

MC-7400 Series Computer Windows User's Manual

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MC-7400 Series Computer Windows User's Manual

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Introduction

Thank you for buying Moxa's MC-7400 Series computer. The MC-7400 computer comes with the Windows 10 LTSB software platform, providing a simple and familiar development environment for various industrial applications.

The following topics are covered in this chapter:

- ❑ **Software Components**

Software Components

Refer to the following content for the software components of the Windows 10 LTSB preinstalled on the MC-7400 Series computer.

Windows 10 LTSB

Core OS:

- 64-bit support
- Remote client
- Remote procedure call

Applications and Services Development:

- .Net Framework 3.5
- .Net Framework 4.6
- Remote Desktop
- COM+ application support
- MSMQ

Internet Services:

- Internet Explorer 11
- IIS 10.0

File Systems and Data Storage:

- Windows data access components
- Windows backup and restore

Diagnostics:

- Common diagnostic tools
- Problem reports and solutions
- Windows Memory Diagnostic tool

Graphics and Multimedia:

- DirectX and Windows Device Experience
- Photo Viewer
- Remote media streaming
- Windows Media Player

Management:

- Local Group Policy Editor
- Group Policy Management
- Windows Management Instrument (WMI)
- Windows Update

Networking:

- Extensible Authentication Protocol (EAP)
- Internet Authentication Service
- Telnet Server
- Domain Services
- Network and Sharing Center
- Quality of Service
- Remote Access Service (RAS)
- Telephony API Client
- Windows Firewall
- iSCSI Initiator

Security:

- Credential Roaming Service
- Credentials and certificate management
- Windows Authorization Manager (AZMAN)
- Windows Security Center
- Active Directory Rights Management
- Security Base
- Encrypted File System (EFS)
- Data Recovery Agent (DRA)
- Local security policy

Embedded Features:

- Message box default reply
- Registry filter
- WSDAPI for .NET.

Embedded Self-Health Diagnostic Software:

- SNMP-based remote scripting layer for monitoring, reporting, and control

Software Initialization

This chapter describes how to initialize the system settings on the MC-7400 Series computer when you boot up the computer for the first time.

The following topics are covered in this chapter:

- **Overview**
- **Initializing User Settings**

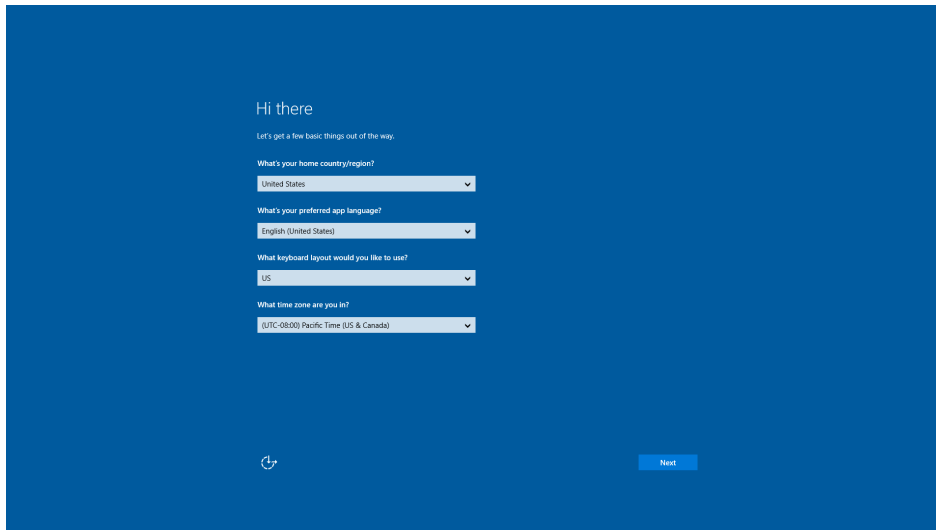
Overview

Like most laptop computers, you will need to first create a user account and initialize the user settings for the MC-7400 embedded computer to work.

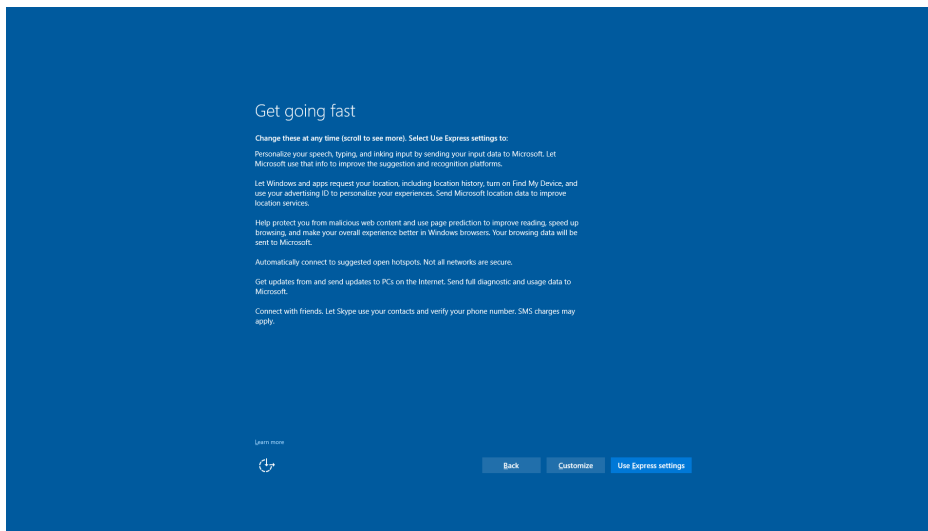
Initializing User Settings

Follow these instructions to create a new user account.

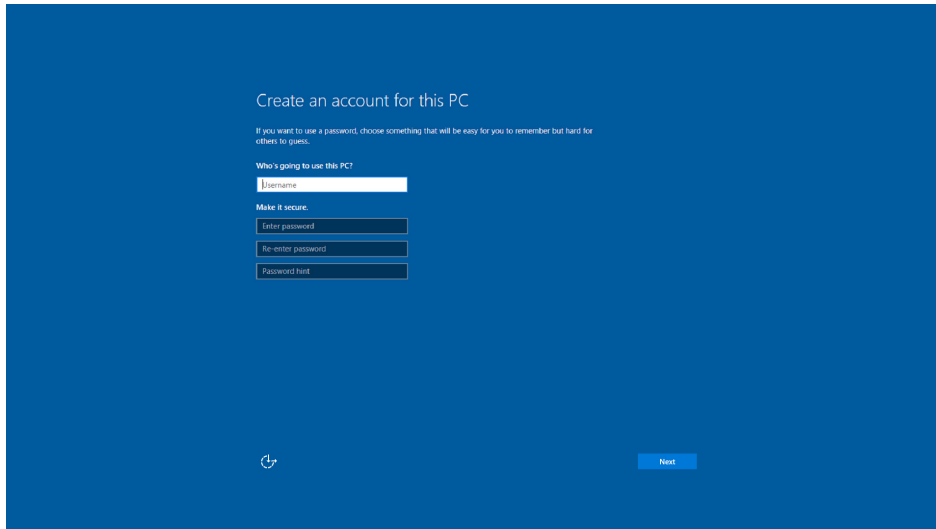
1. When you boot up the embedded computer for the first time, select your home region, preferred language, keyboard layout, and time zone.



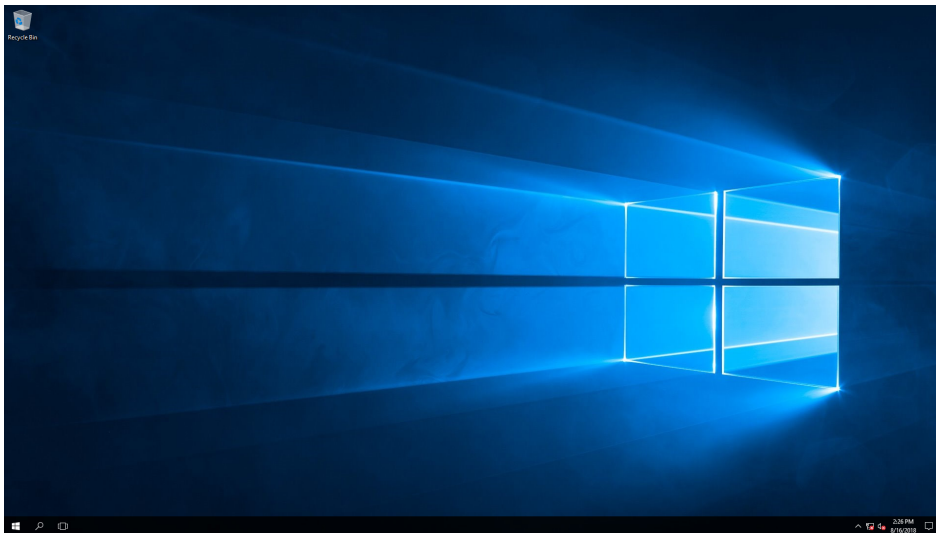
2. Click **Next**.
3. Select **Use Express settings**.



4. Enter a username for this computer. Type the password, retype the password. In addition, you may also type a password hint that can be used when you forget your password.
If you do not want to set the password, leave the field blank and click **Next**.



5. Click **Next**.
6. Wait for the computer to process the new user account information and then restart the computer.



3

Utilities

This chapter describes the utilities supported on the MC-7400 Series computer.

The following topics are covered in this chapter:

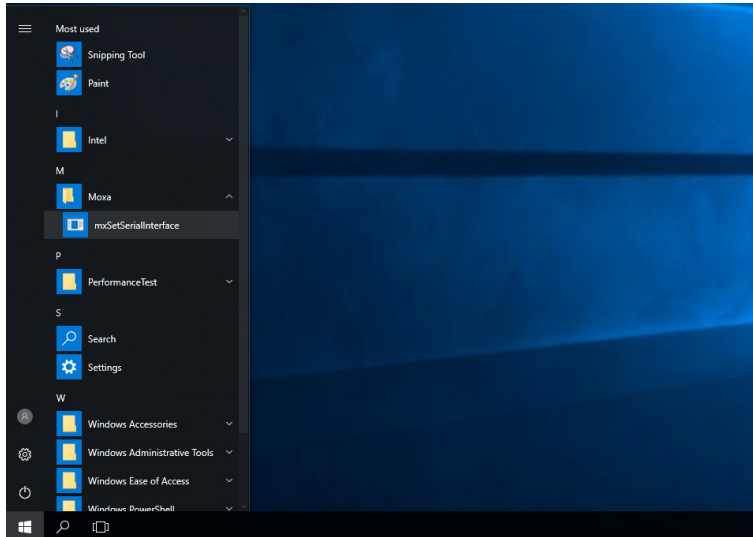
- ▣ **Serial Interface Utility**

Serial Interface Utility

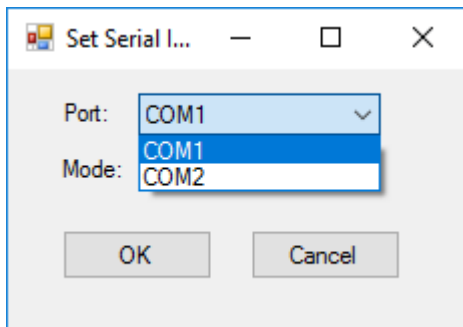
The Serial Interface utility can be used to configure different serial modes on the MC-7400 computer. The MC-7400 supports the serial modes **RS232**, **RS485-2-wire**, and **RS422/RS485-4-wire**. COM1 and COM2 are RS-232/422/485 and COM3 and COM4 are RS-232 ports.

Follow these steps to change the serial interface mode settings.

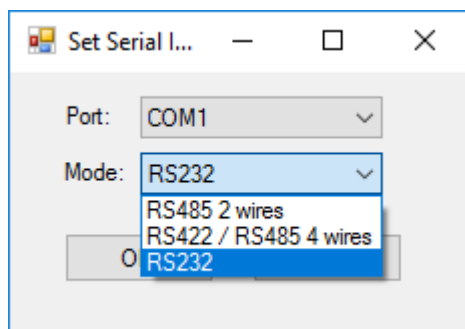
1. From the Start menu, Click **All apps > Moxa > mxSetSerialInterface**.



2. In the **Port** setting, select the type of port (COM1/COM2) that you want to set.



3. Select the serial mode that you want to use in the **Mode** setting.



4. Click **OK**.

4

Examples

The following topics are covered in this chapter:

- ❑ **Watchdog Function**
- ❑ **Serial Interface Mode**
- ❑ **DIO**

Watchdog Function

You can use the watchdog program included in the MC-7400 software DVD to implement the watchdog function.

Enabling the Watchdog Function

To enable the watchdog function on your MC-7400, do the following:

1. Create an **example\Watchdog** folder on your system and copy the following files from the product software DVD:

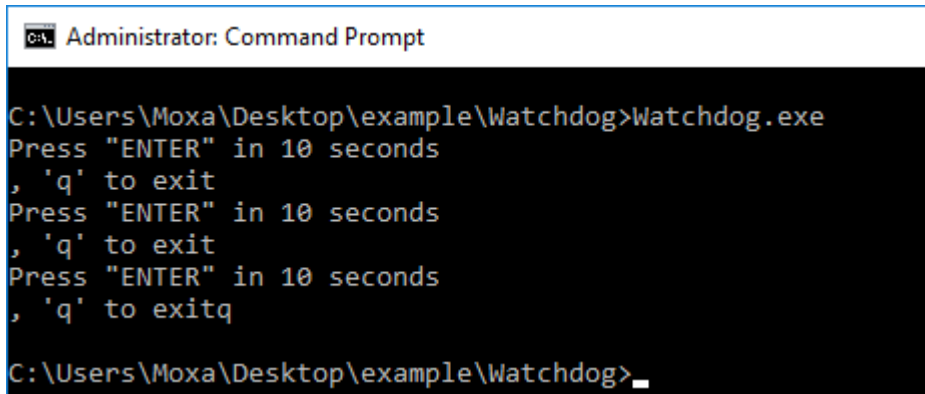
mxdwg.dll: <Software DVD>\Example\[Library]\Release\x64\mxdwg\

Watchdog.exe: <Software DVD>\Example\Release\x64\Watchdog\

2. Run the **Watchdog.exe** program.

You need to press **Enter** every 10 seconds to prevent the system from rebooting.

3. To stop the watchdog function and exit the program, press **q**.



```
Administrator: Command Prompt
C:\Users\Moxa\Desktop\example\Watchdog>Watchdog.exe
Press "ENTER" in 10 seconds
, 'q' to exit
Press "ENTER" in 10 seconds
, 'q' to exit
Press "ENTER" in 10 seconds
, 'q' to exitq
C:\Users\Moxa\Desktop\example\Watchdog>_
```

Serial Interface Mode

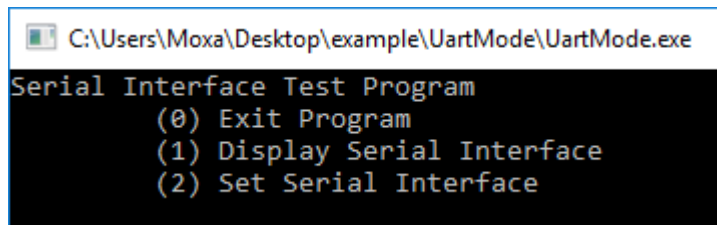
The **UartMode.exe** script reports on and controls the serial interface mode.

To enable the serial interface mode on your MC-7400, do the following:

1. Create an **example\UartMode** folder on the desktop and copy the following files from the product software DVD.

mxsp.dll: <Software DVD>\Example\[Library]\Release\x64\mxsp\
UartMode.exe: <Software DVD>\Example\Release\x64\UartMode\
 \

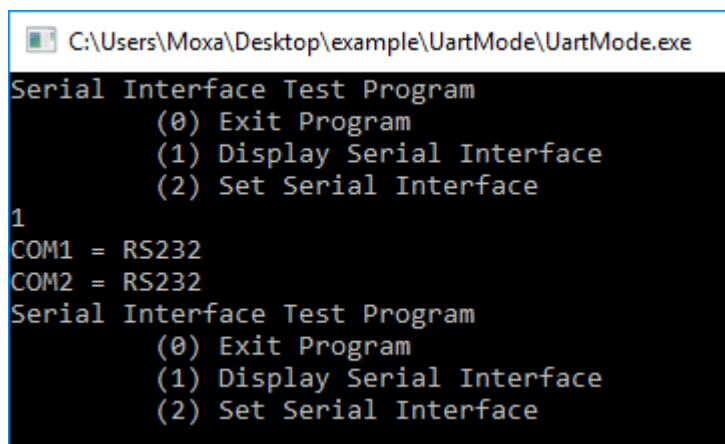
2. Run the UartMode.exe program.



```

C:\Users\Moxa\Desktop\example\UartMode\UartMode.exe
Serial Interface Test Program
  (0) Exit Program
  (1) Display Serial Interface
  (2) Set Serial Interface
  
```

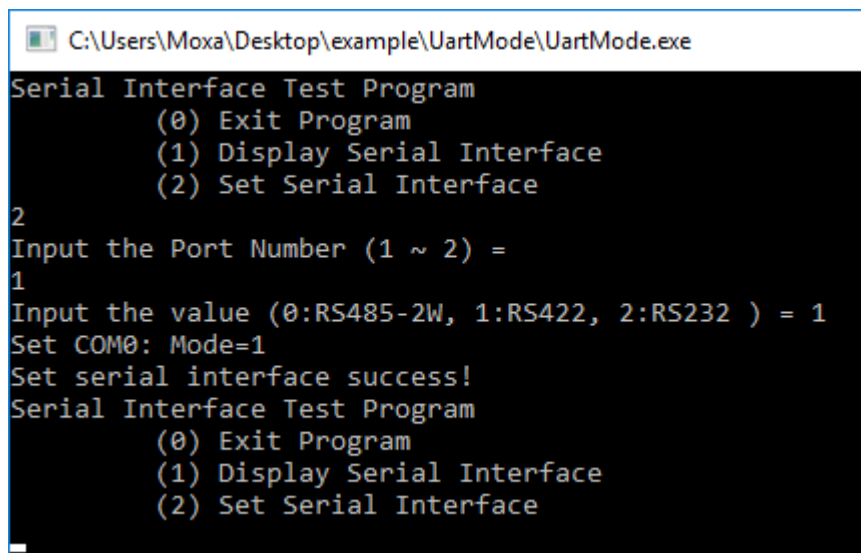
3. Type **1** to display the current serial interface settings.



```

C:\Users\Moxa\Desktop\example\UartMode\UartMode.exe
Serial Interface Test Program
  (0) Exit Program
  (1) Display Serial Interface
  (2) Set Serial Interface
1
COM1 = RS232
COM2 = RS232
Serial Interface Test Program
  (0) Exit Program
  (1) Display Serial Interface
  (2) Set Serial Interface
  
```

4. Type **2** to set the serial interface. Follow the on-screen instructions.



```

C:\Users\Moxa\Desktop\example\UartMode\UartMode.exe
Serial Interface Test Program
  (0) Exit Program
  (1) Display Serial Interface
  (2) Set Serial Interface
2
Input the Port Number (1 ~ 2) =
1
Input the value (0:RS485-2W, 1:RS422, 2:RS232 ) = 1
Set COM0: Mode=1
Set serial interface success!
Serial Interface Test Program
  (0) Exit Program
  (1) Display Serial Interface
  (2) Set Serial Interface
  
```

DIO

This script reports on and controls the state of the DIs and DOs, switching them between high and low.

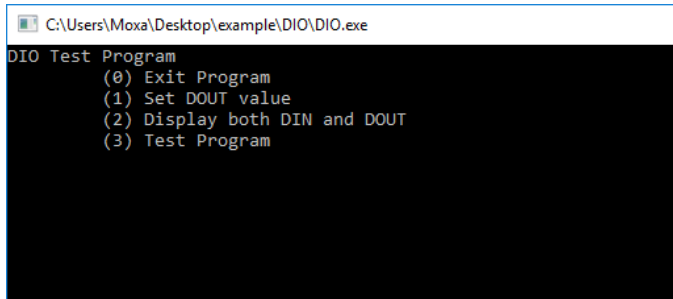
To enable the DIO script, do the following:

1. Create an **example\DIO** folder on the desktop and copy the following files from the product software DVD.

mxgpio.dll: <Software DVD>\Example\[Library]\Release\x64\mxgpio

DIO.exe: <Software DVD>\Example\Release\x64\DIO

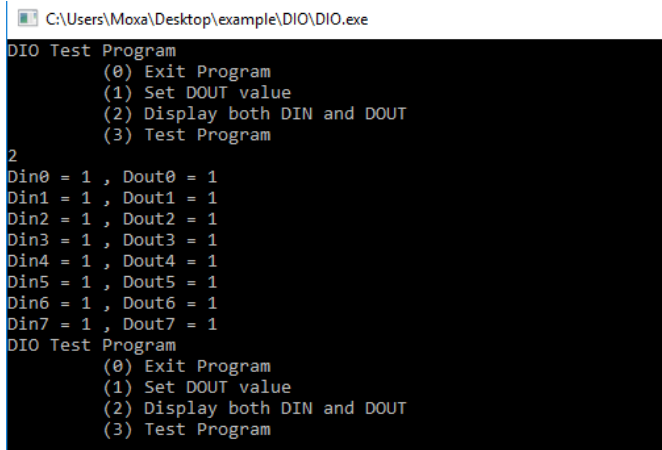
2. Run the **DIO.exe** program.



```

C:\Users\Moxa\Desktop\example\DIO\DIO.exe
DIO Test Program
(0) Exit Program
(1) Set DOUT value
(2) Display both DIN and DOUT
(3) Test Program
  
```

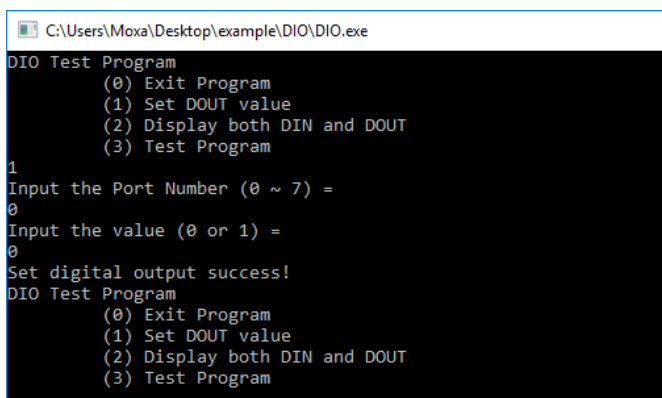
3. Type **2** to display the current DIO status. Follow the on-screen instructions.



```

C:\Users\Moxa\Desktop\example\DIO\DIO.exe
DIO Test Program
(0) Exit Program
(1) Set DOUT value
(2) Display both DIN and DOUT
(3) Test Program
2
Din0 = 1 , Dout0 = 1
Din1 = 1 , Dout1 = 1
Din2 = 1 , Dout2 = 1
Din3 = 1 , Dout3 = 1
Din4 = 1 , Dout4 = 1
Din5 = 1 , Dout5 = 1
Din6 = 1 , Dout6 = 1
Din7 = 1 , Dout7 = 1
DIO Test Program
(0) Exit Program
(1) Set DOUT value
(2) Display both DIN and DOUT
(3) Test Program
  
```

4. Type **1** to set DOUT value. Follow the on-screen instructions and enter the target port and value.



```

C:\Users\Moxa\Desktop\example\DIO\DIO.exe
DIO Test Program
(0) Exit Program
(1) Set DOUT value
(2) Display both DIN and DOUT
(3) Test Program
1
Input the Port Number (0 ~ 7) =
0
Input the value (0 or 1) =
0
Set digital output success!
DIO Test Program
(0) Exit Program
(1) Set DOUT value
(2) Display both DIN and DOUT
(3) Test Program
  
```

5. Type **2** to check the DIO status.

```

C:\Users\Moxa\Desktop\example\DIO\DIO.exe
DIO Test Program
  (0) Exit Program
  (1) Set DOUT value
  (2) Display both DIN and DOUT
  (3) Test Program
1
Input the Port Number (0 ~ 7) =
0
Input the value (0 or 1) =
0
Set digital output success!
DIO Test Program
  (0) Exit Program
  (1) Set DOUT value
  (2) Display both DIN and DOUT
  (3) Test Program
2
Din0 = 0 , Dout0 = 0
Din1 = 1 , Dout1 = 1
Din2 = 1 , Dout2 = 1
Din3 = 1 , Dout3 = 1
Din4 = 1 , Dout4 = 1
Din5 = 1 , Dout5 = 1
Din6 = 1 , Dout6 = 1
Din7 = 1 , Dout7 = 1
DIO Test Program
  (0) Exit Program
  (1) Set DOUT value
  (2) Display both DIN and DOUT
  (3) Test Program

```

6. Type **3** to run the DIO test program and specify the number of tests.
After the test program runs a test report is shown on the screen (100 times * 8 ports).

```

C:\Users\Moxa\Desktop\example\DIO\DIO.exe
DIO Test Program
  (0) Exit Program
  (1) Set DOUT value
  (2) Display both DIN and DOUT
  (3) Test Program
3
Input the number of the test =
100
DOUT Success:800
DOUT Fail:0

DIO Success:800
DIO Fail:0

DIO Test Program
  (0) Exit Program
  (1) Set DOUT value
  (2) Display both DIN and DOUT
  (3) Test Program

```


System Recovery

This chapter describes the recovery process in the event of system instability.

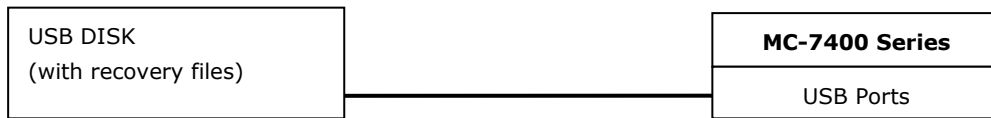
The following topics are covered in this chapter:

- ❑ **Recovery Environment**
- ❑ **Recovery Procedure**
- ❑ **Saving the System Image to a USB Device**

Recovery Environment

The recovery environment includes a PC, a MC-7400 computer, and a bootable USB disk with the recovery programs and the system image file.

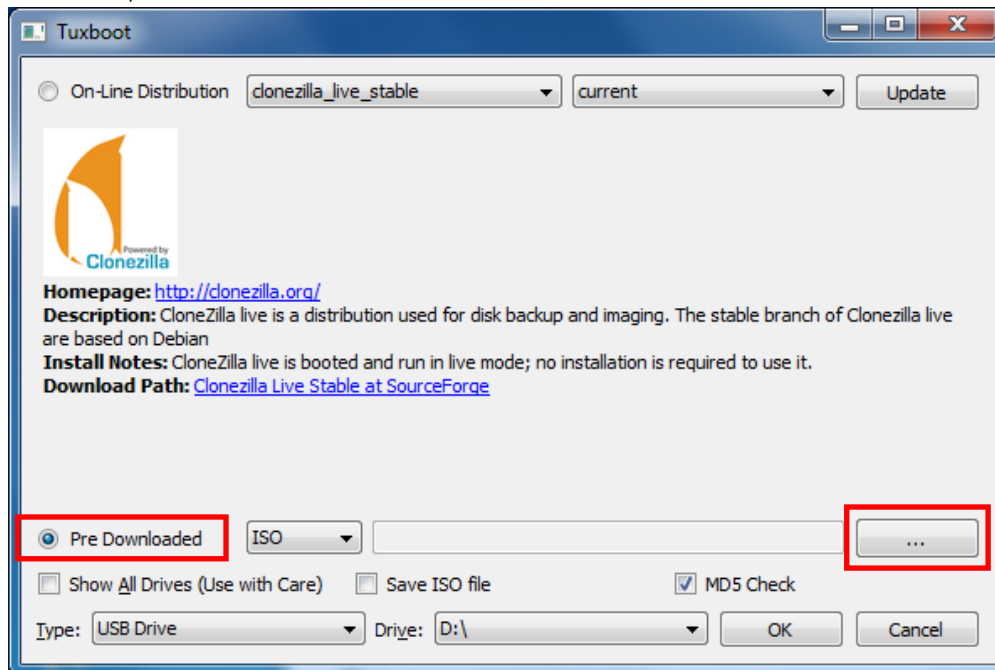
NOTE The USB disk should have at least 8 GB free space.



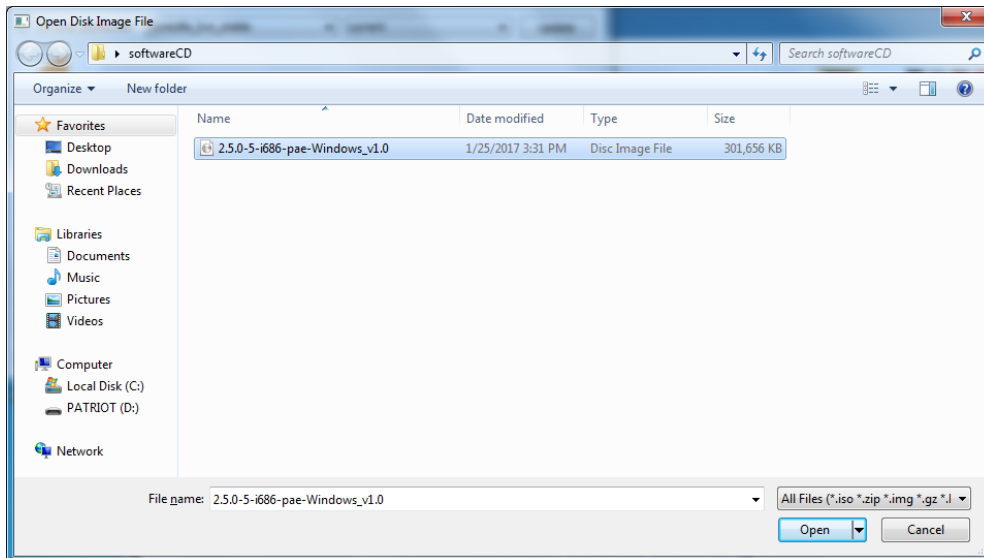
Recovery Procedure

Step 1: Prepare your USB device

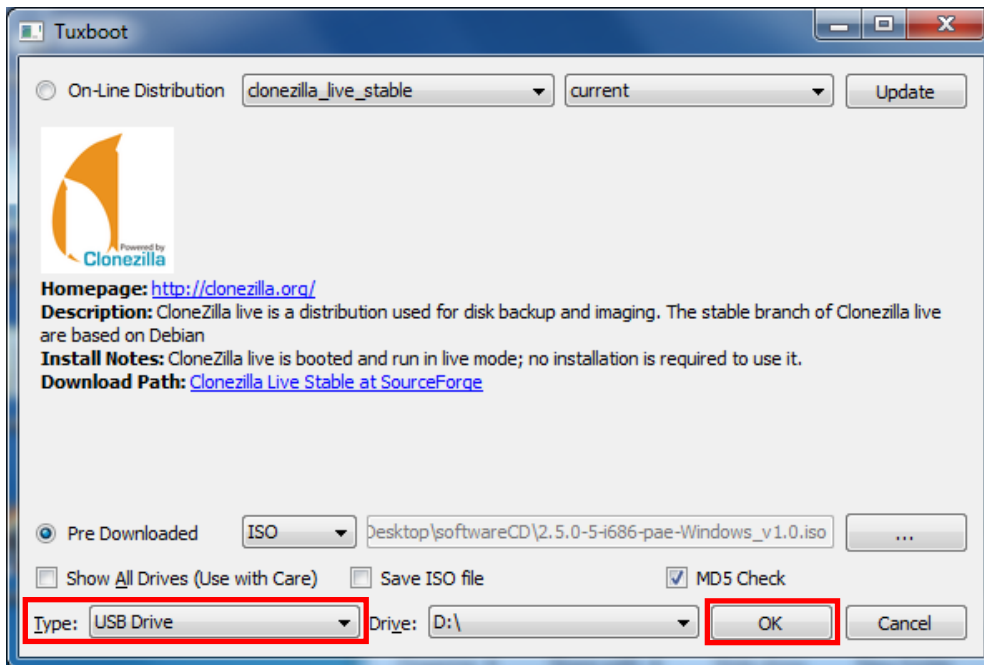
1. Format the USB disk to the **FAT32** file system.
2. Run the **tuxboot-windows-23.exe** program from the <Software DVD>**recovery** folder, then select **Pre Download**, and then click "...".



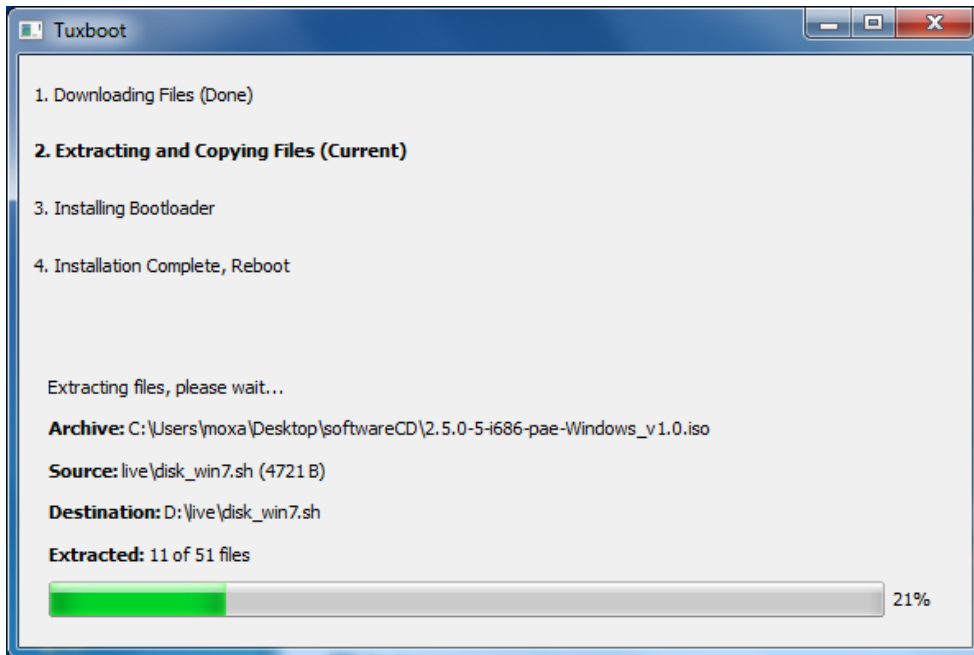
3. Select the ISO file from the <Software DVD>\recovery folder.



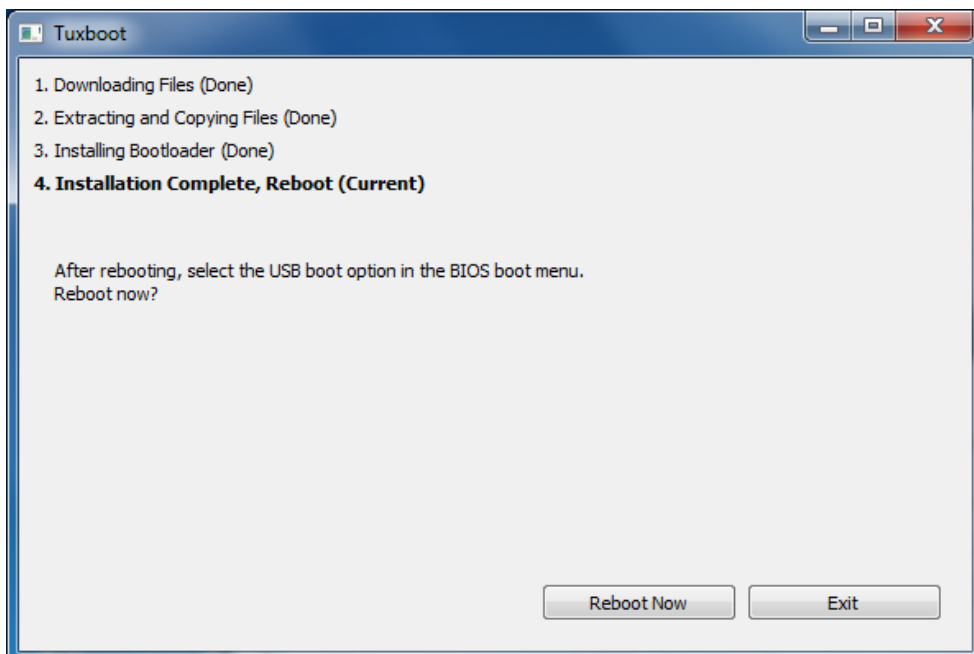
4. Select **USB Drive** type, select a **Drive**, and then click **OK** to continue.



The boot files will be copied to your USB device.



5. When finished, click **Exit** to stop the program.



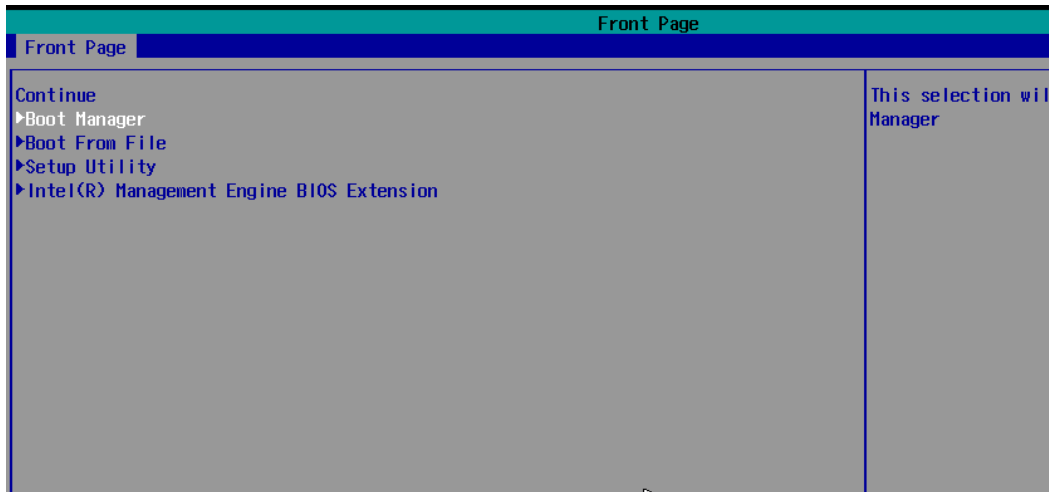
6. Copy the **os_image** directory from the <Software DVD>\recovery folder to the \home\partimag\ folder on the USB device.

The USB disk is now ready for use in the recovery process.

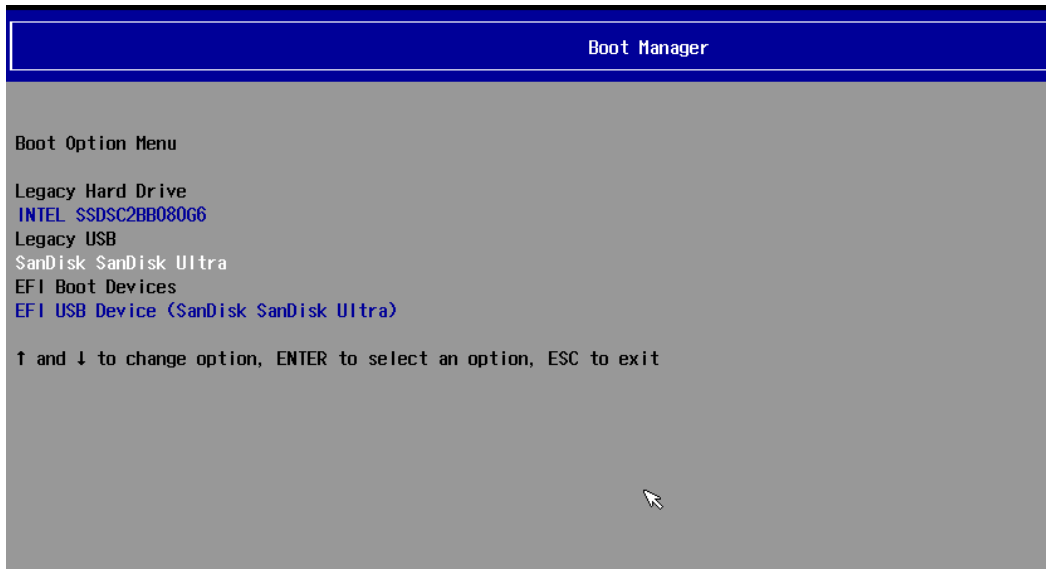
Step 2: Boot from the USB disk

You will need to select the specific USB disk to boot from.

1. Turn on the computer and press **F2** when you hear the beep sound to enter the BIOS setup menu.
2. Select **Boot Manager** and press **Enter** to continue.



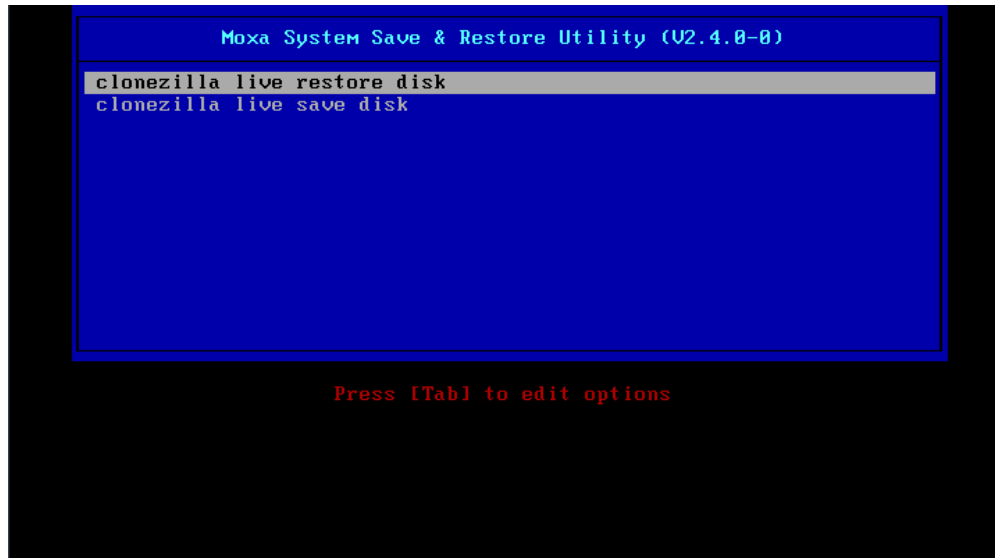
3. Select a **USB device** on the computer and press **Enter** to continue to boot from USD device.



Step 3: Restore the system from USB device

After select the USB device, the system will boot from the USB disk. The pre-installation Environment and the recovery utility will displayed.

1. Select **clonezilla live restore disk**.



2. Wait for the USB boot process to finish.

```

Command (m for help): The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

Warning: Unable to open /dev/sr0 read-write (Read-only file system). /dev/sr0 has been opened read-only.
Warning: Unable to open /dev/sr0 read-write (Read-only file system). /dev/sr0 has been opened read-only.
Disk /dev/sda: 20 GiB, 21474836480 bytes, 41943040 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x469e8113

Device      Boot  Start      End  Sectors  Size Id Type
/dev/sda1                2048   1026047   1024000   500M  7 HPFS/NTFS/exFAT
/dev/sda2            1026048  41943039  40916992  19.5G  7 HPFS/NTFS/exFAT

Disk /dev/sdb: 14.8 GiB, 15846080512 bytes, 30949376 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x00000000

Device      Boot  Start      End  Sectors  Size Id Type
/dev/sdb1  *                2048  30949375  30947328  14.8G  c W95 FAT32 (LBA)

Disk /dev/loop0: 208.9 MiB, 218980352 bytes, 427696 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

```

3. Enter **y** to continue the restore process.

```

Do NOT create partition table on the client harddisk!
/usr/share/drbl/sbin/ocs-functions: line 10757: warning: setlocale: LC_ALL: cannot change locale (en
)
/usr/share/drbl/sbin/ocs-functions: line 10739: warning: setlocale: LC_ALL: cannot change locale (en
)
/usr/share/drbl/sbin/ocs-functions: line 10739: warning: setlocale: LC_ALL: cannot change locale (en
)
/usr/share/drbl/sbin/ocs-functions: line 10739: warning: setlocale: LC_ALL: cannot change locale (en
)
perl: warning: Setting locale failed.
perl: warning: Please check that your locale settings:
    LANGUAGE = (unset),
    LC_ALL = "en",
    LANG = "en_US.UTF-8"
    are supported and installed on your system.
perl: warning: Falling back to a fallback locale ("en_US.UTF-8").
Activating the partition info in /proc... done!
Getting /dev/sda1 info...
/usr/share/drbl/sbin/ocs-functions: line 3632: warning: setlocale: LC_ALL: cannot change locale (en)
/usr/share/drbl/sbin/ocs-functions: line 3645: warning: setlocale: LC_ALL: cannot change locale (en)
Getting /dev/sda2 info...
/usr/share/drbl/sbin/ocs-functions: line 3632: warning: setlocale: LC_ALL: cannot change locale (en)
/usr/share/drbl/sbin/ocs-functions: line 3645: warning: setlocale: LC_ALL: cannot change locale (en)
*****
The following step is to restore an image to the hard disk/partition(s) on this machine: "/home/part
imag/os_image" -> "sda sda1 sda2"
The image was created at: 2016-0907-1744
WARNING!!! WARNING!!! WARNING!!!
WARNING. THE EXISTING DATA IN THIS HARDDISK/PARTITION(S) WILL BE OVERWRITTEN! ALL EXISTING DATA WILL
BE LOST:
*****
Machine: VMware Virtual Platform
sda (21.5GB_VMWare_Virtual_S_No_disk_serial_no)
sda1 (500M(In_VMWare_Virtual_S)_No_disk_serial_no)
sda2 (19.5G(In_VMWare_Virtual_S)_No_disk_serial_no)
*****
Are you sure you want to continue? (y/n)

```

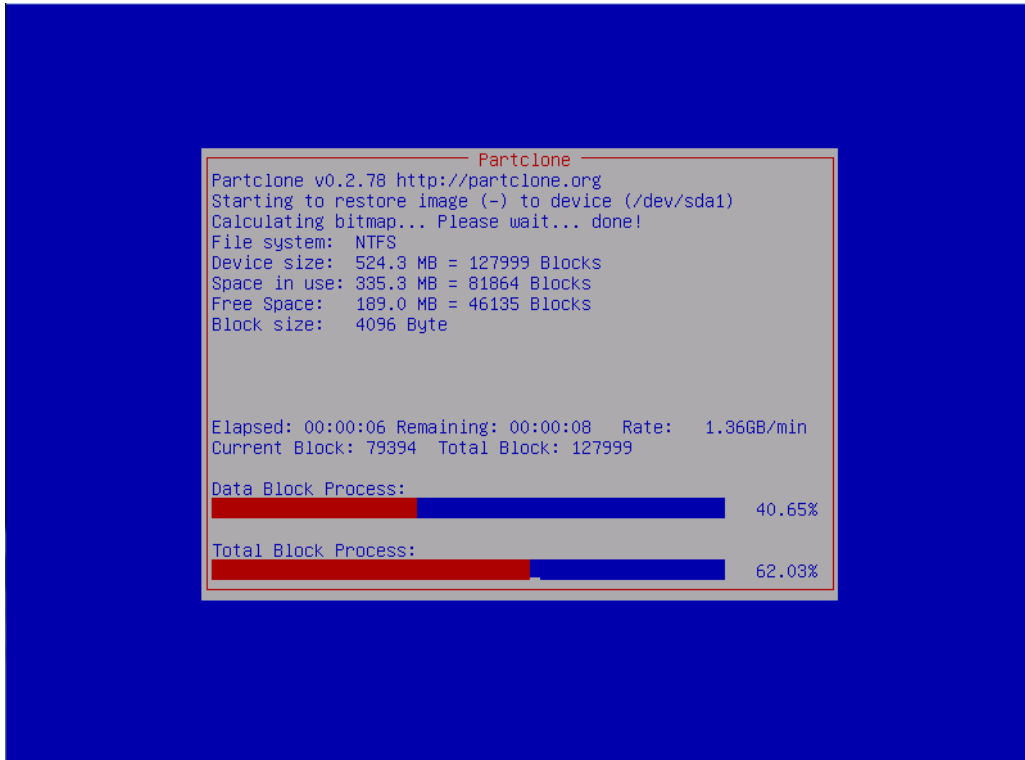
4. Enter **y** to confirm.

```

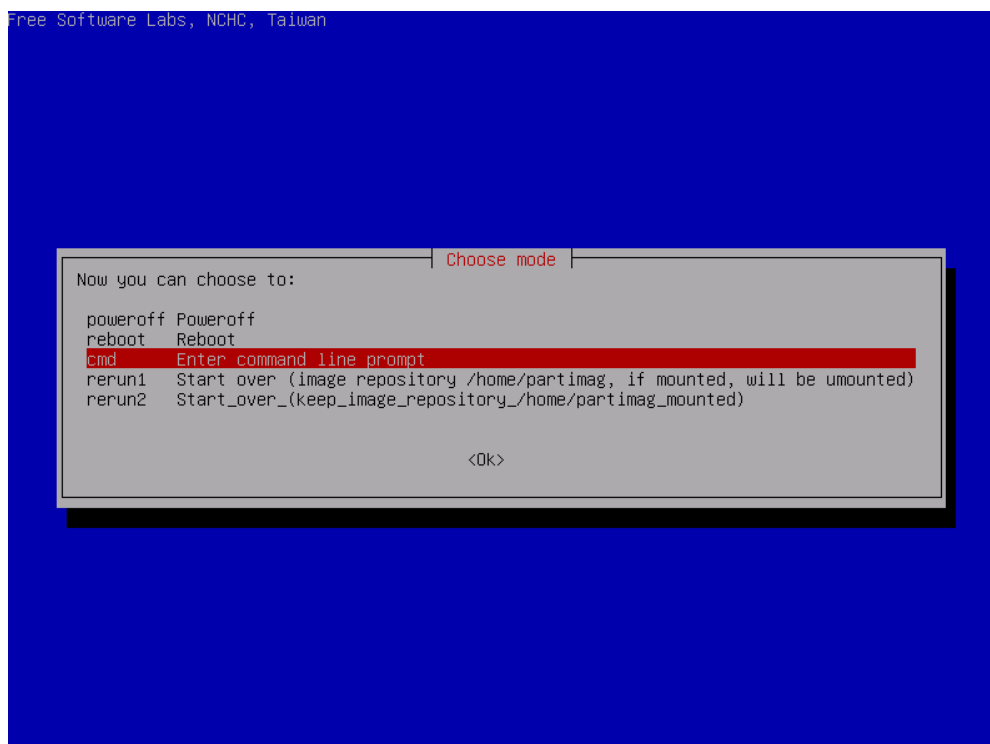
Getting /dev/sda1 info...
/usr/share/drbl/sbin/ocs-functions: line 3632: warning: setlocale: LC_ALL: cannot change locale (en)
/usr/share/drbl/sbin/ocs-functions: line 3645: warning: setlocale: LC_ALL: cannot change locale (en)
Getting /dev/sda2 info...
/usr/share/drbl/sbin/ocs-functions: line 3632: warning: setlocale: LC_ALL: cannot change locale (en)
/usr/share/drbl/sbin/ocs-functions: line 3645: warning: setlocale: LC_ALL: cannot change locale (en)
*****
The following step is to restore an image to the hard disk/partition(s) on this machine: "/home/part
imag/os_image" -> "sda sda1 sda2"
The image was created at: 2016-0907-1744
WARNING!!! WARNING!!! WARNING!!!
WARNING. THE EXISTING DATA IN THIS HARDDISK/PARTITION(S) WILL BE OVERWRITTEN! ALL EXISTING DATA WILL
BE LOST:
*****
Machine: VMware Virtual Platform
sda (21.5GB_VMWare_Virtual_S_No_disk_serial_no)
sda1 (500M(In_VMWare_Virtual_S)_No_disk_serial_no)
sda2 (19.5G(In_VMWare_Virtual_S)_No_disk_serial_no)
*****
Are you sure you want to continue? (y/n) y
OK, let's do it!!
This program is not started by clonezilla server.
*****
Let me ask you again.
The following step is to restore an image to the hard disk/partition(s) on this machine: "/home/part
imag/os_image" -> "sda sda1 sda2"
The image was created at: 2016-0907-1744
WARNING!!! WARNING!!! WARNING!!!
WARNING. THE EXISTING DATA IN THIS HARDDISK/PARTITION(S) WILL BE OVERWRITTEN! ALL EXISTING DATA WILL
BE LOST:
*****
Machine: VMware Virtual Platform
sda (21.5GB_VMWare_Virtual_S_No_disk_serial_no)
sda1 (500M(In_VMWare_Virtual_S)_No_disk_serial_no)
sda2 (19.5G(In_VMWare_Virtual_S)_No_disk_serial_no)
*****
Are you sure you want to continue? (y/n) _

```

5. Wait for the process to finish.



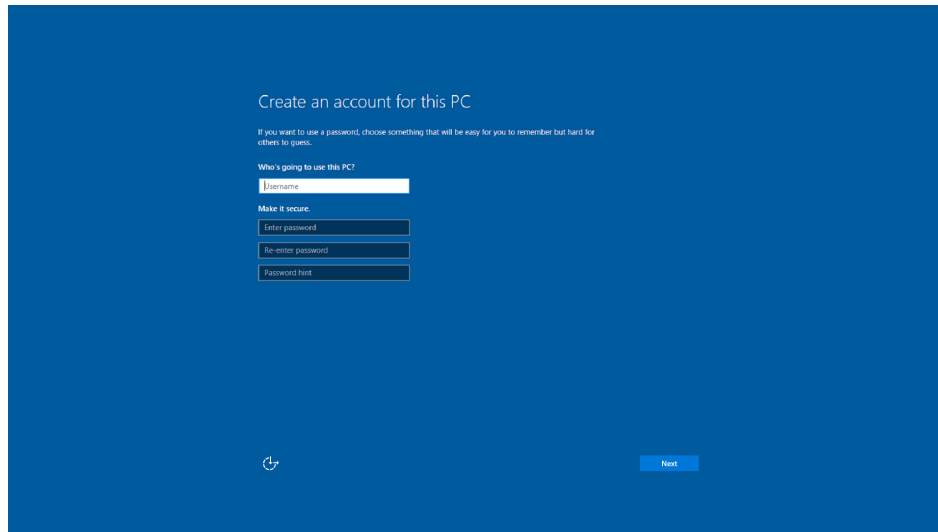
6. Select **(0) Poweroff** to power off the computer.



7. Remove the USB device after the computer has been powered off.

Step 4: Reboot the Computer

When you restart the computer, you will need to wait for about 5 minutes for the computer to go through two cycles of the reboot process. The system configuration files will be initiated during the first boot-up process. **Do not turn off the computer or shut down the computer** while the system is restarting. When the operating system has successfully launched, follow the "System Initialization" process.

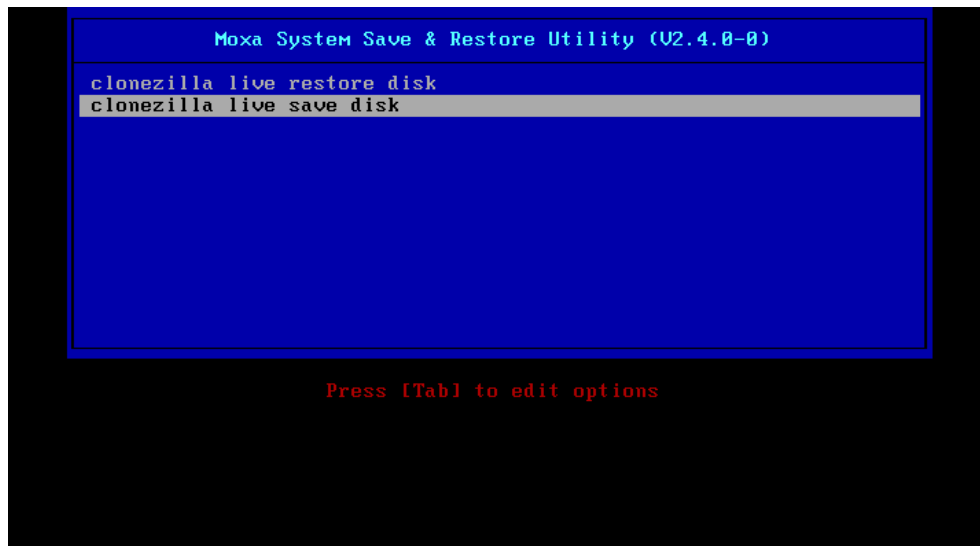


Saving the System Image to a USB Device

You can save the current system to the USB device for system recovery in case the system crashes. Before saving the system image to the USB device, we suggest you remove all files under `\home\partimag\` on the USB device.

Boot from USB disk, when the system has been launched, and take the following steps.

1. Select **clonezilla live save disk**.



2. Wait for the USB device boot process to finish.

```

[ 5.141941] sd 0:0:1:0: [sdb] Attached SCSI disk
[ 5.257277] sd 0:0:0:0: Attached scsi generic sg0 type 0
[ 5.269691] sd 0:0:1:0: Attached scsi generic sg1 type 0
[ 5.280668] sr 1:0:0:0: Attached scsi generic sg2 type 5
Begin: Loading essential drivers ... [ 5.772551] Atheros(R) L2 Ethernet Driver - version 2.2.3
[ 5.774561] Copyright (c) 2007 Atheros Corporation.
[ 5.863196] Broadcom NetXtreme II 5771x 10Gigabit Ethernet Driver bnx2x 1.62.00-6 (2011/01/30)
[ 6.005932] Btrfs loaded
[ 6.054095] device-mapper: uevent: version 1.0.3
[ 6.059737] device-mapper: ioctl: 4.19.1-ioctl (2011-01-07) initialised: dm-devel@redhat.com
done.
Begin: Running /scripts/init-premount ... done.
Begin: Mounting root file system ... [ 6.289382] Uniform Multi-Platform E-IDE driver
[ 6.301889] ide_generic: please use "probe_mask=0x3f" module parameter for probing all legacy ISA
IDE ports
[ 6.801141] NTFS driver 2.1.30 [Flags: R/W MODULE].
[ 6.914295] NTFS volume version 3.1.
Begin: Running /scripts/live-premount ... done.
[ 7.331989] FAT: utf8 is not a recommended IO charset for FAT filesystems, filesystem will be cas
e sensitive!
[ 7.453369] aufs: module is from the staging directory, the quality is unknown, you have been war
ned.
[ 7.479098] aufs 2.1-standalone.tree-38-rcN-20110228
[ 7.610228] loop: module loaded
[ 7.905144] squashfs: version 4.0 (2009/01/31) Phillip Lougher
Begin: Running /scripts/live-realpremount ... done.
Begin: Mounting "/live/image/live/filesystem.squashfs" on "/filesystem.squashfs" via "/dev/loop0" .
.. done.
done.
Begin: Running /scripts/live-bottom
... Begin: Configuring fstab ... done.
Begin: Preconfiguring networking ... done.
Begin: Loading preseed file ... done.
Begin: Running /scripts/init-bottom ... done.
INIT: version 2.88 booting
Using makefile-style concurrent boot in runlevel S.

```

3. Enter **y** to continue.

```

Setting the TERM as linux
*****
Clonezilla image dir: /home/partimag
*****
Shutting down the Logical Volume Manager
. No volume groups found
. No volume groups found
Finished Shutting down the Logical Volume Manager
Selected device [sda] found!
The selected devices: sda
*****
Activating the partition info in /proc... done!
Selected device [sda] found!
The selected devices: sda
Searching for data partition(s)...
Excluding busy partition or disk...
Unmounted partitions (including extended or swap): sda1
Collecting info.. done!
Searching for swap partition(s)...
Excluding busy partition or disk...
Unmounted partitions (including extended or swap): sda1
Collecting info.. done!
The data partition to be saved: sda1
The swap partition to be saved:
Activating the partition info in /proc... done!
Selected device [sda1] found!
The selected devices: sda1
Getting /dev/sda1 info...
*****
The following step is to save the hard disk/partition(s) on this machine as an image:
*****
Machine: VirtualBox
sda (2103MB_VBOX_HARDDISK_ata-VBOX_HARDDISK_VB1c64a0a3-c9f7523d)
sda1 (2065MB_ntfs(In_VBOX_HARDDISK_)_ata-VBOX_HARDDISK_VB1c64a0a3-c9f7523d)
*****
-> "/home/partimag/xpe_savedisk".
Are you sure you want to continue? ? (y/n) y

```

4. Wait for the process to finish.

```

/dev/sdb1: read failed after 0 of 2048 at 0: Input/output error
No volume groups found
No volume groups found
Finished Shutting down the Logical Volume Manager
Checking the integrity of partition table in the disk /dev/sda...
Reading the partition table for /dev/sda...RETVL=0
*****
*****
done!
Saving the MBR data for sda...
1+0 records in
1+0 records out
512 bytes (512 B) copied, 0.00347646 s, 147 kB/s
*****
*****
Starting saving /dev/sda1 as /home/partimag/xpe_savedisk/sda1.XXX...
/dev/sda1 filesystem: ntfs.
*****
Checking NTFS integrity in /dev/sda1... done!
Checking the disk space...
Use ntfsclone with gzip to save the image.
Image file will be split with size limit 1000000 MB.
*****
*****
If this action fails or hangs, check:
* Is the disk full ?
*****
ntfsclone v2.0.0 (libntfs 10:0:0)
NTFS volume version: 3.1
Cluster size      : 2048 bytes
Current volume size: 2064510976 bytes (2065 MB)
Current device size: 2064513024 bytes (2065 MB)
Scanning volume ...
100.00 percent completed
Accounting clusters ...
Space in use      : 1770 MB (85.7%)
Saving NTFS to image ...
_ 0.64 percent completed

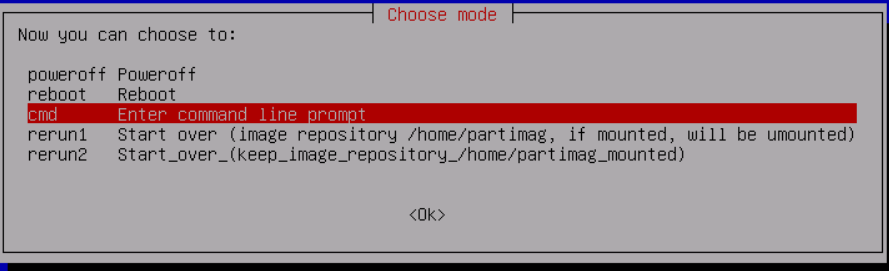
```

5. Select **(0) Poweroff** so that the computer will power off when the process is finished.

```

Free Software Labs, NCHC, Taiwan

```



```

Choose mode
Now you can choose to:
poweroff Poweroff
reboot Reboot
cmd Enter command line prompt
rerun1 Start over (image repository /home/partimag, if mounted, will be umounted)
rerun2 Start_over_(keep_image_repository_/home/partimag_mounted)

<Ok>

```

The system image is stored in the `\home\partimag\os_image` folder on the USB disk. Keep the USB disk safe for system recovery in the future.