IBM Remote Support Proxy Utility
Version 1.3.x

User Guide

IBM

Note

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

Tenth Edition (June 2024)

This publication applies to the version 1.3.x of IBM Remote Support Proxy utility and to all subsequent releases and modifications until otherwise indicated in a newer publication. This edition replaces publication number: GA32-0795-08

Contents

About this guide

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

Who should use this guide

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

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Chapter 1. Introduction

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

The IBM Remote Support Proxy utility creates a network proxy that connects one or more IBM storage systems to IBM remote-support servers in the IBM Remote Support Center. It establishes a service on a Linux® system that has Internet connectivity to the IBM Remote Support Center and local network connectivity to the storage system. The connection to the IBM Remote Support Center is initiated by the storage system through its management graphical user interface (GUI) or command-line interface (CLI).

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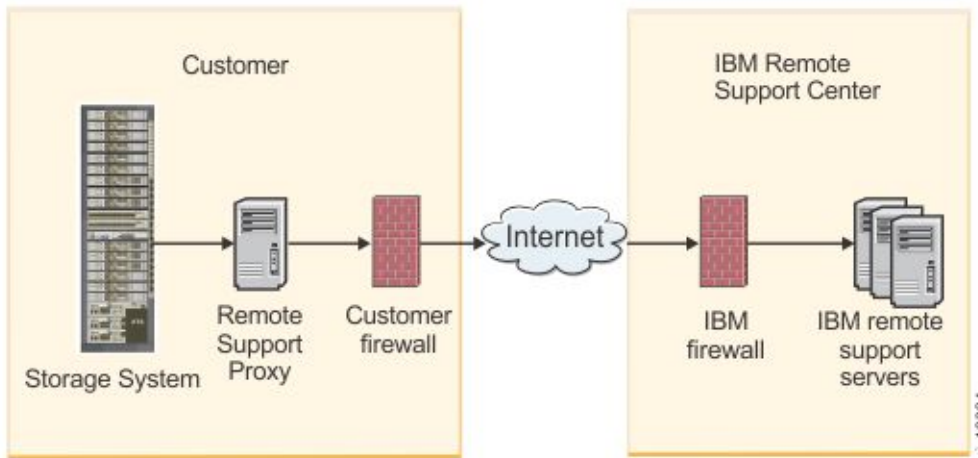

Figure 1. Remote Support Proxy components

Compatibility and requirements

For the complete and up-to-date information about the compatibility and requirements of the IBM Remote Support Proxy utility, refer to its latest release notes.

Chapter 2. Installation

Use this information to either install or upgrade the IBM Remote Support Proxy utility.

Installing and configuring for the first time

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

Installing the software package

This information describes how to download and install the IBM Remote Support Proxy utility.

Procedure

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

1. Download the Remote Support Proxy utility installation package and *Release Notes* from IBM Fix Central.
2. 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.
3. Install the IBM Remote Support Proxy utility 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.
4. Follow the instructions 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
 The logger program that can be modified to integrate with the existing logging and monitoring systems.

/usr/share/doc/xivproxy-*version*/license
 The directory containing the accepted software license for the Remote Support Proxy in multiple languages.

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

/usr/share/xiv/proxy_id_rsa
 A cryptographic file used by the configuration-retrieval function.

Important: If a restricted user is specified by using the **User** configuration parameter, that user must be able to read this file.

/var/lib/xiv/proxy
The directory used to store configuration updates.

Important: If a restricted user is specified by using the **User** configuration parameter, that user must be able to write to this directory.

Configuring the Remote Support Proxy service

Configure the Remote Support Proxy service before starting it.

Procedure

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

ListenInterface
The IPv4 address, IPv6 address, or interface name on which the proxy service is to listen for incoming connections from the storage system (for example, 192.0.2.1, 2001:DB8:0:0:0:0:0:0, or eth0).

If you specify an IPv4 or IPv6 address, the proxy service listens on only the specified IP address.

If you specify an interface name, the proxy service listens on all allowed addresses. You can configure which addresses are allowed by setting the UseIPv4, UseIPv6, and UseIPv6LinkLocalAddress parameters. By default, the proxy service listens on both IPv4 and IPv6 addresses.

If you specify the interface name, the name must be the same as the output from the ifconfig command.

Important: The storage system must have access to the system running the 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 storage system. For example, to listen on port 9955, add the following strings to the configuration file:

```
# Interface and port on which the proxy listens
ListenInterface eth0
ListenPort 9955
```

Note: If **ListenPort** is not specified, the default port used is 8988.

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

UseIPv6
(Optional) When an interface name is specified for the ListenInterface or StatusInterface parameter, this parameter determines whether the proxy service listens on the interfaces IPv6 addresses (for example, 2001:DB8:0:0:0:0:0:0) if they exists.

This parameter has no effect if an interface does not have an IPv6 address.

If UseIPv6 is set to yes, the proxy service listens on the IPv6 address if one exists. This is the default value.

To also listen on an IPv6 link-local address, UseIPv6LinkLocalAddress must be set to yes.

If UseIPv6 is set to no, the proxy service does not listen on any IPv6 address, including the IPv6 link-local address. In this case, the interface must have an IPv4 address defined, and UseIPv4 cannot be set to no.

Important: Setting UseIPv6 to no does not affect outgoing communication from the Remote Support Proxy to the Remote Support Center. This communication might still use the IPv6 protocol.

UseIPv6LinkLocalAddress

(Optional) When an interface name is specified for the `ListenInterface` or `StatusInterface` parameter, this parameter determines whether the proxy server listens on the IPv6 link-local address (for example, `FE80:DB8:0:0:0:0:0:0`).

By default, `UseIPv6LinkLocalAddress` is set to no.

Notes:

- If a numeric IPv6 link-local address is used in `ListenInterface` or `StatusInterface`, this parameter must be set to yes.
- `UseIPv6LinkLocalAddress` must not be set yes when `UseIPv6` is set to no.

UseIPv4

(Optional) When an interface name is specified for the `ListenInterface` or `StatusInterface` parameter, this parameter determines whether the proxy service listens on the interface's IPv4 addresses (for example, `192.0.2.1`) if they exists.

This parameter has no effect if an interface does not have an IPv4 address.

If `UseIPv4` is set to yes, the proxy service listens on the IPv4 address if one exists. This is the default value.

If `UseIPv4` is set to no, the proxy service does not listen on the IPv4 address. In this case, the interface must have an IPv6 address defined, and `UseIPv6` cannot be set to no.

Important: Setting `UseIPv6` to no does not affect outgoing communication from the Remote Support Proxy to the Remote Support Center. This communication might still use the IPv6 protocol.

HTTPProxyHost

(Optional) The IPv4 address, IPv6 address, or host name of the HTTP proxy server (for example, `192.0.2.3`).

If your network does not allow a direct connection to the Internet, you must use an HTTP proxy server. If so, 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).

HTTPProxyUser

(Optional) The user ID used to authenticate to the HTTP proxy (for example, `ibm_user`).

By default, the Remote Support Proxy does not use HTTP authentication. If authentication is required to access sites outside your network, set the `HTTPProxyUser` and `HTTPProxyPassword` parameters.

Note: The only supported method is basic authentication. Challenge/Response methods, such as NTLM, are not supported.

HTTPProxyPassword

(Optional) The password used to authenticate to the HTTP proxy (for example, `passw0rd`).

StatusInterface

(Optional) The IPv4 address, IPv6 address, or interface name of an additional TCP port on which the proxy service listens to monitor status (for example, `192.0.2.1`, `2001:DB8:0:0:0:0:0:0`, or `eth0`).

If you specify an IPv4 or IPv6 address, the proxy service listens on only the specified IP address.

If you specify an interface name, the proxy service listens on all allowed addresses. You can configure which addresses are allowed by setting the `UseIPv4`, `UseIPv6`, and `UseIPv6LinkLocalAddress` parameters. By default, the proxy service listens on both IPv4 and IPv6 addresses.

When you connect to the status port (for example, by 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 `lo`. 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) The user name of a restricted user that is used to run the Remote Support Proxy (for example, nobody).
>
> If the proxy runs as the root user, it drops its privileges to match the privileges of the specified user or to 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 storage system connects to and disconnects from the 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
SERVER=IP_address:port
SERVER_LIST=IP_address:port,IP_address:port,...
MESSAGE=arbitrary text message when EVENT=error
```

> **SERVER_LIST** is a list of all known IBM remote-support servers at the time of the last configuration retrieval.
>
> In the following example, the storage system uses IP address 192.0.2.5 on port 9999, the Remote Support Center uses the following IP addresses on port 443 and the logger is called to report a successful connection:
>
> - 170.225.126.11
> - 170.225.126.12
> - 170.225.127.11
> - 170.225.127.12

```
PATH=/bin:/sbin:/usr/bin:/usr/sbin
EVENT=connect
CLIENT=192.0.2.5:9999
SERVER=170.225.126.11:443
SERVER_LIST=170.225.126.11:443,170.225.126.12:443,170.225.127.11:443,170.225.127.12:443
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.

ServerAddress

(Optional) IP addresses of front servers. If set, only the configured front server(s) will be used. Below is the list of IP addresses of all the available front servers:

- 170.225.126.11
- 170.225.126.12
- 170.225.127.11
- 170.225.127.12

To configure front servers, use the following format:

```
ServerAddress[N] IPAddrs or Hostname
ServerPort[N] PortNo (where N=1..n)
```

For example, to configure two front servers with IP addresses IP1 and IP2 over SSL, add the following to `/etc/xiv/proxy.conf`:

```
ServerAddress1 IP1
ServerPort1 8888
ServerAddress2 IP2
ServerPort2 8888
```

Server addresses can be configured using DNS hostnames instead of IP addresses:

```
ServerAddress1 host.example.com
ServerPort1 8888
```

Below is the list of hostnames of all the available front servers:

- xrsc-front-srv-1.southdata.ibm.com
- xrsc-front-srv-2.southdata.ibm.com
- xrsc-front-srv-3.eastdata.ibm.com
- xrsc-front-srv-4.eastdata.ibm.com

Note: If **ServerPort** is not specified, the default port used is 443.

ResolveServerAddress

(Optional) Whether or not to resolve front server hostnames to IP addresses before establishing a connection using an HTTP proxy server. By default this is enabled.

When enabled, front server addresses specified as DNS hostnames (e.g. xrsc-front-srv-1.southdata.ibm.com) will be resolved to IP addresses before establishing a connection. This parameter can only be disabled by setting it to no if an HTTP proxy server is configured. Disabling **ResolveServerAddress** when using an HTTP proxy server means that front server DNS names are not resolved to IP addresses in the IBM Remote Support Proxy Utility. Instead the DNS resolution is made on the HTTP proxy server. This is useful if the HTTP proxy server uses a different DNS configuration or if it is configured to allow outgoing connections to specific DNS names only.

Example

The following example shows a sample configuration file:

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

# IP address settings
UseIPv4                 yes
UseIPv6                 yes
UseIPv6LinkLocalAddress  no

# Host and port of the HTTP proxy server
HTTPProxyHost           192.0.2.3
HTTPProxyPort           8080

# User ID and password for the HTTP proxy server
HTTPProxyUser           ibm_user
HTTPProxyPassword       passw0rd

# 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

# Front Server IP address and port (optional)
ServerAddress1
IP1ServerPort1          8888
```

Starting the Remote Support Proxy service

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

Procedure

To start the Remote Support Proxy service, 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 storage systems

After installing and configuring the Remote Support Proxy, 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 Remote Support Center servers, use the following command:

   ```
   support_center_list
   ```

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

   ```
   support_center_delete support_center=name
   ```

   Where *name* is the unique name of the 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 by 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, in IPv4 or IPv6 format, of the server on which the Remote Support Proxy is running. The value is the same as the **ListenInterface** parameter in the 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 storage system (for example, 8988). The value is the same as the **ListenPort** parameter in the Remote Support Proxy configuration file (`/etc/xiv/proxy.conf`).

4. Test the connection for each storage system when configuration is complete by connecting the storage system to the remote support server by using the following command:

```
support_center_connect
```

5. Wait a few seconds for the connection to complete, and then check the status by 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.

Upgrading and configuring an existing installation

This information describes how to upgrade to a newer version of the IBM Remote Support Proxy utility on a system that has access to a storage system and the Internet.

Before you begin

If the Remote Support Proxy service is running when you start the installation, the service is stopped when the installation completes.

Procedure

Perform these steps to upgrade and configure the IBM Remote Support Proxy utility:

1. Download and install the Remote Support Proxy (see "Installing the software package" on page 3).

   The installer recognizes the existing installation and performs an upgrade.

2. Configure the Remote Support Proxy (see "Configuring the Remote Support Proxy service" on page 4).

   Review the configuration carefully to ensure that the Remote Support Proxy is correctly configured after upgrading. All configuration settings are listed in "Configuring the Remote Support Proxy service" on page 4.

3. Start the Remote Support Proxy by running 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`.

Uninstalling the Remote Support Proxy

This information describes how to uninstall the IBM Remote Support Proxy utility.

Procedure

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

1. Stop the proxy service running the following command:

```
service xivproxy stop
```

2. Uninstall the IBM Remote Support Proxy utility by running the following command:

```
rpm -e xivproxy
```

Chapter 3. Management

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

Starting and stopping the Remote Support Proxy service

After the IBM Remote Support Proxy utility 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 of the Remote Support Proxy.

Procedure

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

```
service xivproxy status
```

Results
The status command lists the following values.

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

Open connections
   The number of connections that currently exist between the storage system on the network and the IBM 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 storage system 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.

Updating remote-support server information

The Remote Support Proxy periodically connects to the Remote Support Center to retrieve configuration updates, including the current IP address and port for each IBM remote-support servers.

About this task

No user action is required to perform this update. This retrieval is performed automatically by the Remote Support Proxy every six hours. The connection is made by using the same method (direct connection or through an HTTP proxy) that is used to create a remote-support connection to the storage system.

The Remote Support Proxy connects directly to the Remote Support Center with no involvement from the storage system.

The configuration updates are saved to a file in the `/var/lib/xiv/proxy` directory.

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