Theory of Operation for CGX Scratch Update

(Version 1.01)

LUMINEX
ENLIGHTENED | STORAGE

Legal Notices

Channel Gateway products are sold and licensed by Luminex Software, Inc. ("Luminex") pursuant to the terms and conditions of Luminex's standard Purchase and License Agreement or other applicable agreement ("Luminex Agreement"). Consult your Luminex Agreement for the specific terms and conditions governing the sale and license of your Channel Gateway. All software is covered by copyright, trade secret and/or patent protection and is owned by Luminex. No part may be copied, modified or transferred without the prior written permission of Luminex. You may not reverse engineer the hardware or reverse compile the software. Hardware and software described herein is confidential, proprietary and trade secret property of Luminex and may not be disclosed to third parties or used except as permitted in your Luminex Agreement.

Luminex, Channel Gateway and CGX are trademarks of Luminex Software, Inc. All other trademarks and trade names are the property of others.

DISCLAIMER: While every effort has been made to ensure the technical accuracy of this manual, Luminex makes no warranties or representations, either express or implied, with respect to the contents herein. Further, should the procedures set forth in this manual not be followed or be misapplied, Luminex disclaims any warranty for damage to the product or any other liability.

Luminex Software, Inc.
871 Marlborough Avenue
Riverside, CA 92507

Phone: +1 (951) 781-4100
Fax: +1 (951) 781-4105

info@luminex.com
www.luminex.com

April 2012

Table of Contents

1 Introduction

This document will describe the process of the scratch update on CGX. The sequences and intermediate files will be described. The information will provide the user the ability to diagnose issues with the process. This document assumes a working knowledge of the CGX system and its configuration.

2 Overview

The scratch update process requires a list of VOLSERs that are in the scratch status to be sent to the CGX system. This data is associated with a special scratch update VOLSER. Upon unloading the special VOLSER, the CGX software will execute the scratch update process.

The data associated with the special VOLSER shall consist of a list of VOLSERs in any sorted order, with a single VOLSER per line.

3 Special VOLSER Configuration

A VOLSER is to be defined as the special scratch update VOLSER. This VOLSER requires a configuration file of the same name as the update VOLSER. The configuration file is of the type Storage Pool Selection (SPS) with the appropriate configuration items. A template SPS file exists in <base>/etc/sample/SCRTAP.config. The contents of this file are as follows:

```
<?xml version="1.0"?>
<LObject name="Luminex$CGX$SPS:SCRTAP" type="LObject" version="1.0">
    <umountExit type="String">bin/scrtapes_64</umountExit>
    <tapeProcessor type="String">bin/ibm2asciilist_64</tapeProcessor>
    <replace type="Boolean">FALSE</replace>
    <device type="String">etc/SPprod.config</device>
        <exclusive type="Boolean">TRUE</exclusive>
</LObject>
```

The significance of each entry will be described.

3.1. umountExit

The scratch update process is performed by the program scrtapes_64. This action is performed upon the umount of the VOLSER.

3.2. tapeProcessor

The program ibm2asciilist_64 is performed by scrtapes_64. The program converts the data associated with the special VOLSER from EBCDIC to ASCII.

3.3. replace

This entry can be FALSE or TRUE. If TRUE, the entire list received will replace the current scratch list file. If FALSE, only the VOLSERs that are in the received list that are not currently in the scratch list file, will be added. Note: Once added, or replaced, the scratch list file will be re-sorted such that the lowest VOLSER will be the first to be used.

3.4. delete

This entry can be FALSE or TRUE. If TRUE, the data associated with the VOLSER will be deleted.

3.5. device

This field contains the Storage Pool (SP) in which this process will use. The SP contains the location of the scratch list file.

3.6. exclusive

TRUE causes the program defined by umountExit to run exclusively. This is to guarantee that multiple instances of the scratch update are not run simultaneously. This option causes a "lock" of the SCRTAP.config file so other processes cannot access it until "unlocked".

4 Storage Pool Configurations

There are several entries in the associated Storage Pool configuration file that pertain to the scratch update process.

4.1. Scratch Directory

The location of the scratch list file, and the resulting intermediate files, is determined by the Storage Pool entry scratchDir. In the example of the SCRTAP.config file above, the SP is SPprod.config. The scratch list directory is defined in SPprod.config. An example entry in this configuration file is as follows:

```
<scratchDir type="String">/luminex/storage/prod/scratch</scratchDir>
```

In the above example, the directory for the scratch list file and the intermediate file is:

```
/luminex/storage/prod/scratch
```

4.2. VOLSER Exclusion

The process can exclude VOLSERs from the scratch processing. This entry contains a regular expression. Describing regular expressions is beyond the scope of this document.

One or more exclusion patterns may exist. The exclusion pattern are determined by the configuration entry excludePattern. An example is below:

```
<excludePattern type="Array" elType="String">
   <i0 type="String">SCRTAP</i0>
</excludePattern>
```

In the example above, if the VOLSER SCRTAP is in the data sent by the mainframe, it will be excluded from the scratch list file.

Another example follows:

```
<excludePattern type="Array" elType="String">
   <i0 type="String">^X</i0>
</excludePattern>
```

In this example, any VOLSER that starts with the character X will be excluded from the scratch list.

4.3. VOLSER Inclusion

The process can include VOLSERs from the scratch processing. This entry contains a regular expression. The include rules select which VOLSERs will be included. It is likely that an exclude rule could have the same end result.

One or more inclusion patterns may exist. The inclusion pattern are determined by the configuration entry includePattern. An example is below:

```
<includePattern type="Array" elType="String">
   <i0 type="String">^L0</i0>
</includePattern>
```

In the above case, only VOLSERs that starts with an L0 will be added to the scratch list.

5 Intermediate Files

As the scratch update process proceeds, several intermediate files are created. These files are the results of specific steps in the update process and can be used to debug the process or configuration. These files have the same name as the scratch list file but with added extensions.

The scratch list file name consists of the SP name with the extension .scratchlist. For example:

```
SPprod.scratchlist
```

The intermediate files will have the additional extensions of:

```
.backup
.candidates
.include
.report
.scrubbed
.sort
.work
```

These will be described below. They will be described in the order in which they are created.

5.1. backup

Prior to the start of the update process, the current scratch list will be copied to backup.

5.2. sort

This is the sorted form of the scratch list. The scratch list is already sorted so the result should be the same.

5.3. report

The intermediate file, .report, is the ASCII converted result of the data sent to the special scratch update VOLSER from the mainframe.

5.4. candidates

The file, .intermediate, contains the VOLSERs that are candidates to be added to the scratch list. If the REPLACE option is enabled, the .candidates file will be the same as the .report file. If REPLACE is not enabled, the .candidates file will contain the difference between the .report file and the current scratch list file.

5.5. include

This file takes the .candidates file and performs the inclusion rules. If no inclusion rules are in effect, this file will be identical to the .candidates file. If inclusion rules are in effect, this file will contain the results.

5.6. exclude

This file is the result after the exclusion rules have been applied to the .include list (or candidates list if no include rules). If no exclusion rules are in effect, this file will be identical to the .include file.

5.7. scrubbed

The .scrubbed file contains the results after removing any VOLSER that is currently in use and has not exceeded the retention time. This is the file that will be merged with the scratch list file.

5.8. work

This file is a temporary file that is of no consequence.