

Configuration Backup Manager for OrionLX™

The Configuration Backup Manager is a software option available on any OrionLX Automation Platform*. It provides a simple and automatic method to retrieve and back-up configuration files from the OrionLX as well as settings files from attached SEL® protective relays. The Configuration Backup Manager also provides a convenient MD5 checksum on the backed up files which can be used to determine if any of the backup files have been changed from previous backups. Backed-up files can also be used for system restore.

Configuration Files Accessed and Backed Up

For the OrionLX, all of the files created and loaded by users are backed up (.ncd, .svg, .lua, .bas, .ncz, etc). In addition, files with settings entered through webpages, plus key files and active port files are backup up. Finally, settings files from attached relays are backed up. Figure 1 below shows a capture of the files backed up.

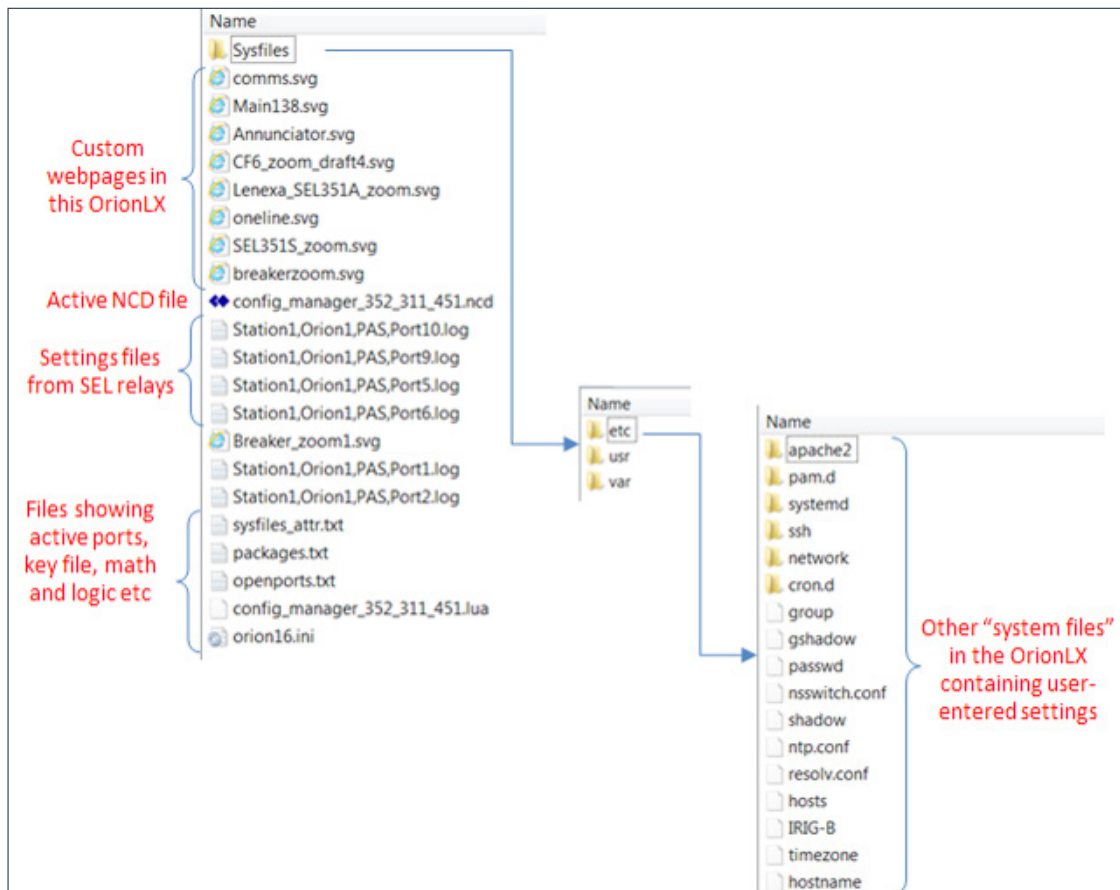


Figure 1: Configuration and settings files captured and retrieved by the Configuration Backup Manager

*For standard OrionLXs without the High Performance CPU and Expanded Memory, please check with NovaTech first to verify memory capacity to support this option.

Configuration and Operation

Configuration Backup Manager accesses Orion files and SEL® relay settings files and zips into a single file. SEL settings files are accessed using SEL protocol over either a serial RS-232 point-to-point link or an Ethernet link as shown in Figure 2 below. Settings in NCD include company name, station name, Orion name, the name of the log files and zip files, and target directory. The .zip file produced by the Configuration Backup Manager is named according to the IEEE C37.232 standard, which includes the timestamp, substation name, device name, and company name. The .zip file is stored in non-volatile OrionLX™ memory. Stored files can be manually accessed or automatically transferred from the OrionLX. An MD5 checksum is calculated on the zip file to aid in change monitoring. The Configuration Backup Manager can be set up as a scheduled task in the OrionLX Scheduler, or executed as a task from command line.



Figure 2: SEL settings are retrieved and backed up by the OrionLX or OrionLXm using SEL protocol over RS-232 or over Ethernet.

Manually Accessing Zip File

An FTP file transfer utility such as FileZilla can be used to manually access the .zip file from the specified folder on the OrionLX. The .zip file can also be transferred to a thumb drive attached to the OrionLX.

Automatically Accessing the Zip File

Using the OrionLX "FileMover" feature, stored files can be scheduled for automatic SFTP or FTP transfer to a remote directory. The .zip file can also be automatically sent out as an attachment using the Orion Email option.

MD5 Checksum

The Configuration Backup Manager calculates a single MD5 checksum on the zipped OrionLX configuration files and the SEL setting files. The MD5 checksum is mapped to a point named "MD5 checksum @configmanager", which is a DNP string. If your SCADA master supports DNP3 Object 110 you could send that entire hash up to your master station for comparison. The point data can also be archived for SQL access, set up as an alarm point, displayed on a webpage, emailed, or further processed in logic (use Lua to compare the hash to a known hash in the Orion and then set a DNP binary alarm point if the values had changed).

System Restoration

The backed-up sysfiles, NCD file, logic file and SVG files can be used to restore an OrionLX back to original condition.

Increasing Security with Configuration Backup Manager

To improve security and to meet portions of the NERC CIP-010 standard, you can compare the previous and current ZIP files to determine what settings, if any, have changed since the previous scan. You can use an enterprise configuration management server, such as the Tripwire Enterprise system, to run this comparison.

For more information on the Configuration Backup Manager, please visit our website at:

<http://www.novatechweb.com/substation-automation/configuration-backup/>



novatechweb.com



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