

InnoOSR Implementation Process_V1.2

Flash Department
20210525



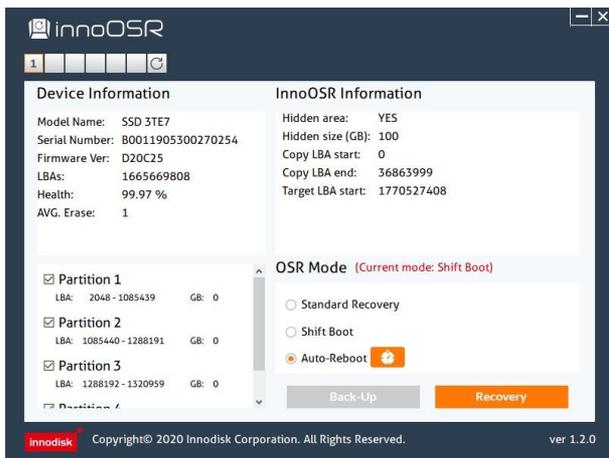
innodisk

Agenda

- InnoOSR Overview
- Mode One: Standard OSR Implementation Process
- Mode Two: Shift-Boot Implementation Process
- Mode Three: Auto-Reboot Implementation Process
- Q & A

InnoOSR Overview

- InnoOSR requires no human intervention and 24/7 autonomous monitoring for edge devices. With OSR toolkit, customers can easily integrated InnoOSR SSDs into systems.



On-Site Recovery

1. One-click recovery for easy system restoration

Tri-Modes

1. Always with OS back-up
2. Shift-Boot with no wait time
3. Auto-Reboot provides OS self-recover capability

Multiple Methods

1. Dedicated SW
2. BIOS modification
3. GPIO triggering

InnoOSR Tri-Modes

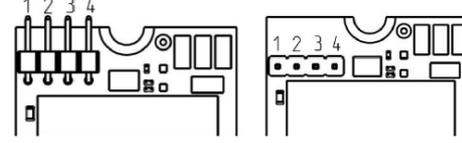
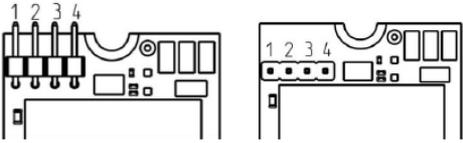
	InnoOSR		
Mode	Standard OSR	Shift-Boot	Auto-Reboot
Features	<ol style="list-style-type: none">1. One-click image recovery2. Simple Tool for image management3. Data partitions kept usable		
Triggering Methods	One click cable trigger & Connector pins trigger		Auto-reboot & recovery
Scenario	Factory Automation	<ol style="list-style-type: none">1. Medical2. Application with minimum downtime requirement	<ol style="list-style-type: none">1. Signage2. AIoT edges3. Unmanned application

Mode One: Standard OSR Implementation Process

1. Connect Device to host system and triggering cable
2. User install OS with OS partition smaller than chosen hidden area
 - 1) For example, an InnoOSR disk with 20GB of hidden area can host up to 19.99GB of back-up image. 10MB additional area will be use as image buffer
3. Use OSRtool V1.2 in x86-based Windows 10 or Linux environment and perform following steps:
 - 1) Partitions detection
 - 2) Choose partitions to be backed-up
 - 3) OSRtool confirms sufficient hidden area
 - 4) OSRtool execute back up
4. In case of OS damaged, SATA CMD & GPIO can both be used to trigger recovery process

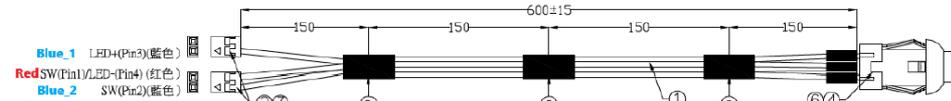
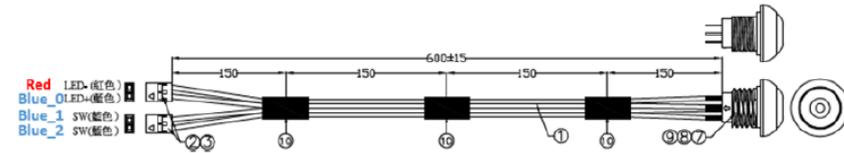
InnoOSR IO Setup- M.2 2242

1. Connect host system and Demo cable to our InnoOSR Disk



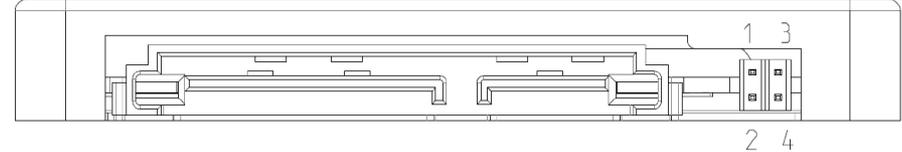
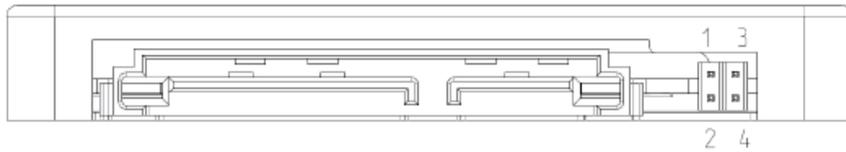
Pin Header Number	Pin Define	Installation for Innodisk Demo Cable (PN: 7W300000870)	Rating
1	GND	Red cable	NA
2	GPIO Pin8, Output for InnoOSR LED indication	Blue cable_0 that co-axis with red cable	3.3V ± 5%
3	GND	Blue cable_1/2	NA
4	GPIO Pin13, Input for InnoOSR Recovery Trigger, Low active	Blue cable_1/2	3.3V ± 5%

Pin Header Number	Pin Define	Installation for Innodisk Demo Cable (PN: 7W300000920)	Rating
1	GND	NA	NA
2	GPIO Pin8, Output for InnoOSR LED indication	Blue cable_1	3.3V ± 5%
3	GND	Red	NA
4	GPIO Pin13, Input for InnoOSR Recovery Trigger, Low active	Blue cable_2	3.3V ± 5%



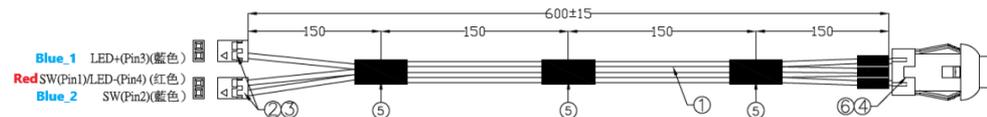
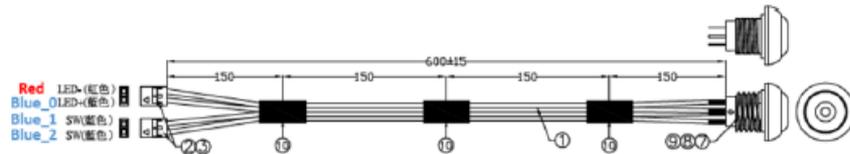
InnoOSR IO Setup- 2.5"

1. Connect host system and Demo cable to our InnoOSR Disk



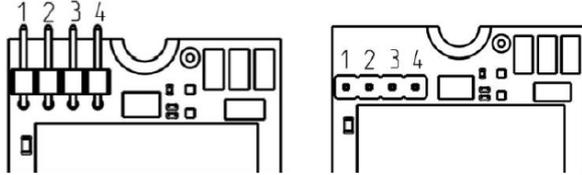
Pin Header Number	Pin Define	Installation for Innodisk Demo Cable (PN: 7W3000000870)	Rating
1	GPIO Pin8, Output for InnoOSR LED indication	Blue cable_0 that co-axis with red cable	3.3V ± 5%
2	GND	Red cable	NA
3	GPIO Pin13, Input for InnoOSR Recovery Trigger, Low active	Blue cable_1/2	3.3V ± 5%
4	GND	Blue cable_1/2	NA

Pin Header Number	Pin Define	Installation for Innodisk Demo Cable (PN: 7W3000000920)	Rating
1	GPIO Pin8, Output for InnoOSR LED indication	Blue cable_1	3.3V ± 5%
2	GND	NA	NA
3	GPIO Pin13, Input for InnoOSR Recovery Trigger, Low active	Blue cable_2	3.3V ± 5%
4	GND	Red	NA

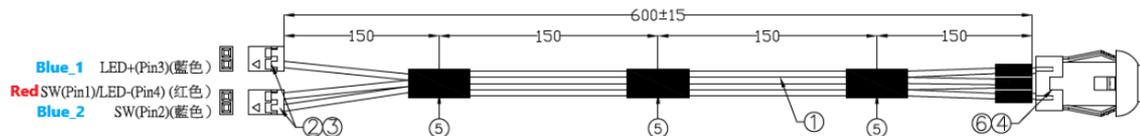


InnoOSR IO Setup- M.2 2280

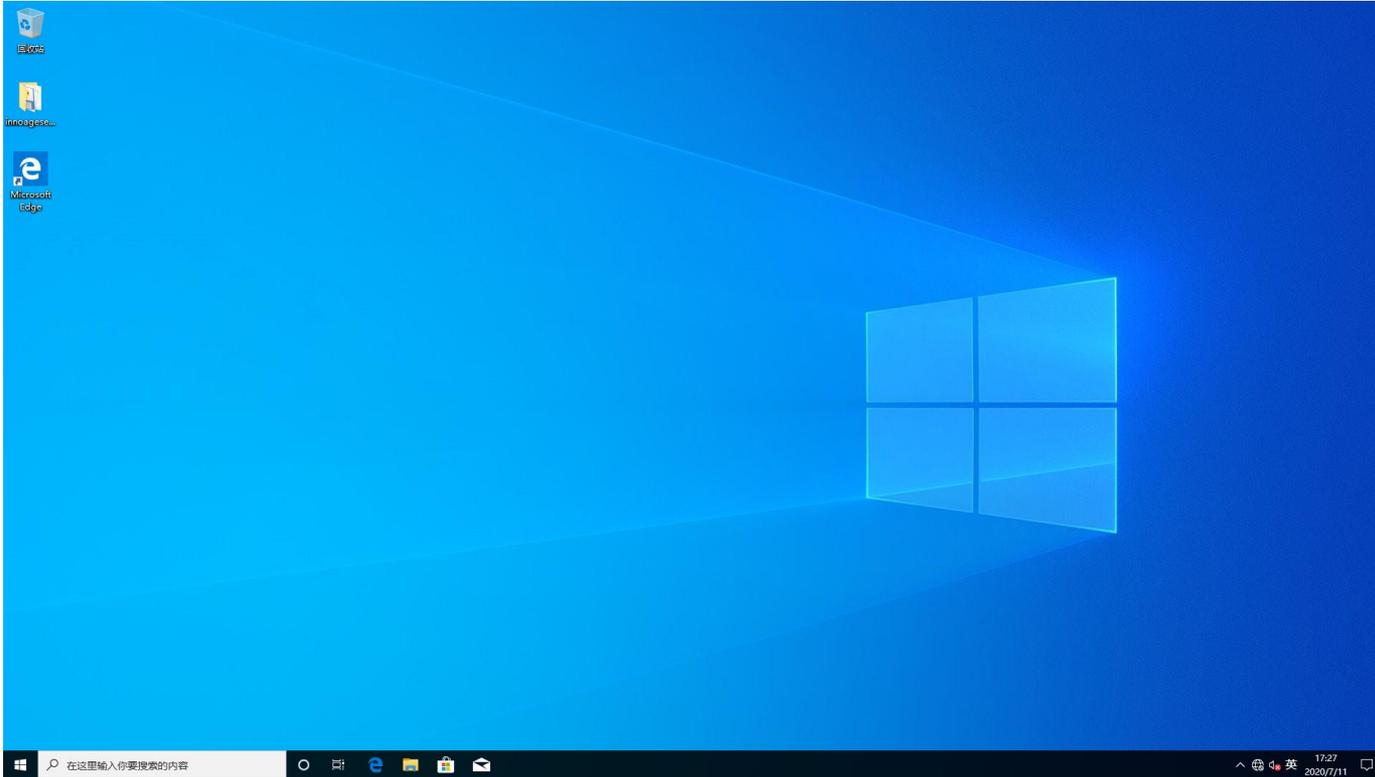
1. Connect host system and Demo cable to our InnoOSR Disk



Pin Header Number	Pin Define	Installation for Innodisk Demo Cable (PN: 7W3000000920)	Rating
1	Power	NA	3.3V ± 5%
2	GPIO Pin8, Output for InnoOSR LED indication	Blue cable_1	3.3V ± 5%
3	GND	Red	NA
4	GPIO Pin13, Input for InnoOSR Recovery Trigger, Low active	Blue cable_2	3.3V ± 5%



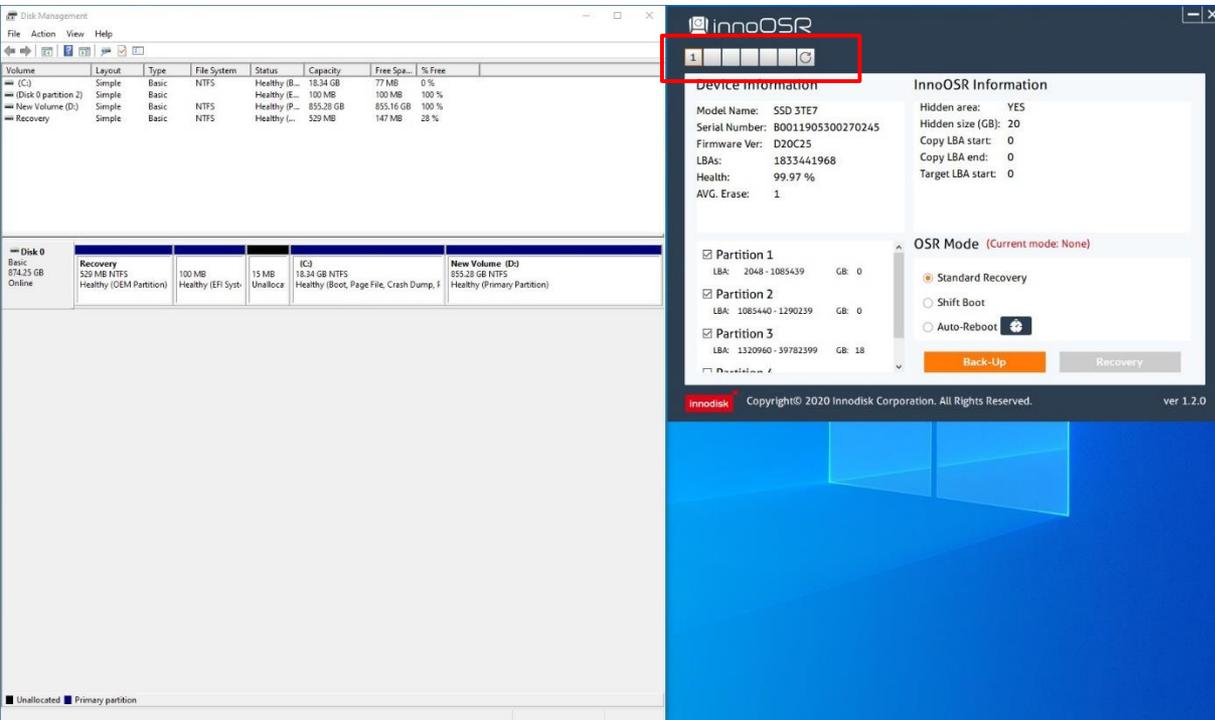
Installing Operating System



1. Install OS into our InnoOSR drive with partition smaller than hidden area

Launch OSRTool

innodisk



1. Start innodisk OSRtool
2. OSRtool will automatically list our OSR capable device in your system (Shown in red box)

OSRTool Information

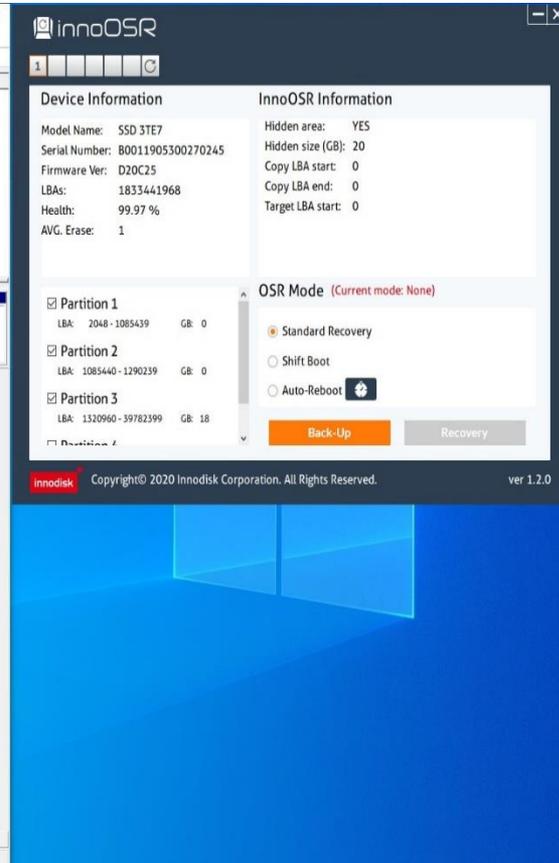
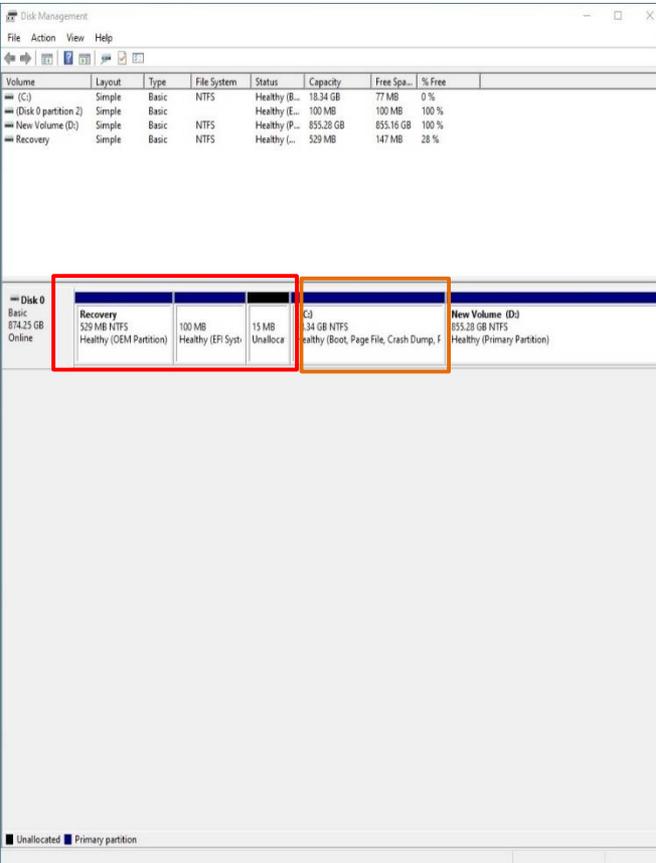
The screenshot displays the InnoOSR application window. At the top left, the 'innodisk' logo and 'InnoOSR' text are visible. Below the title bar, there is a navigation bar with a tab labeled '1' and a refresh icon. The main content area is divided into several sections:

- Device Information:**
 - Model Name: SSD 3TE7
 - Serial Number: B0011905300270245
 - Firmware Ver: D20C25
 - LBAs: 1833441968
 - Health: 99.97 %
 - AVG. Erase: 1
- InnoOSR Information:**
 - Hidden area: YES
 - Hidden size (GB): 20
 - Copy LBA start: 0
 - Copy LBA end: 0
 - Target LBA start: 0
- OSR Mode (Current mode: None):**
 - Standard Recovery
 - Shift Boot
 - Auto-Reboot 
- Partitions:**
 - Partition 1
LBA: 2048 - 1085439 GB: 0
 - Partition 2
LBA: 1085440 - 1290239 GB: 0
 - Partition 3
LBA: 1320960 - 1833441279 GB: 873

At the bottom of the interface, there are two buttons: 'Back-Up' and 'Recovery'. The footer contains the 'innodisk' logo, the copyright notice 'Copyright© 2020 Innodisk Corporation. All Rights Reserved.', and the version number 'ver 1.2.0'.

1. In OSRTool, you can see detail information including:
 - 1) Device Information
 - 2) Partitions Information on your system
 - 3) InnoOSR hidden partition and Back-up image status. In our example, we use hidden area of 20 GB.
 - 4) OSR Modes selection

Check Partition Status



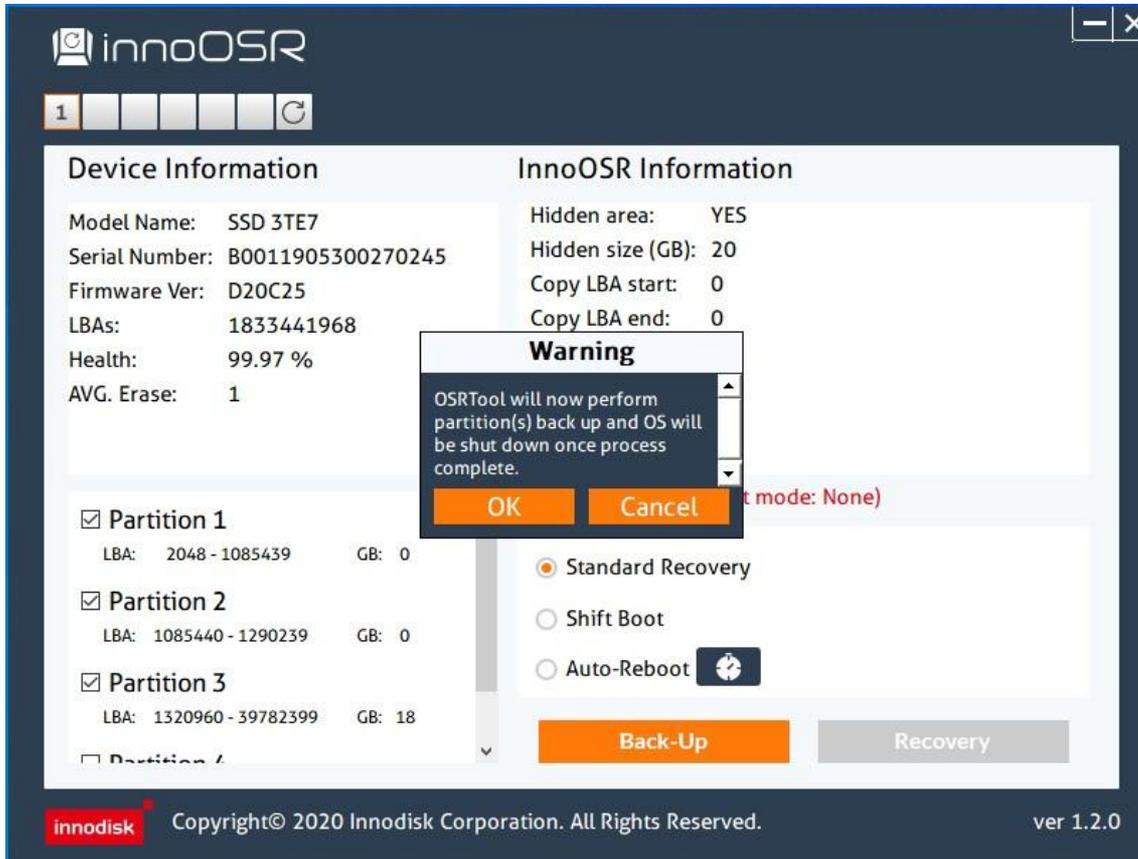
1. In OSRTool, you can see exact partitions status even when partitions are hidden by OS (Shown in red box)
2. In our example, we are backing up partition C with capacity of 18.34GB (Shown in orange box)

Choose Partitions to Back up

The screenshot shows the InnoOSR application window. At the top left is the 'innoOSR' logo. Below it is a progress bar with a refresh icon. The main area is divided into two columns: 'Device Information' and 'InnoOSR Information'. The 'Device Information' section lists: Model Name: SSD 3TE7, Serial Number: B0011905300270245, Firmware Ver: D20C25, LBAs: 1833441968, Health: 99.97 %, and AVG. Erase: 1. The 'InnoOSR Information' section lists: Hidden area: YES, Hidden size (GB): 20, Copy LBA start: 0, Copy LBA end: 39782399, and Target LBA start: 1833441968. Below these is the 'OSR Mode' section, which is currently set to 'Standard Recovery'. There are three radio buttons: 'Standard Recovery' (selected), 'Shift Boot', and 'Auto-Reboot'. At the bottom are two orange buttons: 'Back-Up' and 'Recovery'. On the left side, there is a list of partitions. 'Partition 1' (LBA: 2048 - 1085439, GB: 0), 'Partition 2' (LBA: 1085440 - 1290239, GB: 0), and 'Partition 3' (LBA: 1320960 - 39782399, GB: 18) are all checked. 'Partition 3' is highlighted with a red box. 'Partition 4' is partially visible and unchecked. The bottom of the window contains the 'innodisk' logo, copyright information 'Copyright© 2020 Innodisk Corporation. All Rights Reserved.', and the version 'ver 1.2.0'.

1. Check partition 3 representing partition C (Shown in red box)
2. All partitions with address in front of partition 3 will automatically be checked by OSRtool to ensure image integrity

Start Back up Process



1. After checking OS partition, press "Back-Up" button
2. OSRTool will check whether your hidden area is bigger than your chosen back up partitions
3. Warning will show up once sufficient capacity is checked. After successful back up, OS will be shut down. Manually restarting OS is required

OS Back up Image check

The screenshot displays the innoOSR application window. At the top left is the 'innoOSR' logo. Below it is a progress bar with a refresh icon. The main content area is divided into several sections:

- Device Information:** Model Name: SSD 3TE7, Serial Number: B0011905300270245, Firmware Ver: D20C25, LBAs: 1833441968, Health: 99.97 %, AVG. Erase: 1.
- InnoOSR Information (highlighted in a red box):** Hidden area: YES, Hidden size (GB): 20, Copy LBA start: 0, Copy LBA end: 39782399, Target LBA start: 1833441968.
- OSR Mode (Current mode: Standard Recovery):** Includes radio buttons for Standard Recovery (selected), Shift Boot, and Auto-Reboot.
- Partition List:** Shows Partition 1, 2, and 3 with their respective LBA ranges and sizes.

At the bottom, there are 'Back-Up' and 'Recovery' buttons. The footer contains the innodisk logo, copyright information for 2020, and the version number 'ver 1.2.0'.

1. After restarting the system and OSRtool, you can see back-up information regarding the image you just created (Shown in red box)

Recovery OS



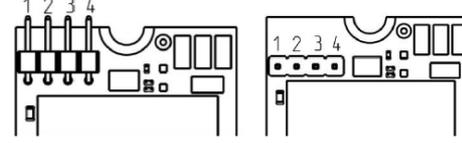
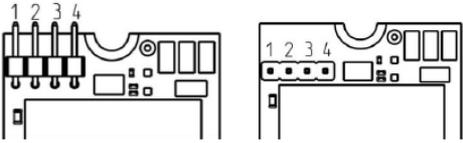
1. When LED stays lit, recovery process is finished
2. After recovery complete, reboot system

Mode Two: Shift-Boot Implementation Process

1. Connect Device to host system and triggering cable
2. User install OS with OS partition smaller than chosen hidden area
 - 1) For example, an InnoOSR disk with 100GB of hidden area can host up to 49.99GB of back-up image. 10MB additional area will be use as image buffer
 - 2) In this shift-boot mode, dual images will be copy to hidden areas. **Thus doubling the image sizes.**
3. Use OSRtool V1.2 in x86-based Windows 10 or Linux environment
 - 1) Partitions detection
 - 2) Choose partitions to be backed-up
 - 3) OSRtool confirms sufficient hidden area
 - 4) OSRTool performs back up
4. In case of OS damaged, SATA CMD & GPIO can both be used to trigger shift-boot process

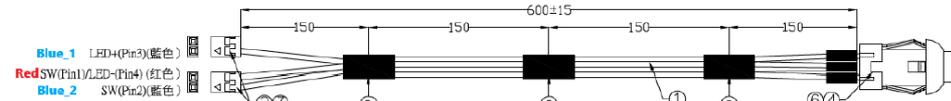
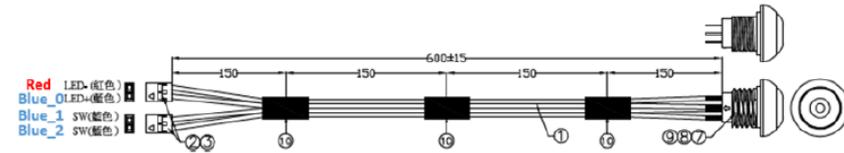
InnoOSR IO Setup- M.2 2242

1. Connect host system and Demo cable to our InnoOSR Disk



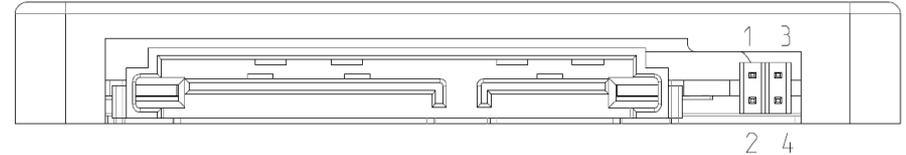
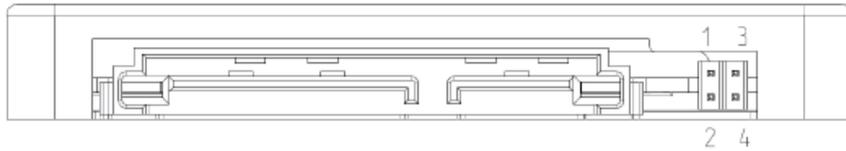
Pin Header Number	Pin Define	Installation for Innodisk Demo Cable (PN: 7W300000870)	Rating
1	GND	Red cable	NA
2	GPIO Pin8, Output for InnoOSR LED indication	Blue cable_0 that co-axis with red cable	3.3V ± 5%
3	GND	Blue cable_1/2	NA
4	GPIO Pin13, Input for InnoOSR Recovery Trigger, Low active	Blue cable_1/2	3.3V ± 5%

Pin Header Number	Pin Define	Installation for Innodisk Demo Cable (PN: 7W300000920)	Rating
1	GND	NA	NA
2	GPIO Pin8, Output for InnoOSR LED indication	Blue cable_1	3.3V ± 5%
3	GND	Red	NA
4	GPIO Pin13, Input for InnoOSR Recovery Trigger, Low active	Blue cable_2	3.3V ± 5%



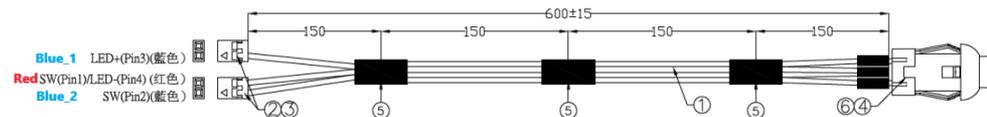
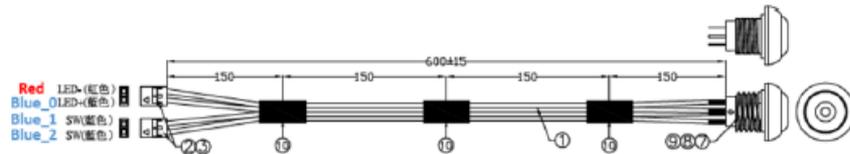
InnoOSR IO Setup- 2.5"

1. Connect host system and Demo cable to our InnoOSR Disk



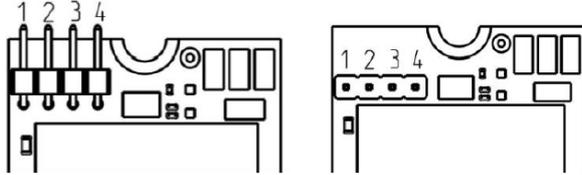
Pin Header Number	Pin Define	Installation for Innodisk Demo Cable (PN: 7W3000000870)	Rating
1	GPIO Pin8, Output for InnoOSR LED indication	Blue cable_0 that co-axis with red cable	3.3V ± 5%
2	GND	Red cable	NA
3	GPIO Pin13, Input for InnoOSR Recovery Trigger, Low active	Blue cable_1/2	3.3V ± 5%
4	GND	Blue cable_1/2	NA

Pin Header Number	Pin Define	Installation for Innodisk Demo Cable (PN: 7W3000000920)	Rating
1	GPIO Pin8, Output for InnoOSR LED indication	Blue cable_1	3.3V ± 5%
2	GND	NA	NA
3	GPIO Pin13, Input for InnoOSR Recovery Trigger, Low active	Blue cable_2	3.3V ± 5%
4	GND	Red	NA

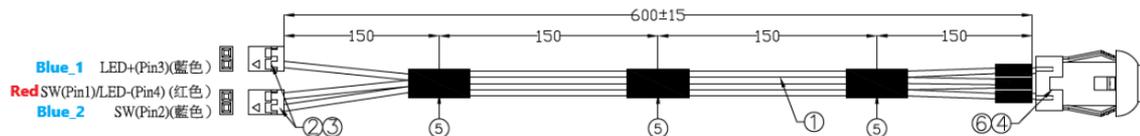


InnoOSR IO Setup- M.2 2280

1. Connect host system and Demo cable to our InnoOSR Disk



Pin Header Number	Pin Define	Installation for Innodisk Demo Cable (PN: 7W3000000920)	Rating
1	Power	NA	3.3V ± 5%
2	GPIO Pin8, Output for InnoOSR LED indication	Blue cable_1	3.3V ± 5%
3	GND	Red	NA
4	GPIO Pin13, Input for InnoOSR Recovery Trigger, Low active	Blue cable_2	3.3V ± 5%



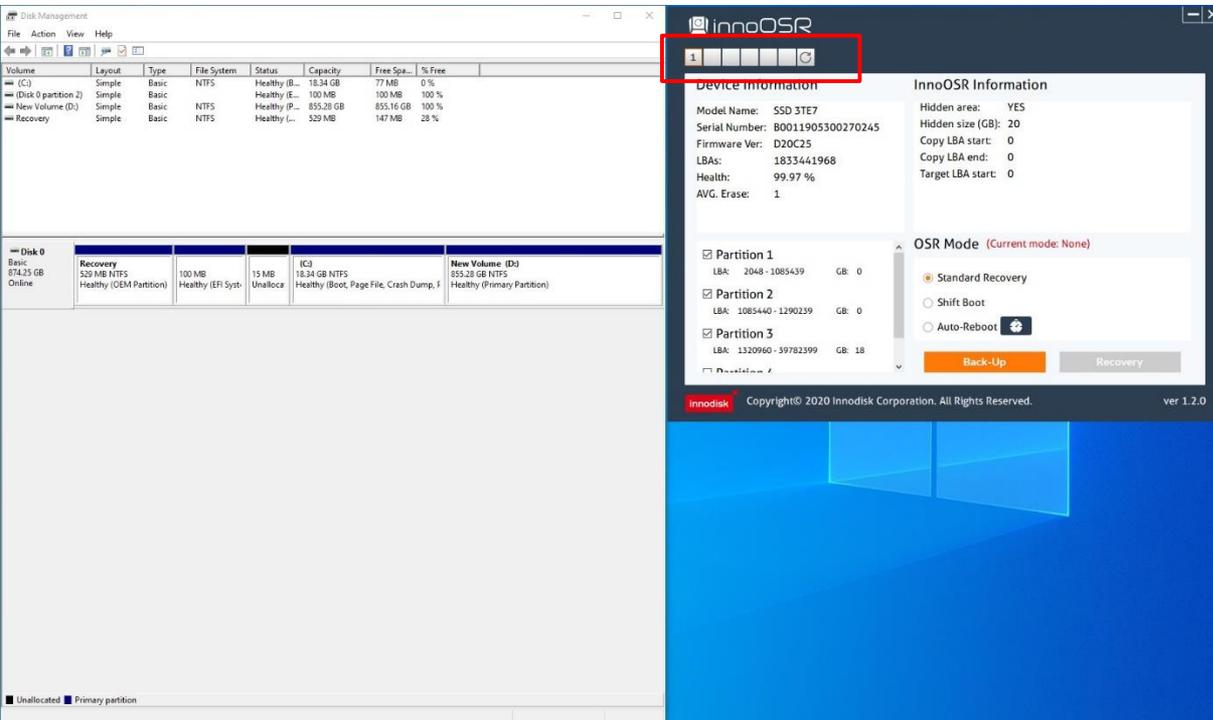
Installing Operating System



1. Install OS into our InnoOSR drive with partition smaller than hidden area

Launch OSRTool

innodisk



1. Start innodisk OSRtool
2. OSRtool will automatically list our OSR capable device in your system (Shown in red box)

OSRTool Information

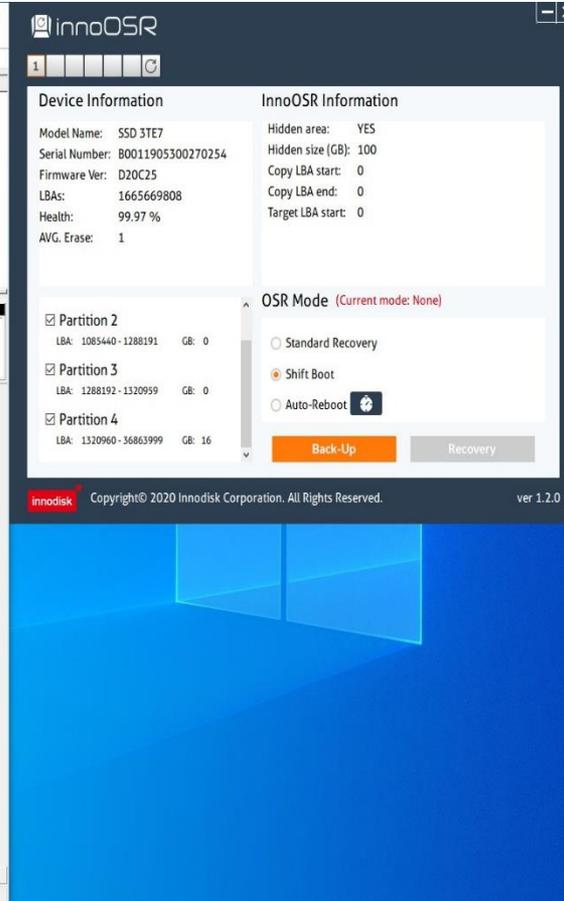
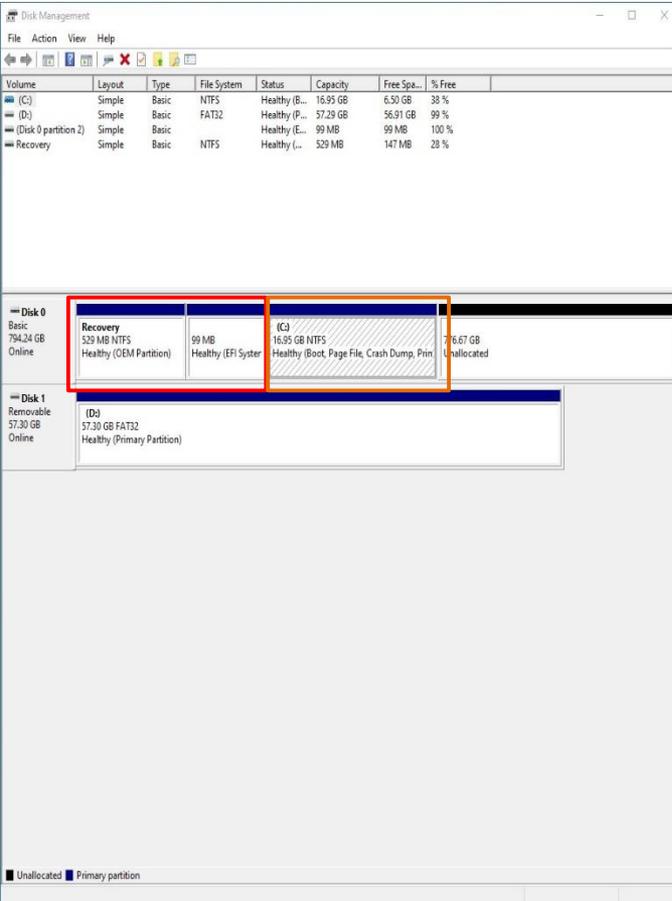
The screenshot displays the innoOSR application window. At the top left is the 'innoOSR' logo. Below it is a navigation bar with a tab labeled '1' and a refresh icon. The main content area is divided into several sections:

- Device Information:**
 - Model Name: SSD 3TE7
 - Serial Number: B0011905300270254
 - Firmware Ver: D20C25
 - LBAs: 1665669808
 - Health: 99.97 %
 - AVG. Erase: 1
- InnoOSR Information:**
 - Hidden area: YES
 - Hidden size (GB): 100
 - Copy LBA start: 0
 - Copy LBA end: 0
 - Target LBA start: 0
- OSR Mode (Current mode: None):**
 - Standard Recovery
 - Shift Boot
 - Auto-Reboot 
- Partitions:**
 - Partition 2
LBA: 1085440 - 1288191 GB: 0
 - Partition 3
LBA: 1288192 - 1320959 GB: 0
 - Partition 4
LBA: 1320960 - 36863999 GB: 16

At the bottom of the interface, there are two buttons: 'Back-Up' (orange) and 'Recovery' (grey). The footer contains the 'innodisk' logo, the copyright notice 'Copyright© 2020 Innodisk Corporation. All Rights Reserved.', and the version number 'ver 1.2.0'.

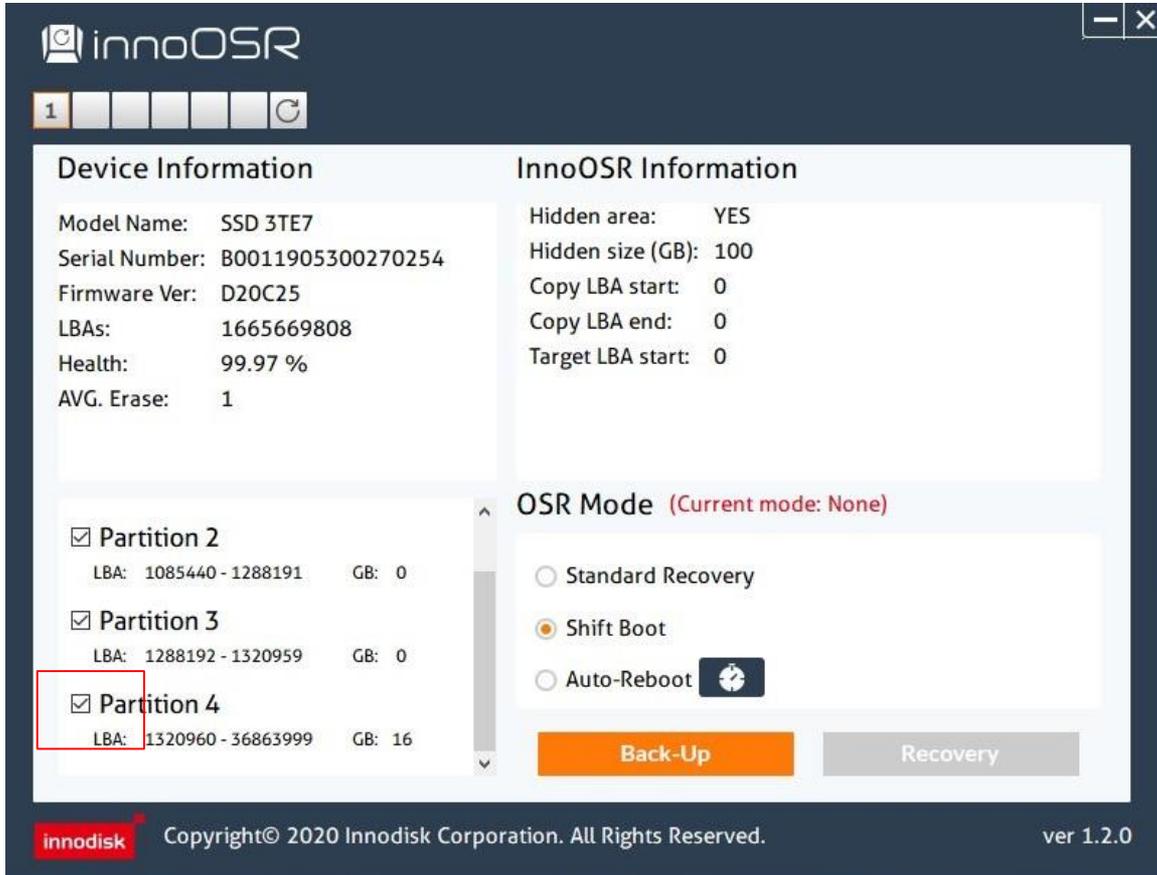
1. In OSRTool, you can see detail information including:
 - 1) Device Information
 - 2) Partitions Information on your system
 - 3) InnoOSR hidden partition and Back-up image status. In our example, we use hidden area of 100 GB.
 - 4) OSR Modes selection

Check Partition Status



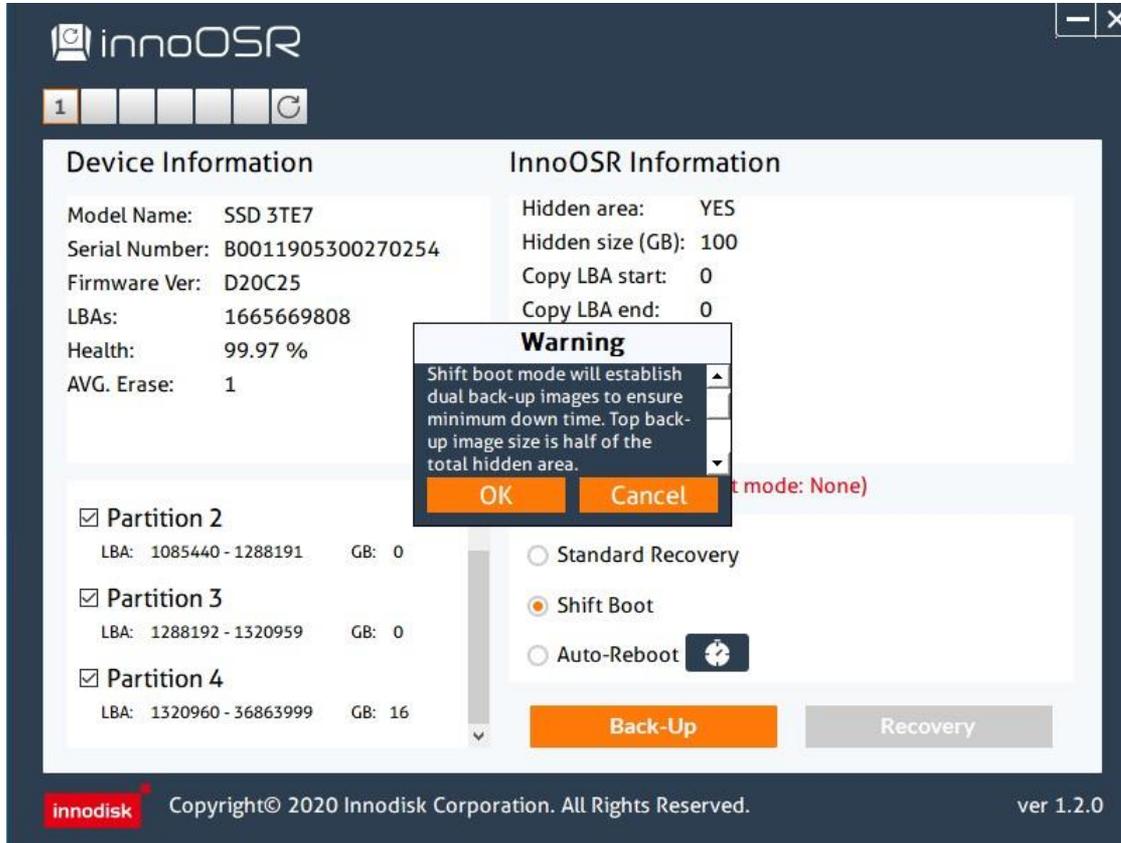
1. In OSRTool, you can see exact partitions status even when partitions are hidden by OS (Shown in red box)
2. In our example, we are backing up partition C with capacity of 16.95GB (Shown in orange box)

Choose Partitions to Back up



1. Check partition 4 representing partition C (Shown in red box)
2. All partitions with address in front of partition 4 will automatically be checked by OSRtool to ensure image integrity

Start Back up Process



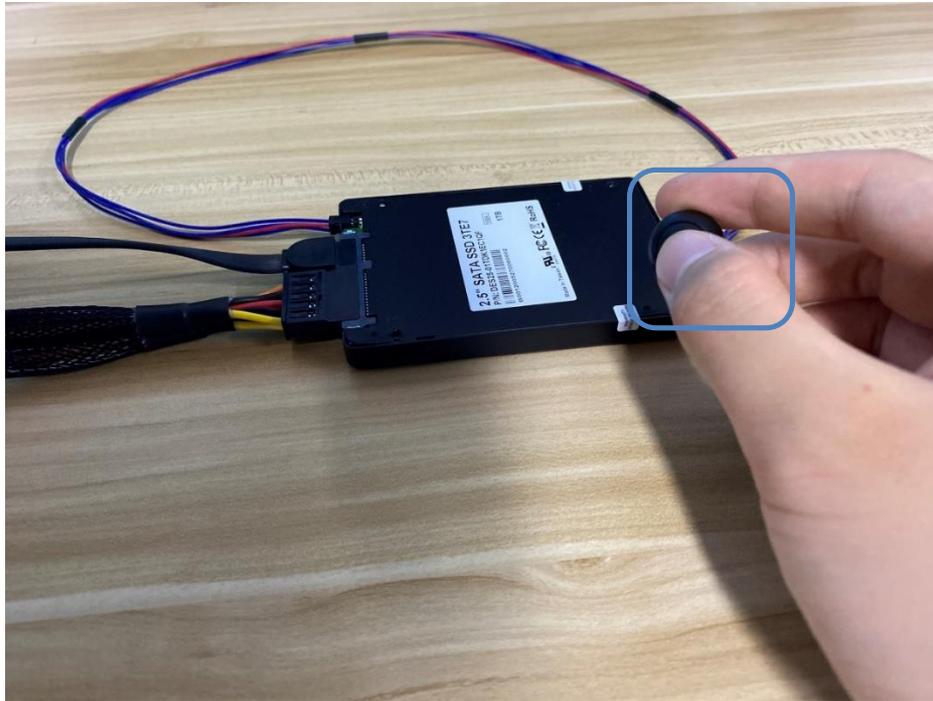
1. After checking OS partition, press "Back-Up" button
2. OSRTool will check whether your hidden area is bigger than your chosen back up partitions
3. Warning will show up once sufficient capacity is checked. After successful back up, OS will be shut down. Manually restarting OS is required

OS Back up Image check

The screenshot displays the innoOSR application window. On the left, the 'Device Information' section lists: Model Name: SSD 3TE7, Serial Number: B0011905300270254, Firmware Ver: D20C25, LBAs: 1665669808, Health: 99.97 %, and AVG. Erase: 1. On the right, the 'InnoOSR Information' section is highlighted with a red box and lists: Hidden area: YES, Hidden size (GB): 100, Copy LBA start: 0, Copy LBA end: 36863999, and Target LBA start: 1770527408. Below these sections, there is a list of partitions (Partition 1, 2, 3, 4) and an 'OSR Mode' section with radio buttons for 'Standard Recovery', 'Shift Boot' (selected), and 'Auto-Reboot'. At the bottom, there are 'Back-Up' and 'Recovery' buttons. The footer contains the innodisk logo, copyright notice 'Copyright© 2020 Innodisk Corporation. All Rights Reserved.', and version 'ver 1.2.0'.

1. After restarting the system and OSRtool, you can see back-up information regarding the image you just created (Shown in red box)

Recovery OS



1. After pushing button for 5 seconds, OS boot-up area will be instantly shift to reserved image one.
2. LED stays lit when shift is ready. User can then reboot system.
3. During OS boot-up, the shift may cause OS to perform **self-repair**.
4. In background, reserved image two will cover up damaged OS area. Original OS will become reserved image one afterward.

Mode Three: Auto-Reboot Implementation Process

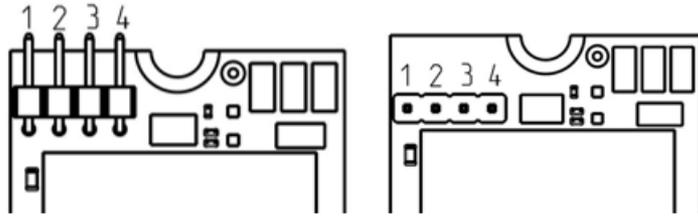
1. Connect Device to host system's HW reset pin
 - 1) Current disk design can only be compatible with 3.3V, Low-active motherboard reset pins.
2. User install OS with OS partition smaller than chosen hidden area
 - 1) For example, an InnoOSR disk with 100GB of hidden area can host up to 49.99GB of back-up image. 10MB additional area will be use as image buffer
 - 2) In this shift-boot mode, dual images will be copy to hidden areas. Thus doubling the image sizes.
3. Active demo windows scripts (OSHB: OS heartbeat) to start system monitoring.
 - 1) For Linux agent demo code, please check with Innodisk sales.
 - 2) Services must be activated prior to images building. Or disk may stuck in boot-up loops that prevent user access.
4. Use OSRtool V1.2 in x86-based Windows 10 or Linux environment
 - 1) Partitions detection
 - 2) Choose partitions to be backed-up
 - 3) OSRtool confirms sufficient hidden area
 - 4) Set SSD controller time interval for OS self-monitoring
 - 5) Perform back up

Scenario Flow-2

4. Use OSRtool V1.2 in x86-based Windows 10 or Linux environment
 - 1) Partitions detection
 - 2) User choose partitions to be backed-up
 - 3) OSRtool confirms sufficient hidden area
 - 4) Set SSD controller time interval for OS self-monitoring
 - 5) Perform back up
5. In case of OS freeze or damage, InnoOSR device will perform following steps:
 - 1) When service/agent fails to signal SSD for the first time, InnoOSR FW will trigger system reset to rule out freeze.
 - 2) When service/agent fails to signal SSD for the second time, InnoOSR FW will trigger OS boot-up area shift to reserved one and restart system.

InnoOSR IO Setup- M.2 2242

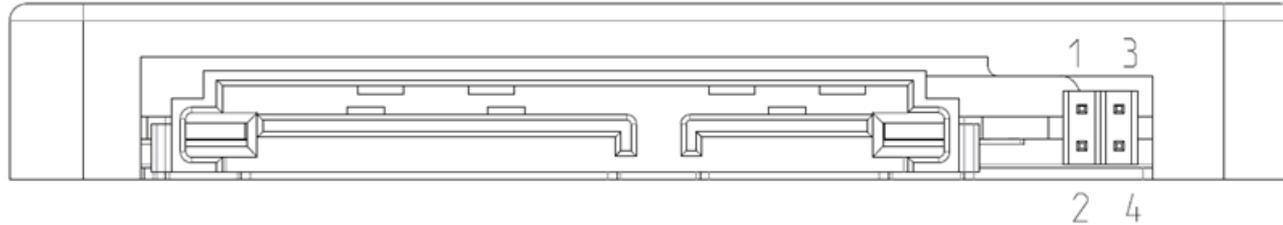
1. Connect Device to host system's HW reset pins. 2.0mm pitch DuPont connectors are adopted on InnoOSR devices.



Pin Header Number	Pin Define	Rating
2	GPIO Pin8, Output for <u>InnoOSR Mode 3 System</u> Hardware Reset Pin.	3.3V \pm 5%

InnoOSR IO Setup- 2.5"

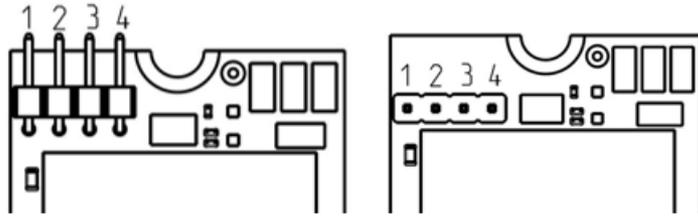
1. Connect Device to host system's HW reset pins. 2.0mm pitch DuPont connectors are adopted on InnoOSR devices.



Pin Header Number	Pin Define	Rating
1	GPIO Pin8, Output for <u>InnoOSR</u> Mode 3 System Hardware Reset Pin	3.3V \pm 5%

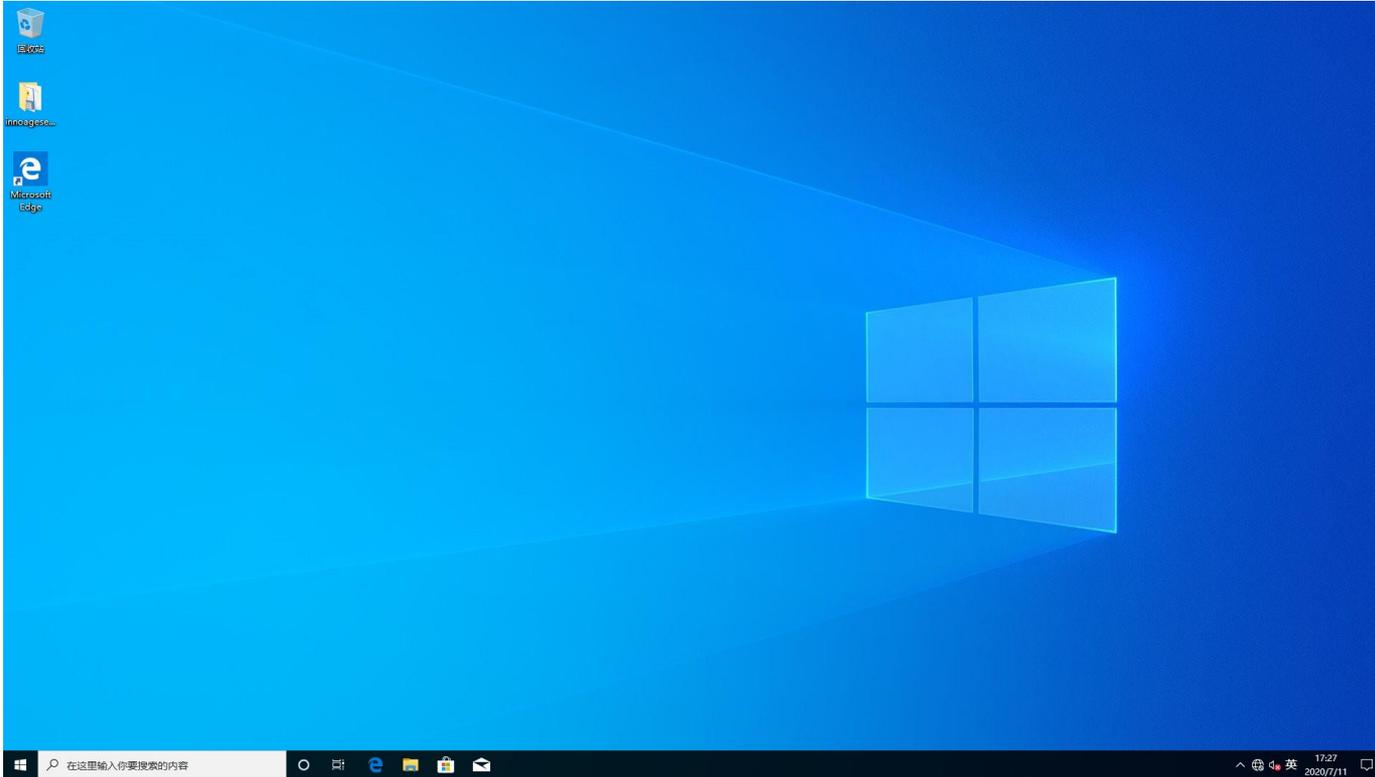
InnoOSR IO Setup- M.2 2280

1. Connect Device to host system's HW reset pins. 2.0mm pitch DuPont connectors are adopted on InnoOSR devices.



Pin Header Number	Pin Define	Rating
2	GPIO Pin8, Output for <u>InnoOSR Mode 3 System</u> Hardware Reset Pin.	3.3V \pm 5%

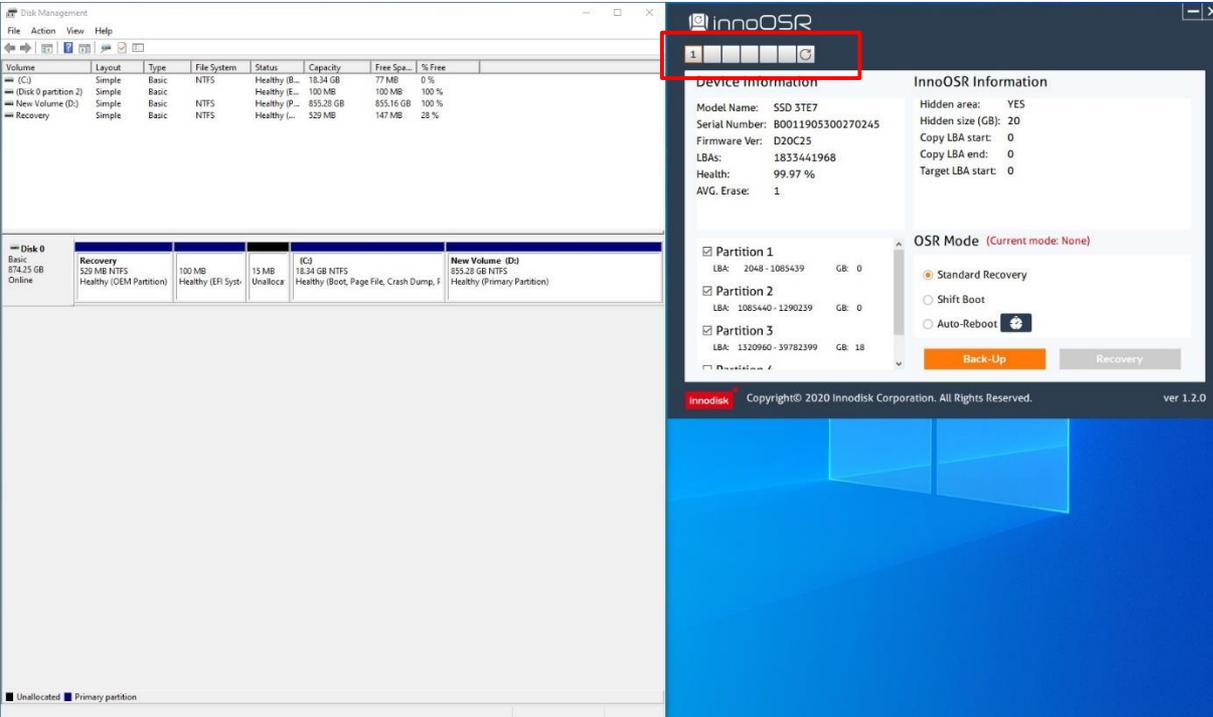
Installing Operating System



1. Install OS into our InnoOSR drive with partition smaller than hidden area

Launch OSRTool

innodisk



1. Start innodisk OSRtool
2. OSRtool will automatically list our OSR capable device in your system (Shown in red box)

OSRTool Information

innOSR

1

Device Information

Model Name: SSD 3TE7
Serial Number: B0011905300270254
Firmware Ver: D20C25
LBAs: 1665669808
Health: 99.97 %
AVG. Erase: 1

InnoOSR Information

Hidden area: YES
Hidden size (GB): 100
Copy LBA start: 0
Copy LBA end: 36863999
Target LBA start: 1770527408

- Partition 1
LBA: 2048 - 1085439 GB: 0
- Partition 2
LBA: 1085440 - 1288191 GB: 0
- Partition 3
LBA: 1288192 - 1320959 GB: 0
- Partition 4

OSR Mode (Current mode: Shift Boot)

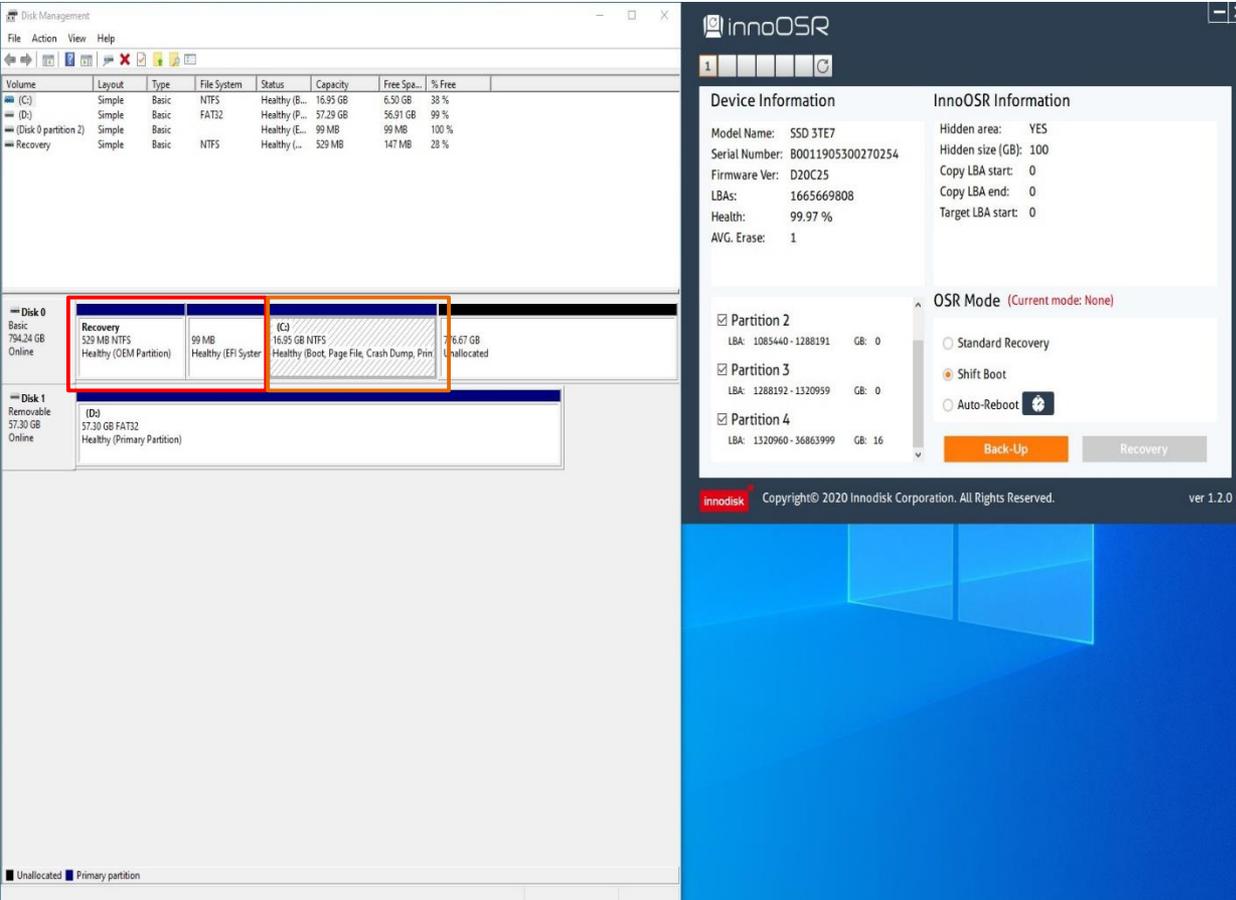
- Standard Recovery
- Shift Boot
- Auto-Reboot 

Back-Up

Recovery

1. In OSRTool, you can see detail information including:
 - 1) Device Information
 - 2) Partitions
Information on your system
 - 3) InnoOSR hidden partition and Back-up image status. In our example, we use hidden area of 100 GB.
 - 4) OSR Modes selection

Check Partition Status



1. In OSRTool, you can see exact partitions status even when partitions are hidden by OS (Shown in red box)
2. In our example, we are backing up partition C with capacity of 16.95GB (Shown in orange box)

Choose Partitions to Back up

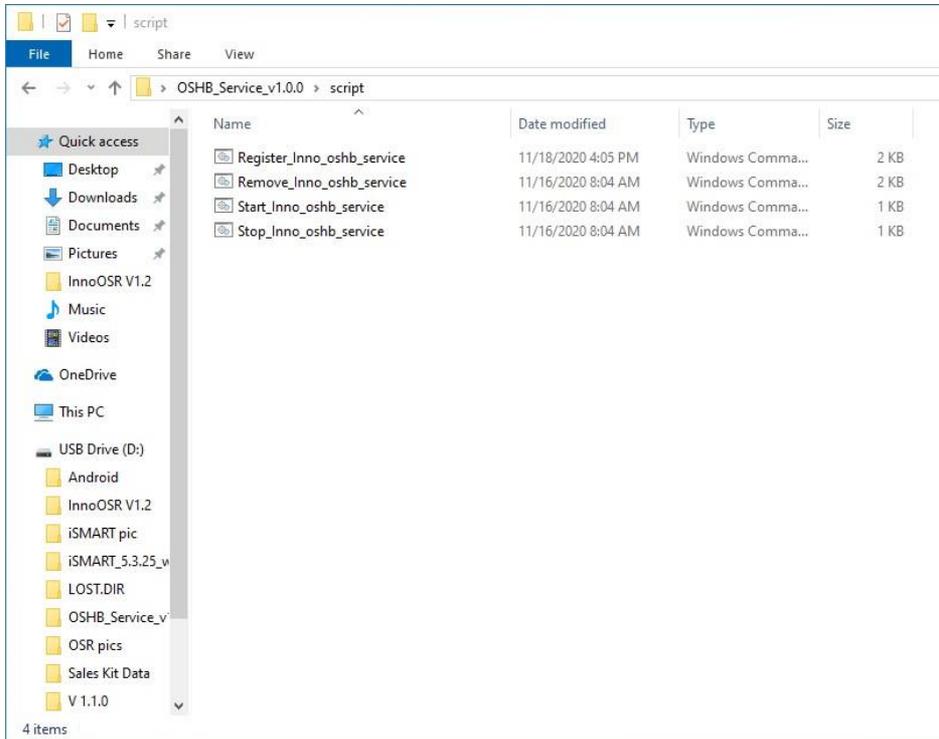
The screenshot shows the InnoOSR application window. At the top left, there is a toolbar with a refresh icon and a tab labeled '1'. Below the toolbar, the interface is divided into several sections:

- Device Information:** Model Name: SSD 3TE7, Serial Number: B0011905300270254, Firmware Ver: D20C25, LBAs: 1665669808, Health: 99.97 %, AVG. Erase: 1.
- InnoOSR Information:** Hidden area: YES, Hidden size (GB): 100, Copy LBA start: 0, Copy LBA end: 36863999, Target LBA start: 1770527408.
- OSR Mode (Current mode: Shift Boot):** Includes radio buttons for Standard Recovery, Shift Boot, and Auto-Reboot (which is selected and highlighted with an orange icon).
- Partition Selection:** A list of partitions with checkboxes. Partition 1, 2, and 3 are checked. Partition 4 is also checked, but its checkbox is highlighted with a red box in the original image.
- Buttons:** 'Back-Up' (grey) and 'Recovery' (orange).

At the bottom of the window, there is a footer with the Innodisk logo, copyright information (Copyright© 2020 Innodisk Corporation. All Rights Reserved.), and the version number (ver 1.2.0).

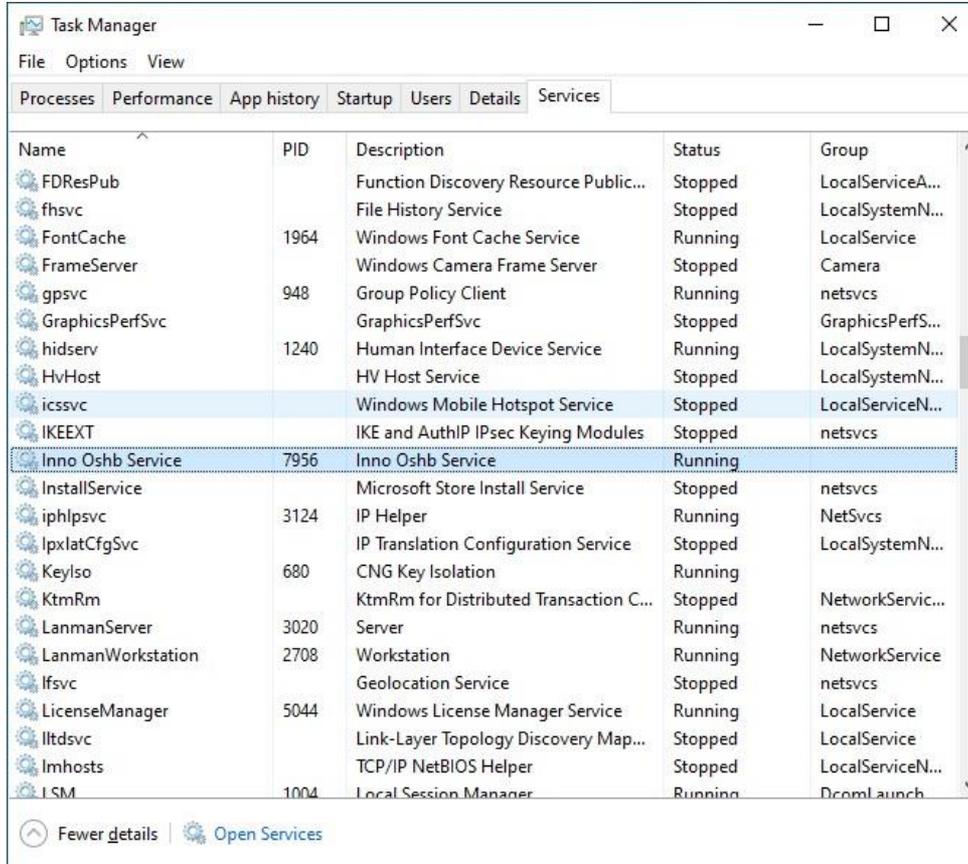
1. Check partition 4 representing partition C (Shown in red box)
2. All partitions with address in front of partition 4 will automatically be checked by OSRtool to ensure image integrity

Activated OSHB Services



1. Open "InnoAGE_OSHB_Service_v1.0.0" folder
2. Register_Inno_oshb_service: Launch service with 1 minute signal interval
3. Remove_Inno_oshb_service: Deactivate service
4. Start_Inno_oshb_service: Use for service signal restart
5. Stop_Inno_oshb_service: Pause service signal

Activated OSHB Services-2

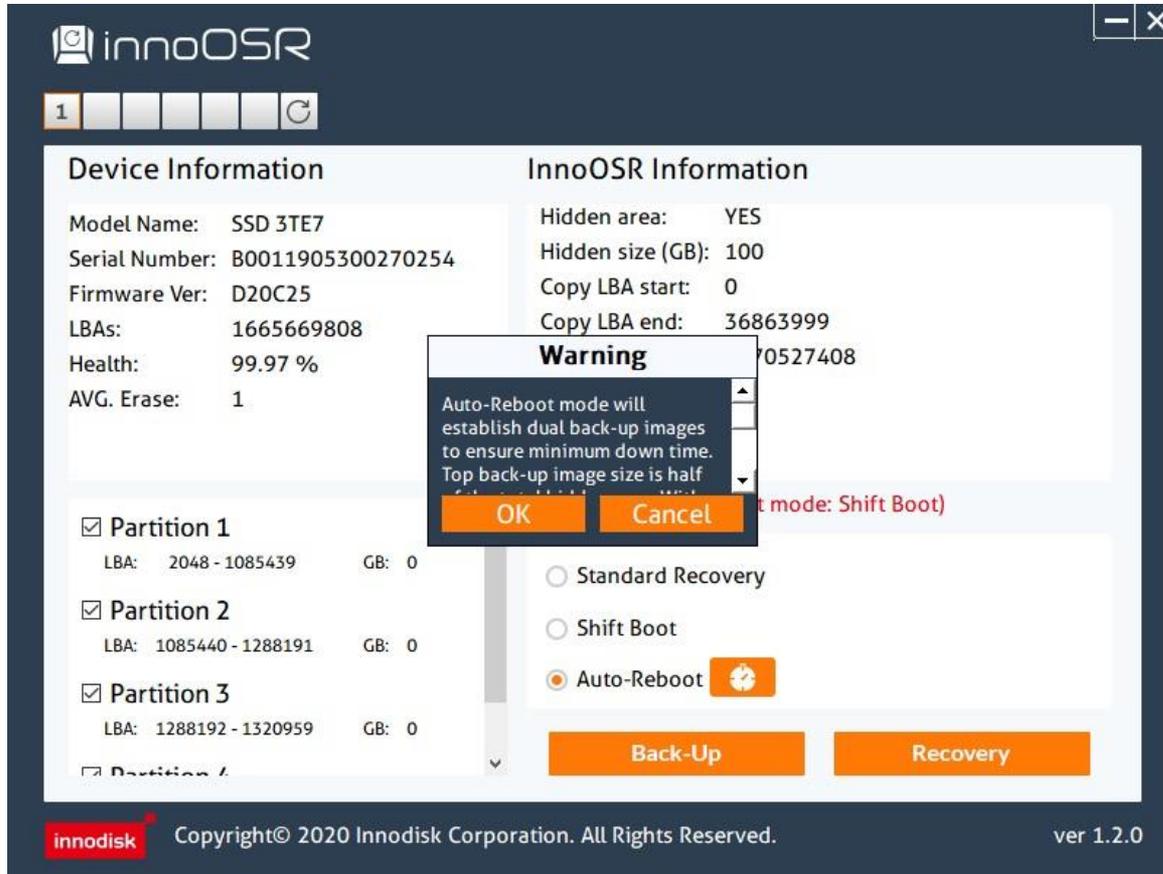


The screenshot shows the Windows Task Manager window with the 'Services' tab selected. The 'Inno Oshb Service' is highlighted in blue, indicating it is running. The table below represents the data shown in the Task Manager Services list.

Name	PID	Description	Status	Group
FDResPub		Function Discovery Resource Public...	Stopped	LocalServiceA...
fhsvc		File History Service	Stopped	LocalSystemN...
FontCache	1964	Windows Font Cache Service	Running	LocalService
FrameServer		Windows Camera Frame Server	Stopped	Camera
gpsvc	948	Group Policy Client	Running	netsvcs
GraphicsPerfSvc		GraphicsPerfSvc	Stopped	GraphicsPerfS...
hidserv	1240	Human Interface Device Service	Running	LocalSystemN...
HvHost		HV Host Service	Stopped	LocalSystemN...
icssvc		Windows Mobile Hotspot Service	Stopped	LocalServiceN...
IKEEXT		IKE and AuthIP IPsec Keying Modules	Stopped	netsvcs
Inno Oshb Service	7956	Inno Oshb Service	Running	
InstallService		Microsoft Store Install Service	Stopped	netsvcs
iphlpvc	3124	IP Helper	Running	NetSvc
IpxlatCfgSvc		IP Translation Configuration Service	Stopped	LocalSystemN...
KeyIso	680	CNG Key Isolation	Running	
KtmRm		KtmRm for Distributed Transaction C...	Stopped	NetworkServic...
LanmanServer	3020	Server	Running	netsvcs
LanmanWorkstation	2708	Workstation	Running	NetworkService
lfsvc		Geolocation Service	Stopped	netsvcs
LicenseManager	5044	Windows License Manager Service	Running	LocalService
lltdsvc		Link-Layer Topology Discovery Map...	Stopped	LocalService
lmhosts		TCP/IP NetBIOS Helper	Stopped	LocalServiceN...
LSM	1004	Local Session Manager	Running	DcomLaunch

1. Inno_oshb_service can be seen in Task manager

Start Back up Process



1. After checking OS partition, press "Back-Up" button
2. OSRTool will check whether your hidden area is bigger than your chosen back up partitions
3. Warning will show up once sufficient capacity is checked. After successful back up, OS will be shut down. Manually restarting OS is required

OS Back up Image check

The screenshot displays the innoOSR application window. On the left, the 'Device Information' section lists: Model Name: SSD 3TE7, Serial Number: B0011905300270254, Firmware Ver: D20C25, LBAs: 1665669808, Health: 99.97 %, and AVG. Erase: 1. On the right, the 'InnoOSR Information' section is highlighted with a red box and lists: Hidden area: YES, Hidden size (GB): 100, Copy LBA start: 0, Copy LBA end: 36863999, and Target LBA start: 1770527408. Below these sections, there is a list of partitions (Partition 1, 2, 3, 4) and an 'OSR Mode' section with radio buttons for 'Standard Recovery', 'Shift Boot' (selected), and 'Auto-Reboot'. At the bottom, there are 'Back-Up' and 'Recovery' buttons. The footer contains the innodisk logo, copyright notice 'Copyright© 2020 Innodisk Corporation. All Rights Reserved.', and version 'ver 1.2.0'.

1. After restarting the system and OSRtool, you can see back-up information regarding the image you just created (Shown in red box)

Q & A

1. What do I do when OSRTool shows insufficient hidden area for my back up image?
 - 1) Shrinking partition sizes in disk management tool.
 - 2) Enlarge hidden area. However, this has to be performed by innodisk FAE since it require SSD re-initialization.
 - 3) If your disk had been initialized with biggest hidden area size (half of total user capacity) but still not enough for all back-up-needed partitions, please check for higher capacity SSDs.

2. Can I switch modes after certain mode had been implemented?
 - 1) Yes, executing back up process in OSRTool will erase previous back up setting.
 - 2) Please make sure the SSD pin headers has been reconnect according to mode requirements. Misconnection may cause system misbehavior.
3. After using shift-boot or auto-reboot function, why can't I see partition information in OSRTool?
 - 1) After boot-up area shift, InnoOSR firmware will conduct back up image restoration by covering up damaged OS area with intact secondary back up image. During this copying, partition information will not be available.

-
4. After OS recovery, sometime OS will enter self-prepare process. Is this normal?
 - 1) Yes, since InnoOSR recovery process alter key information such as data locations. OS may deem those changes as mistakes and launch self-prepare process.

 5. When I try to shift to standard OSR mode with a pre-established auto-reboot mode SSD, system will self-restart during the process.
 - 1) This behavior is caused by GPIO reset performed by InnoOSR FW when user switching modes. Before mode changes, please connect pin headers according to mode requirements.

The logo features the word "innodisk" in white lowercase letters on a red rectangular background. A small red square is positioned at the top right corner of the main red rectangle.

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