



## Configuring SANTap

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The Storage Services Module (SSM) supports Intelligent Storage Services in Cisco MDS SAN-OS Release 2.1(1a) and later that include SANTap.

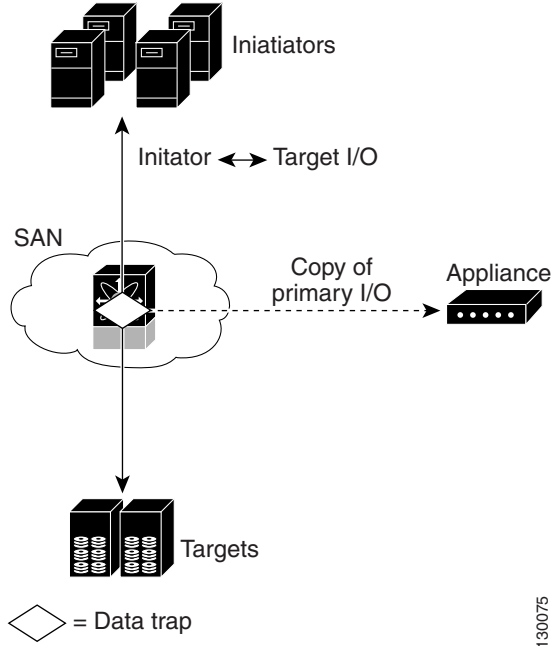
This chapter includes the following sections:

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### About SANTap

continuous backup, to be integrated into the SAN. The protocol-based interface that is offered by SANTap allows easy and rapid integration of the data storage service application because it delivers a loose coupling between the application and an SSM, thereby reducing the effort needed to integrate applications with the core services being offered by the SSM. See [Figure 40-1](#).

**Figure 40-1** Integrating Third-Party Storage Applications in a SAN

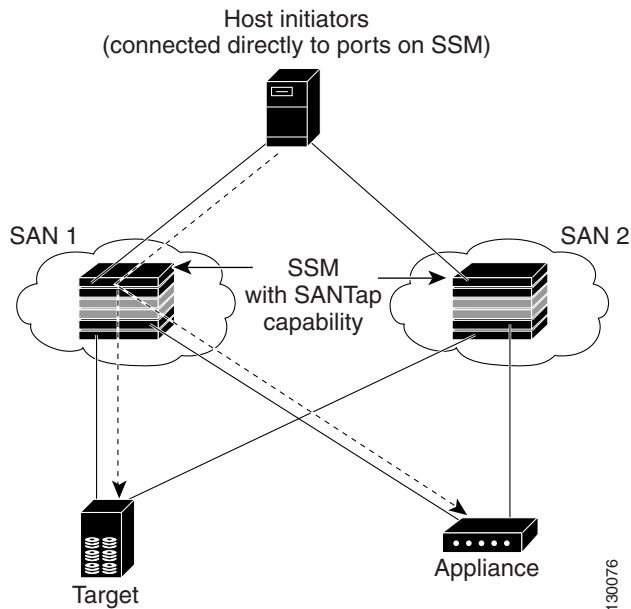


SANTap operates in three modes:

Transparent mode

Transparent mode eliminates the need for any reconfiguration of either the host or target when introducing SANTap based applications. This mode of operation requires that either the host initiator or target be directly connected to an SSM. See [Figure 40-2](#).

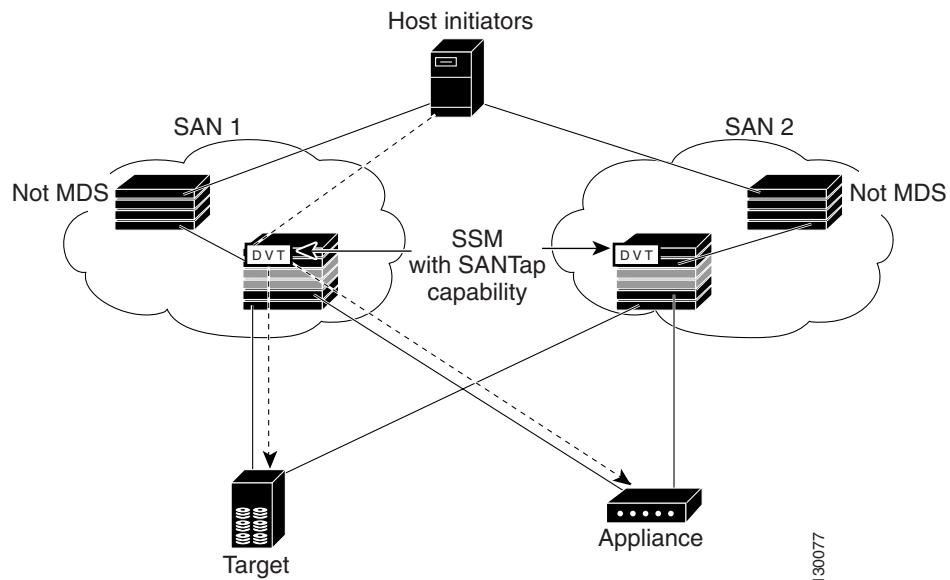
**Figure 40-2** SANTap Transparent Mode Example



Proxy mode-1

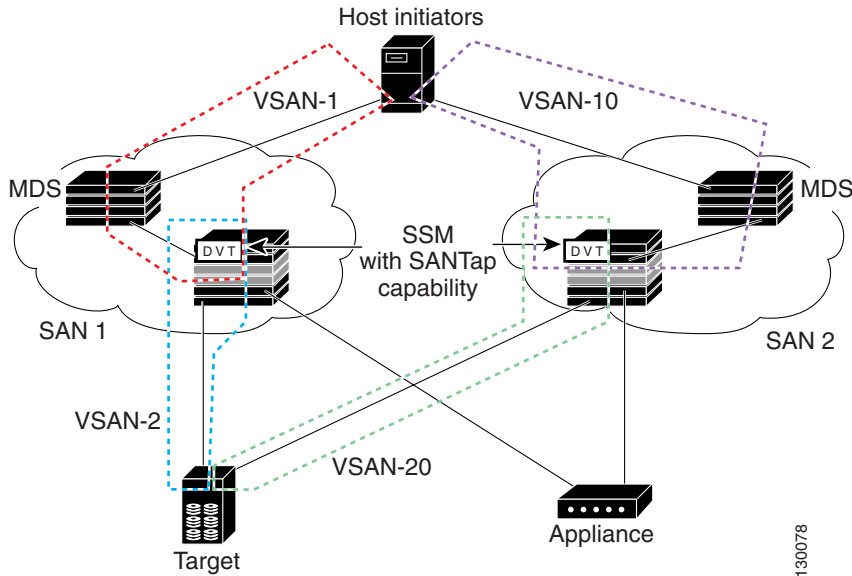
Proxy mode-1 assigns Cisco-specific WWNs to the virtual initiators (VIs) and digital virtual targets (DVTs). The benefit of this mode is that it eliminates the requirement of transparent mode that a host initiator or a target be connected directly to an SSM. In proxy mode-1, the SSM can be anywhere in the SAN. However, this mode requires reconfiguration of legacy applications. See [Figure 40-3](#).

**Figure 40-3** *SANTap Proxy Mode-1 Example*



- Proxy mode-2

Proxy mode-2 includes the benefits of transparent mode and proxy mode-1 but does not have the limitations of those modes. However, it does require that the administrator partition the SAN using VSANs. The host initiator and the DVT are in one VSAN while the VI and the target are in another VSAN. See [Figure 40-4](#).



## Enabling SANTap

- The fewest number of interfaces which you can enable is four. You can specify fc1 through fc4 but not fc1 through fc2.
- The first interface in the group must be 1, 5, 9, 13, 17, 21, 25, or 29. You can specify fc5 through fc8 but not fc7 through fc10.

The groups of four interfaces do not need to be consecutive. You can specify fc1 through fc8 and fc17 through fc20.

To enable the SANTap feature, follow these steps:

	Command	Purpose
Step 1	switch# <b>config t</b> switch(config)#	

Step 2	switch(config)# <b>ssm enable feature santap module 4</b>	
	<b>no ssm enable feature santap module 4</b>	
	<b>no ssm enable feature santap force module 4</b>	
Step 3	<b>ssm enable feature santap interface fc 4/1 - 4</b>	
	<b>no ssm enable feature santap interface fc 4/1 - 4</b>	
	<b>no ssm enable feature santap force interface fc 4/1 - 4</b>	
Step 4	<b>santap module 4 appl-vsan 10</b>	
	<b>no santap module 4 appl-vsan 10</b>	



**Note**

You cannot simultaneously configure the intelligent services SANTap and NASB on a single SSM.

## Displaying SANTap Information

Use the `show santap module`

*Displays SANTap Control Virtual Terminal Information*

```
show santap module 2 cvt
```

```
CVT Information :
  cvt pwwn      = 25:3c:00:05:30:00:22:25
  cvt nwwn      = 25:3d:00:05:30:00:22:25
  cvt id         = 1
  cvt xmap_id    = 2
  cvt vsan       = 10
```

```
DVT Information :
  dvt pwwn      = 22:00:00:20:37:88:20:ef
  dvt nwwn      = 20:00:00:20:37:88:20:ef
  dvt id        = 3
  dvt mode      = 3
  dvt vsan      = 3
  dvt fp_port   = 0
  dvt if_index  = 0x1080000
  dvt name      = MYDVT
```

### ***Displays SANTap Data Virtual Terminal LUN Information***

```
DVT LUN Information :
  dvt pwwn      = 22:00:00:20:37:88:20:ef
  dvt lun       = 0x0
  xmap id       = 8
  dvt id        = 3
  dvt mode      = 0
  dvt vsan      = 3
  tgt pwwn      = 22:00:00:20:37:88:20:ef
  tgt lun       = 0x0
  tgt vsan      = 1
```

switch#

```
Session Information :
  session id    = 1
  host pwwn     = 21:00:00:e0:8b:07:61:aa
  dvt pwwn      = 22:00:00:20:37:88:20:ef
  dvt lun       = 0x0
  tgt pwwn      = 00:00:00:00:00:00:00:00
  tgt lun       = 0x0
  adt pwwn      = 77:77:77:77:77:77:77:77
  adt lun       = 0x0
  num ranges    = 0
  dvt id        = 0
  vdisk id      = 0
  session state = 0
  mrl requested = 1
  pwl requested = 1
  iol requested = 0
```

**Example 40-5 Displays SANTap Appliance Virtual Terminal Information**

```
AVT Information :
  avt pwwn      = 2a:4b:00:05:30:00:22:25
  avt nwwn      = 2a:60:00:05:30:00:22:25
  avt id        = 12
  avt vsan      = 4
  avt if_index  = 0x1080000
  hi pwwn      = 21:00:00:e0:8b:07:61:aa
  tgt pwwn      = 22:00:00:20:37:88:20:ef
  tgt vsan      = 1
```

**Example 40-6 Displays SANTap Appliance Virtual Terminal LUN Information**

switch#

```
AVT LUN Information :
  avt pwwn      = 2a:4b:00:05:30:00:22:25
  avt lun       = 0x0
  xmap id       = 16
  avt id        = 12
  tgt lun       = 0x0
```

**Example 40-7 Displays SANTap Remote Virtual Terminal Information**

```
RVT Information :
  rvt pwwn      = 2a:61:00:05:30:00:22:25
  rvt nwwn      = 2a:62:00:05:30:00:22:25
  rvt id        = 17
  rvt vsan      = 4
  rvt if_index  = 0x1080000
```

**Example 40-8 Displays SANTap Remote Virtual Terminal LUN Information**

```
app pwwn      = 22:00:00:20:37:39:b1:00
app lun       = 0x0
app vsan      = 1
```

# Default Settings

*Table 40-1 Default Intelligent Storage Services Parameters*

Parameters	Default