

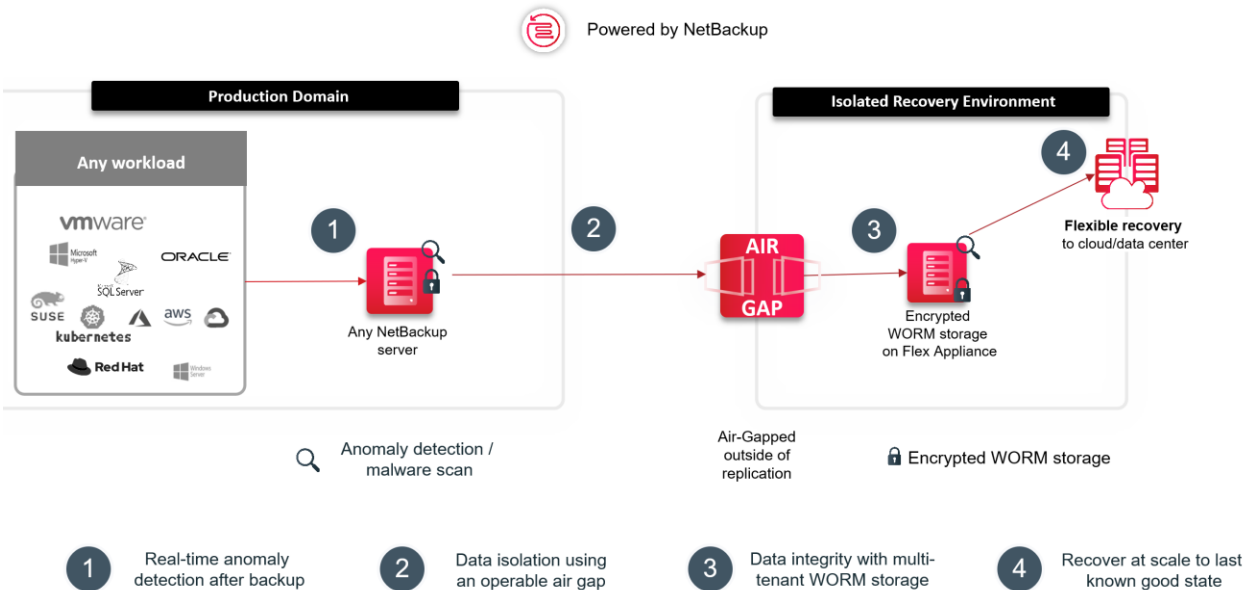


Flex Appliance Isolated Recovery Environment (IRE) Air Gap Solution Deployment Guide

Introduction

Executive summary

An isolated recovery environment provides an air gap solution between the production environment and a copy of the protected data. The air gap restricts network access to the protected data except during the timeframe when data replication occurs. When this solution is combined with Veritas anomaly detection, malware scanning, and recovery capabilities, it provides the best protection against ransomware and malware.



Target audience

This document is targeted at customers who are interested in learning more about Flex IRE and how to implement it.

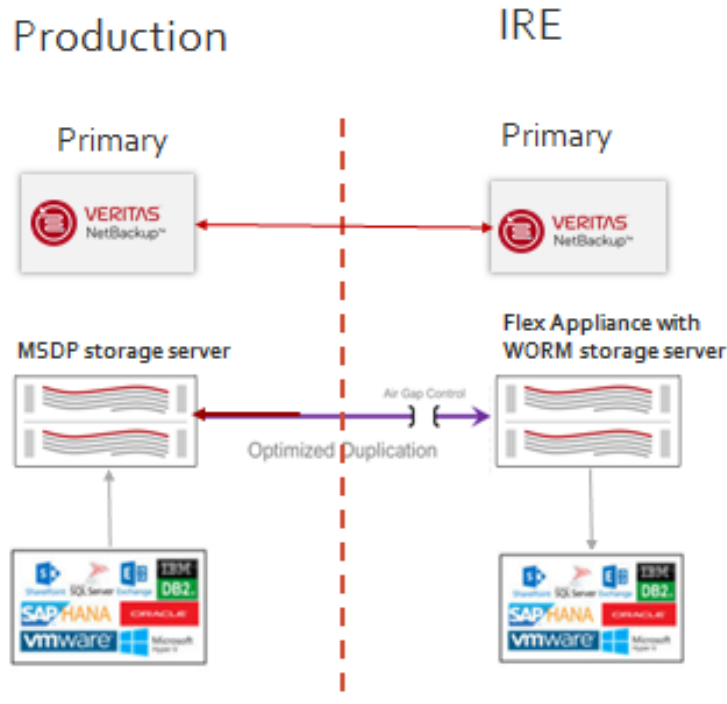
Why IRE

When ransomware attacks, infrastructure network segmentation plays a critical role in limiting the blast radius. Organizations can minimize ransom demands by using encryption and creating a stringent security perimeter. In addition, they need to isolate, analyze, and preserve a copy of data to ensure business continuity. An isolated recovery environment (IRE) enables organizations to meet these needs and satisfy strict regulatory and retention requirements. Veritas customers can easily deploy an IRE using their existing Veritas NetBackup infrastructure as part of a multi-layered resiliency strategy.

Flex IRE lets you determine the Service Lifecycle Policy (SLP) windows and configure the air-gapped schedule for maximum protection.

IRE requirements

To deploy Flex IRE, you need a production NetBackup environment and a target Flex IRE.



The following versions have been tested and are supported for this solution:

- NetBackup 10.0
- WORM storage server 16.0
- Flex Appliance 2.1

Before you begin, download the following files from the [Veritas Download Center](#):

- Flex Appliance hotfix **VRTSflex-HF3-2.1.0-0.x86_64.rpm** for the Flex Appliance in the IRE
- WORM storage server application 16.0
- NetBackup EEB **VRTSflex-msdp_EEB_ET4067891-16.0-3.x86_64.rpm** for the WORM storage server application

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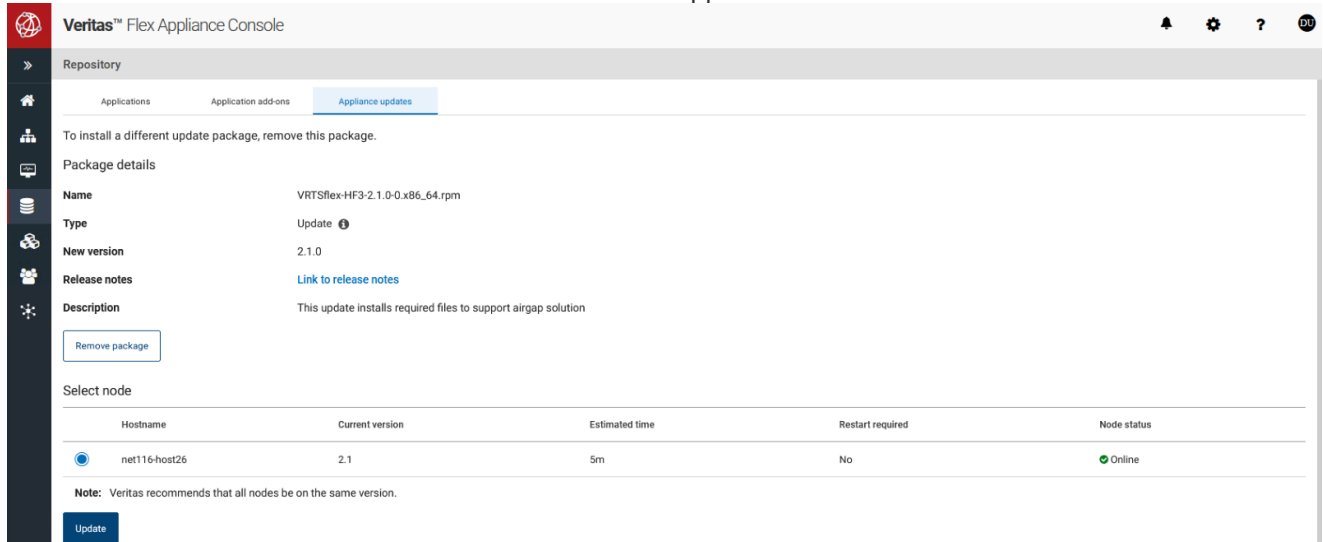
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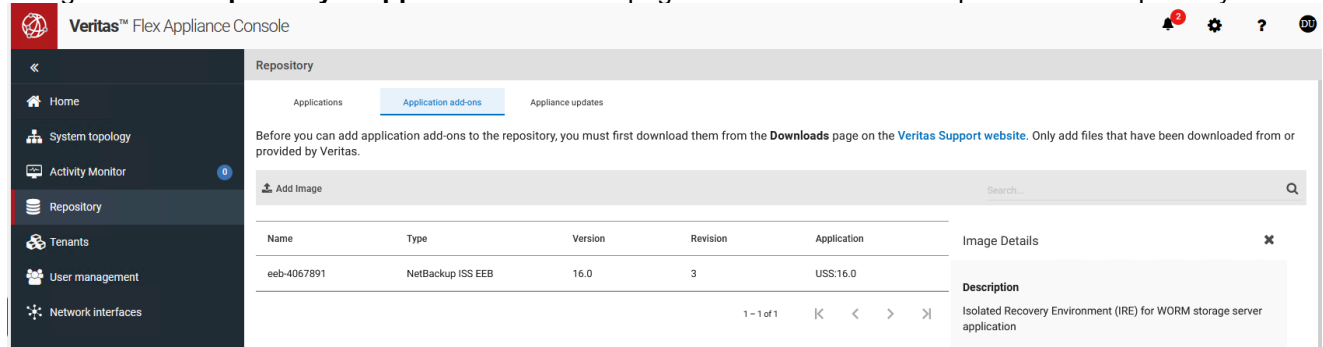
IRE deployment

The production environment does not require any additional steps for this solution. On the Flex IRE domain, perform the following steps:

1. From the Flex Appliance Console, navigate to the **Repository > Appliance updates** page and add the Flex Appliance hotfix to the repository. Click **Update** to install the hotfix. For more detailed instructions, see the section "Updating Flex Appliance" in the *Flex Appliance Getting Started and Administration Guide*. Note that the hotfix does not support rollback.



2. Navigate to the **Repository > Application add-ons** page and add the NetBackup EEB to the repository.



3. If you do not already have one, create a WORM storage server 16.0 application instance. For more details, see the section "Creating a NetBackup WORM storage server instance" in the *NetBackup 10.0 Application Guide for Flex Appliance*.

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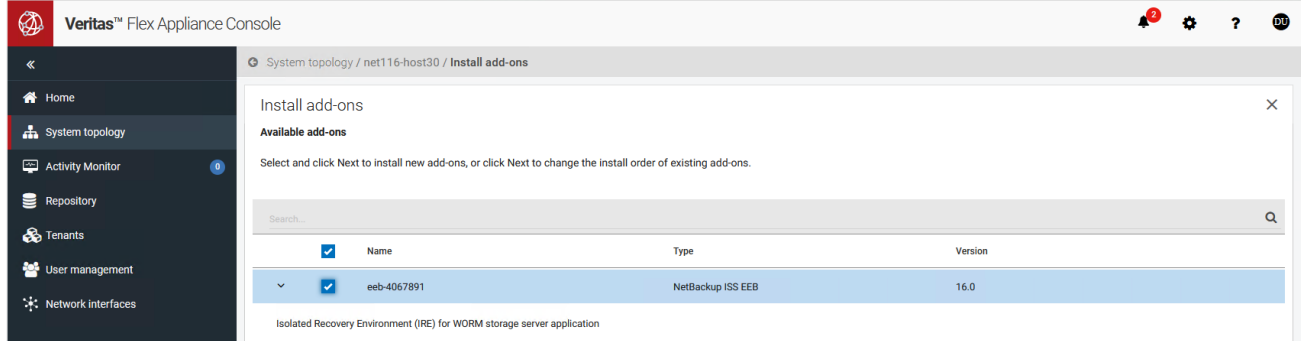
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- From the **System topology** page, navigate to the **Application instances** section. Stop the instance and then click **Manage > Install and order add-ons** to install the EEB on the instance. For more detailed instructions, see the section “Installing application add-ons” in the *Flex Appliance Getting Started and Administration Guide*.



After the NetBackup deployment is ready on both the production and the IRE domain, configure Auto Image Replication from the production domain to the IRE domain. Refer to the chapter “Configuring replication” in the “Veritas NetBackup Administrator’s Guide, Volume I.” Choose the WORM storage server instance as the target storage unit.

IRE operation

Determining the SLP window

Before you can configure the air gap schedule, you need to determine the schedule that is required to perform normal replication from the production site to the IRE site. To determine the schedule, log in to the WORM storage server shell and run the `setting ire-network-control show-slp-windows` command. This command generates a report about the SLP windows from the primary server to the WORM instance.

Usage of the command is as follows:

```
[msdp-16.0] ire-msdp > setting ire-network-control show-slp-windows
production_primary_server=<examplePrimary.domain.com>
production_primary_server_username=<prodUsername> ire_primary_server=<exampleIREPrimary.domain.com>
ire_primary_server_username=<ireUsername>
```

Where:

- `<examplePrimary.domain.com>` is the fully qualified domain name (FQDN) of the primary server in your production environment.

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- `<prodUsername>` is the username of a NetBackup user with permission to list SLPs and SLP windows in the production environment.
- `<exampleIREPrimary.domain.com>` is the FQDN of the primary server in the IRE. Use the same hostname that you used for the target primary server when you configured the SLPs in the production environment.
- `<ireUsername>` is the username of a NetBackup user with permission to list the SLPs and storage units in the IRE environment.

The following is an example output of the command:

```
[msdp-16.0] ire-msdp > setting ire-network-control show-slp-windows
production_primary_server=examplePrimary.domain.com production_primary_server_username=appadmin
ire_primary_server=exampleIREPrimary.domain.com ire_primary_server_username=appadmin
```

Password for production (appadmin):

Password for IRE (appadmin):

```
Production primary server: examplePrimary.domain.com
IRE primary server:       exampleIREPrimary.domain.com
MSDP server:             ire-msdp.domain.com
```

NOTE: All start times are in production primary server's timezone.

EveryDayAtNoon:

```
SLPs: SLP1
Sunday   start: 12:00:00 duration: 00:59:59
Monday   start: 12:00:00 duration: 00:59:59
Tuesday  start: 12:00:00 duration: 00:59:59
Wednesday start: 12:00:00 duration: 00:59:59
Thursday start: 12:00:00 duration: 00:59:59
Friday   start: 12:00:00 duration: 00:59:59
Saturday start: 12:00:00 duration: 00:59:59
```

WeeklyWindow:

```
SLPs: SLP2
Sunday   start: 10:00:00 duration: 01:59:59
Monday   NONE
Tuesday  NONE
```

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```
Wednesday  NONE
Thursday   NONE
Friday     NONE
Saturday   start: 10:00:00  duration: 01:59:59
```

This example shows two SLP windows:

- A daily window for one hour starting at noon
- A weekly window for 2 hours from 10:00 A.M. to noon

In this example, a daily schedule from 10:00 A.M. to 1:00 P.M. can accommodate both SLP windows.

Based on the output for your environment, determine your required schedule and take note of it.

Note: The start times in the output of this command are in the production primary server's time zone. If the production and IRE environments are in different time zones, make sure that you adjust the start times accordingly before you set the air gap schedule.

Note: If an SLP window is greater than 24 hours, `show-slp-windows` may display the duration incorrectly. Environments that have SLP windows greater than 24 hours are not candidates for IRE, as the network would always be open.

Configuring allowed IP addresses and subnets

The air gap schedule determines the timeframe that the network is available for replication from the production site. Outside of this timeframe, all network access to the Flex appliance is disabled except for any specific IP addresses or subnets, as defined by the IRE admin. To configure the allowed IP addresses and subnets, use the `setting ire-network-control allow-subnets` command in the WORM storage server shell.

Note: The IRE primary server, the IRE media servers, and the DNS server for the IRE environment must be included in the allowed list. If all of these servers are in the same subnet, only the subnet is required to be in the allowed list.

Usage of the command is as follows:

```
[msdp-16.0] ire-msdp > setting ire-network-control

show-allowed          Show allowed subnets and devices for the IRE network
show-slp-windows      Show SLP windows from the primary server to this WORM server
external-network-open Manually open the external network
set-schedule          Set the IRE schedule with a specific window for the network to be open
```

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<code>allow-subnets</code>	Specify allowed subnets for the IRE network
<code>delete-schedule</code>	Delete the IRE schedule so that the network is always open
<code>show-schedule</code>	Show the configured IRE schedule
<code>resume-schedule</code>	Resume the IRE schedule
<code>external-network-status</code>	Show whether the external network is open or closed

Use the following commands to configure the allowed IP addresses and subnets:

To list the allowed IP addresses and subnets:

```
[msdp-16.0] ire-msdp > setting ire-network-control show-allows
```

No subnets are allowed.

To add specific IP addresses and subnets to the allowed list:

```
[msdp-16.0] ire-msdp > setting ire-network-control allow-subnets subnets=<CIDR subnet or IP addresses>
```

For example:

```
[msdp-16.0] ire-msdp > setting ire-network-control allow-subnets subnets=10.80.120.208,10.84.48.0/20
```

```
[msdp-16.0] ire-msdp > setting ire-network-control show-allows
```

The following subnets are allowed to connect even when the external network is closed:
'10.80.120.208,10.84.48.0/20'.

To remove IP addresses and subnets from the allowed list:

```
[msdp-16.0] ire-msdp > setting ire-network-control allow-subnets subnets=,
```

```
[msdp-16.0] ire-msdp > setting ire-network-control show-allows
```

No subnets are allowed.

Setting the air gap schedule

Once you have noted the SLP windows and configured the allowed IP addresses and subnets, you can set the air gap schedule. To set the air gap schedule, use the `setting ire-network-control set-schedule` command in the WORM storage server shell.

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Refer to the previous section “Configuring allowed IP addresses and subnets” for the complete command usage.

Note: For the Flex Appliance 2.1 release, a daily schedule is required. When you set the schedule, the time zone is the time zone of the IRE primary server.

Use the following commands to set the air gap schedule:

To show the current schedule:

```
[msdp-16.0] ire-msdp > setting ire-network-control show-schedule  
  
Current time is Fri Feb 25 01:16:18 2022  
No schedule is configured
```

To set a schedule with a specific start time and duration:

```
[msdp-16.0] ire-msdp > setting ire-network-control set-schedule start_time=<time>  
duration=<duration>
```

For example:

```
[msdp-16.0] ire-msdp > setting ire-network-control set-schedule start_time=16:00:00  
duration=02:00:00  
  
[msdp-16.0] ire-msdp > setting ire-network-control show-schedule  
  
Current time is Fri Feb 25 01:17:36 2022  
External network is configured to be open at 16:00:00 every day. The duration is 02:00:00
```

To stop the schedule:

```
[msdp-16.0] ire-msdp > setting ire-network-control delete-schedule  
  
[msdp-16.0] ire-msdp > setting ire-network-control show-schedule  
  
Current time is Fri Feb 25 01:16:18 2022  
No schedule is configured.
```

To show the current network status and check whether the external network is open or closed:

```
[msdp-16.0] ire-msdp > setting ire-network-control external-network-status  
  
External network is closed.
```

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To manually open the external network:

```
[msdp-16.0] ire-msdp > setting ire-network-control external-network-open  
[msdp-16.0] ire-msdp > setting ire-network-control external-network-status  
External network has been manually opened by the administrator
```

To manually close the external network and resume the IRE schedule:

```
[msdp-16.0] ire-msdp > setting ire-network-control resume-schedule  
[msdp-16.0] ire-msdp > setting ire-network-control external-network-status  
External network is closed.
```

Note: The SLP replication window on the production domain must be configured to be open at the same time as the IRE schedule.

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