

IBM XIV Storage System



Remote Support Proxy Installation and User's Guide

Version 1.1

IBM XIV Storage System



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Note

Before using this information and the product it supports, read the information in "Notices" on page 13.

This edition applies to version 1, release 1, of IBM XIV Storage System Remote Support Proxy, and to all subsequent releases and modifications until otherwise indicated in new editions. This edition replaces GA32-0795-00.

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About this guide

This guide describes how to install, configure, and use the IBM® XIV® Storage System Remote Support Proxy to connect an XIV system to the XIV Remote Support Center.

Who should use this guide

This guide is intended for customers who want to connect an IBM XIV Storage System to the IBM XIV Remote Support Center using the remote support proxy. To use this guide, you must be familiar with the IBM XIV Storage System and the IBM XIV Remote Support Center.

Conventions used in this guide

These notices are used to highlight key information.

Note: These notices provide important tips, guidance, or advice.

Important: These notices provide information or advice that might help you avoid inconvenient or difficult situations.

Attention: These notices indicate possible damage to programs, devices, or data. An attention notice appears before the instruction or situation in which damage can occur.

Publications and related information

Product manuals, other IBM publications, and Web sites contain information that relates to the IBM XIV Storage System.

To view a PDF file, you need Adobe Acrobat Reader, which can be downloaded for free from the Adobe Web site at www.adobe.com/products/acrobat/readstep.html.


Information centers

From the IBM XIV Storage System Information Center, you can browse all product documentation. The information center is available on the Web at publib.boulder.ibm.com/infocenter/ibmxiv/r2/index.jsp.





Publications

Information that is available in the information center is also available in a set of publications, in PDF format.


IBM XIV Storage System

- *IBM XIV Storage System Product Overview*  (GA32-0791)
publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.help.xiv.doc/docs/GA32-0639-08.pdf



This document contains an overview of the IBM XIV Storage System hardware and software.

- *IBM XIV Storage System Planning Guide*  (GA32-0770)
publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.help.xiv.doc/docs/GA32-0770-00.pdf
 This document defines preinstallation requirements for IBM XIV Storage Systems. It is important to ensure that you meet all requirements to guarantee a fast and reliable installation.
- *IBM XIV Storage System Host Attachment Guides* 
publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.help.xiv.doc/docs/hag.html
 These documents provide information about attaching host systems to the IBM XIV Storage System. Guides are available for each supported operating system, including IBM AIX®, Linux, and Microsoft Windows.
- *IBM XIV Storage System XCLI Reference Guide*  (GC27-2213)
publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.help.xiv.doc/docs/GC27-2213-05.pdf
 This document describes the IBM XIV command-line interface (XCLI) system and utility commands used to manage and maintain the XIV system, including the command syntax, parameter descriptions, output descriptions, and examples.
- *IBM XIV Storage System XCLI User Manual*  (GA32-0638)
publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.help.xiv.doc/docs/GA32-0638-03.pdf
 This document describes how to use the IBM XIV command-line interface (XCLI) to run XIV system and utility commands.

VSS Provider - Xprov

- *IBM XIV Storage System VSS Provider - Xprov Release Notes* 
publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.help.xiv.doc/docs/xProv_2_2_3.pdf
 This document describes the supported environment, new features, known issues, and installation information.

Remote Mirroring for VCS Cluster

- *IBM XIV Storage System Remote Mirroring for VCS Installation Guide* 
publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.help.xiv.doc/docs/IBM_XIV_Remote_Mirroring_Agent_for_VCS_2.1.0_Installation_Guide.pdf
 This guide describes how to install and configure the VERITAS Cluster Server (VCS) enterprise agent for IBM XIV Remote Mirroring.
- *IBM XIV Storage System Remote Mirroring for VCS Release Notes for Windows* 
publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.help.xiv.doc/docs/IBM_XIV_Remote_Mirroring_Agent_for_VCS_2.1.0_Release_Notes_for_Windows.pdf
 This document describes the supported environment, new features, fixes, and known issues.

- *IBM XIV Storage System Remote Mirroring for VCS Release Notes for*

Solaris 

[publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/
com.ibm.help.xiv.doc/docs/](http://publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.help.xiv.doc/docs/IBM_XIV_Remote_Mirroring_Agent_for_VCS_2.1.0_Release_Notes_for_Solaris.pdf)

[IBM_XIV_Remote_Mirroring_Agent_for_VCS_2.1.0_Release_Notes_for_Solaris.pdf](http://publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.help.xiv.doc/docs/IBM_XIV_Remote_Mirroring_Agent_for_VCS_2.1.0_Release_Notes_for_Solaris.pdf)

This document describes the supported environment, new features, fixes, and known issues.


MPIO Management Console

- *IBM XIV Storage System MPIO Management Console User's Guide* 
(GA32-0746)

[publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/
com.ibm.help.xiv.doc/docs/hag_1_5_x/GA32-0746-00.pdf](http://publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.help.xiv.doc/docs/hag_1_5_x/GA32-0746-00.pdf)

This guide discusses the IBM XIV MPIO Management Console application, which provides monitoring and management capabilities to the multipath subsystems of the IBM XIV Storage System.

Remote Support Proxy




- *IBM XIV Storage System Remote Support Proxy Installation and User's Guide*  (GA32-0795)

[publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/
com.ibm.help.xiv.doc/docs/GA32-0795.pdf](http://publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.help.xiv.doc/docs/GA32-0795.pdf)

This guide describes how to install, configure, and use the IBM XIV Storage System Remote Support Proxy to connect an XIV system to the XIV Remote Support Center.

IBM Redbooks publications and technical papers

Various IBM Redbooks® publications, Redpapers, and white papers are available for the IBM XIV Storage System. For additional papers, see the IBM XIV Storage System Web site at www.ibm.com/systems/storage/disk/xiv/.

- *IBM XIV Storage System: Architecture, Implementation, and Usage* 
www.redbooks.ibm.com/abstracts/sg247659.html?Open&cm_sp=MTE10970
This Redbooks publication describes the concepts, architecture, and implementation of the XIV system, which is designed to be a scalable enterprise storage system based upon a grid array of hardware components.
- *IBM XIV Storage System with the Virtual I/O Server and IBM i* 
[http://www.redbooks.ibm.com/abstracts/redp4598.html?Open
&cm_sp=MTE11087](http://www.redbooks.ibm.com/abstracts/redp4598.html?Open&cm_sp=MTE11087)
This paper discusses and explains how you can connect the XIV system to the IBM i operating system through the Virtual I/O Server (VIOS). A connection through the VIOS is especially useful for IT centers that have many small IBM i partitions. When using the VIOS, the fibre-channel host adapters can be installed in the VIOS and shared by many IBM i clients using virtual connectivity to the VIOS.
- *Performance Reinvented* 
[ftp://service.boulder.ibm.com/storage/disk/xiv/
ibm_xiv_performance_paper.pdf](http://service.boulder.ibm.com/storage/disk/xiv/ibm_xiv_performance_paper.pdf)

This white paper describes how the XIV system provides a solution to today's performance requirements.

- *Reliability Reinvented* 

ftp://service.boulder.ibm.com/storage/disk/xiv/ibm_xiv_reliability_paper.pdf

This white paper describes how the XIV architecture delivers a new standard of reliability and availability for enterprise-class storage systems

- *Snapshot Reinvented* 

ftp://service.boulder.ibm.com/storage/disk/xiv/ibm_xiv_snapshots_paper.pdf

This white paper describes the XIV snapshot architecture and explains its underlying advantages in terms of performance, ease of use, flexibility and reliability. It also describes how these advantages are achieved by harnessing the power afforded by the unique grid architecture.

- *Thin Provisioning Reinvented* 

ftp://service.boulder.ibm.com/storage/disk/xiv/ibm_xiv_thin_provisioning_paper.pdf

This white paper explores the benefits of thin provisioning, the XIV approach to implementing it, and other XIV capabilities that ease management and increase return on investment for IT managers and storage administrators.

Related Web sites

View these Web sites to get more information about the XIV system.

- IBM XIV Storage System 

www.ibm.com/systems/storage/disk/xiv/

Use this Web site to learn about the XIV system, including features and hardware summary. This Web site also has links to white papers, Redbooks publications, and product documentation.

- Support for XIV Storage System 

www.ibm.com/systems/support/storage/xiv

Use this Web site to obtain downloadable files, links to submit and track problems, and support phone numbers and contacts.

- IBM Systems Storage forum 

www.ibm.com/developerworks/forums/forum.jspa?forumID=846

Use this forum to share ideas with knowledgeable experts and discover how the latest IBM storage solutions can address your business challenges. Forum topics include storage management, storage virtualization, business continuity, infrastructure simplification, disk storage systems, and storage software products and solutions.

Getting information, help, and service

If you need help, service, technical assistance, or just want more information about IBM products, you can find a variety of sources to assist you. Table 1 on page ix provides a list of Web pages that you can view to get information about IBM products and services and to find the latest technical information and support.

Table 1. IBM Web sites for help, information, and service

| Web site | Description |
|-----------------------------|---|
| ibm.com® | Main IBM home page |
| www.ibm.com/storage/support | IBM Support home page |
| www.ibm.com/planetwide | IBM Support page with pointers to the relevant contact information for a specific country |

How to order publications

The IBM Publications Center is a worldwide central repository for IBM product publications and marketing material.

The IBM Publications Center offers customized search functions to help you find the publications that you need. Some publications are available for you to view or download at no charge. You can also order publications. The publications center displays prices in your local currency. You can access the IBM Publications Center through the following Web site:

www.ibm.com/shop/publications/order/

Sending your comments

Your feedback is important in helping to provide the most accurate and highest quality information.

Procedure

To submit any comments about this book or any other IBM XIV Storage System documentation:

Send your comments by email to starpubs@us.ibm.com. Be sure to include the following information:

- Exact publication title and version
- Publication form number (for example, GA32-0770-00)
- Page, table, or illustration numbers that you are commenting on
- A detailed description of any information that should be changed

Chapter 1. Overview

The remote support system for the IBM XIV Storage System requires IP communication between the XIV system and the XIV Remote Support Center. When an XIV system does not have direct access to the Internet (for example, due to a firewall), you can use the XIV Remote Support Proxy to facilitate that connection.

The Remote Support Proxy is a network proxy that connects one or more XIV systems to the XIV Remote Support Center. The Remote Support Proxy runs as a service on a Linux system that has Internet connectivity to the XIV Remote Support Center and local network connectivity to the XIV system. The connection to the XIV Remote Support Center is initiated by the XIV system through the IBM XIV Storage System GUI or IBM XIV command-line interface (XCLI)

Figure 1 illustrates a typical network configuration that uses the Remote Support Proxy. The communication between the XIV system and the Remote Support Proxy uses Secure Shell (SSH). The communication between the Remote Support Proxy and the XIV Remote Support Center is encrypted with an additional layer of Secure Sockets Layer (SSL).

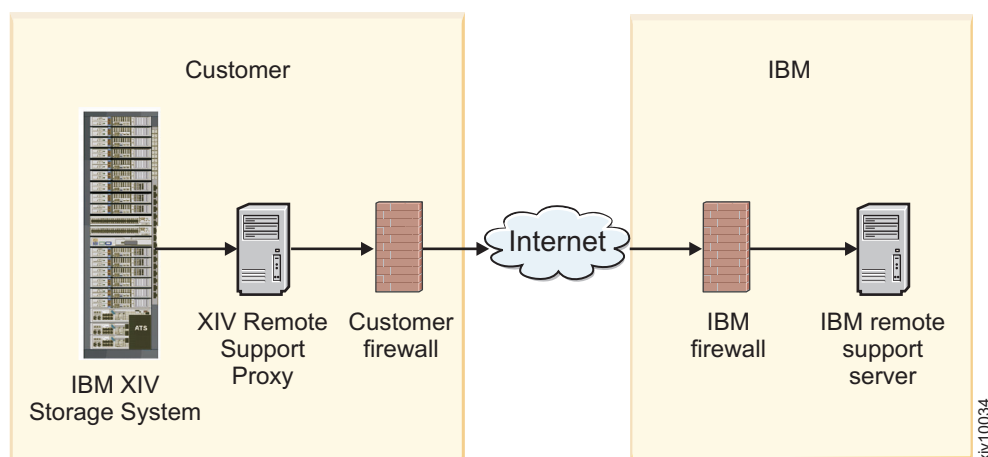


Figure 1. XIV Remote Support Proxy network configuration

Chapter 2. Installing and configuring the Remote Support Proxy

This information describes how to install and configure the Remote Support Proxy on a system that has access to the XIV system and the Internet.

Procedure

Perform these steps to install and configure the Remote Support Proxy:

1. Install the Remote Support Proxy
2. Configure the Remote Support Proxy
3. Start the Remote Support Proxy
4. Configure XIV systems

Software requirements

For information about supported operating systems, refer to the release notes for the Remote Support Proxy.

Installing the Remote Support Proxy

This information describes how to download and install the IBM XIV Storage System Remote Support Proxy.

Procedure

To download and install the Remote Support Proxy, perform these steps:

1. Go to the Support for XIV Storage System Web site at www.ibm.com/systems/support/storage/xiv.
2. Click **Download** in the **Support & downloads** section on the right side of the Web page.
3. Click **Downloadable files** under **Recommended fix**.
4. Click **IBM XIV Remote Support Proxy, version *v.r.m*** in the Results list, where *v.r.m* is the version, release, and modification level.

Note: You might need to advance to the second page of results to find the link

5. Download the release notes by clicking the link for the appropriate release under **Prerequisites**. Release notes contain information about fixes, known problems, and limitations.
6. Download the installation file by clicking the **FTP** link for the appropriate platform under **Download package**.
7. Assign the downloaded file execution permissions by running the following command:

```
chmod +x file_name.bin
```

where *file_name.bin* is the name of the installation package for the appropriate platform.
8. Install the Remote Support Proxy using the following command:

```
./file_name.bin
```

where *file_name*.bin is the name of the installation package for the appropriate platform.

A software license is displayed.

9. Follow the instructions at the bottom of the window to read through and accept the license.

The installation program installs an RPM package named "xivproxy" and then exits.

Results

The following files are installed on the local system:

/usr/bin/xivproxy

The binary executable file.

/etc/xiv/proxy.conf

The configuration file. You must update this file before starting the Remote Support Proxy service.

/etc/init.d/xivproxy

The system service for starting and stopping the Remote Support Proxy. The service is configured to start when the server boots. It does not start automatically after installation.

/usr/share/xiv/syslog-logger

A logger program that can be modified to integrate with the existing logging and monitoring systems.

/usr/share/doc/xivproxy-version/license

A directory containing the accepted software license for the Remote Support Proxy in multiple languages.

In the directory path, *version* is the product version.

Configuring the Remote Support Proxy

You must configure the Remote Support Proxy before starting the Remote Support Proxy service.

Procedure

To configure the Remote Support Proxy, edit the following parameters in the `/etc/xiv/proxy.conf` file:

ListenInterface

The interface name or IP address of the server on which the Remote Support Proxy is running (for example, `eth0` or `192.0.2.0`). The interface name must be the same as the output of the `ifconfig` command.

Important: The XIV system must have access to the system running Remote Support Proxy as defined by this interface name or IP address.

ListenPort

The TCP port on which the Remote Support Proxy is to listen for incoming connections from the XIV systems (for example, `8988`).

Important: The XIV system must have access to the system running Remote Support Proxy as defined by this port.

TargetAddress

The host name or IP address (using IPv4 format) of the XIV Remote Support Center (for example, 195.110.41.141).

Tip: Contact your IBM representative to obtain this IP address or host name.

Important: The system running the Remote Support Proxy must have access to the XIV Remote Support Center as defined by this host name or IP address.

TargetPort

The port of the XIV Remote Support Center (for example, 443).

Tip: Contact your IBM representative to obtain this port number.

Important: The system running the Remote Support Proxy must have access to the XIV Remote Support Center as defined by this port.

HTTPProxyHost

(Optional) The IP address, using IPv4 format, or host name of the HTTP proxy server (for example, 192.0.2.0).

If your network does not allow a direct connection to the Internet, you must use an HTTP proxy server. If this is the case, set the **HTTPProxyHost** and **HTTPProxyPort** parameters.

Note: The HTTP proxy must be configured to allow outgoing HTTPS connections.

HTTPProxyPort

(Optional) The port of the HTTP proxy server (for example, 8080).

StatusInterface

(Optional) The interface name or IP address (using IPv4 format) of an additional TCP port on which the Remote Support Proxy listens to monitor status of the proxy service (for example, eth1 or 192.0.2.2).

When you connect to the status port (for example, using Telnet), the proxy service displays a status message and then closes the connection.

If the **StatusInterface** and **StatusPort** parameters are not configured, the status service is disabled.

When the status service is enabled, you can retrieve the status by running the **service xivproxy status** command.

To enable status queries only from the local server, use the loopback interface 10. To enable status queries over the network, use a network interface.

StatusPort

(Optional) The port number of an additional TCP port on which the Remote Support Proxy listens to monitor status (for example, 8966).

If the **StatusInterface** and **StatusPort** parameters are not configured, the status service is disabled.

User

(Optional) User ID of a restricted user to use to run the Remote Support Proxy (for example, nobody).

If the proxy runs as the root user, it drops its privileges to those of the specified user or nobody if no user is specified. This is done after binding ports and opening the log file, in case they require root access.

Logger

(Optional) Location of the logger program (for example, /usr/share/xiv/syslog-logger).

See the contents of the /usr/share/xiv/syslog-logger file for more information and example code.

Note: The logger runs as a restricted user and not the root user.

The Remote Support Proxy runs the logger each time the XIV system connects to and disconnects from the XIV Remote Support Center, or when an error occurs. You can modify the logger program to integrate with existing logging and monitoring tools.

The logger program runs without any arguments and with the following predefined environment variables:

```
PATH=/bin:/sbin:/usr/bin:/usr/sbin
EVENT={connect|disconnect|error}
CLIENT=IP_address:port
TARGET=IP_address:port
MESSAGE=arbitrary text message when EVENT=error
```

In the following example, the XIV system uses IP address 192.0.2.0 and port 9999, the XIV Remote Support Center uses IP address 192.0.2.1 and port 443, and the logger is called to report a successful connection:

```
PATH=/bin:/sbin:/usr/bin:/usr/sbin
EVENT=connect
CLIENT=192.0.2.0:9999
TARGET=192.0.2.1:443
MESSAGE=
```

LogFile

(Optional) Location of the error log. If not set, the default location is /var/log/xivproxy.log.

This error log contains information about proxy service startup, shutdown, connections, and disconnections. If debugging is enabled, this file also contains the trace logs.

DebugLog

(Optional) A flag indicating whether debugging is enabled. Set to Yes to enable debugging or No to disable debugging. The default value is No.

When debugging is enabled, trace logs are created. These logs are useful for troubleshooting and debugging problems.

Example

The following example shows a sample configuration file:

```
# Interface and port on which the proxy listens
ListenInterface    eth0
ListenPort         8988

# Host and port of destination
TargetAddress      195.110.41.141
TargetPort         443

# Host and port of HTTP proxy server
HTTPProxyHost      192.0.2.0
HTTPProxyPort      8080

# Interface and port of status service
StatusInterface    lo
```

```
StatusPort      8966

# User ID to run the proxy
User            nobody

# External log program (optional)
Logger          /usr/share/xiv/syslog-logger
LogFile         /var/log/xivproxy.log
DebugLog        no
```

Starting the Remote Support Proxy

After updating the Remote Support Proxy configuration file, start the Remote Support Proxy service.

Procedure

To start the Remote Support Proxy, run the following command:

```
service xivproxy start
```

If the proxy service does not start correctly, examine the log file for errors. The default log file is `/var/log/xivproxy.log`.

Configuring XIV systems

After installing and configuring the Remote Support Proxy, you must define a new remote support connection with information about the proxy server.

Procedure

1. Ensure that no remote support servers are configured. To list all currently configured XIV Remote Support Center servers, use the following command:
`support_center_list`

2. If XIV Remote Support Center servers have been defined, delete the servers using the following command:

```
support_center_delete service_center=name
```

where *name* is the unique name of the XIV Remote Support Center server, as it appears in the Names column in the output of the **support_center_list** command.

3. Define a new remote support connection with the information about the proxy server using the following command:

```
support_center_define support_center=name address=proxy_ip port=proxy_port
```

where:

support_center=*name*

A unique name of the remote support server. You can use any name.

address=*proxy_ip*

The IP address of the server on which the Remote Support Proxy is running. This is the same as the **ListenInterface** parameter in Remote Support Proxy configuration file (`/etc/xiv/proxy.conf`).

port=*proxy_port*

The TCP port on which the Remote Support Proxy is to listen for incoming connections from the XIV systems (for example, 8988). This is the same as the **ListenPort** parameter in Remote Support Proxy configuration file (`/etc/xiv/proxy.conf`).

4. Test the connection for each XIV system when configuration is complete by connecting the XIV system to the remote support server using the following command:
`support_center_connect`
5. Wait a few seconds for the connection to complete, and then check the status using the following command:
`support_center_status`
6. Ensure that the connection state is reported as `idle` and not as `no connection`. If the connection state is not `idle`, examine the log file for errors.

Chapter 3. Uninstalling the Remote Support Proxy

This information describes how to uninstall the IBM XIV Storage System Remote Support Proxy.

Procedure

To remove the Remote Support Proxy from the system on which it is installed, perform these steps:

1. Stop the proxy service using the following command:
`service xivproxy stop`
2. Uninstall the Remote Support Proxy by running the following command:
`rpm -e xivproxy`

Chapter 4. Managing the Remote Support Proxy

This information describes how to start and stop the Remote Support Proxy and how to view connection status.

Starting and stopping the Remote Support Proxy

After the Remote Support Proxy is installed and configured, you can start, stop, and restart the Remote Support Proxy service.

Procedure

- To start the Remote Support Proxy, run the following command:
`service xivproxy start`
- To stop the Remote Support Proxy, run the following command:
`service xivproxy stop`
- To restart the Remote Support Proxy, run the following command:
`service xivproxy restart`

Monitoring status

You can monitor connection status for the Remote Support Proxy.

Procedure

To monitor Remote Support Proxy status, run the following command:
`service xivproxy status`

Results

The status command displays the following values.

Note: This information displays only if the status service is configured in the configuration file.

Open connections

The number of connections that currently exist between the XIV systems on the network and the XIV Remote Support Center server. These connections do not have to be in an active remote support session, but only connected to the server.

Failed connections

The number of connections that failed due to an error. This number represent a cumulative count from the time the status service was started and can only increase. When the proxy service is stopped and restarted, this number resets to zero.

Total connections

The total number of connection attempts that were made by the XIV systems on the network, whether successful or not. This number is a cumulative count from the time the proxy service was started and can only increase. When the proxy service is stopped and restarted, this number resets to zero.

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