

iodd ST400 / MINI PRO Duress PIN Guide - Plausible Deniability Mode with `vhd4.vhd`

This guide explains how to use the **Duress PIN - For Plausible Deniability Mode** feature on iodd **ST400** and **MINI PRO** devices. With firmware version 82 or later, a device updated using `iodd_firm_upd-0.8.2.0_xx.exe` or later can show only the `vhd4.vhd` virtual disk on the PC in Plausible Deniability Mode.

In this mode, the PC does not see the normal physical partition. It sees only the fixed-size VHD file prepared as `vhd4.vhd`, allowing the device to present a separate, shareable volume while keeping the normal storage area separate.

Supported products: iodd **ST400** and **MINI PRO** updated to **firmware version 82 or later** using `iodd_firm_upd-0.8.2.0_xx.exe` or later.

1. How to Create and Use `vhd4.vhd`

The basic procedure is as follows.

1. Unlock the device with a PIN other than the **User 4 PIN**.
2. On the PC, create the `vhd4.vhd` file in the **root folder** of the first partition.
3. Make sure `vhd4.vhd` is in the root folder, not in a subfolder.
4. Return to the root folder list on the device screen.
5. Press **Key 1** to rebuild the root folder list. You can also reboot the device, or enter a subfolder and return to the root folder.
6. When `vhd4.vhd` appears in the list, the device updates the VHD setting.
7. Unlock the device again with the **User 4 PIN**.
8. The PC shows a disk whose size matches `vhd4.vhd`.

Important points:

- The file name must be exactly `vhd4.vhd`.
 - The file must be located in the root folder of the first partition.
 - `vhd4.vhd` must be stored contiguously on the disk. It must be a **fixed-size VHD** file, not a dynamic VHD and not a VHDX file.
 - After creating `vhd4.vhd`, the root folder list must be rebuilt. Use **Key 1**, reboot the device, or enter a subfolder and return to the root folder.
 - Rebuild the root folder list only while unlocked with a PIN other than the User 4 PIN.
 - However, a user with **disk write protection** cannot update the VHD setting.
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2. Normal PIN vs Duress PIN

Type	Purpose	What the PC Sees
PIN other than User 4	File management, ISO/VHD management, <code>vhd4.vhd</code> setting update	Normal physical partition

Type	Purpose	What the PC Sees
User 4 PIN (Duress PIN)	<code>vhd4.vhd</code> use	Disk sized to <code>vhd4.vhd</code>

When you unlock with a PIN other than the User 4 PIN, you can see the files in the root folder. In this state, create or delete `vhd4.vhd`, then rebuild the root folder list to update the setting.

The User 4 PIN works as the Duress PIN and shows only `vhd4.vhd` in Plausible Deniability Mode. When you unlock with the User 4 PIN, the device does not scan the root folder again. Before using the User 4 PIN, update the `vhd4.vhd` setting first while unlocked with a PIN other than the User 4 PIN.

A user with disk write protection cannot update the `vhd4.vhd` setting.

3. `vhd4.vhd` File Requirements

`vhd4.vhd` must meet the following requirements.

Item	Requirement
File name	<code>vhd4.vhd</code>
Location	Root folder of the first partition
Format	Fixed-size VHD file, not dynamic VHD or VHDX
Placement	Contiguous, without fragmentation

Select `vhd4.vhd` and press **Key 5** to display the file information message. The `fragment` value in this message must be `1`.

A fragmented `vhd4.vhd` cannot be used. If the LCD shows a defragmentation or `DEFRAG` message, recreate `vhd4.vhd` as a contiguous file on the PC, then unlock with a PIN other than the User 4 PIN and rebuild the root folder list.

4. Rebuilding the Root Folder List

The device checks whether `vhd4.vhd` exists when it builds the root folder list.

When creating `vhd4.vhd`, use **VHD_Tool++ v0.9.0.10 or later** from the iODD VHD tools page: https://dir.iodd.kr/?dir=vhd_tools. This is a **Windows-only** tool.

If you cannot use VHD_Tool++, format the drive and create `vhd4.vhd` immediately after formatting. This helps keep the fixed-size VHD file contiguous on the disk.

After preparing `vhd4.vhd`, rebuild the root folder list so the device can detect and apply the VHD setting.

Use one of the following methods to rebuild the root folder list:

- Press **Key 1**.
- Reboot the device.

- Enter a subfolder, then return to the root folder.

Behavior when rebuilding the root folder list:

State	Device Behavior
<code>vhd4.vhd</code> exists and is not fragmented	Updates the VHD setting for use with the User 4 PIN
<code>vhd4.vhd</code> exists but is fragmented	Does not apply the VHD setting
<code>vhd4.vhd</code> does not exist	Deletes the saved VHD setting

5. What Appears on the PC

State	What the PC Sees
Unlocked with a PIN other than User 4	Normal physical partition
Unlocked with the User 4 PIN, valid <code>vhd4.vhd</code> setting	Disk sized to <code>vhd4.vhd</code>
Unlocked with the User 4 PIN, no setting	The VHD disk may not appear
<code>vhd4.vhd</code> is fragmented	The VHD disk may not appear or may not be applied

While unlocked with the User 4 PIN, you cannot see other files from the physical partition. To manage files on the physical partition, unlock again with a PIN other than the User 4 PIN.

6. Troubleshooting

The VHD Disk Does Not Appear After Unlocking With the User 4 PIN

1. Unlock the device with a PIN other than the User 4 PIN.
2. Check that `vhd4.vhd` exists in the root folder.
3. Rebuild the root folder list by pressing **Key 1**, rebooting the device, or entering a subfolder and returning to the root folder.
4. Check that `vhd4.vhd` is not fragmented.
5. Unlock again with the User 4 PIN.

If the PIN used to update the setting has disk write protection enabled, the VHD setting cannot be updated.

The Device Does Not Recognize `vhd4.vhd` After It Is Created

- Make sure the file name is exactly `vhd4.vhd`.
- Make sure the file is in the root folder of the first partition.
- Make sure the root folder list was rebuilt after creating the file. Pressing **Key 1**, rebooting the device, or entering a subfolder and returning to the root folder is enough.
- A fragmented file cannot be used.

A Defragmentation or `DEFRAG` Message Appears

`vhd4.vhd` is not stored contiguously on the disk. Delete and recreate `vhd4.vhd` on the PC, or arrange it so it is stored in a contiguous area. Then unlock with a PIN other than the User 4 PIN and rebuild the root folder list.

7. Summary

- Place `vhd4.vhd` in the root folder of the first partition.
- After creating `vhd4.vhd`, rebuild the root folder list. Pressing **Key 1**, rebooting the device, or entering a subfolder and returning to the root folder is enough.
- A PIN other than User 4 is used for file management and VHD setting updates.
- A user with disk write protection cannot update the VHD setting.
- The User 4 PIN works as the Duress PIN and is used to show the `vhd4.vhd` disk on the PC in Plausible Deniability Mode.
- A fragmented `vhd4.vhd` cannot be used.