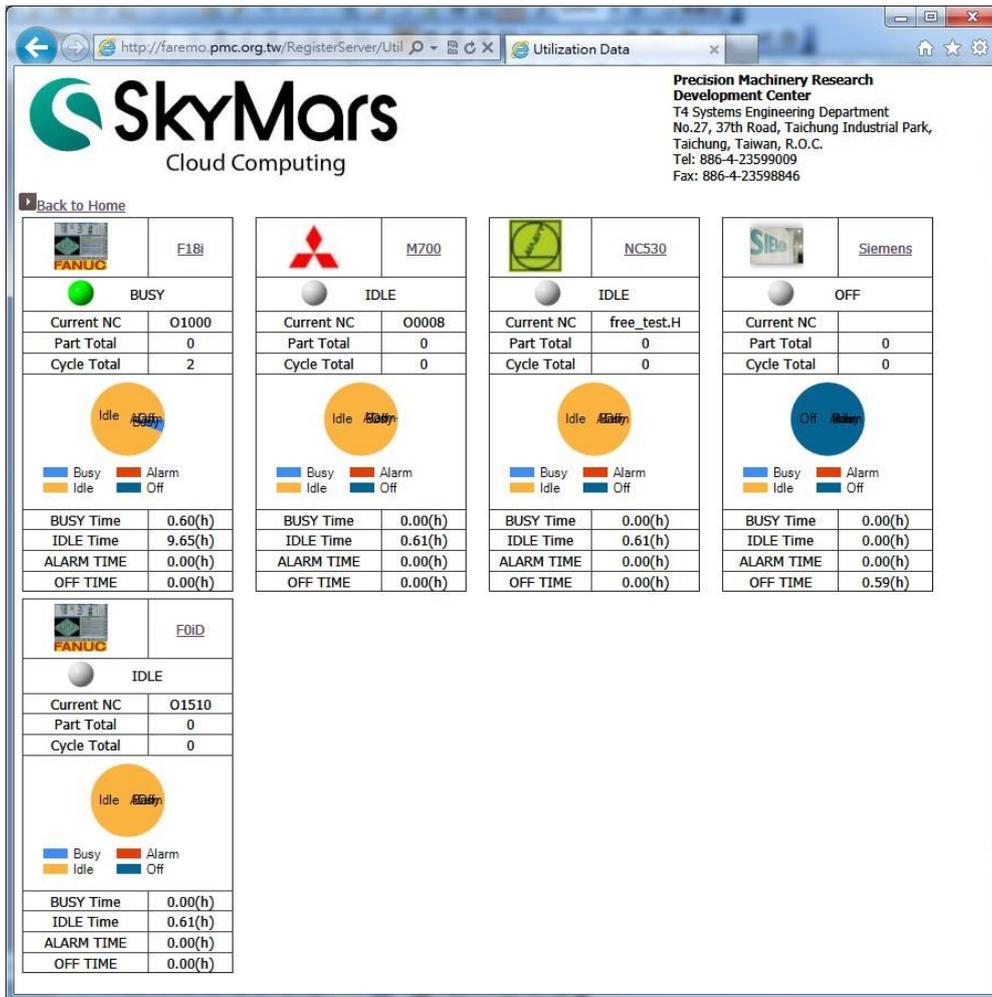
Change Settings: You can set the service into enable or disable.

Monitoring: Query machine status and utilization rate

How to use the utilization rate of SkyMars

1. Run SkyMars, be sure your SkyMars is connected to PMC server, as shown below. "Server ON-LINE" and "Enable utilization rate service" need to be green.

Please wait the utilization rate system for 10 to 15 seconds, and it will show the information of overall machine tool utilization rate.



(4) If you use SkyMars Plus edition, please click on the name of the machine and then utilization rate webpage will show you more detail historical data of the machine, and it also can search for the historical data by using a specific date.



Notice

While using “Overall machine tool utilization rate service”, the computer you use must be connected to the internet. It must be shown as “Server ON-LINE” in the red square in the below figure so that “Overall machine data tool utilization rate service” can be run.



V. Troubleshooting and Repair

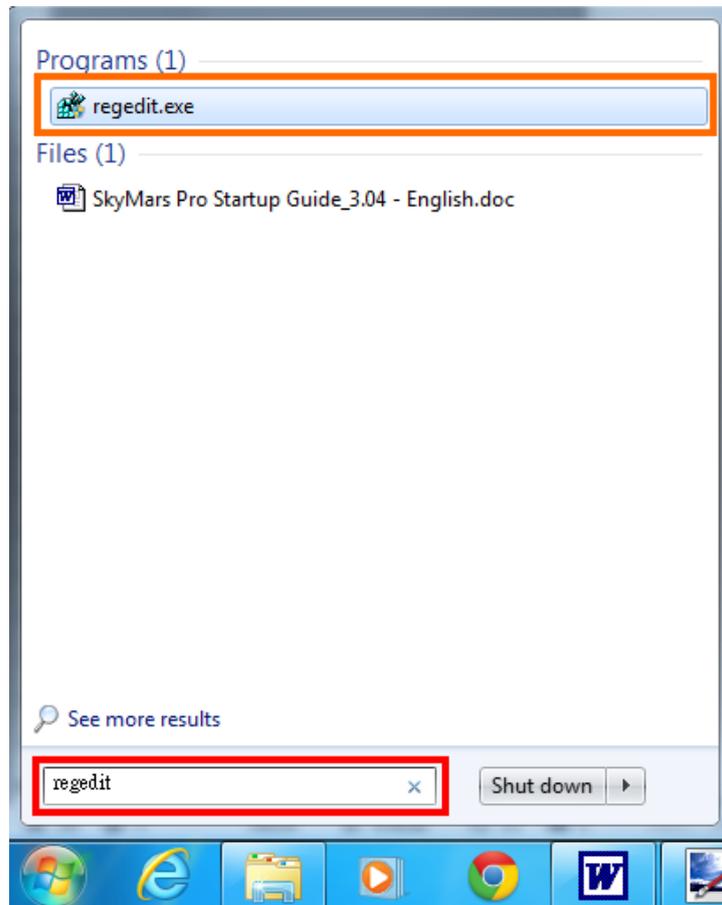
If you install SkyMars unsuccessfully or there are some troubles happened in SkyMars but they cannot be fixed, you can delete the Windows registry keys and the built-in database, and then restart SkyMars.

- **You have to close SkyMars in advance.**

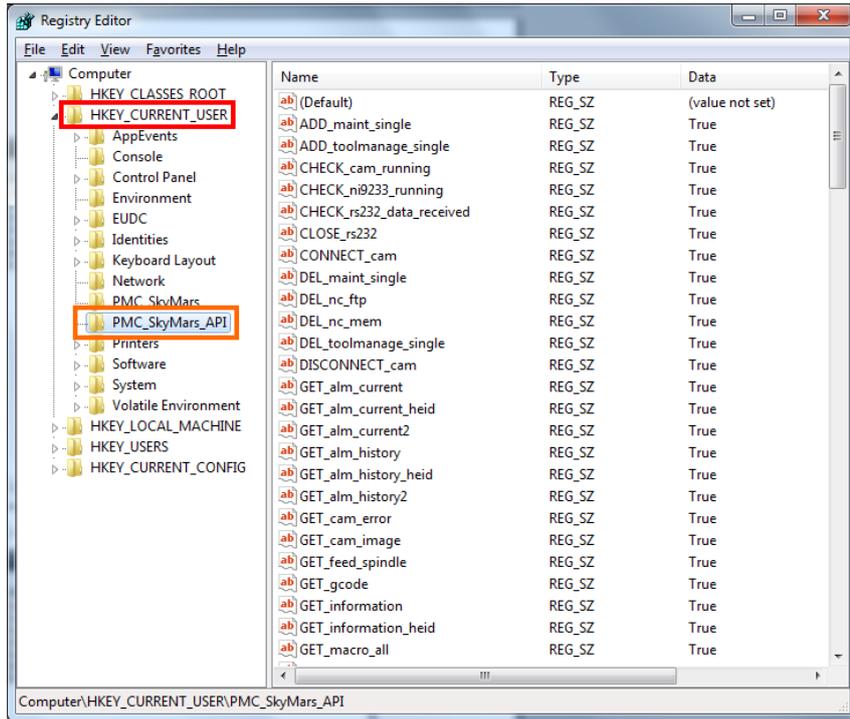
1. Delete Windows registry keys

(1) Run regedit and open the Registry Editor.

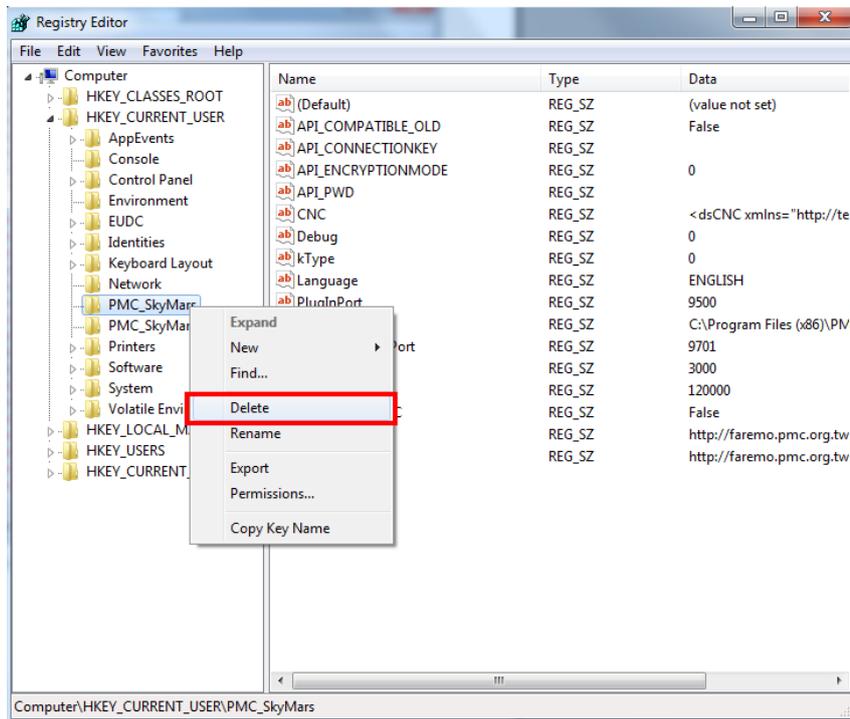
(You can execute [Command Prompt] and enter “regedit” to open the Registry Editor.)



(2) Search for [HKEY_CURRENT_USER]-[PMC_SkyMars], shown below :



(3) Delete [PMC_SkyMars].



(4) Restart SkyMars.