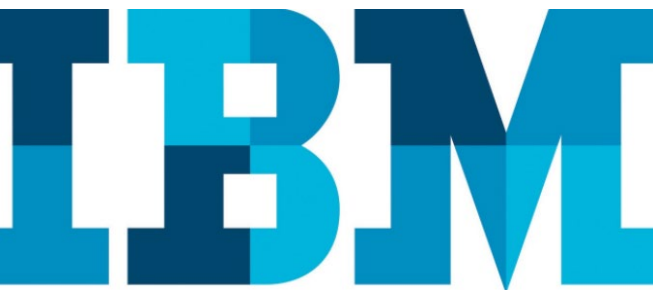


# Unmanaging disks in IBM VM Recovery Manager DR

*KSYS functionality when a disk is  
unmanaged or excluded*

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## Overview

### Challenge

In IBM VM Recovery Manager DR for Power Systems, usually, all the disks associated with a VM will be considered for the DR management. If users need one or more disks to be excluded from the DR management operation, the user must unmap these disks from their respective host on the production and backup site storages. Users only have a CLI command for unmanaging a VM but do not have a CLI command to unmanage the disks of VMs.

### Solution

This paper provides detailed explanation about the new procedure for excluding individual disks of VM from DR management.

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## Introduction

In general, for disaster recovery (DR) management, all the disks associated with a virtual machine (VM) are considered and these disks will be added to the storage consistency group during discovery operation.

Until now, users do not have an option to exclude the VM's disks from DR management by any means. Hence, to unmanage the disks from the DR management process, users must unmap the disks from the hosts on the respective storage agents.

This paper helps to understand the procedure involved in unmanaging or excluding disks from a KSYS configuration in IBM VM Recovery Manager for Power Systems. As a result, the excluded disks are ignored during the DR operations. Also, these unmanaged disks (disk pairs) will not be added to the KSYS created consistency group on storage systems.

The disk will be considered by the KSYS configuration for DR management only when the disk is included using the `manage` option.

## Prerequisites

As a prerequisite, make sure that the following configuration is made available in the installed versions.

- XSD version 6.0 or later
- If IBM VM Recovery Manager DR for Power Systems version 1.5.0.1 is installed, to unmanage the disk, first delete its replication disk mapped to the host on the remote storage system.
- If IBM VM Recovery Manager DR for Power Systems version: 1.5.0.0 is installed, it needs all disks with replication. Hence, ensure that the unmanaged disk's replication is present on the remote storage system but is unmapped from the host.
- The virtual Fibre Channel (vFC) of a VM with both managed and unmanaged disks.
- Worldwide name (WWN) of the disk must be used as disk ID while unmanaging the disk.

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## Unmanaging or managing disks

You need to remember the following points before unmanaging or managing disks:

### Architecture

#### Software

- IBM VM Recovery Manager DR for Power Systems version: **1.5.0.0** (to support unmanaged disks with replication on remote storage)
- IBM VM Recovery Manager DR for Power Systems version: **1.5.0.1** (to support unmanaged disks without replication)
- VIOS with minimum XSD version 6.0

#### Hardware

- VM: Virtual machines (VMs), also known as logical partitions (LPARs).
- VIOS: A special logical partition that host I/O resources to provide advanced virtualization capabilities across other client LPARs or VMs).
- Backend supported storage of IBM System Storage SAN Volume Controller (SVC)/ IBM XIV® Storage System / Hitachi / EMC / EMC Unity

- Every unmanage or manage disk operation should be followed by the discovery operation for the changes to take effect.
- IBM VM Recovery Manager DR for Power Systems version 1.5.0.0 supports unmanaging the home site disks only.
- IBM VM Recovery Manager DR for Power Systems version 1.5.0.1 supports unmanaging the disks of both home and backup sites.
- Unmanaging a disk of the home or the backup site must be performed when the disk's [that is, its logical partition's (LPAR's)] host group or the workgroup is active on that site.

That is, if the host group or the workgroup is active on the home site, then home site disks should only be unmanaged (must not unmanage any of the backup site disks as the host group is not active on the backup site. This is applicable for both IBM VM Recovery Manager DR version 1.5.0.0 and 1.5.0.1).

- Similarly, when the host group or the workgroup is active on the backup site, then the backup site disks only should be unmanaged (and must not unmanage any of the home site disks as the host group is not active on the home site. This is applicable for IBM VM Recovery Manager DR version 1.5.0.1).
- The active site disk and its remote site disk must not be unmanaged at the same time (this is applicable for 1.5.0.0).

The feature works correctly only if the active site disks are unmanaged. This is explained with a simple example in Figure 1.

Consider the scenario shown in Figure 1.

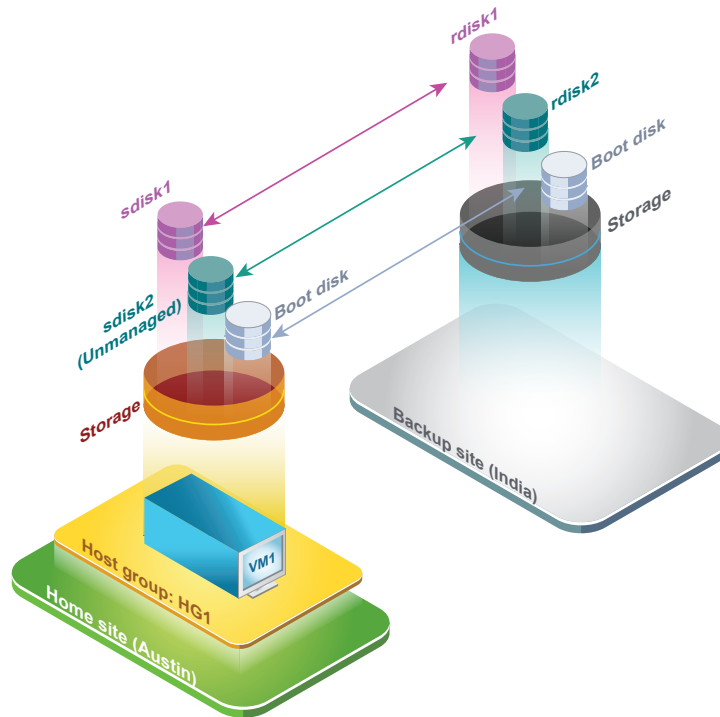


Figure 1. Unmanaging the disks from home site (considering IBM VM Recovery Manager DR version 1.5.0.0 configuration with replications)

As per the scenario in Figure 1:

- Host group HG1 is active on the home site (Austin).
- HG1 has the managed virtual machine (VM1) with one boot disk (in blue), two data disks (sdisk1 and sdisk2) on the home site and their respective remote disks: remote boot disk, rdisk1, and rdisk2 on the backup site.
- The data disk **sdisk2** is an unmanaged disk.
- Only the active site disks, sdisk1 and sdisk2, can be unmanaged.
- The disks ( remote boot disk, rdisk1 and rdisk2) belonging to the backup site must not be unmanaged because the host group is not active on this site.

**Note:** The boot disk must not be unmanaged and the data disks can be unmanaged.

Similarly, consider the scenario is Figure 2, where the host group is active on the backup site (India).

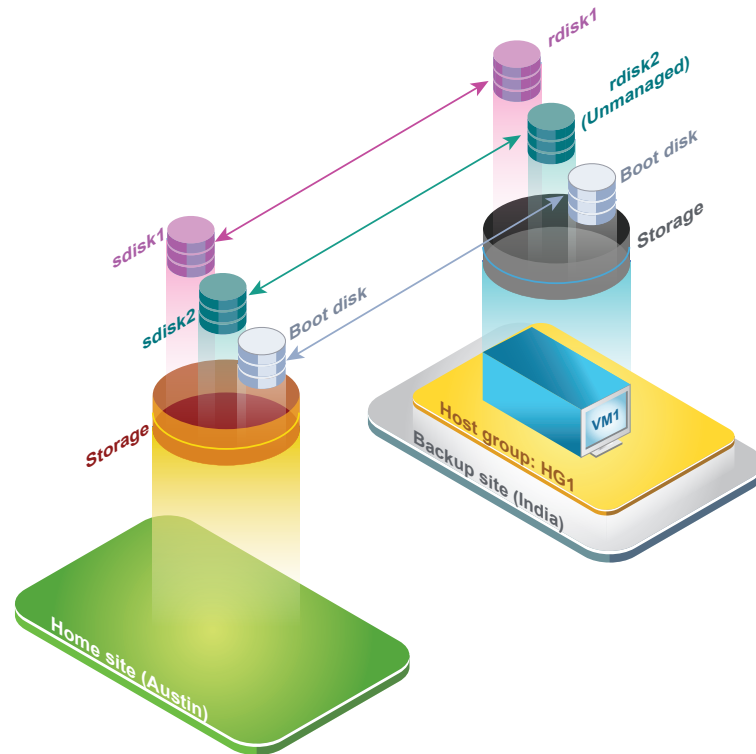


Figure 2. Unmanaging the disks from the backup site (considering version 1.5.0.0 configuration with replications)

As shown in Figure 2, HG1 is active on the backup site and the data disks belonging to this active site are rdisk1 and rdisk2 with rdisk2 unmanaged.

IBM VM Recovery Manager DR version **1.5.0.1** supports the configuration (refer Figure 3 and Figure 4) of unmanaged disks without replication. If the replication is already present for the active site disk and this disk needs to be unmanaged, then delete the replication disk, unmap the disk from the host on the target storage system, and then perform the unmanage operation.

Sample configuration is shown in following figures (Figure 3 and Figure 4).

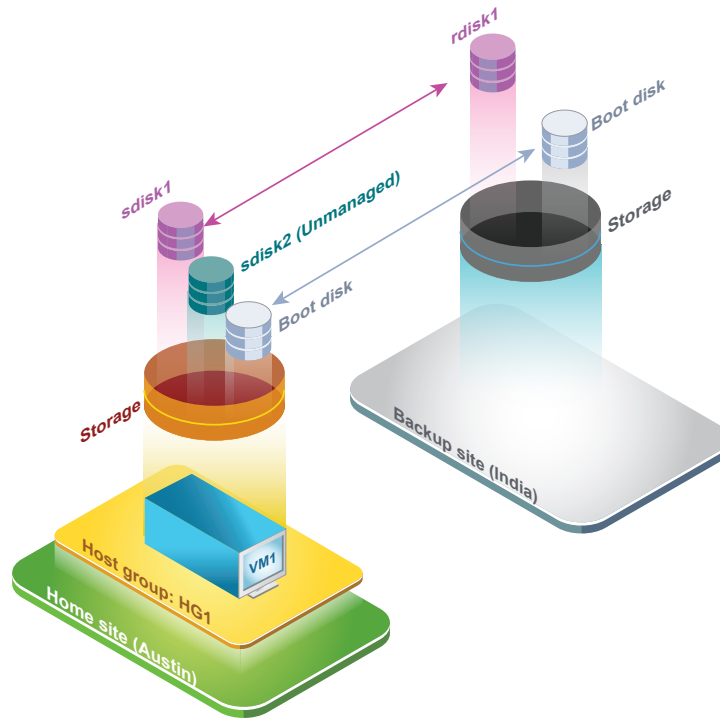


Figure 3. Unmanaging the disks from the home site

As shown in Figure 3, HG1 is active on home site having VM1 with sdisk2 unmanaged. Here, sdisk2 does not have the replication disk on the backup site.

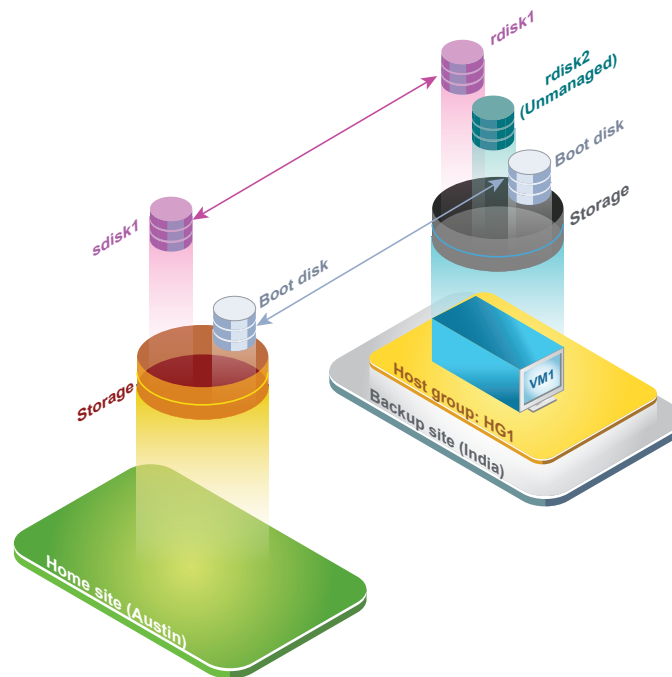


Figure 4. Unmanaging the disks from the backup site

As shown in Figure 4, HG1 is active on the backup site with rdisk2 unmanaged. Here, rdisk2 does not have the replication disk on the home site.

## Unmanaging a disk in DR management process

Perform the following steps to *unmanage* or *manage* disks *from* or *to* DR management process:

1. Check the disk WWN.
  - If version 1.5.0.0 is installed, make sure that all the disks have replication on the remote storage.
  - If version 1.5.0.1 is installed, delete the replication and unmap the replication disk from the host on the remote storage.
  - Fetch the WWN of the disk to be unmanaged using the command:  
`# lsmPIO -q1 <disk_name>`

### Example :

```
# lsmPIO -q1 hdisk1
```

An output (similar to the following example) will be displayed on the console.

```
Device: hdisk1  
Vendor Id: <VendorID>  
Product Id: <ProductID>  
Revision: <XYZABC>  
Capacity: 2.00GiB  
Volume Serial: <VolumeSerial>
```

Value that is displayed in the **Volume Serial** field is the WWN of the disk.

2. Unmanage the required active site disk using WWN.

Run the following command to unmanage the disk. Multiple disks can be specified with command separation.

```
# ksysmgr unmanage disk diskid=<diskid1[,...]>
```

An output similar to the following example is displayed:

```
<diskid1> was successfully unmanaged. Please run  
discovery to apply changes
```

### Example:

```
# ksysmgr unmanage disk diskid=5005076300026C01
```

3. Perform the discovery operation.

```
ksysmgr discover < host_group|site|workgroup> <name>)
```

Running the discovery operation will unmanage the disk from DR management.

4. Check the unmanaged and managed disks.  
View the managed or unmanaged disks using the following command:

```
# ksysmgr query disk_pair
```

**Output:**

```
Storage: xivsalocal_XIV<id> (<region><-> Storage:
xivsaremote_XIV<id>)
=====
=====
<disk1_WWN>                <-> <disk2_WWN>
<disk3_WWN>                <-> <disk4_WWN>
(UNMANAGED)
```

Unmanaged disks are labeled as (UNMANAGED) at the end of the row. In the above example, <disk1\_WWN> is the managed disk and <disk3\_WWN> is the unmanaged disk.

**Note:** Version 1.5.0.1 supports unmanaged disks without replication. So, the following output for this release displays an empty string in place of the remote disk for the unmanaged disk row.

**Output:**

```
Storage: xivsalocal_XIV<id> (<region><-> Storage:
xivsaremote_XIV<id>)
=====
=====
<disk1_WWN>                <-> <disk2_WWN>
<disk3_WWN>                <->
(UNMANAGED)
```



To view only the disk that have been unmanaged, run the following command:

```
# ksysmgr query disk state=<unmanaged>
```

**Output:**

```
Unmanaged Disks:  
  <disk3_WWN>
```

**Example:**

```
Unmanaged Disks:  
  5005076300026C01
```

If the disk is unmanaged before the first discovery, the disk will not be already part of any consistency group. Hence, this will be ignored from adding to the consistency group.

If the disk was already part of the consistency group, the disk will be removed from the consistency group during the discovery operation.

Further DR operations will ignore this unmanaged disk until it is manually included using the manage command.

To manage an unmanaged disk, run the following command:

```
# ksysmgr manage disk diskid=<diskid1[,...]>
```

**Output:**

```
<disk3_WWN> was successfully managed. Please run  
discovery to apply changes.
```

**Example:**

```
# ksysmgr manage disk diskid=5005076300026C01
```

Now, running the discovery operation will manage the disk and the disk will be added to consistency group for the subsequent DR management operations.

## DR rehearsal functionality with unmanaged disks

If a workgroup or host group is active on the backup site, and the same workgroup or the host group has its home site disk unmanaged, the disaster recovery (DR) failover rehearsal operation from the backup site cannot be performed.

Similarly, if a workgroup or host group is active on the home site, and the same workgroup or the host group has its backup site disks unmanaged, the disaster DR failover rehearsal operation from the home site cannot be performed.

## Limitations

The following limitations apply while unmanaging or managing disks:

- Only the disks belonging to the active site can be unmanaged. The disks belonging to the inactive site must not be unmanaged.
- When unmanaging a disk pair at the KSYS subsystem level, disk name cannot be used in the command. Use the disk identifier (WWN) that's assigned to the disk in the active site.
- The VM Recovery Manager DR does not support sharing a managed disk or unmanaged disk between virtual machines of two different workgroups or host groups.
- The unmanage disk feature is not supported for the vSCSI disks.
- The unmanage disk feature is not supported if IBM System Storage® DS8000® series storage agents are configured in a site.

## Summary

This white paper enabled users to understand the procedure to manage and unmanage the disks in a DR management operation.

To ensure the correct functionality, it is always recommended to consider the provided prerequisites, important points, and limitations before unmanaging any disk in IBM VM Recovery Manager DR for Power Systems.

The unmanaged disks will not be part of the consistency group. The disk will be added to consistency group only when the disk is managed back following the discovery operation.

## Get more information

For basic understanding of DR mechanism, refer:

[Disaster recovery mechanism for the VM Recovery Manager DR solution](#)

## About the authors

**Sandhya Rani Dasari** is an advisory software engineer in the VM Recovery Manager product team. She has more than 2 years of experience in the IBM Power platform and has knowledge on disaster recovery and high availability. You can reach Sandhya at [sranidas@in.ibm.com](mailto:sranidas@in.ibm.com)

**Venkata Ratnam Vanamali** is an advisory software engineer in the VM Recovery Manager product team. He has more than 5 years of experience in the IBM Power platform and has knowledge on disaster recovery and high availability. You can reach Venkat at [vevana56@in.ibm.com](mailto:vevana56@in.ibm.com)



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3039 Cornwallis Road  
RTP, NC 27709

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