

MiniOS7 Utility User Manual
Version 1.1

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Revision date: 2009/10/14

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1. Introduction to MiniOS7 Utility

What is MiniOS7 Utility?

MiniOS7 Utility is a tool for configuring, uploading files to all products embedded with ICP DAS MiniOS7.

Key features

Supported connection ways

- COM Port Connection
- Ethernet UDP & TCP Connection

Maintenance

- Upload file(s)
- Update MiniOS7 image
- Delete file(s)

Configure

- Date & Time
- IP Address
- COM port

Check

- Product information

Supported products

- 7188XA
- 7188XB
- 7188XC
- 7188EX/7186EX series
- All I-8000/iPAC-8000 series
- iView100
- ET-6000/ET-7000 series
- G4500

2. Quick Start

Get the software

- **From CD-ROM**
  Go to CD\8000\Napdos\MiniOS7\Utility\

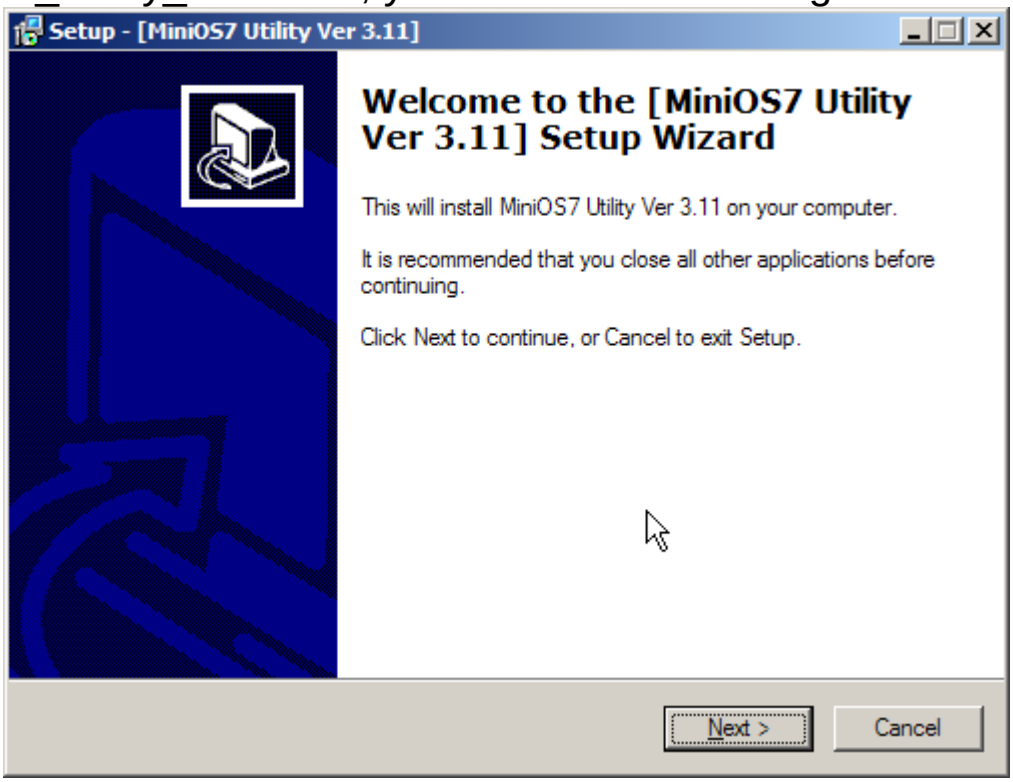
- **From Website**
  Go to ICPDAS website.
  ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/minios7/utility/minios7_utility/

Installation

The following steps help you quickly install ***MiniOS7 Utility***.

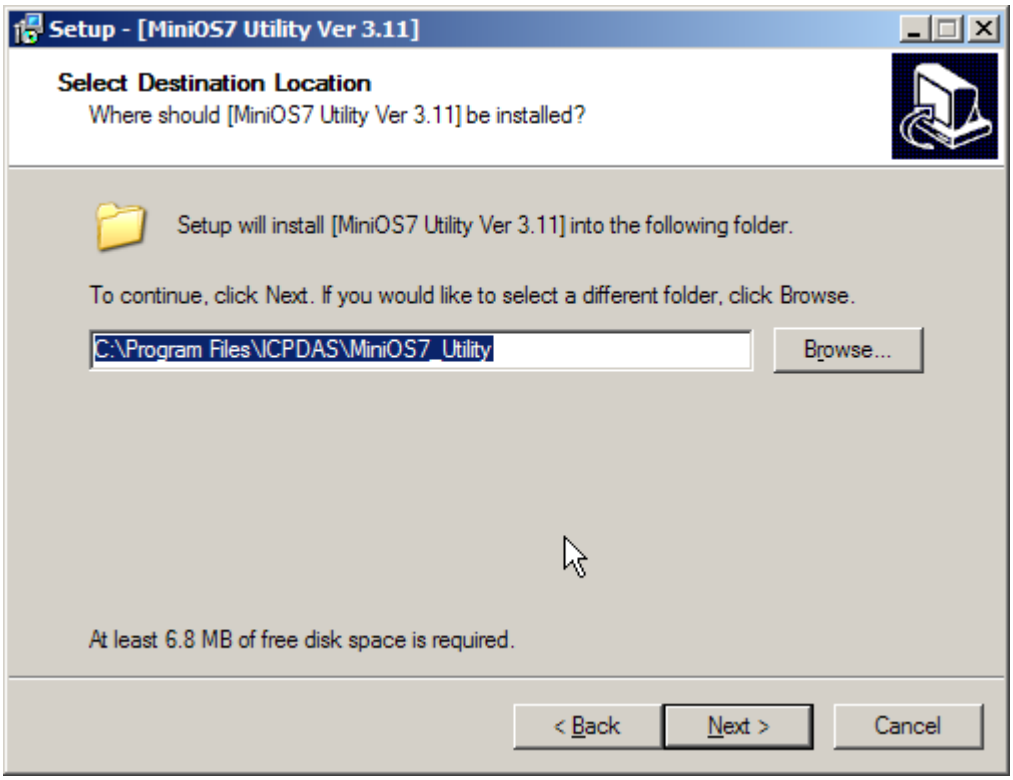
Step 1.

When you double click on the installation file MiniOS_Utility_Vxxx.exe, you should see a dialog like below.



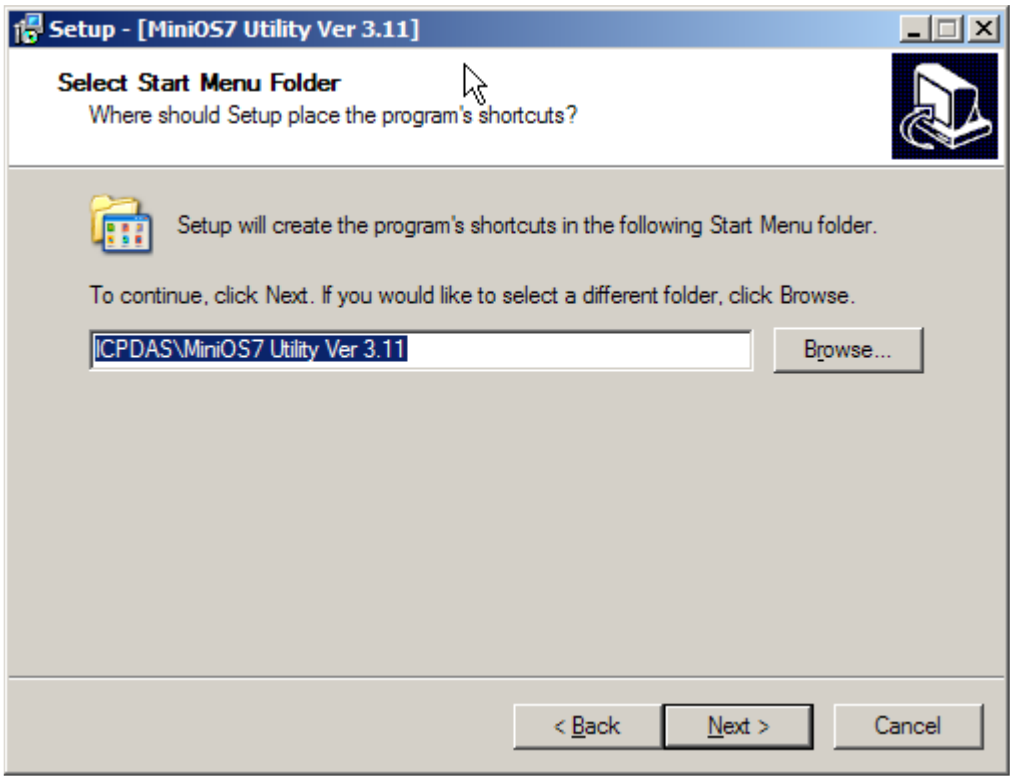
Step 2.

Click on Next



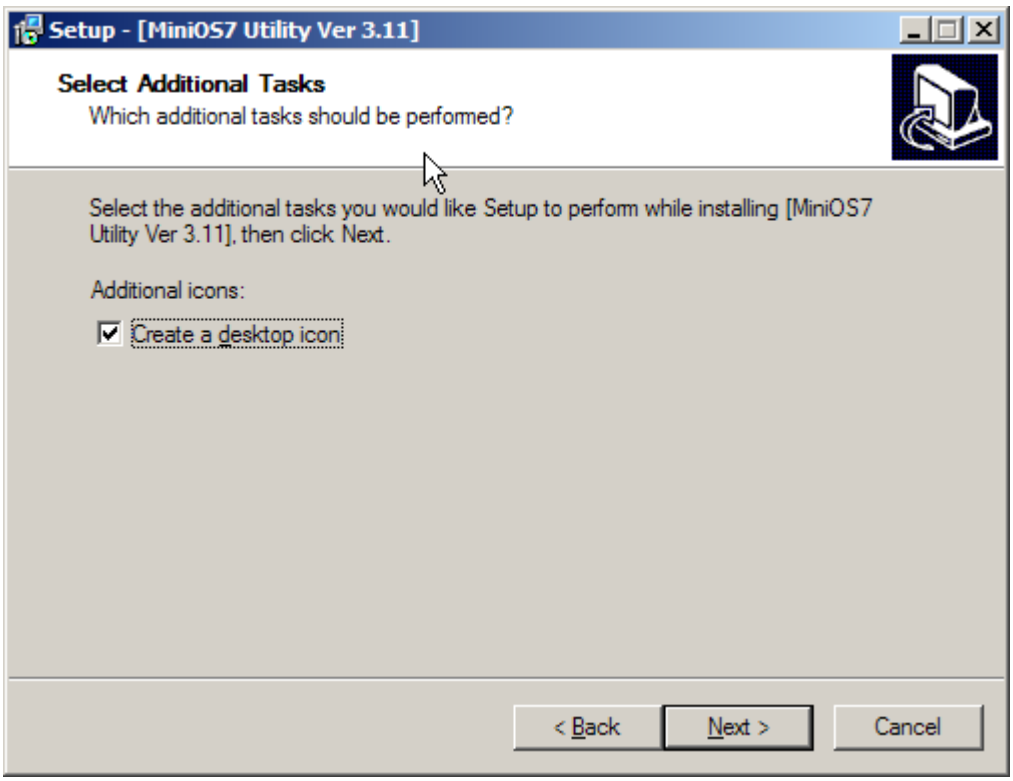
Step 3.

Click on Next



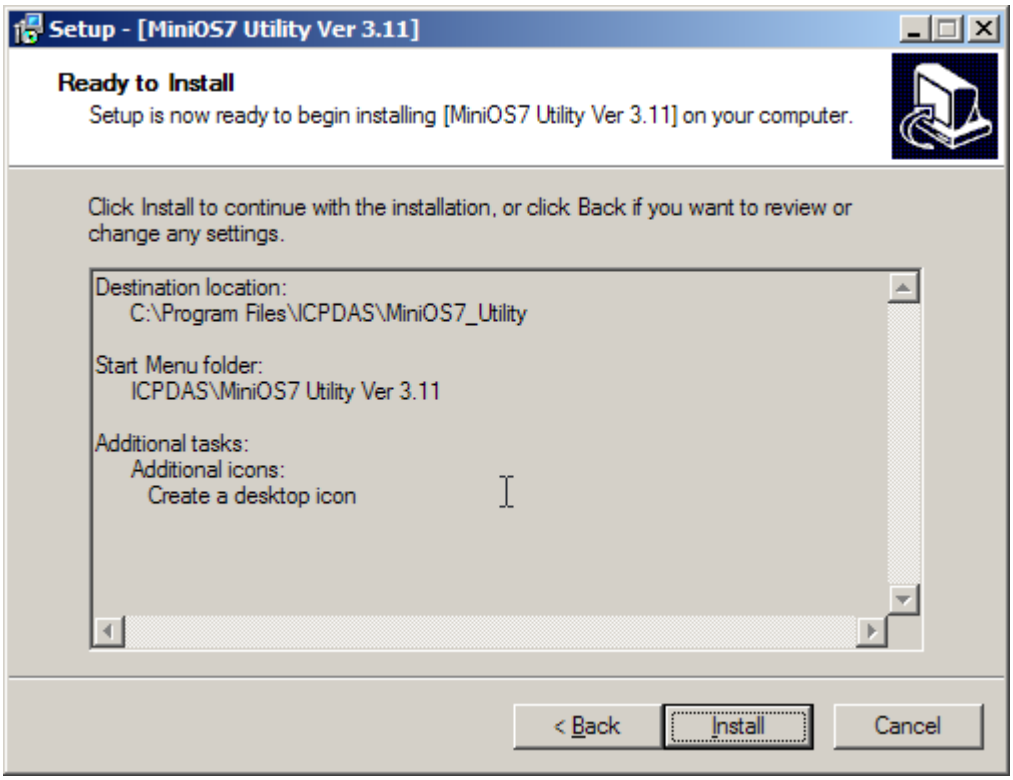
Step 4.

Click on Next



Step 5.

Click on Next



Launch the program

If you use Windows XP, open Start menu from Windows Desktop and click [Start > All Programs > ICPDAS > MiniOS7 Utility x.xx > MiniOS7 Utility Ver x.xx] to launch.



You can also open MiniOS7 Utility by double click the icon of MiniOS7 Utility Ver x.xx on the Windows Desktop.

Build a Connection

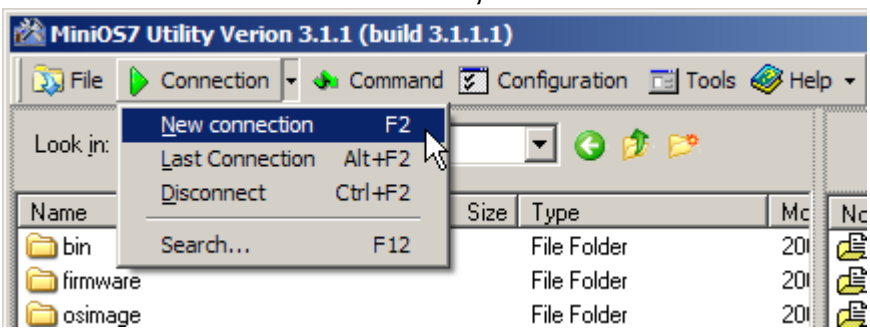
You must open a connection before handling ***MiniOS7***. ***MiniOS7 Utility*** gives you a convenient way to suits with your environment. Include COM port, TCP and UDP connection.

To open a connection from connection dialog

1. Do one of following

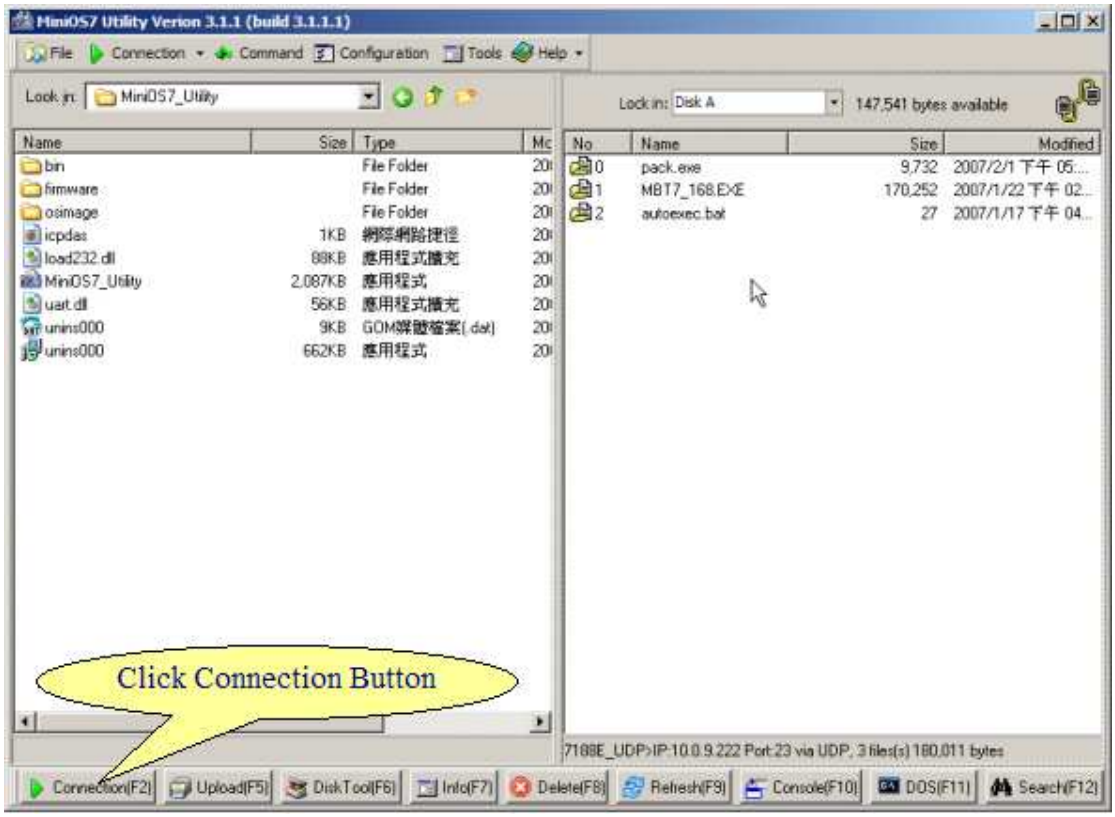
Method 1.

Choose MenuBar > Connection, and then click new connection.



Method 2.

Click the Connection button in the Toolbar 
.



Method 3.

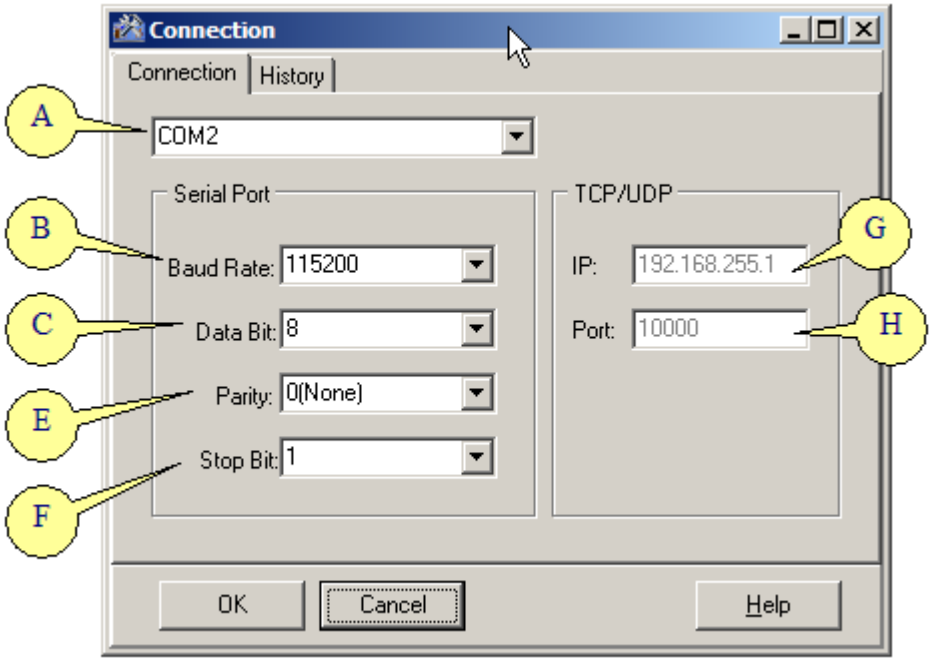
Hotkey: F2

2. The Connection dialog includes **Connection Tab** that lets you set

connection parameters and **History Tab** that stores the used parameters as Connection String.

Connection Tab

The Connection Tab provides a quick way to open connection through serial port or TCP/UDP.



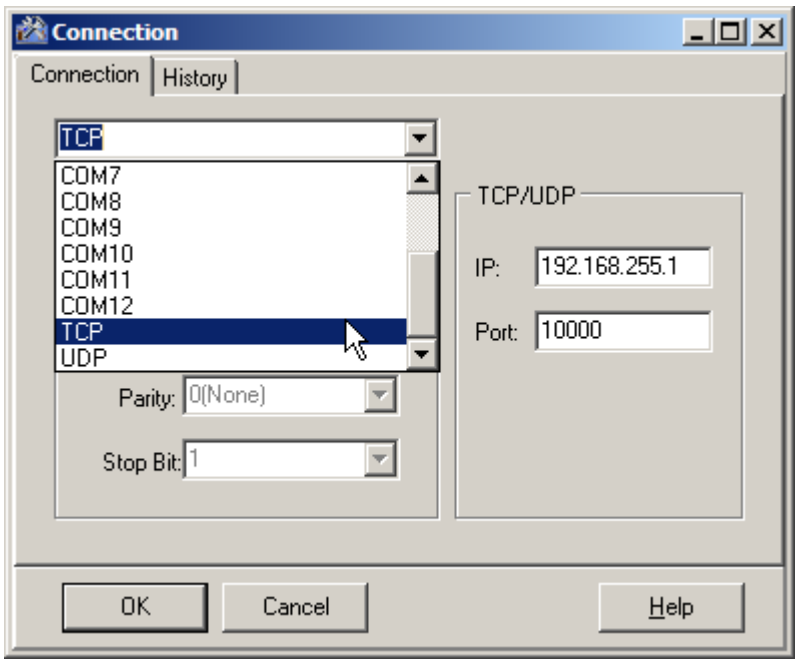
- To connect though serial port

1. Select a device **(A)** whose name of prefix is COM##, and ## is port number.
2. Select baud rate (**B**).
3. Select Data bit (**C**)
4. Select Parity (**E**)
5. Select Stop Bit (**F**)
6. Finally click OK button to open a new connection or cancel to close dialog.

When you click the ComboBox**(A)** of device, MiniOS7 Utility will show all of device from PC that includes COM Port, TCP and UDP. By default, MiniOS7 is set to 115200,8,N,1.

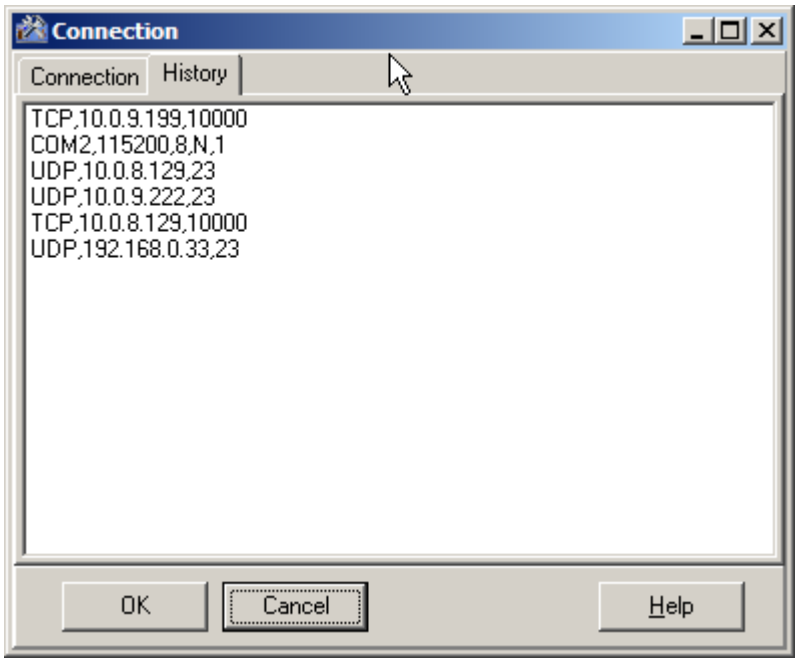
- To connect though the Ethernet

1. Select a device whose name is TCP or UDP.
2. Set IP address (**G**)
3. Set Port Number (**H**) to 23 if connect through UDP otherwise 10000.



■ History Tab

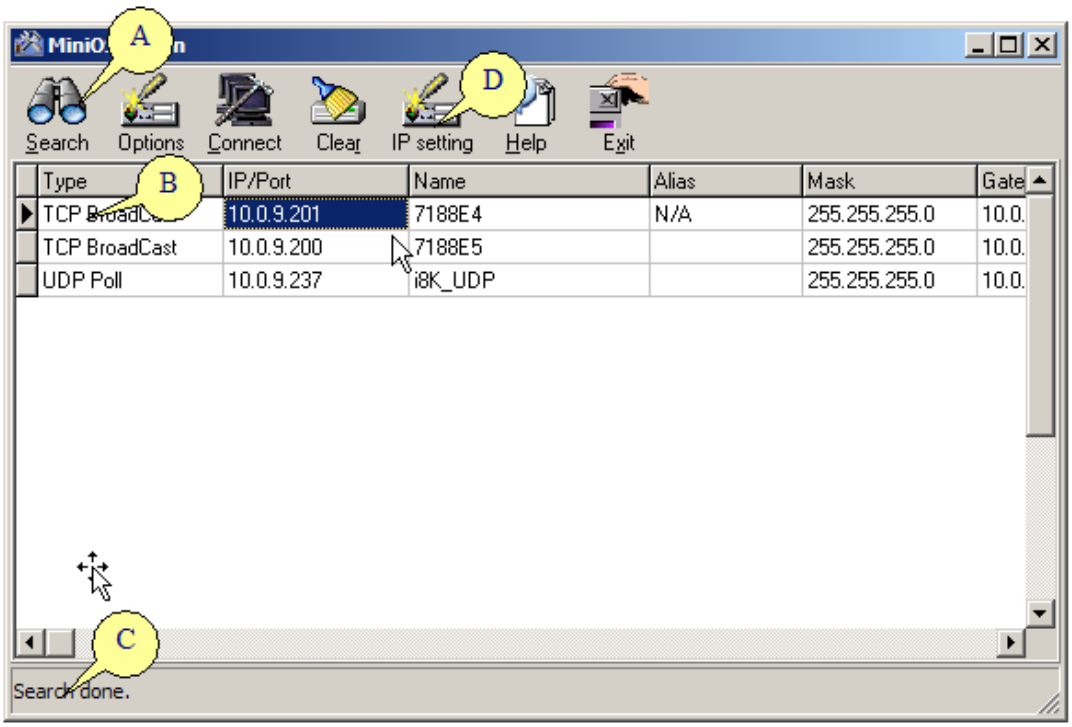
You can also open connection from the history list. The MiniOS7 Utility saves Connection String to the history list automatically after you open connection from Connection Tab. It opens a new connection when you double click one of history list or click OK button after one of list is selected.



To open a connection from search dialog



MiniOS7 Search Dialog searches all of MiniOS7-embedded devices that support TCP/UDP or COM Port. The Search Dialog consists of ToolBar **(A)**, Search Listbox **(B)** and Status Bar **(C)** and describes each as follows:



- ToolBar **(A)**

  The Toolbar contains many functions, such as

  1. Search button: for start or stop scan hosts,
  2. Options button: for alter setting of search range and poll time,
  3. Connect button: to connect to selected item in the search list,
  4. Clear button: to clear search list,
  5. IP setting button: to set IP/gateway/mask/alias of devices with MiniOS7 that support TCP connection,
  6. Exit button: to close this task.

  For more detailed information about Options, please refer to [Using MiniOS7 Utility > Options] section.

- Search List **(B)**

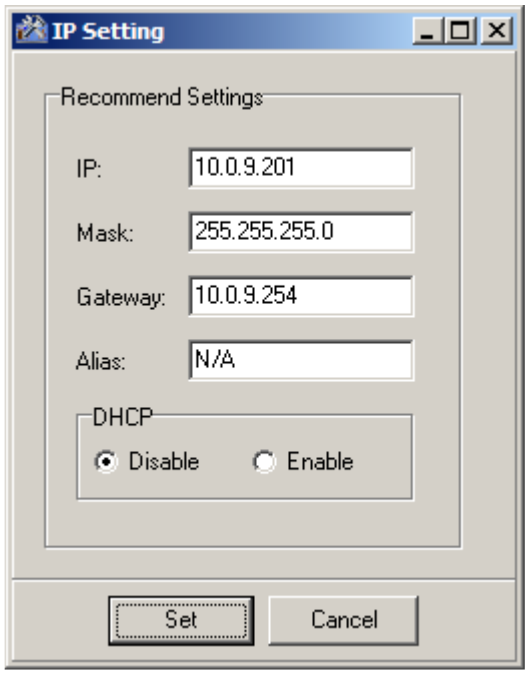
  Search list provides each item that scan from TCP/UDP or Serial Port and display the related information about the device includes scan type, IP address or serial port, host name, alias name, mask, gateway, MAC address and its DHCP state.

- Status Bar **(C)**

  The Status Bar shows progress of the scan process on the bottom of Search Dialog.

- IP Setting **(D)**

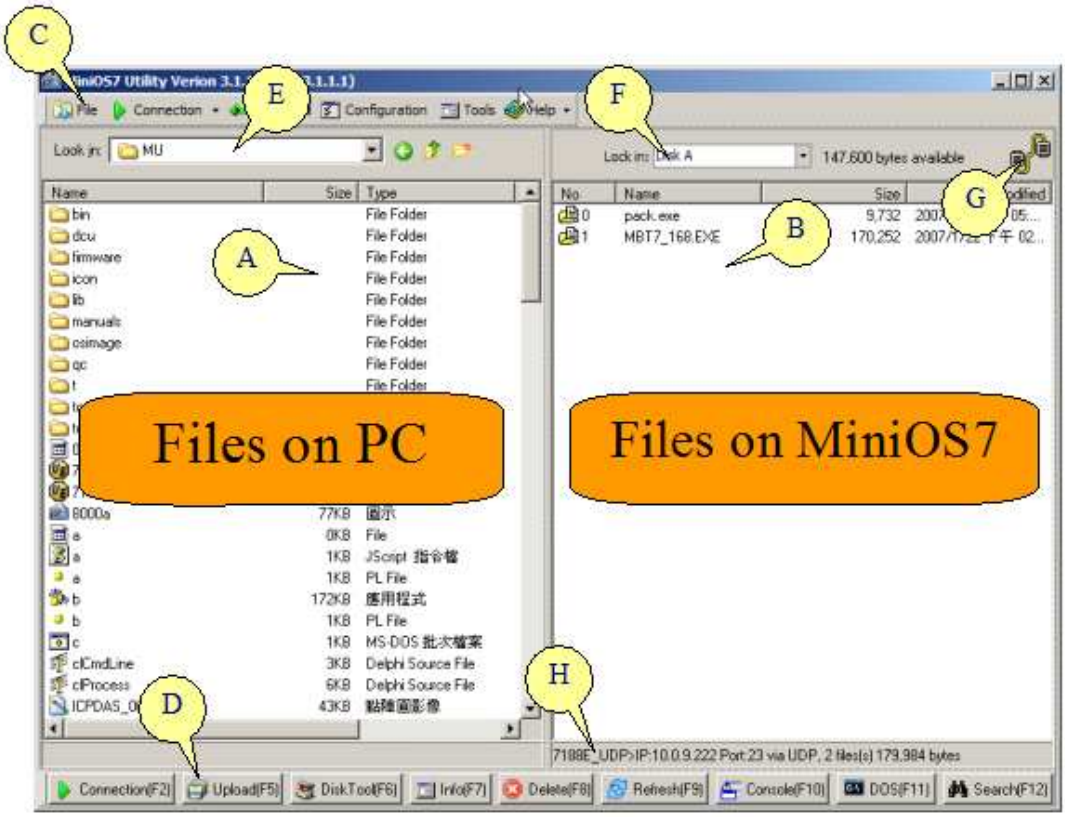
  IP Setting Form provides you with a good way to setup your network parameters of 7188/8000 controllers. Unlink IP Address Command from MenuBar. IP Setting allows you setting your network under disconnected status.



3. Look at the Working Area

About the Working Area

The main window of ***MiniOS7 Utility*** is an interface to start all actions. It consists of a MenuBar and an **ToolBar** and two Panes. On the left side of working window is a **LocalPane** that helps you browse the current working directory on PC and the **RemotePane** on the right side displays the files on the ***MiniOS7-equipped*** device. **MenuBar** at the top of window provides many commands to use and the **ToolBar** at the bottom of the window provides frequently-used functions. You can also right click on the **LeftPane** or **RightPane** to use commands on the PopupMenu.



The MiniOS7 Utility main window contains the following options

- Local Pane **(A)**
- Remote Pane **(B)**
- MenuBar **(C)**
- Toolbar **(D)**

- Current working directory on PC **(E)**
- Current working disk and available size on device **(F)**
- The status icon (connected or disconnected) (**G**)
- Some of useful information about ***MiniOS7***, include prompt, connection type, file counts and the total amount of file size. **(H)**

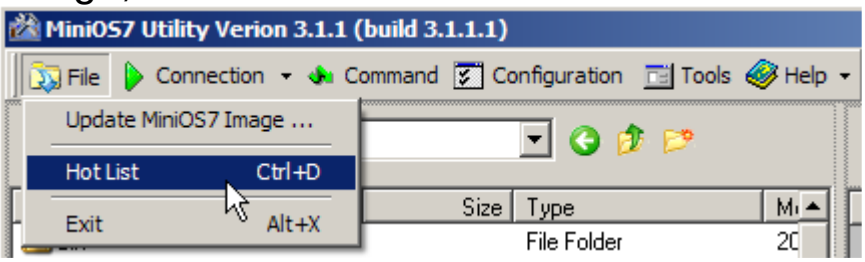
Using MenuBar

The MiniOS7 Utility MenuBar contains most of the commands that handles MiniOS7 on the remote device. Some of menu items are hidden when MiniOS7 Utility not connected. The MenuBar contains the following options.



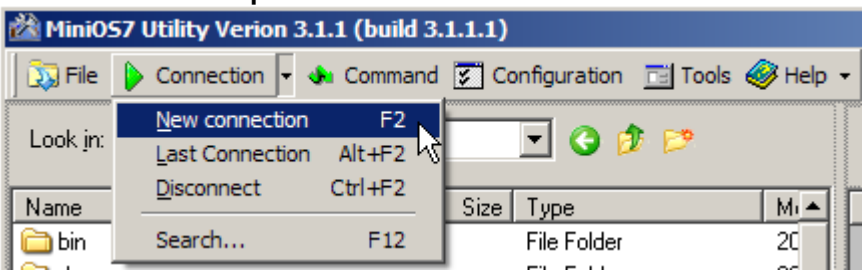
File

Open the file menu containing file function including upgrade ***MiniOS7*** Image, Hot list and Exit.

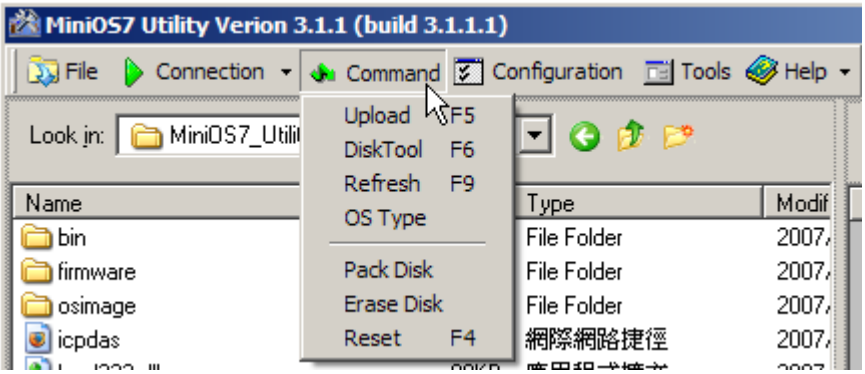


Connection

Open the connection menu which contains the connection functions including New connection, Last Connection, Disconnect and Search. You can open or close connection here.

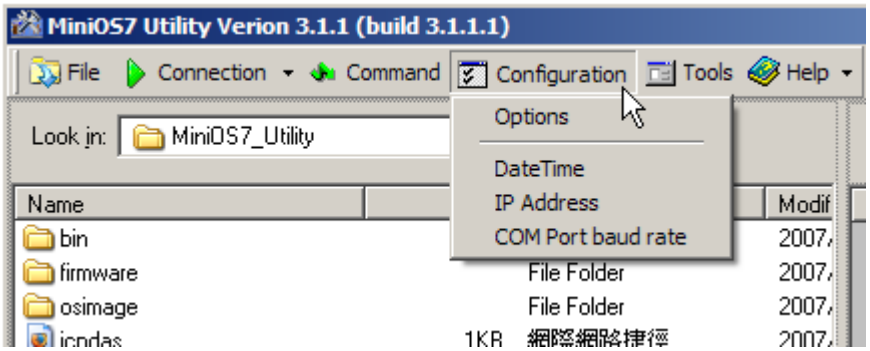


Command



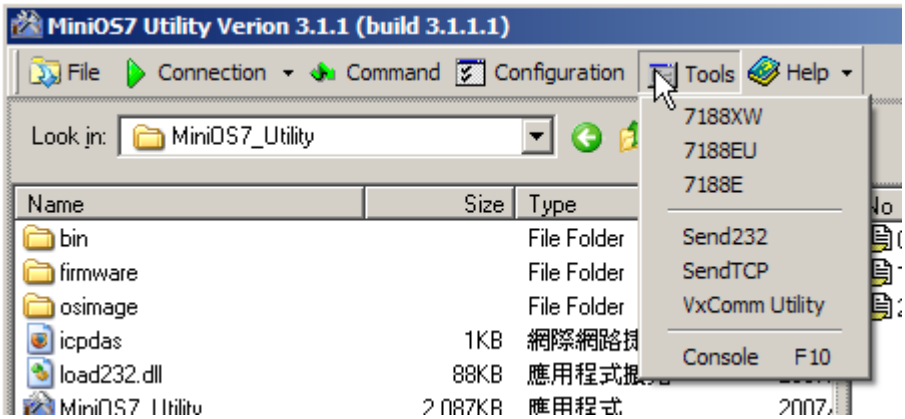
Open the command menu that contains the useful functions that handles MiniOS7 on the remote device including Upload, DiskTool, Refresh, OS Type, Pack, Erase Disk and Reset.

Configuration



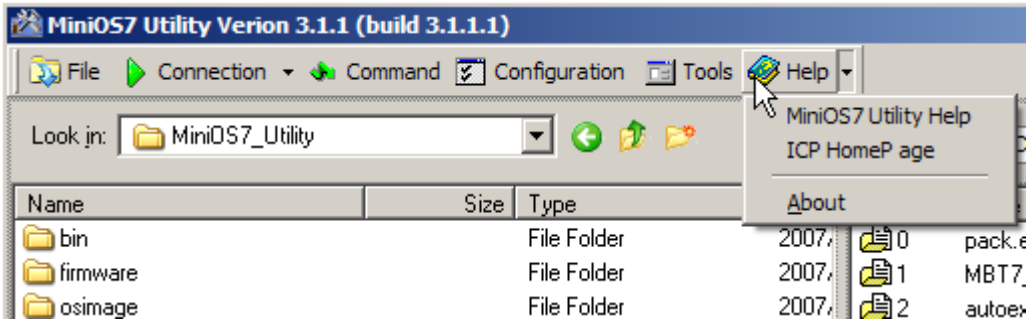
Open the configuration menu where you can customize the system options of MiniOS7 Utility, the DateTime, IP Address, COM port baud rate of MiniOS7 on the remote device.

Tools



Open the tools menu that contains familiar external tools including 7188xw.exe, 7188eu.exe, 7188e.exe, Send232.exe, SendTCP.exe, VxComm.exe and Console application according to your current connection.

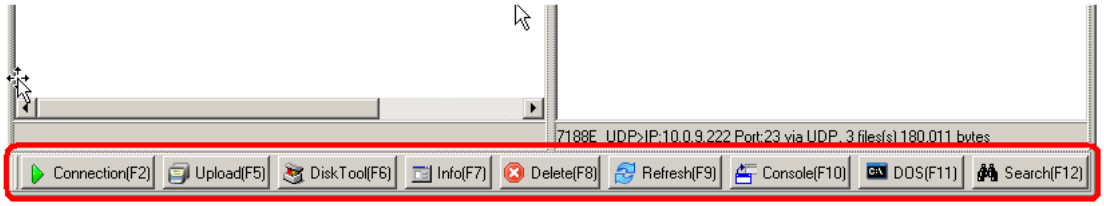
Help



Open the help menu that contains the help options you are familiar with from windows. You can get the information about MiniOS7 Utility here.

Using ToolBar

The ToolBar contains of frequently-used buttons including Connection, Upload, DiskTool, Info, Delete, Refresh, Console, DOS and Search.

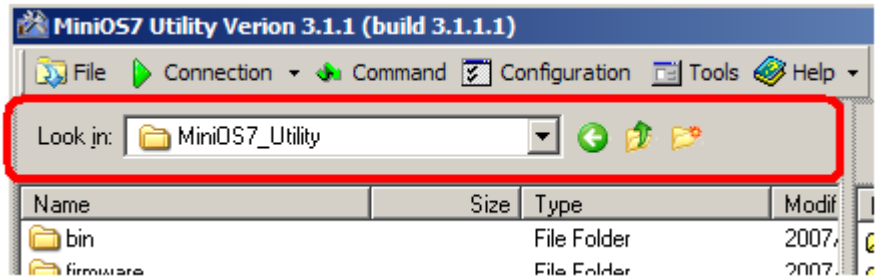


Connection(F2)	Connects to 7188/8000 controllers
Upload(F5)	Uploads file(s) which you have selected in the LocalPane.
DiskTool(F6)	DiskTool is a split tool to divide flash memory into DiskA, DiskB and Reserve image you want.
Info(F7)	Displays information on the connected 7188/8000 controllers such as OS

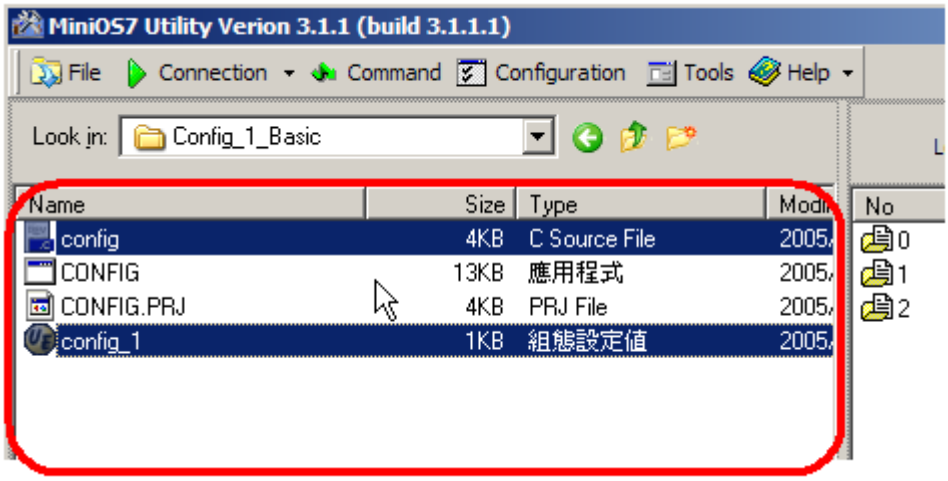
	version, COM port, Memory and so on.
Delete(F8)	Delete file(s) on the 7188/8000 controllers
Refresh(F9)	Refresh the remote file list and information on the Remote Pane.
Console(F10)	According to connection type, MiniOS7 Utility will not only execute proper console application like 7188xw.exe 7188eu.exe and 7188e.exe but also pass parameters to it. .
DOS(F11)	Opens the console window (cmd.exe) and set current working directory to it.
Search(F12)	Opens the Search window to search devices connected with PC by all means of communications (TCP/UDP/Serial).

Local Pane

The Local Pane is similar to Windows Explorer. You can change current working directory with Combobox at top of Local Pane, back to last directory with Back button , change to parent directory with Up button or create new directory with New button .



You should see a window similar to the one shown in below that displays files on the current working directory of your PC. You can select single or multiple file(s) on this window by click on the file you want to select or press Ctrl-Key with same time to choose more than one file.

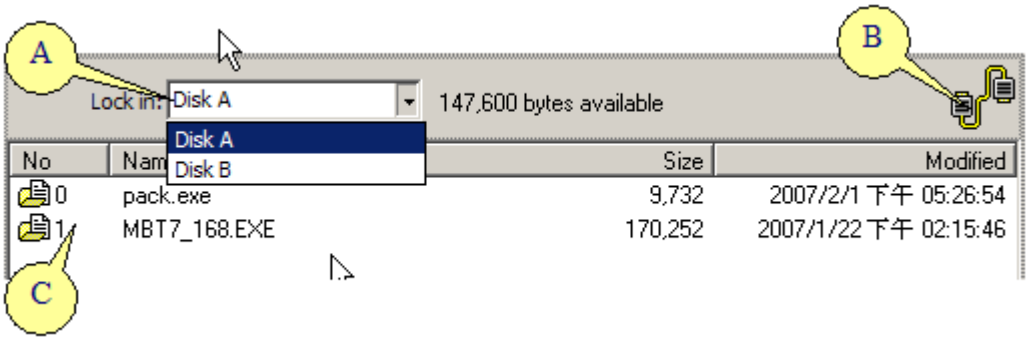


Remote Pane

Remote Pane works the same as Local Pane. You can change MiniOS7 working drive from ComboBox **(A)** on the top of Remote Pane and it displays how many bytes available on the current work drive.

The Connection status icon **(B)** located at the right upper of Remote Pane. It represents on/off status of the connection.

The Listbox **(C)** displays all of files on ***MiniOS7-equipped*** device. It differs from the Listbox of Local Pane. According to the characteristic of MiniOS7, it contains serial number of files as the first field and may exist the same file name on the second field.



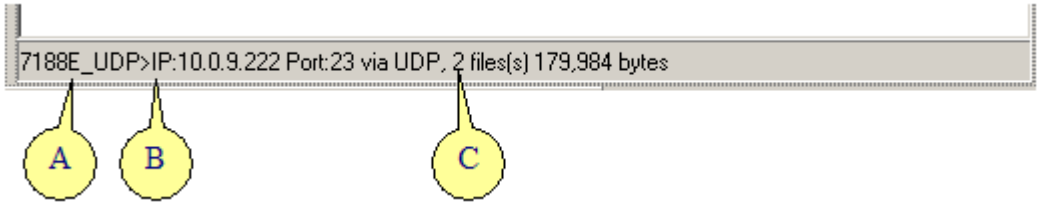
Connection Status

The Remote Pane displays with grey color and a disable status icon  shows at the right upper of Remote pane when MiniOS7

Utility is under its disconnected status. Otherwise the Remote Pane displays white color and shows the connected icon .

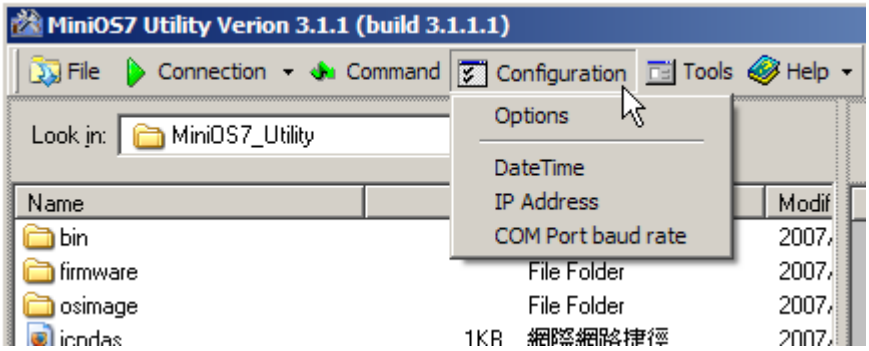
Status Bar

The Status Bar shows a lot of useful information at the bottom of Remote Pane. Such as prompt **(A)**, connection type **(B)**, how many files**(C)** and its allocated size on MiniOS7.

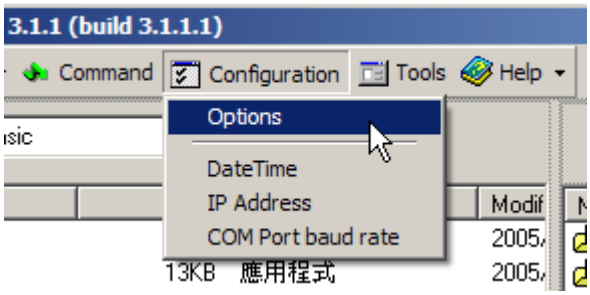


4. Using MiniOS7 Utility

Configuration

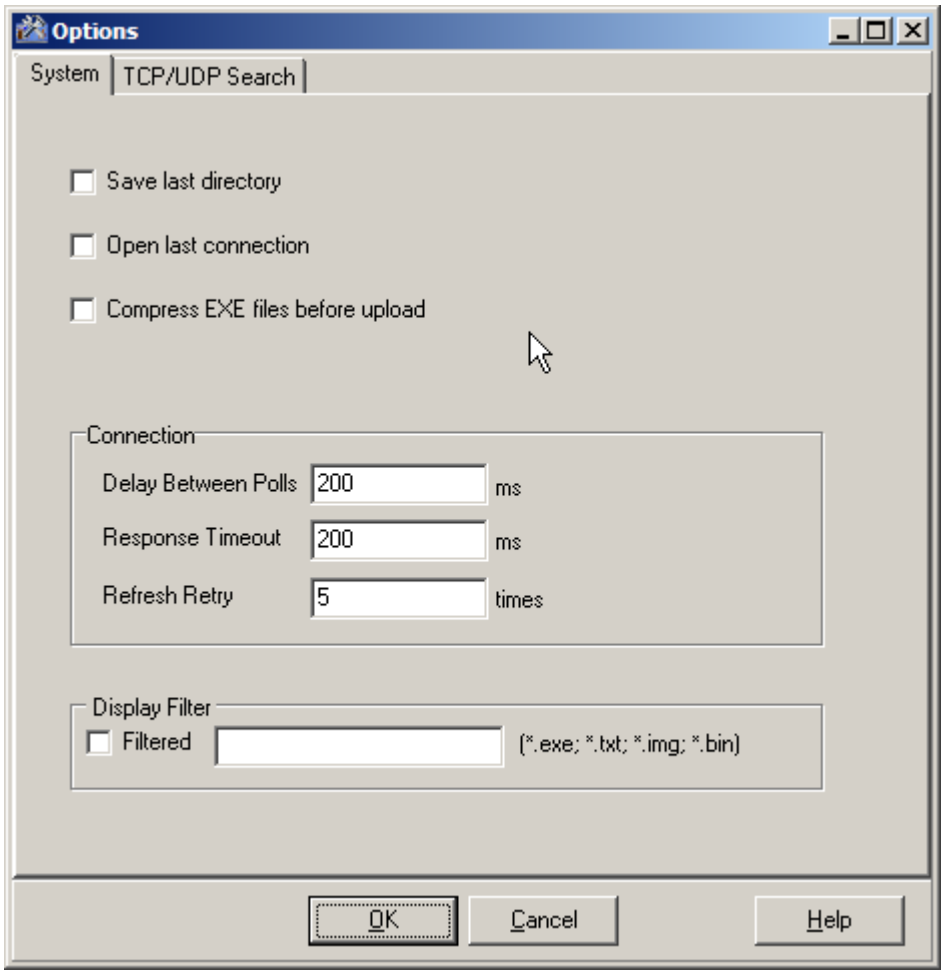


Options



You can set options of ***MiniOS7 Utility*** in the Options window. Click Options menu in the **MenuBar**. The Options window contains two tabs and describes as follows.

- **System Options**

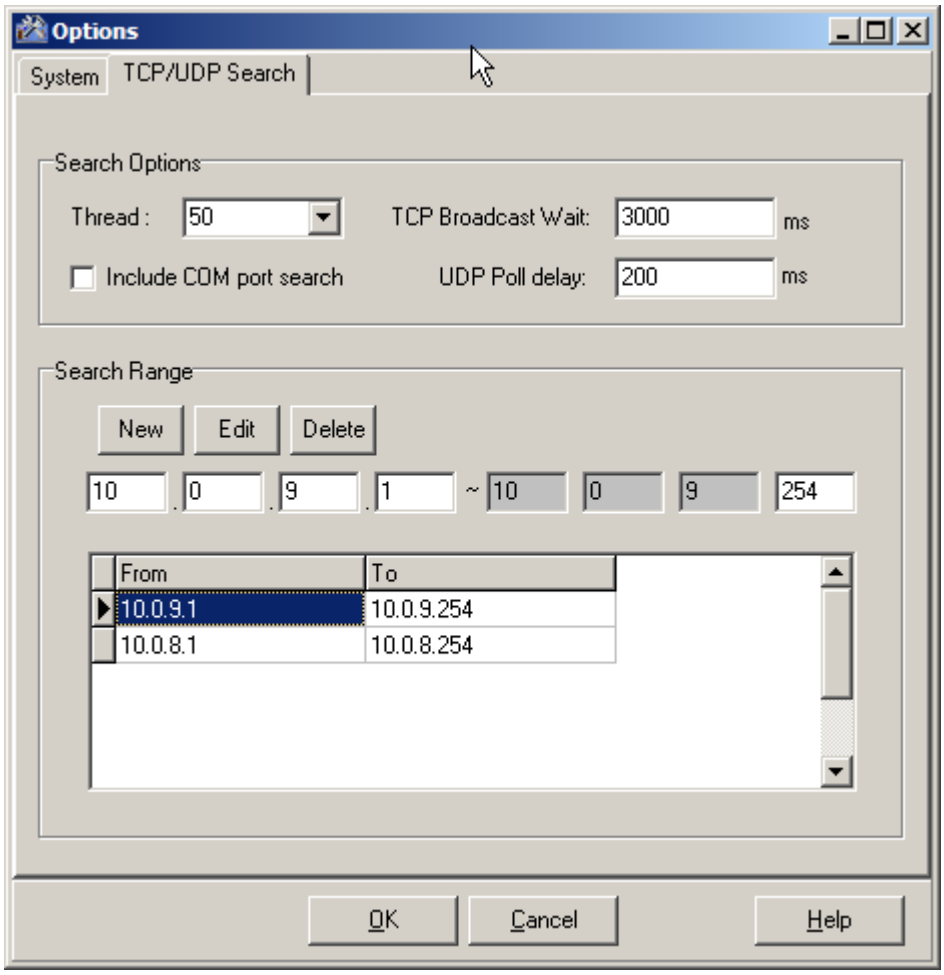


The following configuration options are available:

Save last directory	If this option is checked, ***MiniOS7 Utility*** changes the **LocalPane** to last directory that you quit before when MiniOS7 Utility activate.
Open last connection	If this option is checked, ***MiniOS7 Utility*** opens last connection that you quit before when MiniOS7 Utility activate.
Compress EXE files before upload	If this option is checked, ***MiniOS7 Utility*** compresses .EXE file automatically by **upx.exe** before uploading.
Connection options	The options of connection

	group provides three options to configure. 1. **Delay Between Polls** lets you define how long does ***MiniOS7 Utility*** reload information from ***MiniOS7*** between Polls. 2. **Response Timeout** lets you define within how long should **MiniOS7 Utility** response. **3. Refresh Retry** lets you define how many times to retry.
Display filter	The **Display filter** makes **LocalPane** to filter extension that you define.

- **TCP/UDP Search**

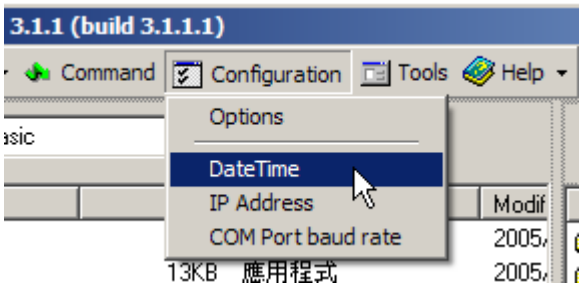


The following configuration options are available:

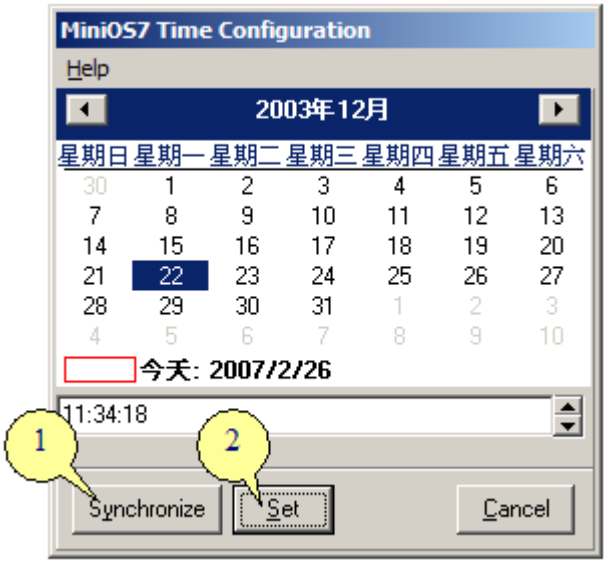
Thread	The bigger thread count increases searching speed but costs your PC performance.
TCP Broadcast Wait	When launching firmware on the device, MiniOS7 Utility uses TCP to send commands and wait for the response. This item defines the timeout of waiting.
UDP Poll Delay	***MiniOS7 Utility*** polls each 7188/8000 controller according to the Search Range that you define.
Include COM port search	Scan all COM port on your computer. It may cost a long time so turn on/off based on your need.

Search Range	It defines the subnet for UDP Poll to search.

Date & Time

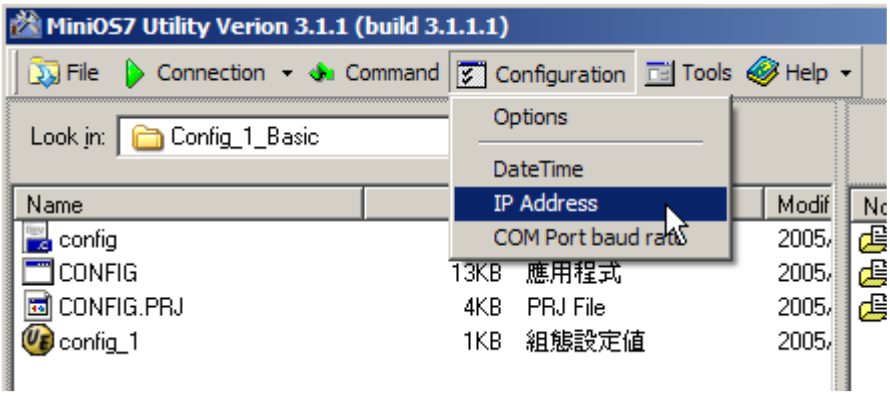


The Date & Time Dialog provides you to change the date & time of the 7188/8000 controller**.** When you click Synchronize button, the ***MiniOS7 Utility*** synchronize the date/time information between the device and PC. It sets date/time to Controller when you click Set Button or Cancel Button to close this operation.

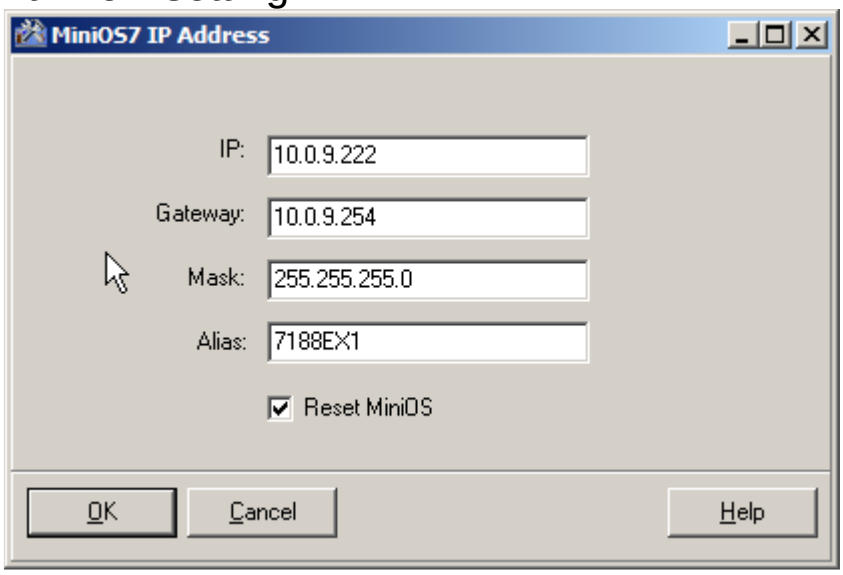


IP Address

IP Address dialog provides you to change MiniOS7 network settings including IP, gateway, mask and alias.

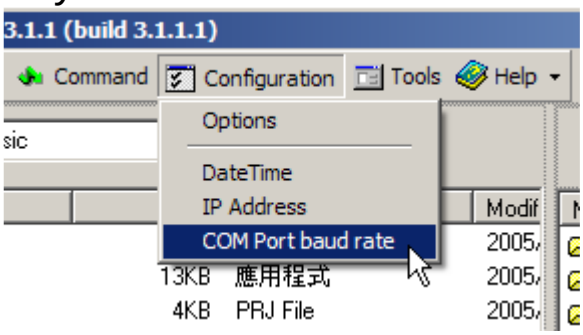


When you turn on the check box of Reset MiniOS7 and click Ok button, these setting then saved to EEPROM of MiniOS7 and restart MiniOS7 with new setting.

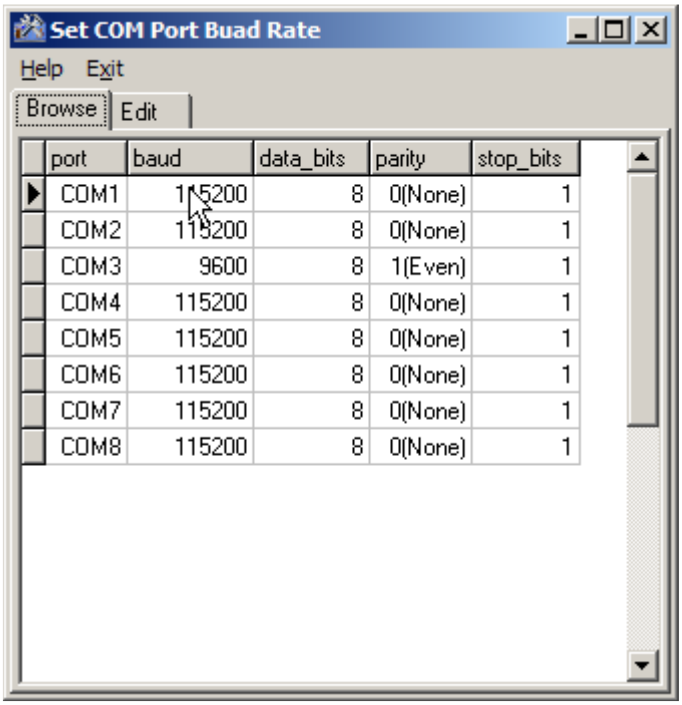


COM Port Baud Rate

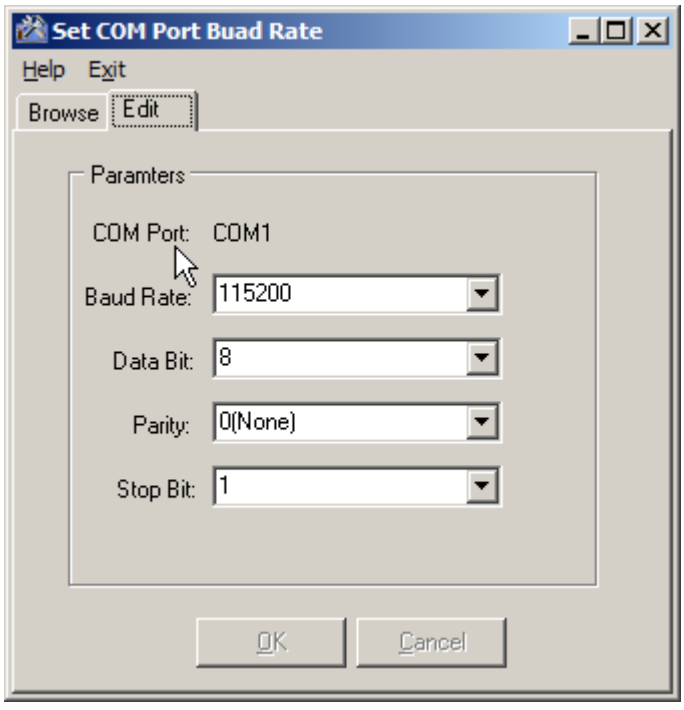
The **Com Port Baud Rate** dialog provides you setting each options of Com Port on your ***MiniOS7.***



The Browse Tab display how many Com Ports the ***MiniOS7-equipped*** device has and then double click the item or click **Edit Tab** to edit Com Port settings.

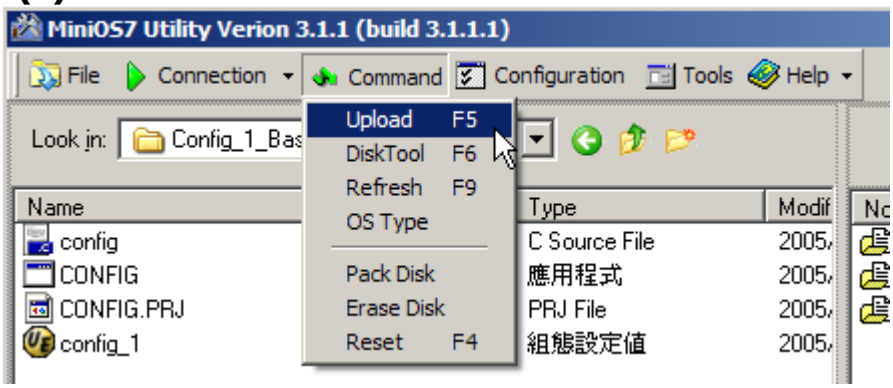


The **Edit Tab** provides options for COM port setting. You can click OK Button to confirm the changes or Cancel Button to cancel these changes.



Tasks

Upload File(s)

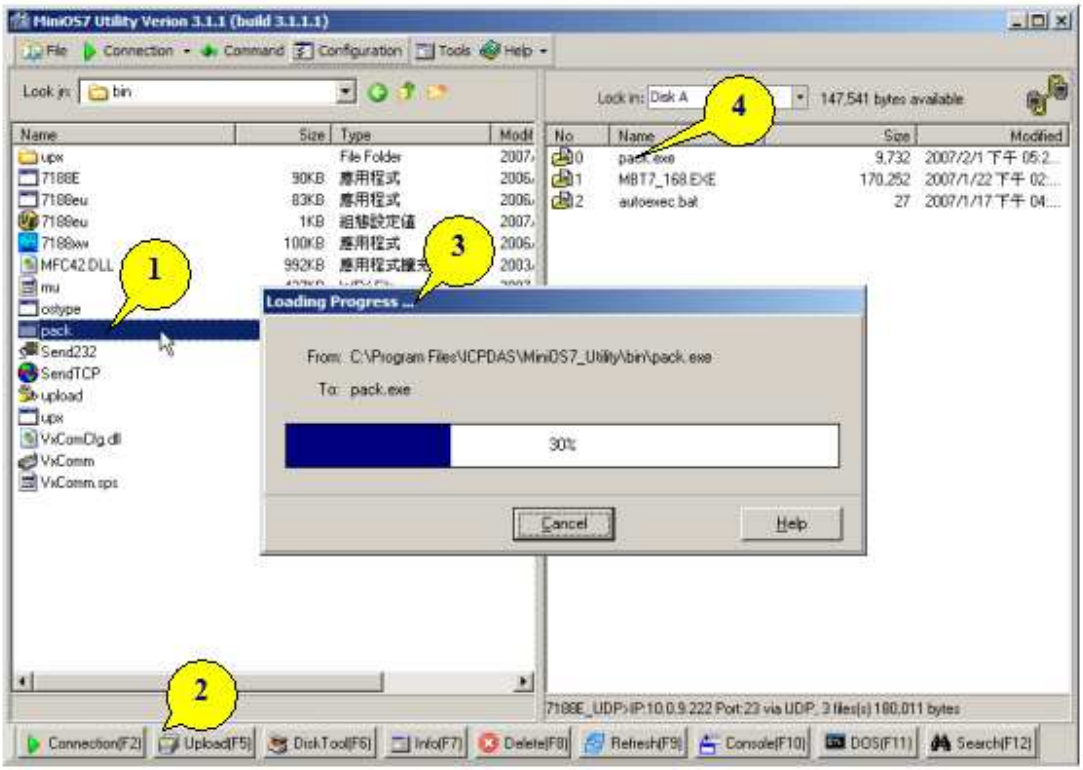


MiniOS7 Utility can easily and quickly upload the file(s) to the 7188/8000 controllers.

Do one of following to perform upload file(s).

- Click Upload Button in the ToolBar. 

- Choose **MenuBar > Command,** and then click Upload item.
- Hotkey: F5
- Click right mouse button within **Local Pane** and select upload command from the popup menu.



Step by Step

1. Select file from Local Pane
2. Click Upload Button in the ToolBar
3. Loading progress appear on window
4. File upload completed.

If you MiniOS7 Controller have no enough space to save file, you can compress .EXE file before uploading. For more detailed information please refer to [Using MiniOS7 Utility/Options/System Options].

Delete File(s)

MiniOS7 Utility can delete single file or multiple files on the 7188/800 controllers***.*** When you perform delete task, ***MiniOS7*** marks the file(s) what you want to delete but these files are not really removed from the flash disk of the device.

Select files to delete and do one of follows to perform delete file(s).

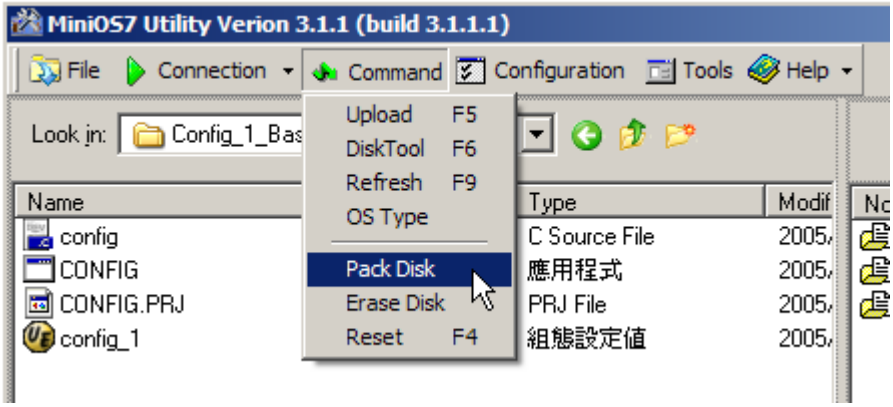
- Click Delete Button in the ToolBar. 

- Click Delete Key when the item is **Remote Pane**.
- Hotkey: F8

The ***MiniOS7*** does not release any space before perform **Pack** command. For more information about **Pack** command, please see the next section.

For the cases of older versions of ***MiniOS7*** or connection through TCP, ***MiniOS7 Utility*** does not delete file(s) but raise a confirm dialog to ask you whether performing “Erase Disk” or not.

Pack



The **Pack** command is an external command that performs re-allocating flash memory. MiniOS7 Utility actually does not remove the deleted file(s) on the device but mark a deleted flag on MiniOS7 File System only. So ***MiniOS7*** cannot release space before execute Pack command.

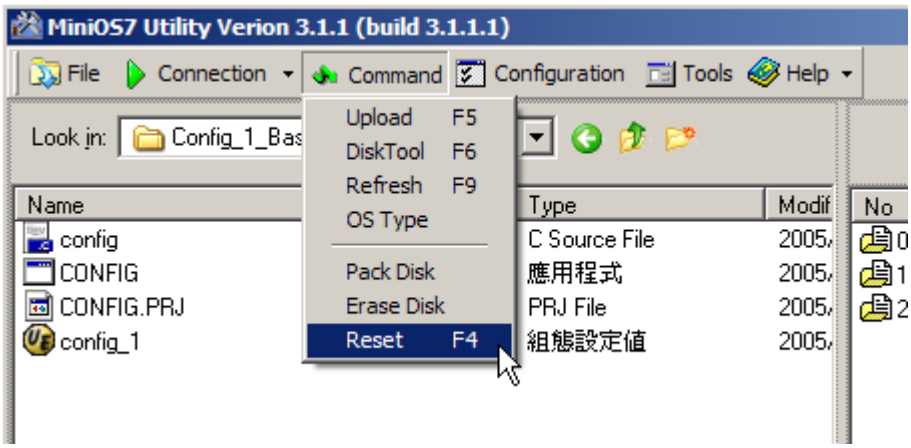
- **To perform Pack command, proceed as follows.**

Choose MenuBar > Command, and then click Pack Item.

If your MiniOS7 does not include pack.exe, then ***MiniOS7 Utility*** will upload pack.exe to the RAM of ***MiniOS7*** and execute immediately.

You can upload pack.exe to the device from C:\ICPDAS\MiniOS7 Utility\bin\ to speed up Pack task if you execute pack.exe frequency.

Reset



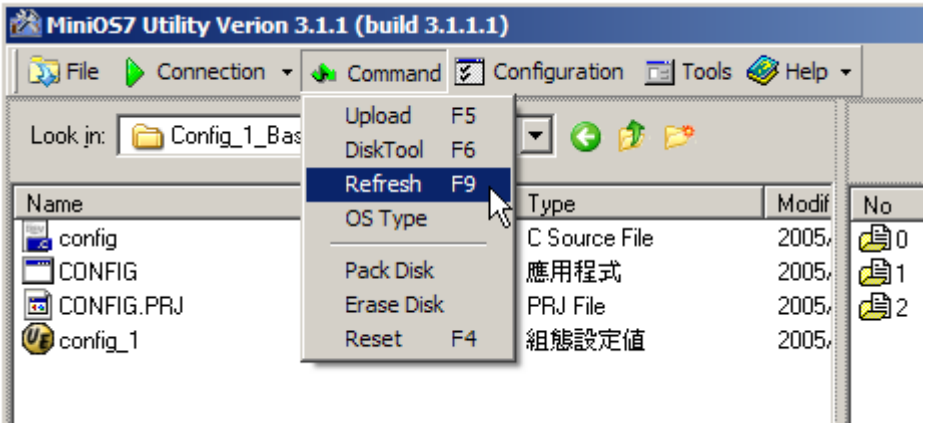
The Reset command provides you with resetting ***MiniOS7*** for

the purpose of executing autoexec.bat or else.

To Reset *MiniOS7*, do one of following:

- Choose MenuBar > command, and then click reset item.
- Hotkey: F4
- Click right mouse button within **RemotePane** and select reset command from the popup menu.

Refresh



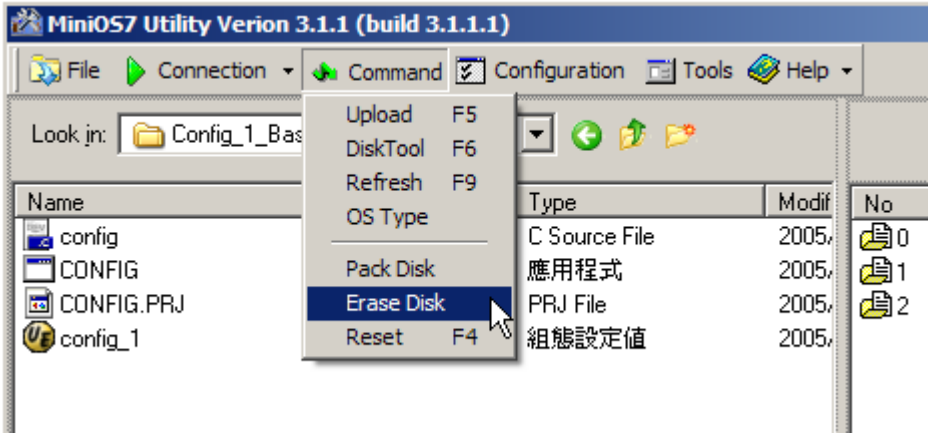
The Refresh command provides you with reloading file information and displaying them on Remote Pane. The information of MiniOS7 includes prompt, how many files, available spaces, etc.

To Refresh *MiniOS7*, do one of following:

- Choose MenuBar > command, and then click refresh item.
- Click Refresh Button in the ToolBar. 

- Hotkey: F9

Erase Disk

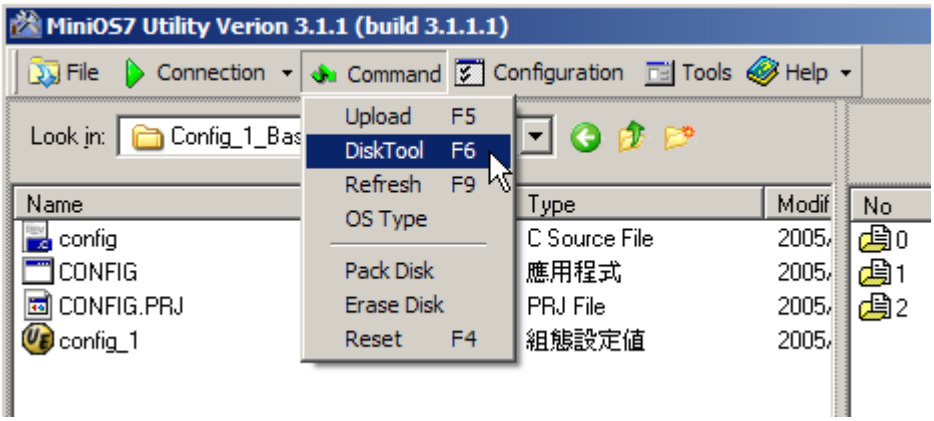


You may want to erase disk of the device when it has not enough space to upload file(s). ***MiniOS7 Utility*** erases all files on the current working disk of MiniOS7. Unlike **Delete file** that marks file only, **Erase Disk** wipes out flash memory of the device. So after performing **Erase Disk,** the operation of **pack.exe** is unnecessary.

To erase disk on *MiniOS7*, do one of following:

- Choose MenuBar > Command, and then click Erase Disk item.
- Hotkey: F6

DiskTool



Depending on your need, ***MiniOS7*** can divide the disk into four different parts.

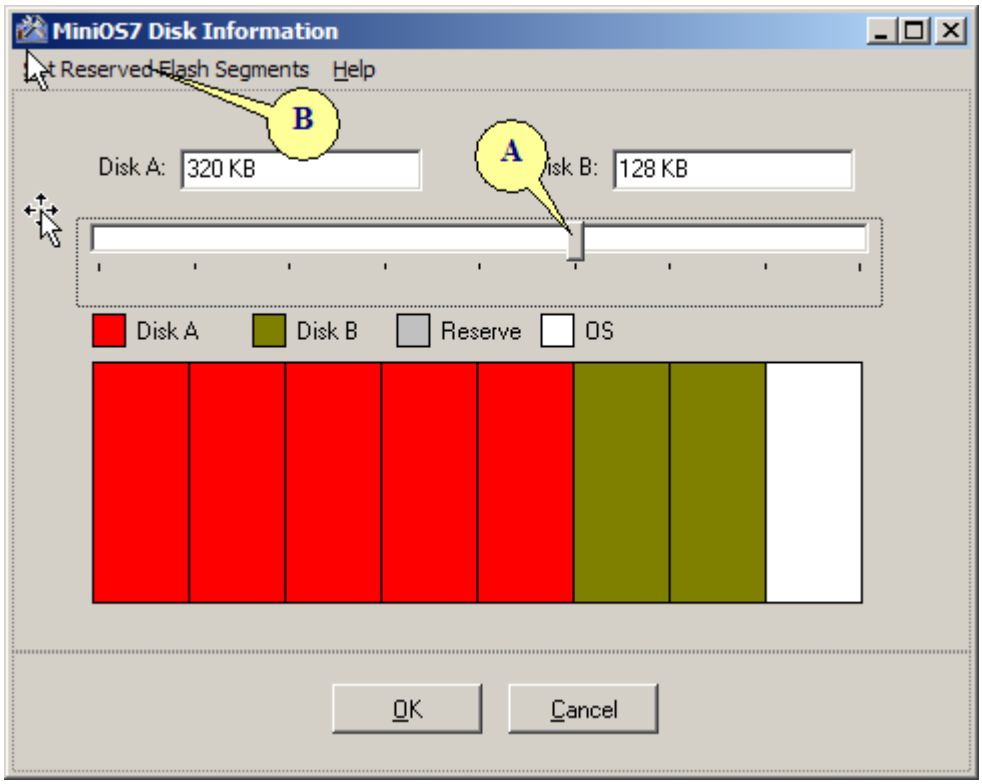
- ***Disk A***: used to store you files.
- ***Disk B***: used to store you files.
- ***Reserve***: reserved for programming if you want to record some data. Erase Disk, Pack Disk, Delete file(s) commands will not touch the Reserved area.

- ***OS***: used to store ***MiniOS7*** Image

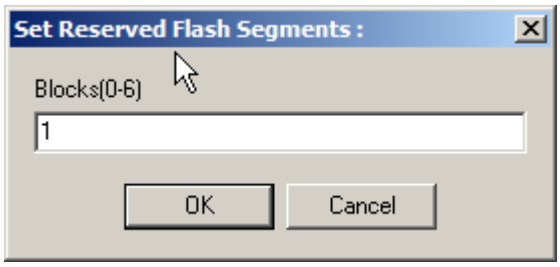
To open DiskTool dialog, do one of following:

- Choose MenuBar > Command and then click DiskTool
- Click DiskTool in the Toolbar 

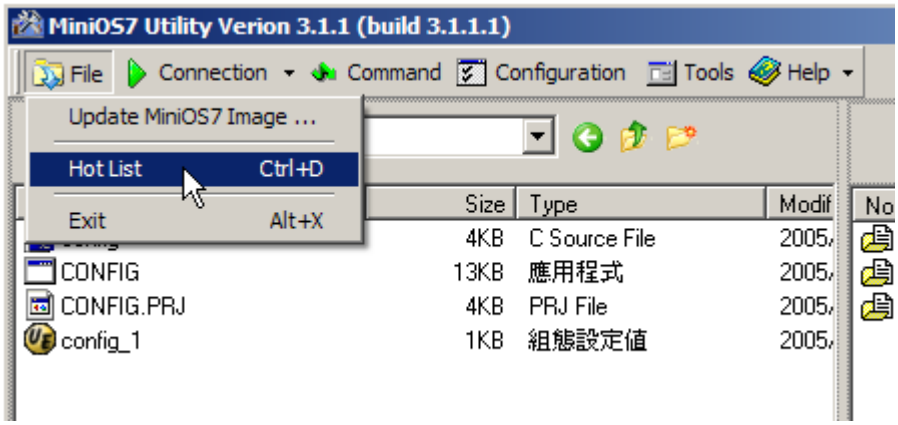
- Hotkey: F6



- You can choose the thumb of slider **(A)** to split DiskA and DiskB and choose Set Reserved Flash Segments **(B)** to allocate Reserve Image.
- In general, DiskA must be greater and equal than one block (64K).
- When the dialog of Set Reversed Flash Segments was opened, you can enter an integer value that you want to allocate.



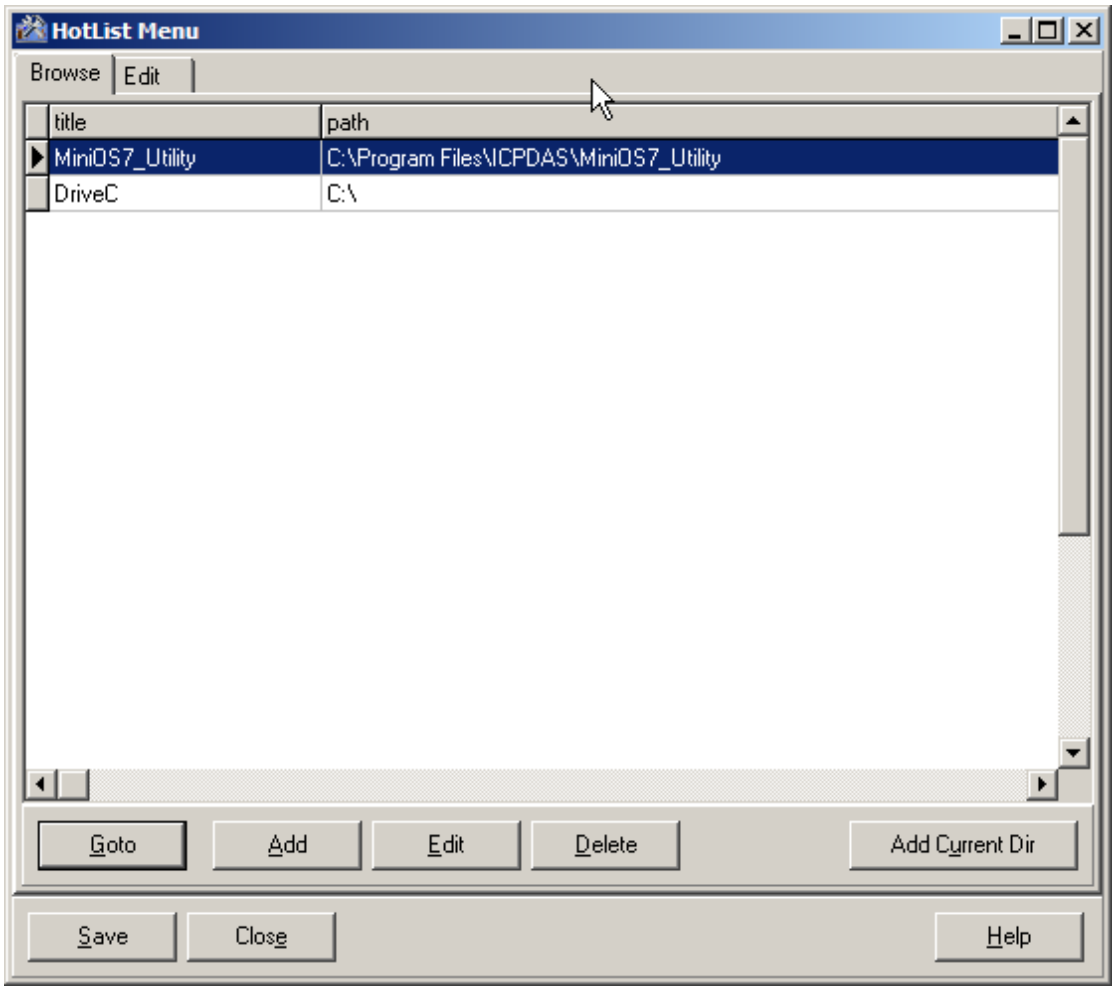
Hot List



You can change or save common used directory to Hot List. If you have many projects work with same time, then Hot List is suitable for you.

To open Hot List dialog, do one of following:

- Choose MenuBar > File, and then click Hot List item.
- Hotkey: Ctrl + D

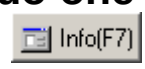


1. Click on Add Current Dir button, you will see a new item append to the listbox.
2. To change current working directory, you can double click one of list item or click Goto button.
3. You can click Edit button or Delete button to modify or delete the item that you selected.

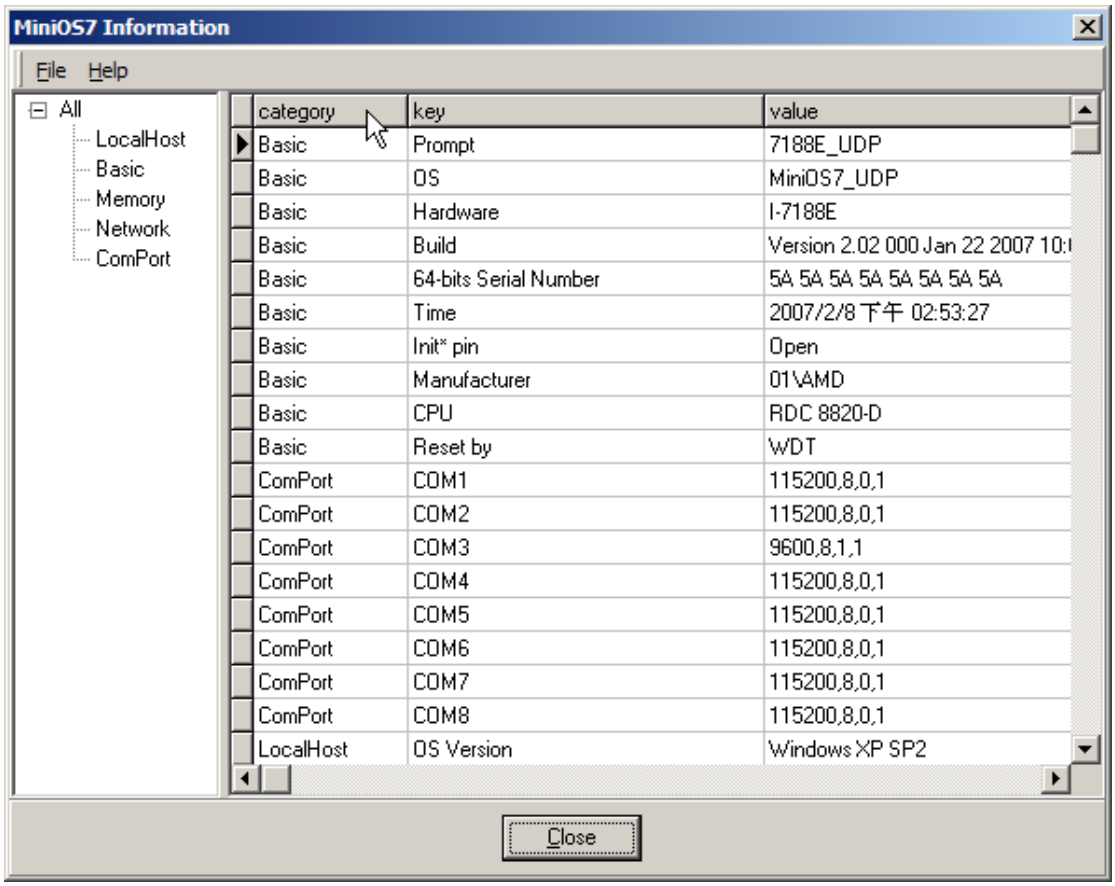
MiniOS7 Information

The MiniOS7 information provides you with useful information about MiniOS7. So you can use this information to check your MiniOS7 whether setting exactly or not.

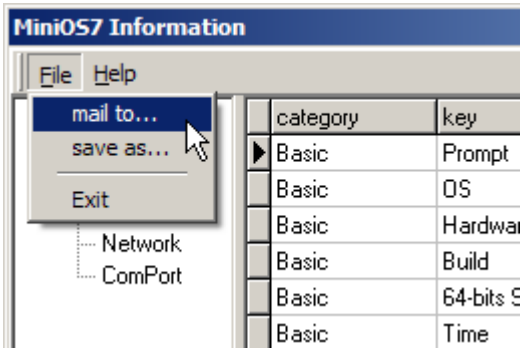
To open MiniOS7 information dialog, do one of the following

- Click Info button in the ToolBar. 

- Hotkey: F7



You can mail or save information from menu on top of window.



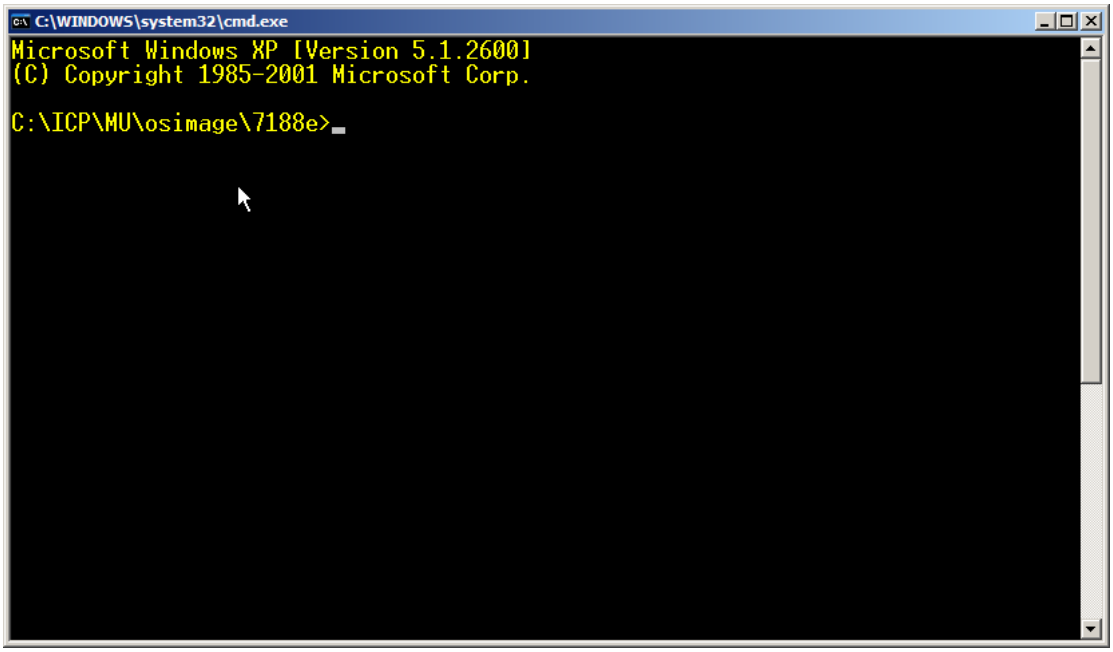
DOS Box

The DOS box launches console window the same as you execute CMD.EXE except the working directory changes to that of MiniOS7 Utility.

To open DOS box, do one of the following

- Click DOS button in the ToolBar. 

- Hotkey: F11
- Click right mouse button within **LocalPane** and select DOS command from the popup menu.



Console

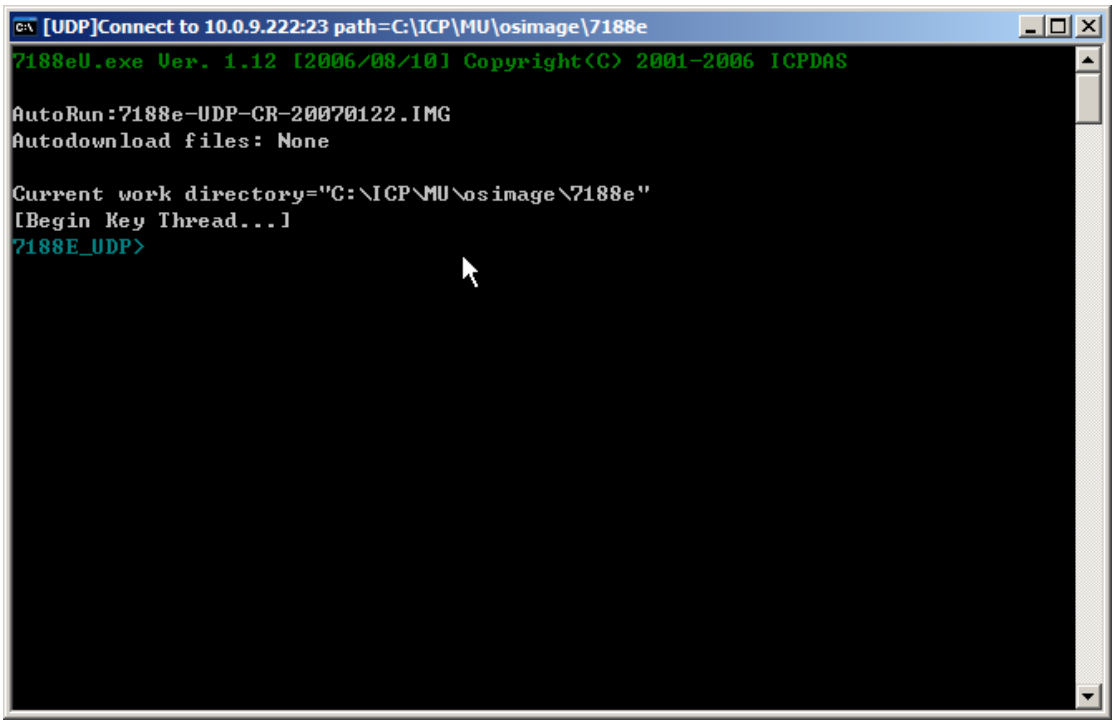
The Console command helps you launching console application such as 7188xw.exe, 7188eu.exe and 7188e.exe depending on the current connection. Unlink 7188xw.exe (or 7188eu.exe, 7188e.exe) form MenuBar > Tool. The Console command opens such application and passes the parameters of current connection to it.

To open Console command, do one of the following

- Click Console button in the ToolBar. 

- Hotkey: F10

Click right mouse button within **LocalPane** and select DOS command from the popup menu.

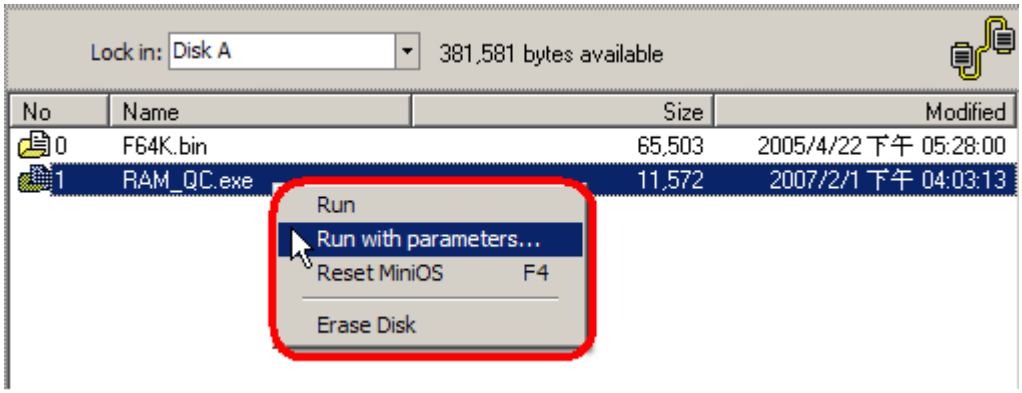


Run / Run with parameters …

The **Run** (or Run with parameters) command offers you a way to perform executable file from ***MiniOS7.*** It provides the same function as **Console** command except executes file that you selected on **RemotePane.**

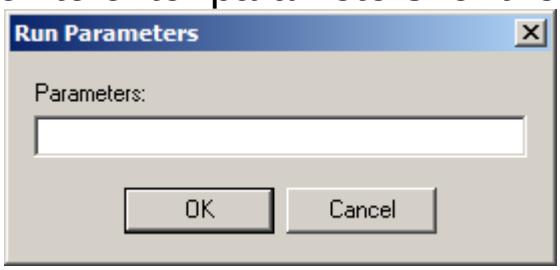
To perform Run command, do the follows:

Click right mouse button within **RemotePane** and select Run (or Run with parameters) from the popup menu.



The Run with parameters is the same as Run except

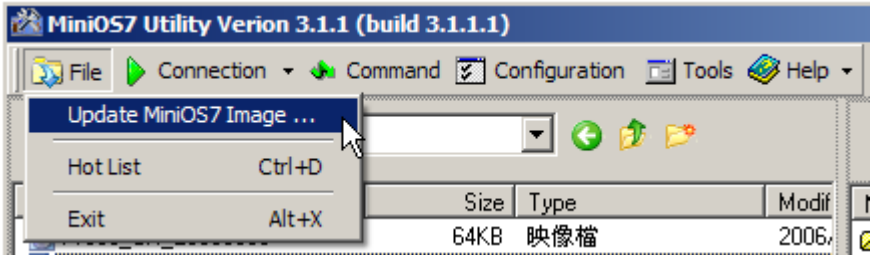
opening a input box to enter parameters for the executable file.



Upgrade MiniOS7 Image

To upgrade MiniOS7 image, do one of the following
Method 1.

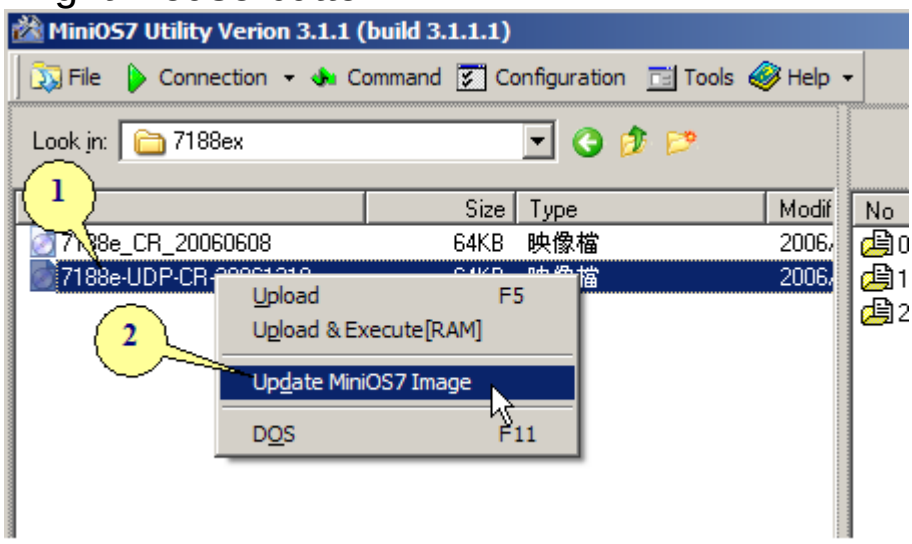
Choose MenuBar > File and then click Upgrade MiniOS7 image item. When dialog appears, choose an image file to upgrade.



Method 2.

Choose extension with .img from Left pane and click right mouse button, then click Upgrade MiniOS7 image.

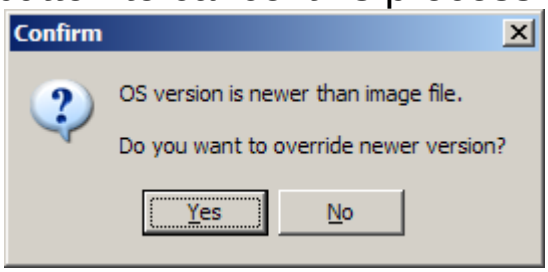
Step 1. Choose *.img
Step 2. Click right mouse button.



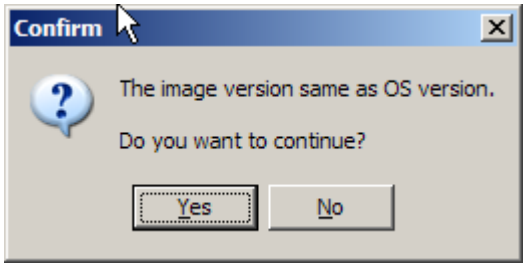
To upgrade ***MiniOS7*** Image, These are four conditions you have to consider.

- If your image file is newer than your current ***MiniOS7*** image and has the same OS type, then it upgrades automatically and doesn't raise any dialog.

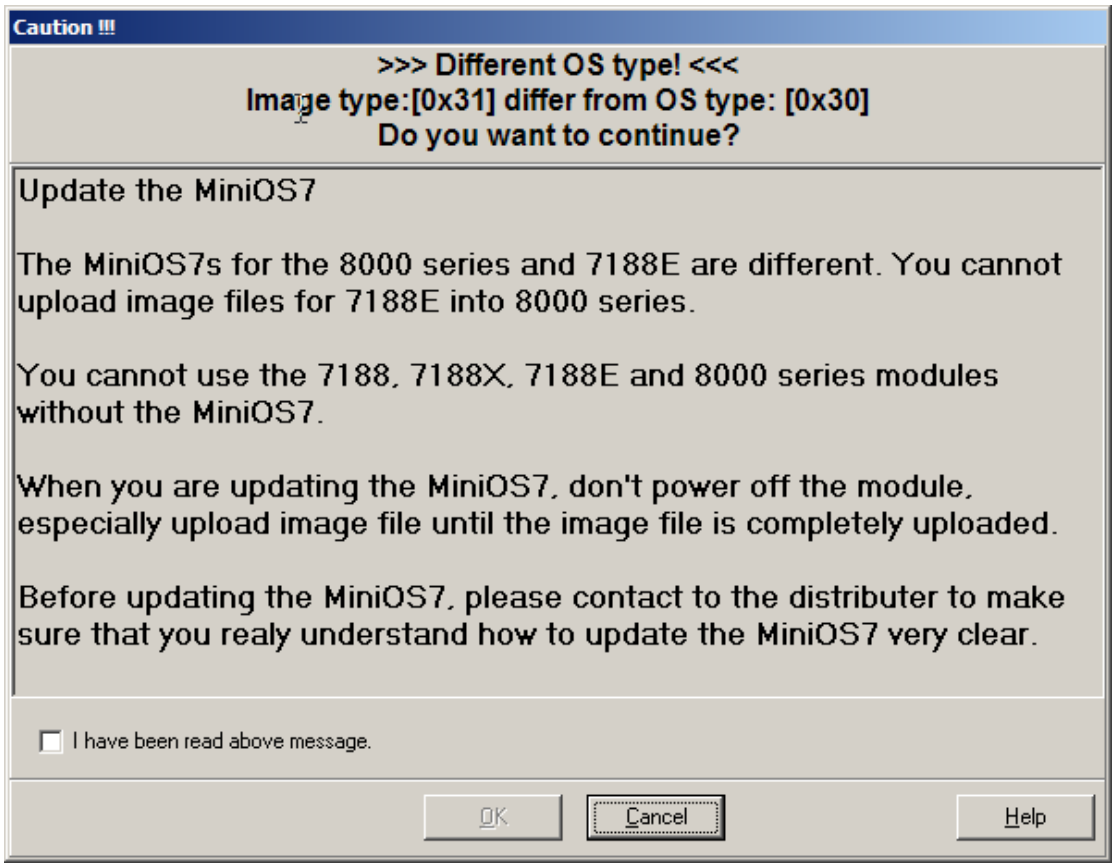
- If your ***MiniOS7*** is newer than image file and has the same OS type, ***MiniOS7 Utility*** raises a confirm dialog and click Yes button to proceed or No button to cancel this process.



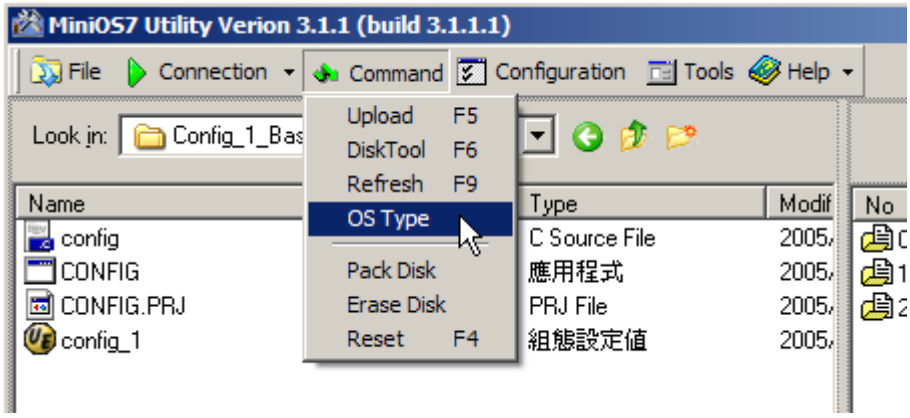
- If your image file is the same as your ***MiniOS7*** image and has the same OS type, ***MiniOS7 Utility*** raises a confirm dialog and click Yes button to proceed or No button to cancel this process.



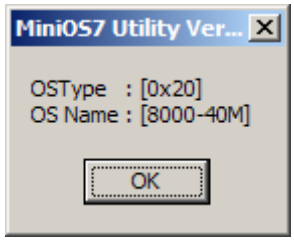
- When your OS type is different with the image file, ***MiniOS7 Utility*** raises a caution dialog because different OS type may cause fatal error for 7000E or 8000 serials. Click the checkbox [I have read above message] to double confirm and Ok button to update.



OS Type



- Do the following to get MiniOS7 type information. Choose MenuBar > command, and then click OS type.



Please refer to Appendix B: OS Type Mapping Table**.**

Appendix A: Tools

- **7188xw.exe**

For more information, refer to
CD/8000/Napdos/MiniOS7/utility/document/7188exw.htm

- **7188e.exe**

For more information, refer to
CD/8000/Napdos/MiniOS7/utility/document/7188e_eng.htm

- **7188eu.exe**

7188eu.exe is a client side utility that provides essential commands. Similarly except the different way to connect with 7188xw.exe.

For more information, refer to
CD/8000/Napdos/MiniOS7/utility/document/7188eu.htm

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Appendix B: OS Type Mapping Table

MiniOS7 OS Type	MiniOS7 OS Name
0x00	7188
0x10	7188XC
0x11	7188XA
0x12	7188XB
0x1A	7186XB
0x20	8000-40M
0x2A	C812-B847
0x21	8000E-80M C836 V2.1 later
0x22	8000E-80M/8KE4 C836 V1.2
0x23	P824
0x24	C826(CAN)
0x25	C837
0x26	C829/846
0x27	C827
0x28	C832
0x30	7188E 7188E_UDP
0x31	7186EX
0x32	7186E3-RJ45 7186E-Bosch
0x33	H7K-NSC
0x40	Iview-20M
0x42	Iview-40M
0x50	8114H vxc114
0x51	8094H
0x60	ET6000
0x90	PISO-S400
0x92	BPLC
0xA0	PIO-PM100

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Appendix C: Command set for MiniOS7

Command	Description
LED5 pos value	Displays a HEX value in the specified position of 5-digit LED
USE NVRAM	Accesses the service routine to read/write from/to the NVRAM
USE EEPROM	Accesses the service routine to read/write from/to the EEPROM
USE FLASH	Accesses the service routine to read/write from/to the Flash Memory
USE COM2 /option	Accesses the service routine to send/receive to/from COM2
DATE [mm/dd/yyyy]	Sets the date of the RTC
Time [hh:mm:ss]	Sets the time of the RTC
MCB	Tests the current memory block
UPLOAD	Stores the MiniOS7 image file in the SRAM of the I-7188XA(D) (this command is only used to upgrade MiniOS7)
BIOS1	Stores the MiniOS7 image file in the Flash memory of the I-7188XA(D) (this command only used to upgrade MiniOS7)
LOAD	Downloads the user program file to the Flash Memory of the I-7188XA(D)
DIR [/crc]	Lists the information of all files stored in the Flash Memory of the I-7188XA(D)
RUN fileno	Executes the file with the prescribed file number
Filename	Executes the file with the prescribed file name
DELETE or DEL	Deletes all files stored in the Flash Memory.
RESET	Resets the CPU
DIAG [option]	Performs hardware diagnostics
BAUD baudrate	Sets a new value for the Baud Rate of COM1
TYPE filename [/b]	Lists the contents of a file
REP [/#] command	Repeats the execution of the same command #

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	times
RESERVE [n]	Reserve n Flash Memory sectors for a program file
LOADR	Downloads files to the SRAM
RUNR [option]	Runs the program stored in the SRAM of the I-7188XA(D) (downloaded using the LOADR command)
I/INP/IW/INPW port	Reads data from the hardware Port
O/OUTP/OW/OUTPW port value	Outputs data to the hardware Port
More ……	

Note: For more detailed information regarding MiniOS7, refer to CD:\Napdos\MiniOS7\document\minios7_commands_v1.2.pdf or http://ftp.icpdas.com/pub/cd/8000cd/napdos/minios7/document/minios7_commands_v1.2.pdf

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