
# INFINIDAT Hardware Provider

## for Microsoft Windows Volume Shadow Copy Service

## Version 4.0

# User Manual

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# About this guide

This publication introduces the INFINIDAT Hardware Provider for Microsoft Windows Volume Shadow Copy Service.

| Date | Release | Content |
|---|---|---|
| Jan-2018 | 4.0 | Added support for InfiniBox 4.0. |
| Apr-02-2017 | 3.0 | Fixing the name of the configuration file. |
| Dec-29-2016 | 3.0 | Added support for InfiniBox 3.0. |
| Sep-07-2015 | 2.0 | Added support for InfiniBox 2.0. |
| Dec-2014 | 1.5.6 | Added `infivsscfg` CLI tool to configure INFINIDAT VSS Provider. |
| Nov-2014 | 1.5.5 | Initial release of this guide. |

# Introduction

The INFINIDAT Hardware Provider for Microsoft Windows Volume Shadow Copy Service (VSS), (INFINIDAT VSS Provider) is a plugin to Microsoft VSS framework, implemented as a Windows service, enabling VSS requestors such as backup solutions, to create application-consistent snapshots for volumes stored on the INFINIDAT InfiniBox storage array.

The module uses the Windows Server VSS framework for its management interface, and InfiniBox as the storage system on which snapshots are stored and maintained.

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## Terminology

| | |
|---|---|
| InfiniBox | The INFINIDAT storage system that the host connects to. |
| Volume | A set of disk blocks presented to an operating environment as a range of consecutively numbered logical blocks with disk-like storage and I/O semantics. |
| LUN | Logical Unit Number. An identifier of the volume. |
| Shadow copy | A technology that allows taking a snapshot of a file or a volume while they are in use. |
| VSS Requestor | The backup application that requests the actual creation of shadow copies (as well as importing, breaking and deleting them).<br>For example: Windows Backup, Symantec BackupExec, etc. |
| VSS Writer | The component that guaranties that the shadow copy is application-consistent. Microsoft Windows, as well as other application vendors provide VSS Writers for a variety of purposes (file system, active directory, registry, performance counters, etc.). |
| VSS Provider | The component that manages the shadow copy. |

## Supported Platforms

See the INFINIDAT software compatibility page on the Support site.

## Installation prerequisites

- Disk space - 100MB
- RAM - 100MB

## Download site for the installation package

The VSS Provider installation packages are available from:

http://repo.infinidat.com

## Related documentation

InfiniBox documentation includes:

- InfiniBox User Documentation
- InfiniShell documentation – provides documentation on issuing commands to manage and maintain the InfiniBox via the InfiniShell.
- InfiniAPI

# Installing the VSS Provider

## Step 1: Installation

| | |
|---|---|
| Step 1 | Download the latest VSS Provider installation package.<br>See here: Download site for the installation package. |
| Step 2 | Verify that there is an IP route between the host and the InfiniBox Management IPs. |
| Step 3 | Install the MSI. |

# Configuring the VSS Provider

INFINIDAT VSS Provider needs to have access to InfiniBox. By default, INFINIDAT VSS Provider uses the default *admin* user and its default password.

## Creating a configuration file

To override the user and password, you need to create a configuration file and write to it.

1. Create a new directory: `C:\Program Files\Infinidat\Infinidat VSS\config`
2. Create a file within this directory: `infinivss.conf`.
3. Write to this file using the commands that are described below.

Note: the VSS Provider executables are located on: `C:\Program Files\Infinidat\Infinidat VSS\bin`

## Configuring the user name and password

The following commands set user and password to all of the InfiniBox systems.

### Get the default user name

This command prints the default user name.

```
infivsscfg [options] get default username
```

### Set the default user name

This command sets the default user name.

```
infivsscfg [options] set default username <USERNAME>
```

### Set default password

This command sets the default password.

If not passed with the command, `infivsscfg` will prompt for it.

```
infivsscfg [options] set default password [PASSWORD]
```

### Set default credentials

This command sets the default user name and password in one command.

If the password is not passed with the command, `infivsscfg` will prompt for it.

```
infivsscfg [options] set default credentials <USERNAME> [PASSWORD]
```

## Configuring system-specific user and password

### Get the user name of a system

This command prints the username of a specific InfiniBox system (that is identified by its serial number).

If no system-specific user name is defined, the command prints the default user name.

```
infivsscfg [options] get system username <SERIAL>
```

### Set the user name for a system

This command sets the user name of a specific system.

```
infivsscfg [options] set system username <SERIAL> <USERNAME>
```

### Set the password for a system

This command sets the default password.

If not passed with the command, `infivsscfg` will prompt for it.

```
infivsscfg [options] set default password <SERIAL> [PASSWORD]
```

### Set the credentials for a system

This command sets the user name and password for a system in one command.

If the password is not passed with the command, `infivsscfg` will prompt for it.

```
infivsscfg [options] set default credentials <SERIAL> <USERNAME> [PASSWORD]
```

## Configuring the way snapshots are deleted

INFINIDAT VSS Provider can either delete or keep snapshots that have no clones associated with them. The default behavior is to keep them (not delete empty snapshots).

Just like with user names and passwords, you can set a default behavior or a system-specific behavior.

### Get the default behavior

Prints **True** for a default behavior that deletes empty snapshots.

Prints **False** for a default behavior that keeps the snapshots.

```
infivsscfg [options] get default delete_empty_snapshots
```

### Set the default behavior

Set the default behavior according to the argument passed.

```
infivsscfg [options] set default delete_empty_snapshots (true|false)
```

### Get the default behavior for a specific system

Prints **True** for a default behavior that deletes empty snapshots.

Prints **False** for a default behavior that keeps the snapshots.

```
infivsscfg [options] get default delete_empty_snapshots <SERIAL>
```

### Set the default behavior for a specific system

Set the default behavior according to the argument passed.

```
infivsscfg [options] set default delete_empty_snapshots <SERIAL> (true|false)
```

## Configuring the path to the log file

The log file records all of the VSS Provider operations on InfiniBox. It is used by INFINIDAT support to debug problems encountered by the customer.

### Get the log path

Get the path to the InfiniBox log file.

```
infivsscfg [options] get log path
```

### Set the log path

Set the location for the log file.

```
infivsscfg [options] set log path <PATH>
```

## Other commands and options

### Get the location of the configuration file

```
infivsscfg [options] get config path
```

### Get help on the configuration command

```
infivsscfg –h
```

Or

```
Infinivsscfg --help
```

# VSS snapshot example

The VSS Requestor sends a request to the VSS Writer to make sure that the snapshots are consistent with the application database.

## Restoring a snapshot

Step 1

Provision a volume from the Windows host by using `infinihost` or manually.

```
$ infinihost volume provision 1gb --yes
Creating the new 1 GB volume "volume1" ... OK
Waiting for volume discovery, this might take a while ... OK
Creating filesystem ... OK
Mounting filesystem ... OK
============================================================
All done.
```

The volume volume1 is represented by `PHYSICALDRIVE1`, and it is mounted to E:\.

Step 2

Create a snapshot for this volume, using DiskShadow:

- Set context – required for creating usable snapshots.
- Set option – the "transportable" option refrains the snapshot from being immediately available to the host, so it is portable and can be moved to another host.
  This setting is optional.
- Set metadata – specifies a cab file with a name for the snapshots, other than the auto-generated name.
  This setting is optional.
- Add volume – this option fails the VSS Provider if the application is not registered or the volume is not an INFINIDAT volume.
  This setting is optional.
- Alias – this option sets a name for the snapshot.

```
set context persistent nowriters
set option transportable
set metadata mysnap.cab
add volume e: provider {C6D19A0F-8288-4620-A956-
F6193413CBAD}
create

Alias VSS_SHADOW_1 for shadow ID {42e1ffb5-b0c4-46d3-a333-
262fc3c1a968} set as environment variable.

Alias VSS_SHADOW_SET for shadow set ID {3abb5ff7-b751-4ac7-
```

```
a7ae-78c0fc50e357} set as environment variable.
```

Step 3

See the snapshot in InfiniBox

```
admin@box-ci12> vol.snap.query –detailed
NAME         snap-vss-539-{3ABB5FF7-B751-4AC7-A7AE-78C0F
THIN         yes
SIZE         1.00 GB
USED         30.34 MB
ALLOCATED    524.28 KB
POOL         pool_6deaf4757a3911e
MAPPED       no
CREATED AT   2014-12-02 10:00:00
```

Step 4

Restore the snapshot:

```
load metadata mysnap.cab
add shadow %VSS_SHADOW_1% e:
resync
```

These commands can be entered in any DiskShadow instance, whether on the same host in a new session or on different hosts.

The `VSS_SHADOW` parameter of the `add shadow` command is the snapshot ID.

In this example, we use an alias which is always generated when creating a snapshot. This alias is loaded from the cab file as well. The alias name is auto-generated but it can be specified when creating the snapshot by adding `alias <name>` to the `add volume` command (see step 2 above):

```
add volume e: provider {C6D19A0F-8288-4620-A956-
F6193413CBAD} alias my_alias
```

Alternatively, this parameter can be the GUID of the shadow copy. The second parameter (`% d:`) must be a mount point of the same volume for which the snapshot was created.

This command restores the volume and does not map the snapshot volume to the host. In case of a volumes mismatch, the command fails, saying the target volume is not a parent of the snapshot volume.

```
DISKSHADOW> load metadata mysnap.cab

Alias VSS_SHADOW_1 for value {42e1ffb5-b0c4-46d3-a333-
262fc3c1a968} set as an environment variable.

Alias VSS_SHADOW_SET for value {3abb5ff7-b751-4ac7-a7ae-
78c0fc50e357} set as an environment variable.

DISKSHADOW> add shadow %VSS_SHADOW_1% e:
```

```
-> %VSS_SHADOW_1% = {42e1ffb5-b0c4-46d3-a333-262fc3c1a968}

DISKSHADOW> resync

The resynchronization operation failed. Error:
VSS_E_PROVIDER_VETO
```

## Exposing a snapshot

In the following example, the snapshot is mounted as read-only.

Step 1 Run:

```
load metadata mysnap.cab
import
expose %VSS_SHADOW_1% z:
```

# Troubleshooting

## Overcoming a resync problem

Whenever there is a problem during volume Resync (restoring a snapshot), the volume will be taken offline by the host, and its mount point (D:) will no longer be available.

To restore the volume in such an event:

| | |
|---|---|
| Step 1 | Open Disk Management (diskmgmt.msc) Right-click on the volume, and bring it online.<br><br>This is done by Windows to ensure the content of the volume is not corrupted after the failed restore attempt. |

## Fetch a log

When an error occurs in the Provider, the exception is written in the Windows event log.

| | |
|---|---|
| Step 1 | Fetch the log from "Windows Logs->Application". |
| Step 2 | Send it to INFINIDAT Customer Support:<br><br>support@infinidat.com<br><br>For other means of communications, see:<br><br>http://www.infinidat.com/support/ |

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