

Verification problem and solution

1 How it works

Verification is a guard for plugin to protect it in case that someone modified the original plugin from database for some security problem.

The earth would verify plugin to check whether its content mates to the relative signature that is stored witch plugin as pair while installing process and loading process by SHA1.

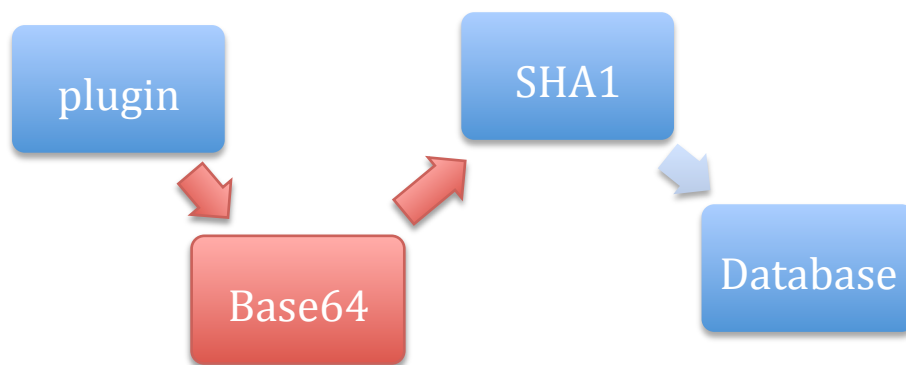
2 Phenomenon

In milestone 5, our group focused on the daemon plugin and tried to create some new plugin. In this stage, we found a weird problem. When new plugin is less than around 300 lines, the plugin content is different between original file and copy stored in the database. All the '\n' are converted to '\012'. At the same time, the useless signature results in the failure of verification while loading plugin from database. The much more inconceivable thing is that the original file_monitor.rb works well.

3 Analysis

At beginning, we thought that should be the encode problem. Because we use different text editor and create new file and the text editor would add some invisible code in files. But when we type the whole original file_monitor.rb in a particular text editor and create a new plugin with the same text editor. The phenomenon is the same.

After discussion, we find that that would be some encoding bug in the driver of Postgresql for Rails and decide to try another encryption way. Before using SHA1 to encode the file, we use Base64 to convert all the code into another kind of encoding way. The term Base64 refers to a specific MIME content transfer encoding. It is also used as a generic term for any similar encoding scheme that encodes binary data by treating it numerically and translating it into a Base64 representation. The code like '\n' would be converted to another particular character. After that, plugin copy stored in the database can mate to the signature and plugin could be loaded and used as well.



4 Reference

Here is some document for webpage:

Base64 wiki:

<http://en.wikipedia.org/wiki/Base64>