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## ***CyFlex® 6.2.x Installation and Update Instructions***

# 1. Overview

## 1.1. Purpose of this Document

This document describes how to:

- Install CyFlex
- Update individual CyFlex files
- Update to a newer CyFlex release

## 1.2. Where to Find Installation Support

### 1.2.1. File to Install Scientific Linux and CyFlex

The installation file is available as follows:

- On the installation DVD (SL LiveDVD) or USB flash drive

Note: Although USB and USB2 are industry standards, there are variations between USB flash drives and not all work with all computers. If your SL flash drive fails to run the installation, contact SGS-CyberMetrix for a SL DVD. (Cummins customers can also install from the server named below.)

- For Cummins: <http://ctclclabops.ced.corp.cummins.com:8008/yum/>
  - Filename: cyflex-sl6.3-ldvd-28.iso
  - Login (contact Site Admin for login)

Note: The filename (above) is for SL 6.3 and installation version 28. The filename will change for subsequent versions of Scientific Linux and the installation, such as “sl6.6” and “dvd-29”.

### 1.2.2. Installation Support Documents

This procedure – *CyFlex® 6.2.x Installation and Updates* – is available as follows:

- On the Cummins Engineering Wiki at URL:  
<http://acizslpapp005.aciz.cummins.com:8005/display/glod/CyFlex+6.2.x+Installation+and+Updates>
- [http://cmx-101.ctgeng.engmfg.cummins.com/svn/cyflexdocs/trunk/23 Installation Guides/](http://cmx-101.ctgeng.engmfg.cummins.com/svn/cyflexdocs/trunk/23+Installation+Guides/)

The *SL6 Installation Procedure (DVD v28)* is available with the installation DVD (SL LiveDVD) or USB flash drive, and at these locations:

- On the Cummins Engineering Wiki at URL:  
<http://acizslpapp005.aciz.cummins.com:8005/pages/viewpage.action?pageId=597362659>
- At the URL mentioned above where the installation file (cyflex-sl6.3-ldvd-28.iso) is located
- [http://cmx-101.ctgeng.engmfg.cummins.com/svn/cyflexdocs/trunk/23 Installation Guides/](http://cmx-101.ctgeng.engmfg.cummins.com/svn/cyflexdocs/trunk/23+Installation+Guides/)

Note: Accessing the Wiki and URL locations shown above require a Cummins account.

### 1.3. CyFlex Documents

Several documents are available that explain CyFlex and related topics, including:

- Variables, Units, and Computed Expressions
- Events
- User Computations
- Data Display
- Control Systems
- Data Collection and Logging
- Utilities and User Commands
- Cell Utilization, MSU, and Reporting
- Input and Output Systems
- Sensor Calibration and Reporting
- Smart Instruments
- ECM Communications
- Internodal Communications
- Emissions Computations and Communications
- Technical Reference
- Control
- Legacy ASSET Documentation
- Add Content Testing
- CyFlex User Interface
- Installation Guides
- Fluid Flow Computations
- Limits Monitoring
- Statistical Variables and Sampling
- Test Manager
- Fluid Composition and Properties
- CyFlex System Applications

The topics listed above are available for viewing as follows:

- For Cummins, go to the Engineering Wiki at URL:  
<http://acizslpapp005.aciz.cummins.com:8005/display/glod/CyFlex+Documentation>  
Note: Accessing the Engineering Wiki requires a Cummins account.
- For SGS-CyberMetrix personnel, refer to the CyFlex documentation on the SGS-CyberMetrix network: CMXCEN > CyFlex > Documentation.

Note: The list above reflects topics available at the time of this writing.

## 2. Installing CyFlex

**Important:** Before installing CyFlex, confirm the machine is running a compatible Operating System (OS). Current CyFlex installations use Scientific Linux (SL) 6.9 or higher. CyFlex updates are available for SL6.9 or higher.

From a terminal window, determine the version of Scientific Linux installed on the system

```
$ uname -r
```

The output shows the version of Scientific Linux that is installed on the system. Make note of the forth number: 754 in example below

```
$ uname -r  
2.6.32-754-6.3.el6.i686
```

If the value of the forth number returned is **not 754**, Scientific Linux 6.9 should be installed. Follow the instructions for upgrading to SL6.9 within the [Update to SL6.9 from Previous SL Version](#) section of this document.

If the value of the forth number returned is **754**, Scientific Linux 6.9 is installed, continue with the next steps

### 2.1. Required for Installation

These are the minimum recommended requirements for CyFlex version 6.0 or higher:

- Test cell computer with a Quad core processor
- 240 GB hard disk drive
- 8 GB RAM
- Network connection to the distribution server

### 2.2. Procedure Steps

If setting up a new test cell, install Scientific Linux first. The SL installation steps are covered in a separate document titled, *SL6 Installation Procedure (DVD v31)*.

If an earlier version of CyFlex is already on the machine, that version may be updated according to the section in this document called, [Updating CyFlex](#).

To install CyFlex:

1. At the test cell, open a terminal window.

**Important:** In the steps below that include a 3-digit CyFlex version number (6.2.x) – enter the actual CyFlex version to be installed. Example: 6.2.9

2. Remove any existing cyflex directory or symbolic links to the CyFlex version.

```
$ cd /  
$ sudo rm -Rf cyflex
```

3. Make a directory for CyFlex version 6.2.x.

```
$ sudo mkdir /cyflex.6.2.x
```

4. Change access permissions for the directory.

```
$ sudo chmod a+rx /cyflex.6.2.x
```

5. Create a symbolic link between these directories:

```
$ sudo ln -s /cyflex.6.2.x /cyflex
```

The output shows the link was created:

```
$ ls -l cyflex  
lrwxrwxrwx 1 root root 2015-02-21 14:13 cyflex -> cyflex.6.2.x
```

6. View the shell script “cyflex.sh” and edit it if necessary:

```
$ cd /etc/profile.d/  
$ sudo nedit cyflex.sh
```

To sync with the server (for example, cmx-102), the first line of the cyflex.sh file should read:  
“export CYFLEX\_SYNCVER\_SRC=**143.222.168.102**”.

To sync to a different server, use that server’s IP address or hostname instead.

7. Install system files for CyFlex.

- a. Determine the version of Scientific Linux installed on the system

```
$ uname -r
```

The output shows the version of Scientific Linux that is installed on the system. Make note of the forth number: 431 in example below

```
$ uname -r  
2.6.32-431.23.3.el6
```

- b. If the value of the forth number returned is **not 754**, Scientific Linux 6.9 should be installed. Follow the instructions for upgrading to SL6.9 within the [Update to SL6.9 from Previous SL Version](#) section of this document.

- c. Next, execute the following command:

```
$ sudo yum install --exclude=cdk* cyflex-6.3-upgrade
```

- d. Next, setup the CyFlex menus by executing the following command.

```
$ cyflex_setup_menus.sh
```

**Important:** In the steps below that include a 3-digit CyFlex version number (6.2.x) – enter the actual CyFlex version to be installed. Example: 6.2.9

8. Synchronize the CyFlex version on the test cell with the version on the distribution server.

```
$ sudo /usr/local/bin/syncver cyflex.6.2.x /cyflex.6.2.x
```

9. Set up these directories:

- */cell*
- */specs*
- */data*
- */esvd\_data*

Note: The directory */esvd\_data* is for emission test cells.

Perform one of the following – step (a) or step (b):

- If upgrading a test cell from ASSET to CyFlex, or copying directories from another test cell – go to step (a) below.
  - Otherwise – go to step (b).
- a. Copy the directories (*/cell*, */specs* and */data*) from another test cell and create the same directories in the root partition.

**Important:** In the command lines below, replace the example test cell number, test cell (user) account and hostnames with the actual ones.  
Below, “ctc-tc103” is the example hostname.

```
$ sudo mkdir /cell
$ sudo mkdir /specs
$ sudo mkdir /data
$ sudo chown -R <testcell account>:users /cell
$ sudo chown -R <testcell account>:users /specs
$ sudo chown -R <testcell account>:users /data
$ sudo chmod -R g+rw /cell
$ sudo chmod -R g+rw /specs
$ sudo chmod -R g+rw /data
$ rsync -av tc103@ctc-tc103:/cell/* /cell/.
```

```
$ rsync -av tc103@ctc-tc103:/specs/* /specs/.
```

```
$ rsync -av tc103@ctc-tc103:/data/* /data/.
```

For the next command, only CyFlex versions 6.2.9 and higher require the argument.

```
$ sudo /cyflex/bin/mk_data_dirs_tc <testcell name or number>
```

Example: `$ sudo /cyflex/bin/mk_data_dirs_tc 305`

Note: Distribution servers use the rsync transfer utility for updating an entire release, which brings test cell (remote) and server (host) files into sync. Rsync sends only the differences in files over the network, not the complete files – speeding the update.

OR,

- b. Install the directories (*/cell*, */specs* and */data*):

```
$ sudo yum install cell.testcell
```

OR: `$ syncver cell.def /cell`

```
$ sudo yum install specs.testcell
```

OR: `$ syncver specs.def /specs`

```
$ sudo yum install data.def
```

```
$ sudo mkdir /data
```

```
$ sudo chmod a+rw /data
```

For the next command, only CyFlex versions 6.2.9 and higher require the argument.

```
$ sudo /cyflex/bin/mk_data_dirs_tc <testcell name or number>
```

Example: `$ sudo /cyflex/bin/mk_data_dirs_tc 305`

- c. If the test cell will use Multi-State Utilization (MSU), copy these files and directories:

```
$ cp /data.def/state_codes /data/
```

```
$ cp /data.def/down_codes /data/
```

- d. If the test cell is at CTC, copy these files to enable the Measurement and Testing Equipment (M&TE) feature for the electronic logbook:

```
$ cp /cyflex/specs.def/samples/mte.def /cell/mte.def
```

10. Set up version control of the working directories (*/cell* and */specs*) on the test cell:

Note: The version control software (Subversion) operates using a server, which is configured separately by SGS-CyberMetrix.

- a. Identify the Subversion (SVN) server hostname for the test cell:

- i. At a terminal window, open the configuration script file:

```
$ sudo /usr/bin/nedit /etc/profile.d/cyflex.sh
```

- ii. Add a line at the start or end of the file – for the SVN server.

For the OLY site, add this line:

```
$ export SVN_SPEC_HOST="olyqnx6.ctgeng.engmfg.cummins.com/" ;
```

OR,

For all other sites, add this line instead:

```
$ export SVN_SPEC_HOST="acdcs1papp1065.aciz.cummins.com:80/" ;
```

Note: This step is required before using the “specsbackup” script to backup files.

- b. Run the specsbackup script with the init argument:

```
$ sudo /cyflex/cmds/specsbackup init
```

**Important:** The “init” argument is required only the first time the script is run, such as for a new test cell or hard drive. When the specsbackup script is run with the “init” argument, the script creates a job in the crontab utility, scheduling a backup of the working directories to run nightly.

Usage for specsbackup:

```
specsbackup [init] [site] [cellname] [SVN server]
```

Arguments:

[site] CTC, SEP, OLY, etc. – the default is to read from `/cell/site_special`.

[cellname] Test cell number – the default is to read from `/cell/cell_name`.

[SVNserver] Subversion server name or IP address – the default is `SVN_SPEC_HOST`, as defined in the shell script, `/etc/profile.d/cyflex.sh`.

No argument: the backup is incremental.

The output displays the SVN server URL, site, cell, and user account name. A prompt asks, “Do the above look correct?”

- i. If the details in the output display are correct – answer “Y”.
- ii. Otherwise – choose “N” and re-enter the specsbackup command line with the necessary argument(s).

Note: If the specsbackup script does not start (is not found), it may have been inadvertently moved to another directory. Try finding the script using the “which” command and run the script again with the new path.

- c. Choose an action for Subversion.



The specsbackup script invokes Subversion to check for an existing repository of the test cell on the server. If none exists, Subversion builds one. If a repository for that particular cell already exists, the script prompts the user for an action:

- i. To restore the working directories (*/cell* and */specs*) from the SVN server repository – choose “Y”.

For example, if the system worked perfectly when the repository was last updated, but since then the hard drive failed, restoring the directories is an option.

OR,

- ii. To check all files (in the working directories) into Subversion – choose “N”.

The output lists the files in the SVN repository and gives their status – Subversion inserts a character at the start of each filename to indicate the following:

A = File added to the SVN repository.

M = Modified file in the SVN repository.

! = File is not in the working directory (it was deleted, but not deleted from the repository, too).

- d. Verify Subversion is set up on the test cell:

- i. View the test cell “sandbox”. (This is the current copy of all files on the SVN server.)

Example:

```
$ cd /.cellspecs/CTC/204
```

- ii. Display the status of working directories:

To show only the files modified after they were last checked into Subversion:

```
$ svn status
```

To display file revision information, add the following argument:

```
$ svn status -v
```

- e. Add execution of the specsbackup file to the crontab.

- i. Backup the existing */specs/usercron* file:

```
$ cp /specs/usercron /specs/usercron.bak
```

- ii. Edit the */specs/usercron* file to include the following line:

```
21 0 * * * /cyflex/cmds/specsbackup >>/dev/null 2>>/dev/null
```

11. Verify the test cell is configured properly using the scripts below.

Note: If a script does not execute (not saved to the cell), try obtaining it from the distribution server using the “syncver” command. (Refer to the section, [Updating the CyFlex Version.](#))

- a. Run the script, “verify\_testcell\_config”:

```
$ verify_testcell_config.sh
```

The output shows the status of each setting – enabled (“Yes” or “No”) or not applicable (“N/A”).

Configuration	Comment(s)	Required or Optional
SRR module loaded	The Send Return Request software module contains routines used by CyFlex applications to communicate with each other.	Required
SRR RPM installed	Utility (Red-hat Package Manager) for installing, uninstalling and managing the SRR software	Required
Cummins Mail RPM installed	RPM for Cummins email	Optional
ntpd RPM installed	RPM for the Network Time Protocol daemon, to synchronize date and time on the cell with the server(s)	Required
NVidia RPM loaded	RPM for the NVidia driver	Required if using NVidia
NVidia module loaded	NVidia video driver	Required if using NVidia
nouveau module removed	Nouveau video driver	Required if using Nouveau
Intel gfx module loaded	Intel video driver	Required if using the Intel graphics processor
CyFlex 6.2 upgrade RPM installed	RPM for CyFlex 6.2 and higher	Required
kernel-devel RPM installed	RPM for development kernel	Required
Rocketport driver RPM installed	RPM for RocketPort driver	Required if using RocketPort adapter
Rocketport module installed	Serial ports adapter driver	Required if using RocketPort adapter
Counter Timer module loaded	Provides low level periodic timer signals to the driver tasks and scheduler	Optional
CYFLEX_SYNCVER_SRC set	Identifies the IP address of the distribution server, for using the “syncver” command to upgrade CyFlex versions	Required

Configuration	Comment(s)	Required or Optional
SVN_SPEC_HOST set	Indicates that the Subversion server hostname is identified in the shell script, cyflex.sh	Required
/cell/cell_name exists	Identifies the test cell name for SVN and other applications	Required
/cell/site_special exists	Identifies the test cell site for SVN and other applications	Required
SITE defined in /cell/site_special	The sys_start program reads this file to create site dependent string variables.	Required
/.cellspecs/"DAV"/<TEST_CELL> exists	Confirms the backup directory (/.cellspecs) for directories under Subversion control is present on the test cell	Required
SVN_SPEC_HOST in /.cellspecs/"DAV"/<TEST_CELL>	Specifies the Subversion server hostname in the SVN backup directory	Required
All /data/ subdirs exist	Confirms needed subdirectories in the /data directory are present.	Required

If the test cell should be configured differently, refer to the *Scientific Linux Installation (for CyFlex®)* document or contact SGS-CyberMetrix.

- b. If the test cell is configured to use MSU, run the “checkMSUconfig” script:

```
$ checkMSUconfig.sh
```

The output indicates the status of each setting – enabled (“Yes” or “No”) or not applicable (“N/A”).

Configuration	Comment(s)	Required or Optional
/cell/site_special exists	File that includes information specific to the test cell site	Required
SITE defined in /cell/site_special	Identifies the test cell site for CyFlex applications	Required
/cell/cell_name exists	Identifies the test cell name	Required
/specs/extdatman.cummins.msu exists	This is a configuration file used by an application which transfers MSU data to the MSU database.	Required
SITE defined in /specs/extdatman.cummins.msu	Identifies the test cell site	Required

Configuration	Comment(s)	Required or Optional
<code>/data/utl/ready/&lt;TEST_CELL&gt;</code> exists	Utilization data is stored in these directories before being transferred to the MSU Oracle database.	Required
Database connection made	Connection to the database is successful	Required
<code>/specs/msu_cell.arr</code> exists	This is used by CyFlex to track the current MSU state.	Required
<code>/mnt/TcNfs/msu_cell.arr</code> exists	This is the NFS mount where common files are shared by CyFlex cells at Cummins.	Required
<code>/mnt/TcNfs/msu_cell.arr</code> matches <code>/specs/msu_cell.arr</code>	The directory <code>/mnt/TcNfs</code> contains the latest up-to-date version of the file.	Required
<code>msu_cell.arr</code> in go script	It initializes the array variables when CyFlex is started.	Required
<code>/specs/msu_pri.arr</code> exists	This is used by CyFlex to track the current MSU state.	Required
<code>/mnt/TcNfs/msu_pri.arr</code> exists	See above.	Required
<code>/mnt/TcNfs/msu_pri.arr</code> matches <code>/specs/msu_pri.arr</code>	The two files are identical.	Required
<code>msu_pri.arr</code> in go script	This initializes the array variables for MSU priorities when CyFlex is started.	Optional
@STATE_CODES file found	Indicates where the @STATE_CODES are found (per the file <code>/data/cell_map_location</code> )	Required
@STATE_CODES host found	Identifies the server hostname (in the file, <code>/data/cell_map_location</code> )	Required

For help configuring MSU, refer to the Cummins wiki or contact SGS-CyberMetrix.

- Verify the test cell can retrieve information through Web services calls:

```
$ cs_tester
```

Note: The application `cs_tester` is included in CyFlex 6.1.0 and higher. If the program does not execute, copy it from the distribution server using the `syncfile` command as described in [Updating Individual CyFlex Files](#).

- Log out of the user account and log in again or reboot the system.

Note: The user account auto-login is an option set during the Scientific Linux installation.

- Start CyFlex:

```
$ go
```

This completes the CyFlex installation.

If you encounter issues starting CyFlex, run the following check:

```
$ rpm -V cyflex-6.3-upgrade
```

This command should not return anything; if it does, run the install command again from step 7 for the rpm that is not installed. After this, attempt to start CyFlex once more. If CyFlex still will not start contact SGS-CyberMetrix.

### 3. Updating CyFlex

#### 3.1. Updating Individual CyFlex Files

To upgrade only certain application or library files on the test cell computer, follow these steps. To update the entire release, see the next section, [Updating the CyFlex Version](#).

1. Open a terminal window and determine which CyFlex files to update:

```
$ showverlist
```

This command compares CyFlex file versions between the test cell and distribution server, displaying the differences. Using the “-p” argument shows Release Candidate (RC) versions (pre-releases):

```
$ showverlist -p
```

Example display:

```
Verifying CyFlex version information with 143.222.77.3
FileName                               LocalVersion  ServerVersion LastUpdatedDate
*cf_scales                             E-6.0.2       6.0.2         2014-02-10
*cf_scales.bu20140513                  E-6.0.2       6.0.0         2013-09-25
*cf_scales.new                          E-6.0.2       6.0.0         2013-09-25
*cf_scales.old                         6.0.2         6.0.0         2013-09-25
*sys_start                             RC-6.0.4      6.0.2         2014-02-18
Files marked with a * differ from those on the server, even if the version strings match.

The following Pre-Release files are available and not installed:
File                                   Version      Date
arr_specs                             RC-6.0.1    04/16/14
write_array_var                       RC-6.0.1    04/16/14
arr_size                              RC-6.0.1    04/16/14
restore_array_var                     RC-6.0.1    04/16/14
sarr                                  RC-6.0.1    04/16/14
garr                                  RC-6.0.1    04/16/14
libplot_spreadsheet_plugin.so.6.0.0   RC-6.0.1    04/17/14
libcyflexplugin.so.6.0.0              RC-6.0.2    04/17/14
libasset.so.6.0.0                    RC-6.0.6    04/17/14
state_mon                             RC-6.0.3    04/28/14
cf_scales                             RC-6.0.3    05/14/14
sys_start                             RC-6.0.5    05/27/14

Finished verifying CyFlex version information
```

2. Copy files from the distribution server to the test cell, one file at a time:

```
$ syncfile <filename> <version number>
```

Example:

```
$ syncfile gp_test 3.5.6
```

This example creates a backup of the old file on the test cell, and then installs the newer version (3.5.6) on the test cell. The backup file is: `/cyflex/backup/bin/gp_test-3.5.5`.

To retrieve a previous version of a file:

```
$ syncfile <filename> <previous version>
```

Example:

```
$ syncfile gp_test 3.5.5
```

Note: To view usage for syncfile:

```
$ use syncfile
```

#### DESCRIPTION

syncfile will copy a CyFlex application from the syncver server using rsync and make a backup of the original.

#### Arguments:

FILENAME - CyFlex application name.  
VERSION - Application release id.

#### Optional arguments:

LOCATION - is used to narrow the file selection.  
default - is to search all locations.  
PRE - Searches only the prerelease directory.  
BACKUP - Searches only the backup directory.  
RSYNC - Searches only the server specified by the environment variable:  
CYFLEX\_SYNCVER\_SRC[143.222.168.101].  
  
SOURCE - CyFlex version located on the syncver server.  
The default is the installed CyFlex version.  
Examples: cyflex.3.5, cyflex.3.5.6, cyflex.6.0, cyflex.6.0.4

DESTINATION - Directory to copy the file.  
Only valid when a SOURCE option is specified.

#### EXAMPLES

1. Searches for floger-3.5.1 in prerelease, backup, and on the RSYNC server.  
\$ syncfile floger 3.5.1
2. Searches for floger-3.5.1 only in the prerelease directory.  
\$ syncfile floger 3.5.1 PRE
3. Searches for floger-3.5.1 only in the backup directory.  
\$ syncfile floger 3.5.1 PRE cyflex.3.5 /cyflex.3.5
4. Uses version cyflex.3.5.6 as the SOURCE on the RSYNC server and searches in prerelease, backup, and the server.  
\$ syncfile floger 3.5.1 cyflex.3.5.6
- 5: The same as example 4 except the file will copied to /cyflex.3.5 directory.  
\$ syncfile floger 3.5.1 cyflex.3.5.6 /cyflex.3.5

#### NOTES

CYFLEX\_SYNCVER\_SRC is declared in /etc/profile.d/cyflex.sh and is site specific.

#### OPTIONS

--help display this help information.

#### SEE ALSO

rsync(1), syncver

This completes the steps for updating individual files individually.

### 3.2. Updating the CyFlex Version

To update only certain application or library files, refer to the previous section, [Updating Individual CyFlex Files](#).

To upgrade an entire CyFlex release on the test cell to the most recent official release, refer to the steps below.

1. From a terminal window, view the CyFlex version on the test cell:

```
$ ver
```

An output similar to the one below is displayed.

```
**** CYFLEX version of node stcnode10 ****  
CYFLEX VERSION 6.2.9 2017-06-20 10:25:55
```

2. From a terminal window, determine the version of Scientific Linux installed on the system

```
$ uname -r
```

The output shows the version of Scientific Linux that is installed on the system. Make note of the forth number: 431 in example below

```
$ uname -r  
2.6.32-431.23.3.el6
```

If the value of the forth number returned is **not 754**, Scientific Linux 6.9 should be installed. Follow the instructions for upgrading to SL6.9 within the [Update to SL6.9 from Previous SL Version](#) section of this document.

3. Capture new error logs:

- a. Exit applications (CyFlex, etc.) and any processes currently running:

```
$ slay_stuff
```

- b. Restart CyFlex:

```
$ go
```

- c. Make backups of any error logs:

```
$ cd /data/errors/
```

```
$ cp error.log error.log.pre-up
```

```
$ mv cui.log.140918 cui.log.140918.pre-up
```

```
$ mv extdatman.msu.140918 extdatman.msu.140918.pre-up
```

Note: Error logs can help determine whether any problems later resulted from upgrading the version.

4. Terminate CyFlex and running processes again:



```
$ slay_stuff
```

5. Install the latest RPMs necessary for CyFlex version 6.2.9 and higher:

```
$ sudo rpm --erase --nodeps jre-1.6.0_23
```

Note: If the jre-1.6.0\_23 RPM was not previously installed, a message might occur saying the RPM is not installed. Ignore this message.

```
$ sudo rm -v /usr/java/jre
```

```
$ sudo yum clean all
```

```
$ sudo yum install --disableexcludes=all jdk
```

Note: If the jdk RPM was installed, a message might occur saying the RPM is already installed. Disregard the message.

6. Next, execute the following command:

```
$ sudo yum install --exclude=cdk* cyflex-6.3-upgrade
```

7. Set KDE as the default Linux window manager. KDE is required for testing with CyFlex.

```
$ cyflex_setup_menus.sh
```

8. Log out of the user account and log in again or reboot the system.

Note: The user account auto-login is an option set during the Scientific Linux installation.

9. Install cron jobs to report core dumps:

```
$ sudo yum install cyflex_cron_daily
```

Note: This sets up a daily cron job to check for core dumps and includes all applications. A core dump saves a copy of error logs that a user or developer can use for debugging.

**Important:** In the steps below that include a 3-digit CyFlex version number (6.2.x) – enter the actual CyFlex version to be installed. Example: 6.2.9.

10. Change to the root directory and create a directory for CyFlex version upgrade:

```
$ cd /
```

```
$ mkdir /cyflex.6.2.x
```

11. Set permissions for the new directory, /cyflex.6.2.x

```
$ sudo chmod a+rwX cyflex.6.2.x
```

12. If any symbolic links to cyflex is present in the root directory, remove them:

```
$ sudo rm /cyflex
```

13. Create a symbolic link between these directories:

```
$ sudo ln -s /cyflex.6.2.x /cyflex
```

14. Use the “syncver” command to upgrade the CyFlex version. This syncs the version on the test cell with the version on the distribution server.

Example:

```
$ syncver cyflex.6.2.x /cyflex.6.2.x
```

Note: To view usage for syncver:

```
$ use syncver
```

(Usage for syncver is on the next page.)

**NAME**

syncver - copy the latest CyFlex files from rsync server

**SYNOPSIS**

syncver SOURCE [backup|update] [DESTINATION]

**DESCRIPTION**

syncver copies the latest files from a particular source package found on the rsync server at IP address declared by the CYFLEX\_SYNCVER\_SRC[143.222.168.101] environment variable.

SOURCE - Name of source package.

backup - Copy all files to the backup directory, then copy the new files from the source.

update - Move all files to the backup directory, then copy all the files from the source.

DESTINATION - Directory to copy the files.  
The default destination is based on your SOURCE argument.

**EXAMPLES**

```
$ syncver cyflex.3.5          # Install changes to /cyflex.3.5
```

```
$ syncver cyflex.3.5 backup # Backup files to /cyflex.3.5.backup.1
                             # install changes to /cyflex.3.5
```

```
$ syncver cyflex.3.5 update # Move all files to /cyflex.3.5.backup.1
                             # install CyFlex.3.5 in /cyflex.3.5
```

```
$ syncver cyflex.3.5.qt      # Update the Qt applications to /cyflex.3.5
```

```
$ syncver cyflex.3.5.java    # Update Java applications to /cyflex.3.5
```

**NOTES**

CYFLEX\_SYNCVER\_SRC is declared in the /etc/profile.d/cyflex.sh and is the IP address of the rsync server.

CYFLEX\_BACKUP\_NUMBER is declared in the /etc/profile.d/cyflex.sh and is the maximum number of backups, the default is 3.

**OPTIONS**

```
--help display this help information.
```

**SEE ALSO**

rsync(1), syncfile

Example of syncver output:

```
Update cyflex.6.2.9 from [143.222.168.101]
Full update and backup
Minimal update (changes only) – with backup
Minimal update (changes only) – No backup
(F/U/N)?
```

Note: F = Full update and backup. U = Update with backup. N = No backup with update.

15. Determine whether symbolic links are present in the root directory:

```
$ ls -ltr /cyflex
```

In the example output below, “cyflex” is a symbolic link to /cyflex.6.2.x

```
lrwxrwxrwx 1 root root 2014-09-30 14:13 cyflex -> cyflex.6.2.x
```

16. Update the shared library cache:

```
$ sudo /sbin/ldconfig
```

17. Run the "mk\_data\_dirs\_tc" program including the testcell name or number argument

```
$ sudo /cyflex/bin/mk_data_dirs_tc <testcell name or number>
```

Example: \$ sudo /cyflex/bin/mk\_data\_dirs\_tc 305

**Important:** The next three steps are necessary only if the test cell was not previously updated to use the database version of E-Logbook.

18. Set up the E-Logbook database:

```
$ sudo yum install elog-odbc
```

19. Convert the current log file into the new E-logbook database:

```
$ convert_elog -e /specs/log/elogbook.db -l /specs/log/log.1
```

Note: The conversion may take several minutes.

20. Verify the E-log conversion:

```
$ dump_elog -n10 -c 1
```

Note: This prints the ten newest logbook entries in the database, indicating a successful conversion.

**Important:** The next step is necessary only if the test cell is using \*.ui files created with a version of CyFlex installed before 5/1/2013. To determine the installation date and version, refer to step 1. Another indication the next step is necessary is that the test cell is using the operator display.

21. Convert the old operator display files to the new format.

Example:

```
$ dspec_ui_conv dsply_specs_103.ui
```

```
$ convert_cyflex_qt_ui_files dsply_specs_103.ui
```

The output shows that the files have been converted:

```
dsply_specs_103.ui -->dsply_specs_103.ui.new
```

```
$ mv dsply_specs_103.ui dsply_specs_103.ui.save
```

```
$ mv dsply_specs_103.ui.new dsply_specs_103.ui
```

**Important:** The next step is necessary only if the CyFlex version upgrade is on a High Throughput (HTP) test cell at the Cummins Technology Center.

22. Install the Test Runtime Controller (TRC):

```
$ sudo yum install test-runtime-controller
```

23. If the test cell is at CTC, copy these files to enable the M&TE feature for the electronic logbook:

```
$ cp /cyflex/specs.def/samples/mte.def /cell/mte.def
```

24. Start CyFlex to apply the update:

```
$ go
```

25. Verify the test cell is configured properly as described in steps 11 and 12 of the [Procedure Steps](#) section.

This completes the upgrade.

## 4. Update to SL6.9 from Previous SL Version

From a terminal window, the following instructions should be executed for upgrading to SL6.9:

```
$ sudo yum install sl-local-69 acdc_repos
    at "Is this ok [y/n]" prompt, type y

$ sudo yum --releasever=6.9 update sl-release
    at "Is this ok [y/n]" prompt, type y

$ sudo rm /etc/yum.repos.d/sl.repo

$ sudo yum clean all

$ sudo yum install kernel-2.6.32-754.6.3* kernel-devel-2.6.32-754.6.3*
    at "Is this ok [y/n]" prompt, type y

$ sudo reboot
```

Confirm that the 754 Kernel has been installed and is in use by executing the following command:

```
$ uname -a
```

The output of the above command should reflect kernel version 2.6.32-754.6.3. If the output doesn't reflect the correct version number for the kernel, make sure the `sudo yum install kernel-2.6.32-754.6.3* kernel-devel-2.6.32-754.6.3*` command was executed correctly.

Determine if you have a Nvidia video card installed, execute the following command:

```
$ lspci | grep -i NVIDIA
```

If something is returned from the `lspci` command, the nvidia card is installed.

If a Nvidia card is installed, execute:

```
$ sudo yum install kmod-nvidia-340xx-340.106* nvidia-x11-driv-340xx*
```

If the Nvidia card is installed, reboot the system.

```
$ sudo reboot
```

Determine if a RocketPort card is installed and uses the RocketPort RPM, execute the following command:

```
$ rpm -qa | grep rocketport-linux
```

If something is returned from the above command, a rocketport card is installed and the RocketPort RPM for the new kernel must be installed.

Execute the following command to install the RocketPort RPM file to update the RocketPort driver:

```
$ sudo yum update rocketport-linux
```

If the rocketport-linux RPM, there is no need to check for the RocketPort Infinity Express card.

To determine if a RocketPort Infinity Express card is installed and uses the `rp_infinity_express` RPM, execute the following command:

```
$ rpm -qa | grep rp_infinity_express
```

If something is returned from the above command, a rocketport infinity card is installed and the RocketPort Infinity Express RPM for the new kernel must be installed.

Execute the following command to install the RocketPort Infinity Express RPM file to update the driver:

```
$ sudo yum update rp_infinity_express
```

If you are using EtherCAT, the following command must be executed to make ethercat compatible with the SL6.9 kernel:

```
$ sudo yum install cyflex-ethercat
```

If you are using a PCAN adapter for CanDbc, the following command must be executed to make ethercat compatible with the SL6.9 kernel:

```
$ sudo yum reinstall pcandriver
```

Determine if the cyflex-6.1-upgrade RPM is installed, execute this command:

```
$ rpm -qa | grep cyflex-6.1-upgrade
```

If something is returned from the above command, the cyflex-6.1-upgrade RPM is installed.

If the cyflex-6.1-upgrade RPM is installed, execute the following command to erase that RPM:

```
$ sudo yum erase cyflex-6.1-upgrade
```

Continue with updating the system files:

```
$ sudo yum --exclude=kernel* --exclude=cdk* update  
at "Is this ok [y/n]" prompt, type y
```

Determine if the correct version of cdk and cdk-devel is installed

```
$ rpm -qa | grep cdk
```

If any of the cdk files listed have a version number of 5.0, execute the following command:

```
$ sudo yum downgrade cdk cdk-devel
```

## 5. Revision History

This document was revised as shown below.

Document Version	Reason for Change
1.0	New document
2.0	Added small troubleshooting section to the end of section 2.2 Procedure Steps to check for incomplete rpm download or installation.
3.0	<p>Changed the command for installing system file for CyFlex to:</p> <pre>\$ sudo yum install --exclude=xcb*0.4.0* cyflex-6.1-orig-upgrade</pre> <p>Changed the table in Section 2.2.11 for output of the verify_testcell_config.sh script to state that "Counter Timer module loaded" from Required to OPTIONAL.</p>
4.0	Add -Rf to Section 2.2 – Step 2 to remove the cyflex directory or symbolic link
5.0	Changed order of steps within Section 2.2 - moved creation of symbolic link to cyflex after change of permission to cyflex.6.2.x directory
6.0	Placed -Rf within section 2.2 – Step 2 in the correct location
7.0	<p>Add instructions to upgrade to SL6.9 and not contact SGS when the SL version number is less than 431</p> <p>Add instructions to install cyflex-6.3-upgrade and eliminate the install of cyflex-6.1-upgrade and cyflex-6.2-upgrade</p> <p>Add instructions for installing the CyFlex menu system</p>
8.0	Add instructions to check to see if the Rocketport or RocketPort Infinity Express RPMs are installed
9.0	Add instructions for installing cyflex-ethercat RPM when upgrading to SL6.9
10.0	Add instructions for removing the cyflex-6.1-upgrade RPM if it is installed