3 Experion LCN Requirements

3.1 Experion LCN System Requirements

The following ELCN system requirements apply to the deployment of ELCN:

- All ELCN systems require at least one redundant Bridge pair prior to adding any ELCN Appliance node.
- A minimum ELCN system consists of a redundant ESVT pair. If LCN nodes are present, a minimum ELCN system then must also have one redundant UEA ELCN Bridge pair.
- If two UEA modules are installed in the same/common/single UEA mounting rack, they can be any combination of node types
- A maximum ELCN system is determined by the number of TPS nodes allowed on a given Local Control Network (LCN). For a network without LCN extenders, 64 nodes (includes ELCN Bridges) are allowed. For a network with LCN extenders, 96 nodes are allowed per system. Only one ELCN Bridge redundant pair is permitted per LCN.
- A maximum of 40 LCN loads are permitted per LCN COAX segment. A Dual Node Module counts as one LCN electrical node load towards the 40-node limit irrespective of whether one or two nodes are installed in the DNCF.
- Only one FTE Community is permitted per ELCN. If multiple ESVTs within the LCN to be converted to ELCN have been assigned to multiple communities, then those communities would need to collapse into one FTE community before migrating to ELCN.
- If, having K2LCN cards can impact performance. Must upgrade all K2LCN boards with K4LCN board before executing the ELCN migration.

Table 5 Summary of LCN/ELCN limits (assuming no FTEBs with C200, C200E or FIM2).

LCN/ELCN Capacity Limits	Qty	Notes
Maximum number of ELCN Bridge pairs per LCN/ELCN	1	Redundant pair
Maximum number of nodes per LCN/ELCN, without LCN Extenders	64	ELCN bridge does not contribute to the total number of LCN nodes
Maximum number of nodes per LCN/ELCN, with LCN Extenders	96	ELCN bridge does not contribute to the total number of LCN nodes
Maximum number of nodes per COAX LCN segment	40	ELCN bridge does contribute to the COAX segment total (+2)
Maximum number of ESVT server pairs (clusters) per LCN	5	Redundant pairs
Maximum number of ES-Ts per ESVT cluster*	20*	
Maximum number of ES-Ts + ES-CE per ESVT cluster*	30*	
Maximum number of ES-Ts + ES-CE + ES-F per ESVT cluster	40	
Maximum number of AM personality instances (AM, ESVT, ACE-T and E-APP) per LCN	-	
The maximum number of ELCN NGs per LCN is limited to 2 (One Responsible and One Alternate		There is no need for more than 2 NGs since one NG can access data from all other nodes on a PIN (the second NG is to act as a “hot spare” or Alternate NG in case the responsible NG fails)
The maximum number of NGs on a PIN is 63		The limit is set to limit the data throughput on the new Ethernet PIN.

Minimum number of LCN nodes per integrated LCN/ELCN system	3	Errors may occur when fiber optic cable is broken, or when LCNEs are powered off, if only two nodes exist on a remote segment. During LCNE failure, these nodes form their own token ring. If one node fails both nodes are lost.

* Maximum number of ELCN ES-Ts per ELCN ESVT cluster – Beginning with Experion R501.6 and TPN R688.3, you can configure up to 30 ELCN ES-Ts per ELCN ESVT cluster without impacting the system performance, however, ensure that the following conditions are met, if not, configuration of **up to** 20 ELCN ES-Ts is supported per ESVT cluster:

- This enhancement is **not** supported if there are C300 controllers integrated with your system, this includes products such as, Experion Hiway Bridge (EHB) and C300 controller based Enhanced Logic Manager Module (ELMM).
- While using the increased number of ELCN ES-Ts, enough care must be taken to ensure that the data owners and controllers in the LCN are not loaded beyond their documented limits.
- When you are migrating GUS or US stations to ES-Ts, you must consider the number of ES-Ts which already exist in the network.
    - After migrating existing GUS or US stations to ES-Ts, do not create additional load on the data owners by invoking displays such as, HMIWeb, GUS and US displays.
    - If you are using HMIWeb display instead of US/GUS display after configuring up to 30 ES-Ts and this causes additional load on the data owners, examine the station and display update rates, and check that the default station update rate is not set at 1 second.

ATTENTION

If the ELCN System Management Dashboard feature is configured in Station and you are trying to configure more than 20 ELCN ES-Ts, this results in high PARSEC load on the ENIMs in the LCN and may lead to an undesirable behavior. The PARSEC value approximately increases by 20 per ELCN ES-T configured under the network. Therefore, it is important that you consider the existing load on an ENIM before you configure more ELCN ES-Ts with the ELCN System Management Dashboard feature configured in the network.

3.2 System Software Requirements

The table in this section identifies the system software that is required for proper operation of ELCN systems.

Table 6 System Software

System Software	Minimum Software Release Level is R501.4
Honeywell Experion	R501 or later (depending on functionality needed).
Honeywell TPN/LCN	R688.1 or later (depending on functionality needed).
Windows 10 O/S for Experion Station TPS (can also run on Windows Server 2016)	Initial
Windows Server 2016 for Experion Server TPS, Experion APP, ACE-T, and History Module	Initial