DisplayManager Licensing Manual

1. Getting activation code
- User manual

Unlicensed user should get an valid activation code from a provider(it's you Eric).

When unlicensed user runs "displaymanager.exe", then a dialog box appears on the main window of "displaymanager.exe"

Then user copies the request code(Device Key), and sends it to the provider(Eric).

Then the provider(Eric) generates a valid activation code for the request code by using the following tools.

winman_keygen_30days.exe	Generate a 30-days activation code.
winman_keygen_full.exe	Generate a full activation code.

The provider(Eric) copies the proper activation code in the output box of the generator, and sends it back to the user.

Unlicensed user inputs the activation code received into the license dialog box and presses "OK" button.

"displaymanager.exe" checks the validity of the activation code input.

If it is valid, then the dialog box disappears and the main window of "displaymanager.exe" goes on.

Otherwise, the license dialog box continues to be on the main window of "displaymanager.exe".

The checking validation is mentioned at the next section.

- The structure of activation code

It is already discussed with the provider(Eric).

Plain text = Device hardcodes + Sequence + Issued at + Period + Flags
Signature text = Plain text + CRC16 + RSA2048-signature(private key)
Activation code = Base64(Blowfish(Signature text))

2. Checking a valid activation code
- Validation algorithm

When the user input an activation code on the input dialog box of "displaymanager.exe", the app checks it as the following steps.

The app processes an activation code by the reverse order of making activation code, except that RSA2048-signature uses public key. (The app doesn't know the private key.)

If at least one step of the following meets false, then validation fails.

Compare the "Device hardcodes" in Plain text and the current "Device hardcode". Check if they are identical.
Check if the value "Flags" is the same of the version. "displaymanager.exe" has the value 3 as its "flags". If the value "Flags" of the "Plain text" is not 3, then it fails.
Check if the current timestamp is in the range of ["Issued at", "Issued at" + "Period"].

Check if CRC16 hash value for "Plain text" is equal to the "CRC16".
Check if RSA2048(public key) signature for "Plain text" + "CRC16" is equal to "RSA2048-signature(private key)"
Check if "Device hardcodes" in Windows Registry is the fixed value. It is called "Hardware Lock".
Check if hidden file "C:\Windows\cirenc.dll" exists and the whole content is the same as the activation code. It is called "Hidden File Lock".

- Checking while running "displaymanager.exe"

"displaymanager.exe" app checks the validity of the license every 5 seconds.

It walks through the validation algorithm, and if it detects the license is invalid, then it initialize data for the license and opens a notification dialog box and exits.

Running again, activation code dialog box will appear.