# Linux Library Controller
# Release Notes

The Linux Library Controller (LLC) is software that resides on the Virtual Tape Library appliance or a standalone Linux server (aka IPF). It accepts a client connection using a proprietary protocol on port 5600. Multiple clients can connect using this port. If using this on a standalone Linux server (IPF mode) then only one MCP client can attach to only one Library.

Release Version 6.03.016 (06/01/22)

Adds the ability to implement client IP access control in order to limit the IPs from which client connection requests will be accepted.

Support for IPv6 addressing has been added.

- When no /usr/local/DSI/ipcontrol file exists, connection access is unrestricted as in prior versions.
- When connecting to the LLC IPv4 address, any /usr/local/DSI/ipcontrol entries should be made using the IPv6 representation of the IPv4 client address,
  e.g. ::ffff:10.0.100.154.
- When connecting to the LLC's IPv6 address, any /usr/local/DSI/ipcontrol entries should be made using the normalized IPv6 Address of the client,
  e.g. FE80::D9F3:A2F7:A6E9:1880.

*Note if you are unsure how to add the right IPv6 format to /usr/local/DSI/ipcontrol, try a connection without the entry in the /usr/local/DSI/ipcontrol file. This connection request will be rejected and logged (if an /usr/local/DSI/ipcontrol file exists). The /usr/local/DSI/logs/ directory will contain an .iperror file with the first part of the filename being the normalized IPv6 address that had its connection request rejected and needs to be added to /usr/local/DSI/ipcontrol to enable a successful connection.*

Release Version 6.03.015 (02/02/21)

A new feature was added to limit client access to the DSICTL service (LLC) by IP address (IPv4 supported). This provides access protections from unknown clients as well as aiding in preventing port snoopers from impacting LLC performance.
To enable this capability:

- Install ***Install-DSICTL-6-03-015-x86_64.bsx***.

- Create text file /usr/local/DSI/ipcontrol.
- Edit this file to contain the normalized IPv4 IP(s) from each LLC client, providing one IP address per line. Ensure no leading or trailing blanks or other characters precede or follow the IP address(es). Example 10.0.100.199

*Note- Be sure that all IP address(es) that the host can communicate to LLC with are declared in this ipcontrol file.*

When the /usr/local/DSI/ipcontrol file exists, LLC will check each incoming connection request against the contents of the /usr/local/DSI/ipcontrol file.

If the client IP is not found in the ipcontrol file, the client will be disconnected without a response and LLC will perform the following actions:

- The DSICTL trace file will indicate: "ValidateClientIP: Rejected connection from non-registered IP <IP address>", once for each rejected connection attempt.

- In path */usr/local/DSI/logs/*, an <IP address>.iperror file will be created or maintained to track the number of connection requests rejected and the clock for the first and last attempts. One file will be created for each rejected IP. The internal statistics will be created or reset after an LLC restart and upon the first new connection request from a unrecognized IP.

*Note if this ability is not enabled, LLC will allow any IP address to attempt to message the service as it has in previous versions.*

Release Version 6.03.014 (02/10/20)

This is for IPF mode only:

1. Corrected a problem with hung client connections causing duplicate connection errors after open_device requests, where these errors occurred after a host (client) restart or switch.
2. Corrected a problem with failed open_device requests creating but not removing registered clients, leading to duplicate connection errors on the subsequent "open_device" requests.

Release Version 6.03.013 (05/22/18)

Added code to open_device function for IPF to set CurrentClient->Cl_LibListEnt equal to LibLST. This was being set correctly for VTL LLC because VTL LLC was calling the function extract_medium_changer_dev_name and LLC for IPF was not.

Release Version 6.03.011 (05/29/18)

Modified scsilink.c to return correct value for available doors when connecting to multiple libraries with a single client.

Release Version 6.03.009 (12/19/17)

Found a problem with a global variable defining the maximum slots in a library. It got changed to the value of the last library enabled. So, if a smaller library was enabled AFTER a larger one, the tape slots greater than the smaller library would not be considered valid. This fix also makes sure the problem doesn't exist for library doors and tape drives.

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