PallyCon App Packager Guide

(Version 1.0, 2017.07.05)

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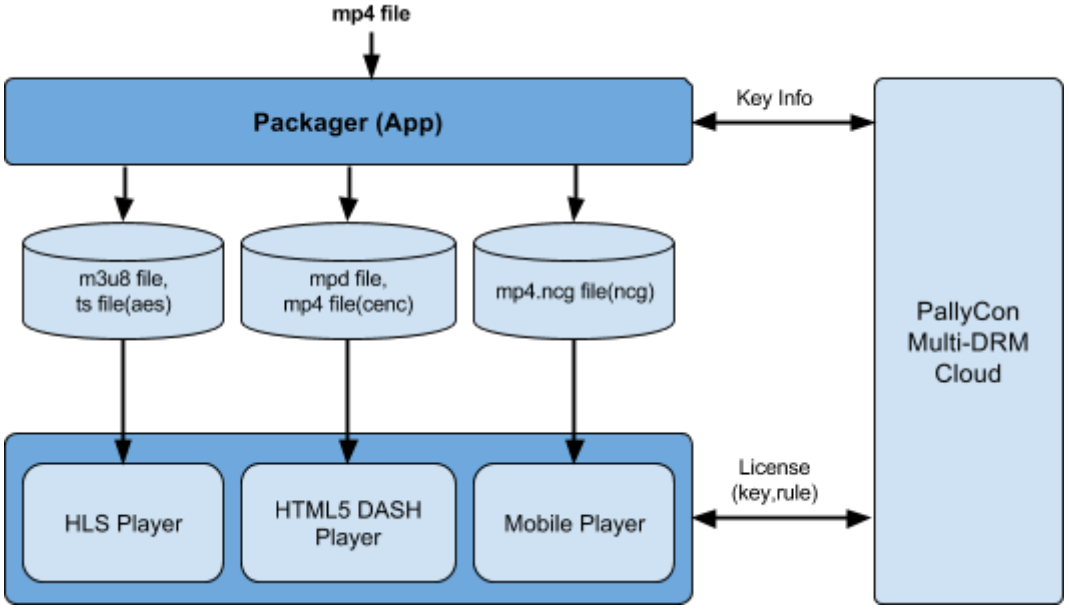
1. Overview

This document explains about PallyCon Multi-DRM cloud service's content packaging concept and how to use the packager tool.

In PallyCon Multi-DRM service, there are three types of content packaging spec.

1) NCG(Netsync Content Guard) which is INKA Entworks' proprietary DRM Spec.
2) DASH-CENC which is MPEG standard. DASH-CENC is used for HTML5 Dash Player with Widevine and PlayReady DRM support.
3) HLS-AES which is an encryption spec for HTTP streaming protocol made by Apple. HLS-AES is used with FPS(FairPlay Streaming) DRM.

PallyCon App Packager supports all of the above DRM specs. Content ID(CID) is used for the encryption, and it is set via CID Issue gateway callback page.



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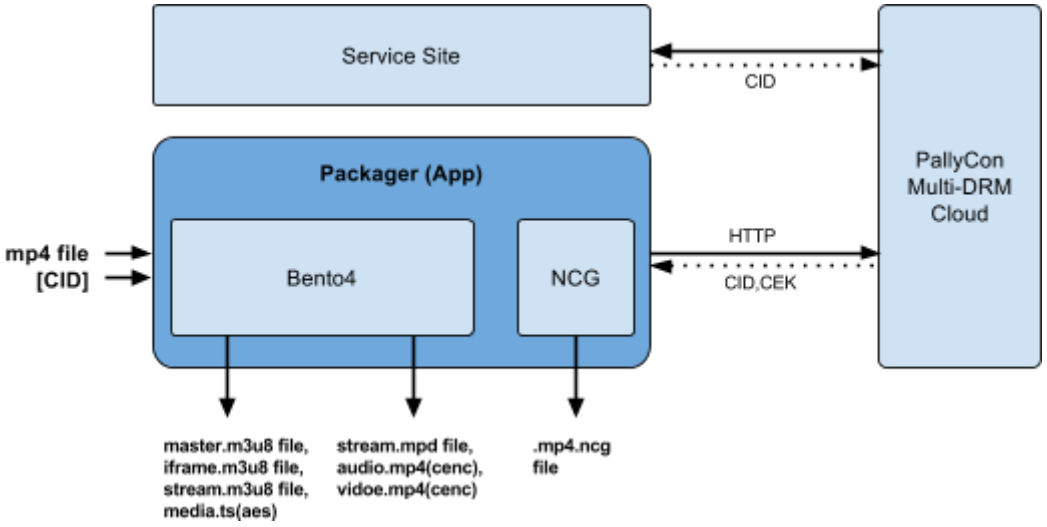
2. Integration Structure and Environment



PallyConPackager executive module runs with PallyCon Multi-DRM Cloud server.
PallyCon Cloud server manages Content Key data by service site, and issues license by finding Key(CEK) bound with CID when Player requests DRM License.

※ There must be available disk space on the system at least two-times larger than contents.

※ Does not allow special characters in source file names.

PallyCon App Packager utilizes Bento4 open source module, the module must be installed on the system as below. (Windows version)

1) **Install Bento4**
   - Download latest version binary for Windows from the below site..
   https://www.bento4.com/downloads/

   - Extract downloaded file in PallyConPackager folder and rename its folder to “Bento4”.
   PallyConPackager ← exe file
   Bento4 ← directory (has bin, utils folders)

2) **Install Python 2.7x version**
   - #python -V (check if the version is 2.7xx)

   (To use unicode filename)
   Open Python install folder -> Lib folder -> Open site.py (C:\Python27\Lib\site.py) source -> Find setencoding() function and update first if statement from 0 to 1.

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```
[site.py]
...
def setencoding():
        """Set the string encoding used by the Unicode implementation.  The
        default is 'ascii', but if you're willing to experiment, you can
        change this."""
        encoding = "ascii" # Default value set by _PyUnicode_Init()
        if 0:   #<-- replace 0 with 1
        # Enable to support locale aware default string encodings.
        import locale
        loc = locale.getdefaultlocale()
        if loc[1]:
        encoding = loc[1]
        if 0:
        # Enable to switch off string to Unicode coercion and implicit
        # Unicode to string conversion.
        encoding = "undefined"
        if encoding != "ascii":
        # on Non-Unicode builds this will raise an AttributeError...
        sys.setdefaultencoding(encoding) # Needs Python Unicode build !
...
```

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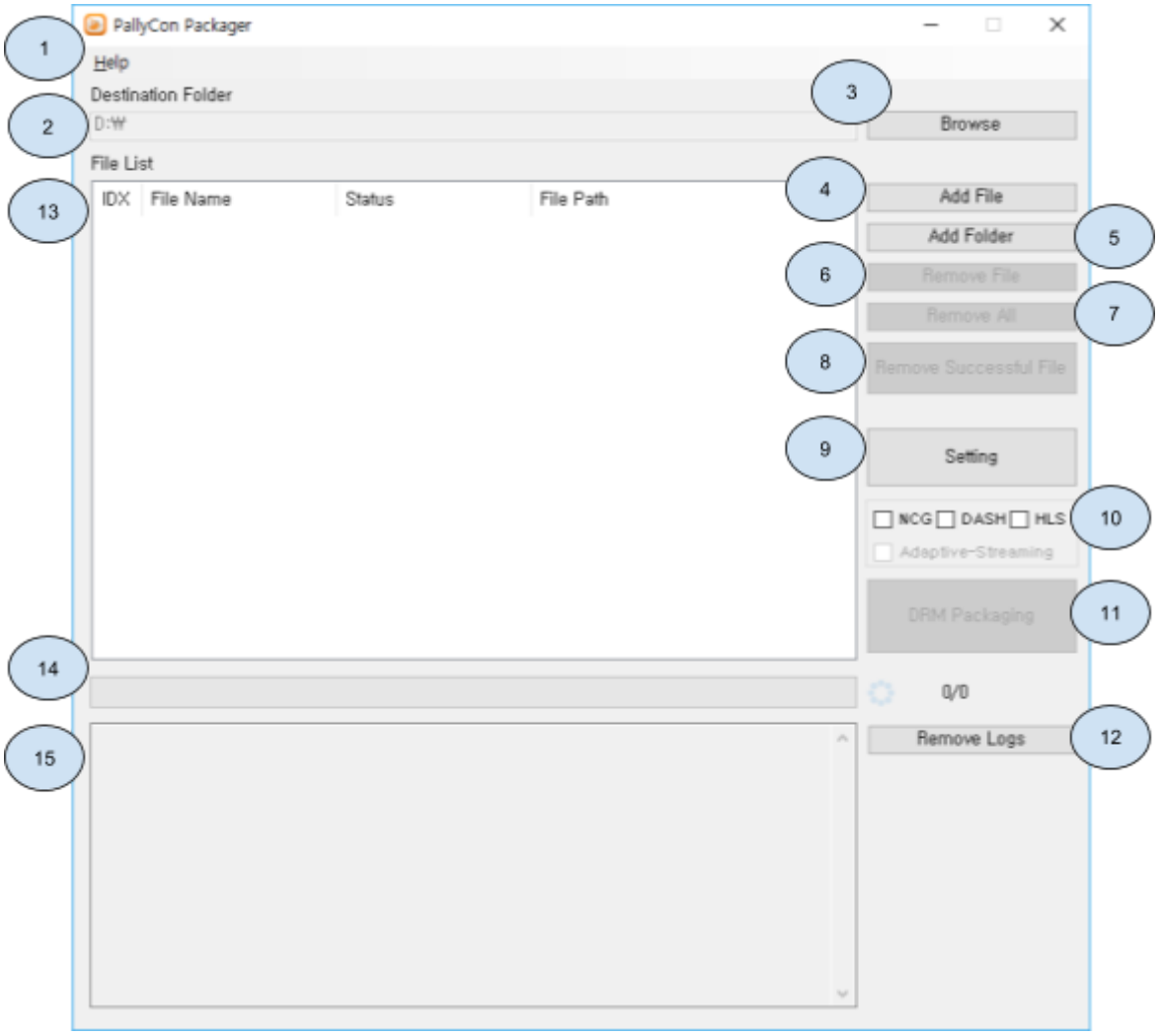
3. UI Guide

Main Screen



1) Help
   : Can check application info in About window.

2) Destination Folder
   : Shows destination path for packaged contents. Space is not allowed in the path.

3) Browse
   : Can select destination folder using file system dialog.

4) Add File
   : Click this button to add files for packaging. DASH and HLS packaging support mp3 and mp4 files only.

5) Add Folder

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: Click this button to add all source files in a folder.

6) Remove File
: Removes selected file item from the list.

7) Remove All
: Removes all file items from the list.

8) Remove Successful File
: Removes successfully packaged files from the list.

9) Setting
: Shows ‘Settings’ window for Site ID and Packager key setting.

10) DRM Type
: Check DRM Type and Adaptive-Streaming. DRM Types are cross-selectable.
※ Adaptive-Streaming?
- A method of transmitting a high-quality partial content such that a bandwidth can be digested based on the state of the network or the transmission speed. (available for DASH and HLS only)

11) DRM Packaging
: Starts packaging listed files.

12) Remove Logs
: Removes all log items.

13) File List
: Has index, filename, status and file path items.
- Idx
  >> order of added files.
- File Name
  >> name of file to be packaged.
- Status
  - Ready : before packaging the file
  - Start : started packaging the file
  - Waiting : Wait for other content packaging
  - Succeed : packaging of the file succeeded
  - Failed : packaging of the file failed
- File Path
  >> Full path of the file. Space is not allowed in the path.

14) Packaging Progress bar
: Shows the progress of packaging.

15) Log view

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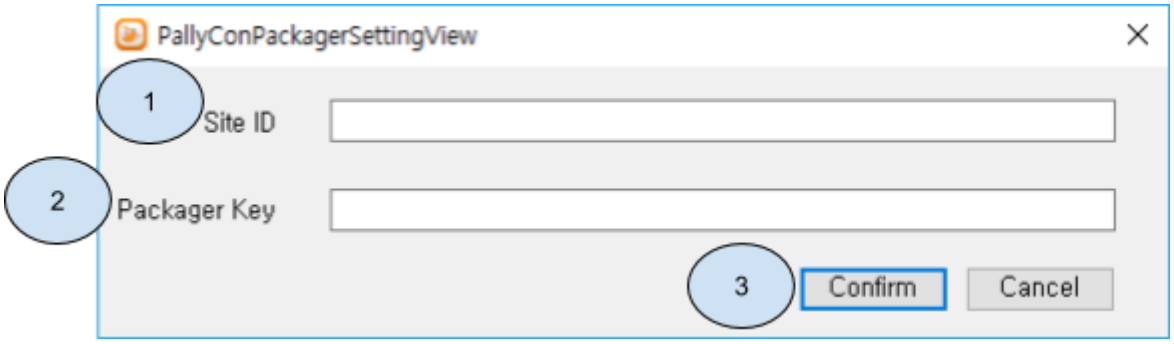
: Shows logs when any error occurs. The logs are also saved in the packager folder. (Pallycon_Packager_Log.log) (refer to '5. log analysis')

Setting Screen



1) Site ID
   : Input 'Site ID' which can be found on PallyCon CP Admin site.

2) Packager Key
   : Input 'Packager Key' which can be found on PallyCon CP Admin site.

3) Confirm
   : Applies Site ID, Packager Key setting

4. Error Code

Error Code	Description
0	Success
1101	No parameter input
1102	Invalid input parameter (refer to INFO)
1103	Invalid number of parameters
1201	Cannot find the file in the path
1202	Cannot access the file (access right or filename issue)
1203	Failed to create file/folder. (too long path)
1204	Failed to create file/folder. (too long filename)
1205	Failed to create file/folder. (Insufficient disk space)
1206	Failed to move the file to the folder.
1207	Failed to get file size.
2001	An error occurred while sending request to server.
2002	An error returned from server. (refer to INFO)
2003	Invalid block size
2004	No private key found.

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2005	Invalid private key
-1	Unexpected error occurred

5. Log Analysis

Log output on successful packaging

```
NCG Packaging start (2017-03-15 07:02:00)

Succeed packaging Monkaa.mp4
```

```
DASH Packaging start (2016-07-04 12:14:35)

Start Packaging Dash Monkaa.mp4
found regular I-frame interval: 4411 frames (at 24.000 frames per second)
Parsing media file 1: fragmentFile.mp4
Extracting track 2 from fragmentFile.mp4
Extracting track 1 from fragmentFile.mp4
Encrypting track IDs [2] in tmpr77pne = Extracted[track 2 from fragmentFile.mp4]
Encrypting track IDs [1] in tmpg0af3m = Extracted[track 1 from fragmentFile.mp4]
Parsing media file 1: tmpl5_u8u = Encrypted[tmpr77pne = Extracted[track 2 from
fragmentFile.mp4]]
Parsing media file 2: tmp6yqxjx = Encrypted[tmpg0af3m = Extracted[track 1 from
fragmentFile.mp4]]
Processing and Copying media file tmpl5_u8u = Encrypted[tmpr77pne = Extracted[track 2
from fragmentFile.mp4]]
Processing and Copying media file tmp6yqxjx = Encrypted[tmpg0af3m = Extracted[track 1
from fragmentFile.mp4]]
Succeed packaging Monkaa.mp4
```

- Shows success log when packaging is successful.

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Log output on failed packaging

```
NCG Packaging start (2017-03-15 07:02:46)

Failed to get packaging information from server
 Failed file : D:\contents\Monkaa.mp4
<?xml version="1.0" encoding="UTF-8"?>
<PallyconPackager>
<RESULT>2002</RESULT>
<ERRORMSG>Error returned from server. (refer to INFO)</ERRORMSG>
<INFO>*** ResponseFailException Exception ***
ErrorMessage       :[Ncg2SecureChannelMode:request() : Received a Fail Response]
Response ErrCode   :[1001]
Response ErrMessage:[Please check siteid or package key in admin page.]
</INFO>
<WHERE>[File Name = CPallyConServerComm.cpp, Line = 119]</WHERE>
</PallyconPackager>
<STACKTRACE>
 from CPallyConServerComm::GetContentPackInfoData
</STACKTRACE>
```

```
DASH Packaging start (2016-07-04 01:55:46)

Failed to get packaging information from server
Failed file : D:\contents\Monkaa.mp4
<?xml version="1.0" encoding="UTF-8"?>
<PallyconPackager>
<RESULT>2002</RESULT>
<ERRORMSG>Error returned from server. (refer to INFO)</ERRORMSG>
<INFO>*** ResponseFailException Exception ***
ErrorMessage       :[Ncg2SecureChannelMode:request() : Received a Fail Response]
Response ErrCode   :[1001]
Response ErrMessage:[Please check siteid or package key in admin page.]
</INFO>
<WHERE>[File Name =
d:\works\ncg_mywork\application\pallyconpackagerlib\cpallyconservercomm.cpp, Line =
119]</WHERE>
</PallyconPackager>
<STACKTRACE>
 from CPallyConServerComm::GetContentPackInfoData
</STACKTRACE>
```

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- RESULT
  : Error code of packaging failure

- ERRORMSG
  : Message of the error

- INFO
  : Additional info about the error

- WHERE
  : The location of the error

- STACKTRACE
  : Function stack of the error

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