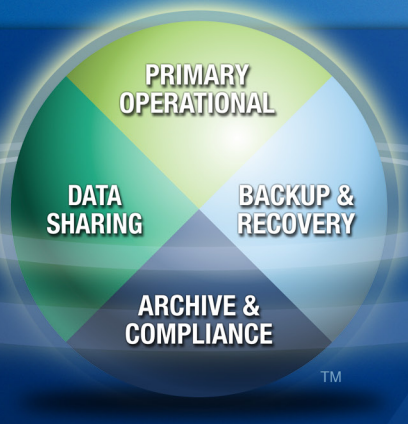
CG-X CHANNEL GATEWAY X



LTMon™ Installation and Configuration Guide

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LTMon Installation and Configuration Guide
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1. Overview

1.1 Channel Gateway

The Luminex Channel Gateway is a rack mounted server that emulates mainframe 3490 and/or 3590 tape drives. It connects to the mainframe via FICON or ESCON channels. The mainframe tape media is identified by VOLSER from the mainframe. Each VOLSER corresponds to a set of open systems files on whatever open systems storage device has been attached to the Channel Gateway server. None of the files related to a VOLSER reside in the Channel Gateway.

The Channel Gateway has a TCP/IP browser interface that allows computer operations personnel to view activity in the Channel Gateway, perform tape operator functions and other functions.

1.2 LTMon

Luminex Tape Monitor (LTMon) is a mainframe z/OS started task that facilitates operator communication with Luminex Channel Gateways. The operator uses the MVS modify command to pass commands to the LTMon started task. Responses are displayed on the console. In addition, LTMon will fetch and display alert messages to the master console from the Channel Gateways. To communicate with a Channel Gateway, LTMon must allocate and open a tape data set via any available drive on that server.

LTMon installation and configuration is documented in this manual.

LTMon commands and responses are documented in the “LTMon User’s Guide.”

1.3 Admin+

Admin Plus is a batch interface to the Luminex Channel Gateways for administrative functions. Commands are passed via a SYSIN file and responses are returned via a SYSPRINT file. To communicate with a channel gateway, the Admin+ program must allocate and open a tape dataset via any available drive on that server.

Admin Plus installation and configuration is documented in this manual.

The Admin Plus JCL is documented in the “LTMon User’s Guide.”

1.4 Scratch Update Utility

The Luminex Scratch Update Utility (LSCRUP) is used to extract a list of scratch VOLSERs from your existing tape management report. A subsequent IEBGENER step then writes that scratch list to the Luminex Channel Gateway server. If the server has been defined as an MTL (manual tape library), then you must also generate IDCAMS ALTER VOLUMEENTRY statements and update the TCDB (tape catalog data base, SYS1. VGENERAL).

The list of supported vendors and report formats is documented in the “LTMon User’s Guide.”

2. LTMon Install

The install package for LTMon contains

- two load modules, MXLUMOPR (main task) and MXLUMOPT (subtask),
- a sample LTMon PROC, and
- a sample config file LTMPARMS.

The MXLUMOPR program does not have to be run as a started task unless it would not have sufficient privileges as a job. The name of the PROC (or JOB) should be something relatively easy to type when entering the modify "F" command from a console.

The install package is shipped via email as a ZIP file and a program directory. The program directory provides install instructions starting with what to do with the ZIP file. It also provides instructions for doing an SMPE install if that is desired. There is a point in the install process (before starting SMPE) where all product files have been placed on DASD, and where the install can be declared done without actually using SMPE. In other words, LTMon does not use any hooks into the operating system and is rarely affected by new releases of the z/OS operating system. An example of a program directory is given in Appendix B. However, when installing LTMon, always use the program directory that is provided with the ZIP file.

After the install is completed, LTMon must be configured before starting it for the first time.

3. LTMon Configuration

LTMon has the ability to discover any Channel Gateway that is online to the current LPAR. Therefore, the configuration parms file only has to contain parameters that cannot be discovered. The provided sample configuration parms use this discover mode. Here is a copy of the sample parms.

```
*
* LUMINEX  CHANNEL GATEWAY  TAPE SYSTEM MONITOR
*
CHKALERT=120    MINUTES  UNTIL REISSUE COMMAND: DAL
IDALSECS=300    SECONDS  UNTIL IDLE MONITOR DRIVE IS DEALLOCATED
IDALFEAT=N      Y/N     SHOULD IDLE MONITOR DRIVE BE DEALLOCATED?
CMDWAITWNG=2    MINUTES  UNTIL REPORT COMMAND AS OVERDUE (INCOMPLETE)
CMDWAITMAX=8    MINUTES  UNTIL CANCEL COMMAND AS TIMEOUT (TOO SLOW)
*********************************************************************
* DATA SERVERS
*
DS=DDR1
DS=DDR2
*********************************************************************
* DYNAMIC CONFIG
*
TDSN=LUMINEX.LTMON.&SYSNAME..CG&DEVX.
DISC
*********************************************************************
```

The syntax of these parameters is either

```
parmname1=parmvalue1
```

or

```
commandname commandargument
```

The active portion of each line is ended by two consecutive spaces. The remainder of the line can contain comments. No line can be continued. An asterisk in column 1 makes the whole line a comment.

3.1 CHKALERT=minutes

To report conditions requiring action, the operator can either issue a display alerts command or have LTMon issue the command periodically. The CHKALERT minutes defines how frequently the display alerts command (DAL) is performed.

The default CHKALERT value is 120 minutes (2 hours).

3.2 IDALSECS=seconds

On systems that do not require a drive to be allocated at all times, LTMon can deallocate a drive automatically. The IDALSECS parameter defines how long a tape drive must be idle before LTMon automatically deallocates it. This feature is not active unless IDALFEAT is set to “Y”.

The CHKALERT minutes must be greater than IDALSECS / 60 or else the monitor tape drives will never be idle long enough to be deallocated.

The default IDALSECS value is 600 seconds (10 minutes).

3.3 IDALFEAT=Y|N

See the description for IDALSECS.

The default IDALFEAT value is N (no–don't activate this feature).

3.4 CMDWAITWNG=minutes

LTMon manages all Channel Gateways that are online to the z/OS system.

Typically when an operator enters a command, that command is sent to each of the Channel Gateways. As each Channel Gateway completes the command, the messages from that command are displayed on the operator console. If the command for a particular server does not complete, it ties up a control block and a response buffer in LTMon's address space. CMDWAITWNG causes a warning message "OVERDUE" to be displayed when a command has not completed within this first time limit. The CMDWAITWNG minutes must be less than the CMDWAITMAX minutes. The default CMDWAITWNG value is 2 minutes.

3.5 CMDWAITMAX=minutes

Similar to the CMDWAITWNG parameter, this CMDWAITMAX parameter causes the error message "TIMEOUT" to be displayed when a command has not completed within this time limit. In addition, LTMon stops polling the Channel Gateway for the status of the command, and frees the related control blocks and response buffer. The CMDWAITWNG minutes must be less than the CMDWAITMAX minutes.

The default CMDWAITMAX value is 8 minutes.

3.6 DS=data-server-name

Each DS= statement defines one data server to LTMon. Currently, these are not discovered and must be defined in the config file. Various LTMon commands that gather information from the data servers will not be complete unless each data server is defined.

IMPORTANT: the data-server-name must exactly match the name defined in each Channel Gateway. Use LTMon's "DDS" command to obtain these names. This means that the first time LTMon is started, you will not be able to use any data server commands other than DDS.

There are no default values for this configuration parameter.

3.7 TDSN=dataset-name-pattern

To allocate a tape drive on each Channel Gateway, a unique cataloged tape data set name must be provided for each allocation. The TDSN parameter provides a template for generating this data set name. Each Channel Gateway must use a different data set name. If there is more than one z/OS system running LTMon, then each z/OS system must have its own set of data set names that do not conflict with any other z/OS system. Therefore, system symbols and local tape device symbols can be used in the pattern.

When a symbol is inserted into the pattern, it must start with an ampersand. It is highly recommended that it end with a period. If a period is needed to separate qualifiers, that period must also be included in the pattern. The ampersand, symbol name, and trailing period will be replaced by the designated value.

Here are the most likely symbols that would be needed for this pattern. All of the local symbols are shown.

SYMBOL	CONTAINS	SAMPLE VALUE	SYMBOL TYPE
`&SYSNAME.`	current z/OS LPAR or system name	PRD2	SYSTEM STATIC
`&SYSCLONE.`	unique 1-2 character id for this z/OS system within this sysplex	P2	SYSTEM STATIC
`&DEVN.`	4-digit hexadecimal device number of the tape drive that is being allocated	1492	LOCAL
`&DEVX.`	first 3 hexadecimal digits of the device number of the tape drive that is being allocated, followed by “X”	149X	LOCAL

As an example, if the following parameter is specified,

```
TDSN=LUMINEX.LTMON.&SYSNAME..CG&DEVX.
```

the sample values from the table would result in a data set name of:

```
LUMINEX.LTMON.PRD2.CG149X
```

3.8 DISC

This LTMon command initiates the discovery process of scanning all UCBs for Channel Gateway tape drives. It should appear in the config file after the TDSN= statement.

4. Admin+ Install

The install package for Admin+ contains

- install instructions,
- a loadlib containing load module LUMADM,
- a samplib containing sample JCL to run Admin+.

The install package is shipped via email as a ZIP file. The install instructions are included in the ZIP file. An example of the install instructions is given in Appendix C. However, when installing Admin+, always use the program directory that is provided in the ZIP file.

5. Scratch Update Utility Install

The install package for the Scratch Update utility contains

- install instructions,
- a loadlib containing load module LSCRUP,
- a samplib containing sample JCL to run the utility
- an additional copy of the two sample jobs but in ascii format.

The install package is shipped via email as a ZIP file. The install instructions are included in the ZIP file in two files: “README.FIRST.TXT” and “README.TSO.XMIT.UPLOAD.TXT”.

Appendix A. Security

1. Parmlib requirements – SYS1.PARMLIB entries
    a. No SYS1.PARMLIB entries are installed or required by this product other than APF authorization (SYS1.PARMLIB (IEAAPFxx)).
    b. There is a requirement for a parm file, but it can be placed anywhere that can be read by the started task PROC.

2. Started task requirements
    a. What attributes?
        i. No PPT entries.
        ii. No trusted or privileged attributes.
    b. What permissions?
        i. None other than access to the data sets described in the next section.

3. Dataset security – What are the product datasets and what are the suggested access requirements.
    a. PARM FILE: started task PROC needs READ access.
    b. One tape dataset per Channel Gateway per z/OS system: started task PROC should be given UPDATE access to this standard label tape data set. These data sets are only used to establish an EXCP environment for communicating with the Channel Gateway. After open processing is completed, the started task program uses non-motion commands to interact with the Luminex Channel Gateway through the allocated tape drive.
    c. LOAD LIBRARY: the MXLUMOPR executable module needs to be APF authorized so that it can access the NED information for each tape drive.

4. General resource security
    a. Does this product have panels, commands, transactions or any other resources that need protection?
        i. This product does not have any foreground commands or programs.
        ii. LTMon is directed through operator modify "F" commands. It checks the authority of the console which issued the modify command. That console must have SYSTEM AUTHORITY (CIBXAUT1) or I/O AUTHORITY (CIBXAUT2), and it must have one of the following characteristics: MASTER AUTHORITY (CIBXDISA), MASTER AUTHORITY through a secondary console (CIBXDISM), or have been issued through ARM (CIBXDISE). It is expected that only operators and systems programmers have this authority.
    b. List the class name(s) and resources along with some recommended permissions.
        i. This product does not install or use any RACF classes or facilities. The PROC, data sets, and console are secured through existing RACF or z/OS mechanisms.

5. Product configuration settings affecting security
    a. What is the dataset/member?

        i. The only parameter file is defined in the started task PROC as the PARMFILE DD statement.
    b. What are the options affecting security and their default values.
        i. There are no options affecting security in this product.

6. Additional Security Considerations
    a. Example, are exits required or optional?
        i. There are no EXITs introduced by this product, and no system EXITs are used by this product. There are no SVCs introduced by this product. There are no cross-memory services introduced by this product. There are no structures or control blocks created in system memory by this product.
    b. Are there any default userid/passwords that should be changed?
        i. There are no userids/passwords in this product.
    c. Are there USS requirements not covered by the previous items?
        i. This product does not use any UNIX System Services in the mainframe.

7. Program Summary
    a. The MXLUMOPR program needs to be APF authorized. It switches to supervisor state to run the IOSCDR macro. This is needed to look at the Configuration Data Records (NED information) from each tape drive. The commands that may need to use this macro are: DISC, DUN, DAC.
    b. The MXLUMOPT program no longer needs BLP authority. It now uses cataloged standard label tapes for its monitoring subtask (MXLUMOPT). There is a parameter (TLABEL=BLP) than can be used to switch from SL to BLP mode, but BLP can be prevented by not granting such authority to this product.

Appendix B. LTMon – Program Directory (Example)

```
LUMINEX TAPE MONITOR SOFTWARE              AUGUST  6, 2010              00010002
FMID=LMXL10A                                                            00020002
                                                                        00030000
                                                                        00040003
The product files on the SMPE tape consume the following DASD           00050001
storage. The SMPE install does not compile any source and               00060001
just uses IEBCOPY for the load modules and SAMPLIB members.             00070001
                                                                        00080000
                                  tracks %used xt  device               00090001
------------------------------------------------------------            00100000
LUMINEX.LTMON.V10A.JCLIN             15   33   1  3390                  00110002
LUMINEX.LTMON.V10A.LOADLIB           30   20   1  3390                  00120003
LUMINEX.LTMON.V10A.SAMPLIB           30    6   1  3390                  00130003
LUMINEX.LTMON.V10A.SMPMCS            15    6   1  3390                  00140002
                                                                        00150000
The LUMINEX Tape Monitor programs use bypass label processing           00160003
(BLP). BLP is used to read a tape without prior knowledge of            00170003
tape labels and to retain control over the ccw chains. These            00180003
programs do not write to or read from the tape except for the           00190003
reads due to z/OS open input processing.                                00200003
                                                                        00220000
The MXLUMOPR program must be placed into an authorized library.         00230003
                                                                        00240000
MXLUMOPR can either be (a) given an explicit set of configuration       00250003
statements, (b) can discover LUMINEX tape devices and dynamically       00260003
configure itself, or (c) do both.                                       00270003
                                                                        00320000
                                                                        00330000
INSTALL INSTRUCTIONS                                                    00340001
====================                                                    00350000
                                                                        00360000
1. Rename LUMINEX.MXL10A.ZIP.TXT to have a .ZIP suffix.                 00370002
                                                                        00380000
2. UnZIP  LUMINEX.MXL10A.ZIP                                            00390002
   This will create the following files.                                00400001
      LUMINEX.MXL10A.DUMP.XMIT                                          00410002
      LUMINEX.MXL10A.MAKTAP.JCL                                         00420002
      LUMINEX.MXL10A.RESTOR.JCL                                         00430002
                                                                        00440000
3. Upload the two .JCL files with ASCII CRLF conversion.                00450001
                                                                        00460000
4. Upload the one .XMIT file without ASCII CRLF TRUNC conversion        00470001
   into an LRECL 80 sequential file.                                    00480001
                                                                        00490000
5. TSO RECEIVE INDSN('THE.UPLOADED.XMIT.FILE')                          00500001
   When prompted, hit ENTER to restore the following file:              00510001
      MYUSERID.MXL10A.DUMP                                              00520002
                                                                        00530000
6. Modify and use the RESTOR.JCL to DFDSS restore the following files.  00540001
   Non-SMPE users can stop here and use the LOADLIB and SAMPLIB as is.  00550001
      LUMINEX.LTMON.V10A.JCLIN                                          00560002
      LUMINEX.LTMON.V10A.LOADLIB                                        00570002
      LUMINEX.LTMON.V10A.SAMPLIB                                        00580002
      LUMINEX.LTMON.V10A.SMPMCS                                         00590002
                                                                        00600000
7. Modify and use the MAKTAP.JCL to create the MXL10A SMPE tape.        00610002
```

```
                                                                      00620000
8. Allocate the LUMINEX distribution and target libraries.            00630001
   //ALLOC   EXEC PGM=IEFBR14                                        00640001
   //AMXLLOAD DD  DSN=&HLQ..&MLQ..AMXLLOAD,                          00650002
   //             SPACE=(6144,(6000,800,30)),                        00660001
   //             UNIT=&DUNT,VOL=SER=&DVOL,                          00670001
   //             DCB=(RECFM=U,BLKSIZE=6144),                        00680001
   //             DISP=(,CATLG)                                      00690001
   //MXLLOAD  DD  DSN=&HLQ..&MLQ..MXLLOAD,                           00700002
   //             SPACE=(6144,(6000,800,30)),                        00710001
   //             UNIT=&DUNT,VOL=SER=&DVOL,                          00720001
   //             DCB=(RECFM=U,BLKSIZE=6144),                        00730001
   //             DISP=(,CATLG)                                      00740001
   //AMXLSAMP DD  DSN=&HLQ..&MLQ..AMXLSAMP,                          00750002
   //             SPACE=(3120,(1200,120,40)),                        00760001
   //             UNIT=&DUNT,VOL=SER=&DVOL,                          00770001
   //             DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120),              00780001
   //             DISP=(,CATLG)                                      00790001
   //MXLSAMP DD   DSN=&HLQ..&MLQ..MXLSAMP,                           00800002
   //             SPACE=(3120,(1200,120,40)),                        00810001
   //             UNIT=&DUNT,VOL=SER=&DVOL,                          00820001
   //             DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120),              00830001
   //             DISP=(,CATLG)                                      00840001
                                                                      00850000
9. In the target zone, add DDDEF definitions.                         00860001
    ADD DDDEF(AMXLLOAD)                                               00870002
        DA(LUMINEX.SMPELIB.AMXLLOAD)                                  00880002
        SHR                                                           00890001
        .                                                             00900000
    ADD DDDEF(AMXLSAMP)                                               00910002
        DA(LUMINEX.SMPELIB.AMXLSAMP)                                  00920002
        SHR                                                           00930001
        .                                                             00940000
    ADD DDDEF(MXLLOAD)                                                00950002
        DA(LUMINEX.SMPELIB.MXLLOAD)                                   00960002
        SHR                                                           00970001
        .                                                             00980000
    ADD DDDEF(MXLSAMP)                                                00990002
        DA(LUMINEX.SMPELIB.MXLSAMP)                                   01000002
        SHR                                                           01010001
        .                                                             01020000
                                                                      01030000
10. In the DLIB zone, add DDDEF definitions.                          01040001
    ADD DDDEF(AMXLLOAD)                                               01050002
        DA(LUMINEX.SMPELIB.AMXLLOAD)                                  01060002
        SHR                                                           01070001
        .                                                             01080000
    ADD DDDEF(AMXLSAMP)                                               01090002
        DA(LUMINEX.SMPELIB.AMXLSAMP)                                  01100002
        SHR                                                           01110001
        .                                                             01120000
                                                                      01130000
11. Follow SMPE procedures to receive the tape migration software.    01140001
   //SMP.SMPPTFIN DD  DSN=SMPMCS,DISP=(OLD,PASS),                    01150001
   //             VOL=SER=MXL10A,LABEL=(1,SL),                       01160002
   //             UNIT=(/DB00,,DEFER)                                01170001
   //SMP.SYSIN    DD  *                    (SMPCNTL)                01180001
        SET BDY(GLOBAL) .                                             01190001
        RECEIVE S(LMXL10A) SYSMOD .                                   01200002
```

```
   /*                                                                  01210000
                                                                       01220000
12. Follow SMPE procedures to check the tape migration software.       01230001
         SET BDY(MXL10AT) .                                            01240002
         APPLY CHECK S(LMXL10A)      .                                 01250002
                                                                       01260000
13. Follow SMPE procedures to apply the tape migration software.       01270001
         SET BDY(MXL10AT) .                                            01280002
         APPLY       S(LMXL10A)      .                                 01290002
                                                                       01300000
14. When appropriate, accept the tape migration software.              01310001
         SET BDY(MXL10AD) .                                            01320002
         ACCEPT S(LMXL10A)      .                                      01330002
                                                                       01340000
```

Appendix C. Admin+ Install (Example)

```
ADMIN PLUS for LUMINEX CHANNEL GATEWAY
ZOS VERSION

The two XMIT files are in TSO XMIT/RECEIVE format.  The SAMPLIB contains sample
JCL for running ADMIN PLUS.  The LOADLIB contains the executable.

1. Create an FB LRECL=80 sequential (PS) dataset.  We use BLKSIZE=3120 but it
does not matter.  The largest file will be about 20KB, so not much DASD space will
be needed.  We use 'userid.UPLOAD1' as the upload data set name.

2. Use your PC 3270 emulator to upload one of the XMIT files into this data set.
Be sure to specify NO TRUNC, NO CRLF conversion, TSO, and most important NO
ASCII/EBCDIC conversion.

3. From TSO/ISPF, run the following command using your data set name (omit hiqual
if it is your userid).
RECEIVE INDSN(UPLOAD1)

4. You will be prompted for restore parameters.  Just press enter and this data
set will be created under your userid.  (example: userid.ADMPLUS.SAMPLIB)

5. Rename or copy the data set to an appropriate location and name for your site.

6. Repeat steps 2-5 for the other XMIT file.
```

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