



Ærk Plugins

How to write plugins for the Ærk IRC Client

<https://github.com/nutjob-laboratories/erk>
<https://github.com/nutjob-laboratories/erk-plugins>

An Ærk plugin is a Python 3 class that inherits from `erk.Plugin`.

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Summary

An Ərk **plugin** is a file containing one or more Python 3 classes that inherit from **erk.Plugin**. A **package** is a directory that contains one or more files containing Ərk plugins, along with other optional files that either contain metadata or graphics.

In this document, the term "plugin" is used for both plugins and packages; if a distinction between the two terms is necessary, the correct term is used.

Installing Ərk Plugins

Ərk plugins "live" in a directory named "plugins", in the main Ərk installation directory. To install a plugin, simply place it in the "plugins" directory. To install exported plugin packages created with the Ərk editor, click on the "Install plugin" entry in the "Plugins" menu and select the zip file containing the package; the zip file will be extracted into Ərk's plugin directory.

Uninstalling Ərk Plugins

Delete (or otherwise remove) the plugin file or package from the "plugins" directory. Alternately, click on the "Uninstall plugin" entry in the "Plugins" menu.

Writing an Ærk Plugin

The first step is creating a new Python 3 class that inherits from **erk.Plugin**. To get access to this class, import it from Ærk:

```
1 from erk import *
```

Then, create the rest of the class. The following plugin will do *nothing*, but it's a complete example that shows what a plugin should look like:

```
1 from erk import *
2
3 class ExamplePlugin(Plugin):
4     def __init__(self):
5         self.name = "An Example Plugin"
6         self.description = "Example plugin for documentation"
7
8     def received(self, client, line):
9         pass
10
11    def sent(self, client, line):
12        pass
13
14    def load(self):
15        pass
16
17    def unload(self):
18        pass
19
20    def input(self, client, name, text):
21        pass
22
23    def connect(self, client):
24        pass
25
26    def public(self, client, channel, user, message):
27        pass
28
29    def private(self, client, user, message):
30        pass
31
32    def notice(self, client, target, user, message):
33        pass
34
35    def join(self, client, channel, user):
36        pass
37
38    def part(self, client, channel, user):
39        pass
40
41    def tick(self, client):
42        pass
43
44    def ctcp(self, client, user, channel, tag, message):
45        pass
```

Plugin Attributes

Plugins have only two *required* attributes: **name** and **description**. Plugins can also possess four other optional attributes: **author**, **version**, **source**, and **website**.

name

This is the name of the plugin. It must be unique (that is, no other loaded plugin can use the same name). It can contain spaces. All plugins are required to have a **name** attribute.

description

This describes the plugin. It can also contain spaces, but it does not have to be unique. All plugins are required to have a **description** attribute.

author

The name of the person (or persons) who created/maintain the plugin.

version

A string representing the plugin's version.

source

A URL to where users can obtain the source code or information about the source code of the plugin.

website

A URL where users can obtain the plugin, information about the plugin, or information about the person (or persons) who wrote the plugin.

Plugin Methods

There are five methods a plugin can have; they are not required to have any specific methods, but *they must have at least one of the methods* to be a valid plugin.

Most of the methods are passed an instance of **twisted.words.protocols.irc.IRCClient** as a first argument. This is the instance that Ørk uses to communicate with the IRC connection associated with the event or window that triggered the method's execution. At this time, Ørk uses version 19.2 of Twisted; the documentation for this object can be found at <https://twistedmatrix.com/documents/current/api/twisted.words.protocols.irc.IRCClient.html> . The instance has been modified so that any outgoing messages are displayed in the client (so, if you use the **msg()** method to send a PRIVMSG command, the message sent will be displayed in the appropriate channel or private chat window).

load

Arguments None

Description This method is executed as soon as the plugin is loaded into memory.

unload

Arguments	None
Description	This method is executed when the plugin is unloaded from memory; if not otherwise unloaded, this method is executed when Ørk shuts down.

input

Arguments	client (instance of <code>twisted.words.protocols.irc.IRCClient</code>), name (string), text (string)
Description	This method is executed whenever a user enters text into the Ørk IRC client and presses enter. name contains the "name" of the window the text was entered into. If entered into a non-chat server console, name will be set to " <code>_Server</code> "; other wise, name will contain the name of the channel the text was entered into (if entered into a channel chat window) or the nickname of a user (if entered into a private chat window). text contains the text that was entered into the window.

This method is intended to be used to implement new commands for the Ørk client. To prevent any further processing of user input, have this method return **True**. *Be careful with this.* It's trivially easy to implement a plugin that can prevent *any* user input at all:

```
1 def input(self, client, name, text):  
2     return True
```

Only return **True** if no further processing of the text is required; for example, when implementing a custom command, returning **True** prevents the user's command input being sent to the server as a PRIVMSG.

Ørk will try to detect any plugins that maliciously prevent user input and refuse to load them; this is not perfect (or even close to perfect) and should not be relied on.

public

Arguments	client (instance of <code>twisted.words.protocols.irc.IRCClient</code>), channel (string), user (string), message (string)
Description	This method is executed when the Ørk client receives a public (channel) chat message. channel contains the name of the channel the chat originated from. user contains information about the user that sent the message; this is presented in the format provided by the server: nickname!username@hostname . message contains the contents of the message sent.

private

Arguments	client (instance of twisted.words.protocols.irc.IRCClient), user (string), message (string)
Description	This method is executed when the Ørk client receives a private chat message. user contains information about the user that sent the message; this is presented in the format provided by the server: nickname!username@hostname . message contains the contents of the message sent.

tick

Arguments	client (instance of twisted.words.protocols.irc.IRCClient)
Description	This method is executed every second the Ørk client is connected to a server.

join

Arguments	client (instance of twisted.words.protocols.irc.IRCClient), channel (string), user (string)
Description	This method is executed when the Ørk client receives a channel join notification. channel contains the name of the channel the user joined. user contains information about the user that joined; this is presented in the format provided by the server: nickname!username@hostname . message contains the contents of the message sent.

part

Arguments	client (instance of twisted.words.protocols.irc.IRCClient), channel (string), user (string)
Description	This method is executed when the Ørk client receives a channel part notification. channel contains the name of the channel the user left. user contains information about the user that left the channel; this is presented in the format provided by the server: nickname!username@hostname . message contains the contents of the message sent.

connect

Arguments	client (instance of twisted.words.protocols.irc.IRCClient)
Description	This method is executed when the Ørk client is completes registration with a server.

notice

Arguments	client (instance of twisted.words.protocols.irc.IRCClient), target (string), user (string), message (string)
Description	This method is executed when the Θrk client receives a notice message. target contains the name of the user or channel the notice was sent to. user contains information about the user that sent the message; this is presented in the format provided by the server: nickname!username@hostname . message contains the contents of the message sent.

ctcp

Arguments	client (instance of twisted.words.protocols.irc.IRCClient), user (string), channel (string), tag (string), message (string)
Description	This method is executed when the Θrk client receives an unrecognized CTCP message. user contains information about the user that sent the message; this is presented in the format provided by the server: nickname!username@hostname . channel contains the channel (or nickname) the message was sent from. tag contains the CTCP message tag sent in the message. message contains the contents of the message sent.

received

Arguments	client (instance of twisted.words.protocols.irc.IRCClient), line (string)
Description	This method is executed every time the Θrk client receives a line of data from the server.

sent

Arguments	client (instance of twisted.words.protocols.irc.IRCClient), line (string)
Description	This method is executed every time the Θrk client sends a line of data to the server.

Built-In Methods

Plugins also contain several built-in methods to interact with the Ɖrk IRC client.

info

Arguments	None
Returns	String
Description	Returns a string containing the application name and version of the Ɖrk IRC client.

write

Arguments	name (string), text (string)
Returns	Nothing
Description	Writes text to a specific Ɖrk chat window. write() can only write text to a window associated with the client that triggered the plugin method's execution. That means that write() can write to channel windows that the client has joined or private message sessions that are open and ongoing. write() cannot write text to windows associated with another client. name should contain the name of the channel or user nick whose window you want to write to; text should contain the text you want to write. text can contain HTML. Any text written will not be saved to the log, if logging is turned on.

For example, to write to the chat window for the channel "#erk", you could use **self.write("#erk","This is the text to write")**.

*You cannot **write()** text to windows associated with another client. If you are trying to use **write()** from the **input()** method, for example, the only windows you can write to must be on the same server the window that triggered the method is associated with.*

This method will always fail in a plugin's **load()** and **unload()** methods.

log

Arguments	name (string), text (string)
Returns	Nothing
Description	Writes text to a specific Ɖrk chat window. log() can only write text to a window associated with the client that triggered the plugin method's execution. That means that log() can write to channel windows that the client has joined or private message sessions that are open and ongoing. log() cannot write text to windows associated with another client. name

should contain the name of the channel or user nick whose window you want to write to; **text** should contain the text you want to write. **text** can contain HTML. Any text written *will* be saved to the log, if logging is turned on.

For example, to write to the chat window for the channel "#erk", you could use **self.log("#erk","This is the text to write")**.

*You cannot **log()** text to windows associated with another client. If you are trying to use **log()** from the **input()** method, for example, the only windows you can write to must be on the same server the window that triggered the method is associated with.*

This method will always fail in a plugin's **load()** and **unload()** methods.

console

Arguments	text (string)
Returns	Nothing
Description	Writes to the console window associated with the client that triggered the plugin method's execution. This method will always fail in a plugin's load() and unload() methods.

print

Arguments	text (string)
Returns	Nothing
Description	Writes to the current window displayed in Ærk, whether it's a server console, channel chat, or private chat; if there is no current window, the method will fail silently and not display any text. This method will always fail in a plugin's load() and unload() methods.

sysmsg

Arguments	text (string)
Returns	Nothing
Description	Writes a system message to the current window displayed in Ærk, whether it's a server console, channel chat, or private chat; if there is no current window, the method will fail silently and not display any text. This method will always fail in a plugin's load() and unload() methods.

exec

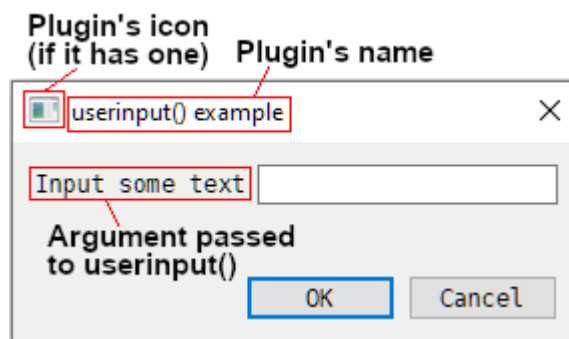
Arguments	data (string)
Returns	Returns True if the command was processed, and False if not
Description	Processes a string as if it were input by a user into the current chat's text input. This allows plugins to execute commands without using the Twisted IRC client. If passed a string <i>without</i> a input command, the string will be passed to the server as chat. This method will always fail in a plugin's load() and unload() methods.

uptime

Arguments	None
Returns	Int
Description	Returns the length of time (in seconds) that Ærk has been connected to the IRC server that triggered the plugin's execution. This method will always return 0 (zero) in a plugin's load() and unload() methods.

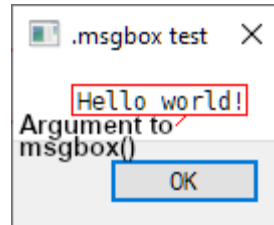
userinput

Arguments	text (string)
Returns	String if the user entered text into the dialog and clicked "Ok" or None if the user clicked "Cancel".
Description	Opens a dialog to get information from the user; the dialog will contain the plugin's name as the title, and text will appear before the text entry widget.



msgbox

Arguments	text (string)
Returns	Nothing
Description	Displays a message box stating text to the user. Like message boxes in most operating systems/GUI display libraries, the message box is modal, and must be dismissed by clicking "OK" before any further interaction with Θ rk is possible.



directory

Arguments	None
Returns	Str
Description	Returns the directory the package the plugin is located in, or the plugins directory (if the plugin is a non-package). <i>This method cannot be called from <code>__init__</code>!</i> The internal value that this method relies on is populated when the plugin is loaded into Θ rk; calling it from the <code>__init__</code> method will cause a fatal error, and Θ rk will not start properly.

Plugin Packages

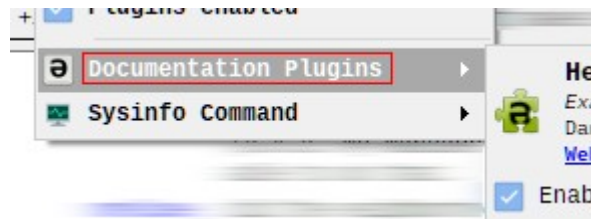
Plugins should be in their own directory in the "plugins" directory; this directory name can be any valid string for a Python module. This directory/plugin combination is called a "package".

For example, let's assume you have an Ærk plugin named "myplugin.py". You've decided that you want to use "dans_plugins" as your package name. Create a directory in your Ærk plugin directory named "dans_plugins", and copy/move "myplugin.py" into the new directory. Your plugin package now looks like:

```
dans_plugins
• myplugin.py
```

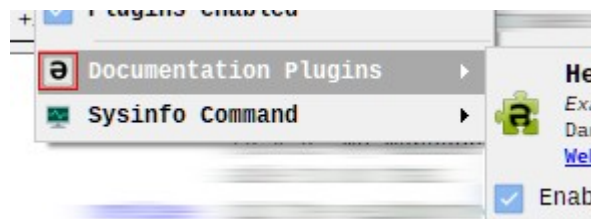
This is all you need for a plugin package. However, how the package (and the plugins it contains) are displayed in the Ærk GUI can be further customized.

Package Name



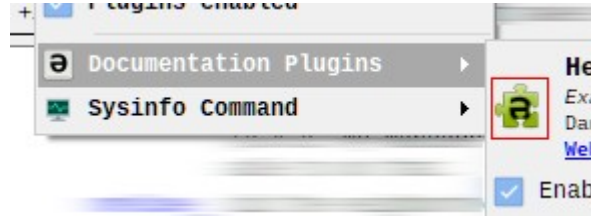
The plugin's Python name is displayed as the package's name by default. If you'd like to customize this (for example, change the package's name to include punctuation not normally allowed by Python), create a file named "package.txt" (or just "package") in the root directory of the package. Write the new name in this file as the first and only line. Using the above example, if you wanted your "dans_plugin" package to be displayed as "Dan's Erk Plugins", you would write "Dan's Erk Plugins" in the package's "package.txt".

Package Icon



To create a custom icon for a package, create a PNG file with the desired icon image and place it in the root directory of the package; change the package icon's filename to "package.png". This icon will be displayed in Ærk's "Plugins" menu. Optional; if omitted, the default package icon will be used.

Plugin Icons



An icon can be specified for a plugin; this is the icon that will be displayed in Ærk's "Plugins" menu. To set an icon, place a PNG with the same name as the plugin's class file name with the extension ".py" replaced with ".png" in the same directory as the plugin's package. The icon should be 25 pixels by 25 pixels to be displayed properly. Optional; if omitted, the default plugin icon will be used.

Use Ærk to generate a "blank" plugin

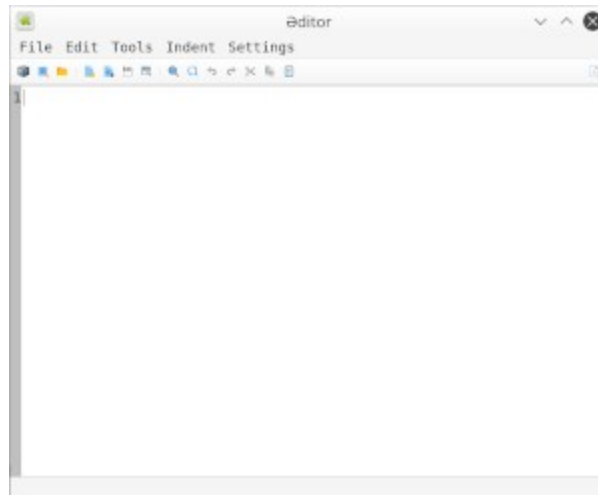
The Ærk client has a command-line flag that will generate a "blank" plugin package, ready to be edited. It will create a directory with a Python-safe name in the user's current directory, and place all the files needed for a plugin in it.

```
C:\> python erk.py --generate "My brand new plugin"
Creating plugin package Mybrandnewplugin...
Done!
C:\>
```

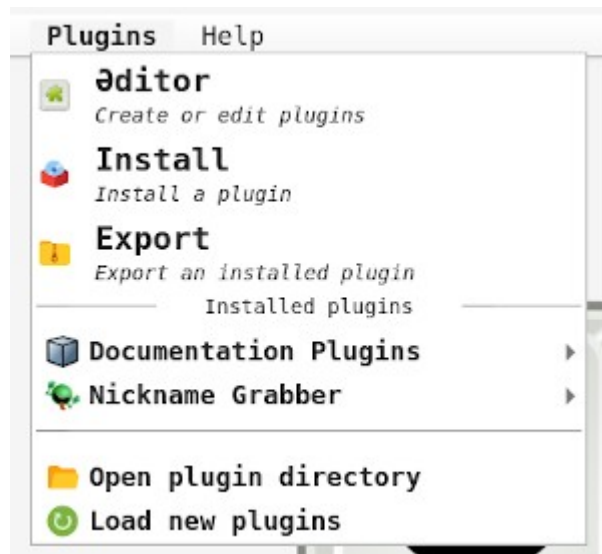
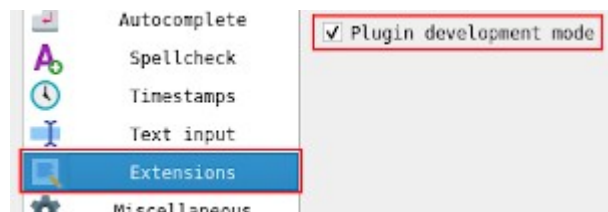
The new package will not load into Ærk; it must be edited. It includes a plugin source code skeleton ("plugin.py"), a package name file ("package.txt"), and default icons for both the package and plugin.

Once edited, simply copy the package directory into Ærk's plugin directory.

Editor, the Ərk Plugin Editor



Ərk has a built-in editor and development environment for writing plugins. By default, it is hidden; to make the editor accessible, open the "Preferences" menu, and open the "Extensions" section. Turn on "Plugin development mode".

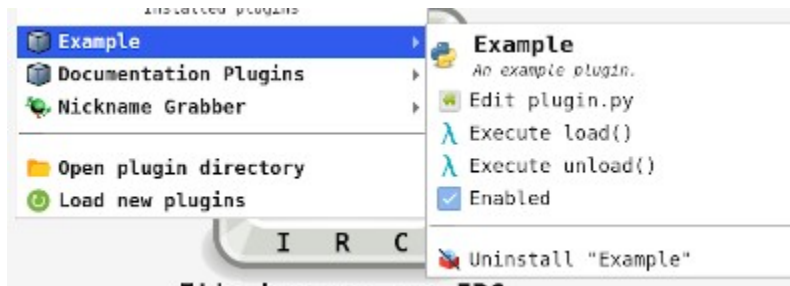


The next time the "Plugins" menu is opened, it will feature a number of new options. The features will remain available until "Development mode" is turned off.

To start the editor, click on "Əditor". The editor features colored syntax highlighting for Python code, and many of the features a code-oriented text editor would feature.

Development mode

Development mode also activates a number of features to make plugin development easier. Every plugin entry in the "Plugins" menu gets new options:



- **Edit.** Click to edit the plugin's source file in the editor.
- **Execute load().** This will force the plugin's **load()** method to execute (if the plugin has a **load()** method).
- **Execute unload().** This will force the plugin's **unload()** method to execute (if the plugin has an **unload()** method).

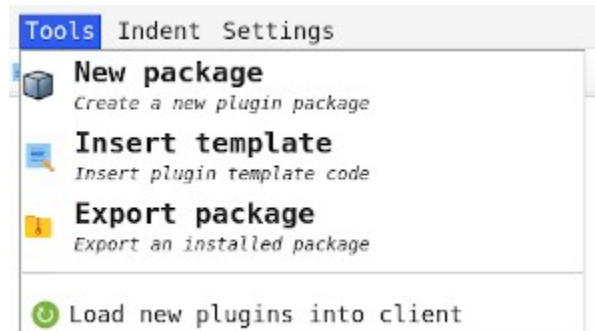
The main "Plugins" menu also gets five new options:

- **Editor.** This opens the code editor.
- **Install.** Plugins can be installed into Ørk from a zip file.
- **Export.** Any installed plugins can be exported to a zip file; this file can then be used with the "Install" option.
- **Open plugin directory.** This will open Ørk's plugin directory in the computer's file explorer.
- **Load new plugins.** This will load any new plugins, into memory. If the plugin hasn't been loaded, the plugin's **load()** method will be executed.

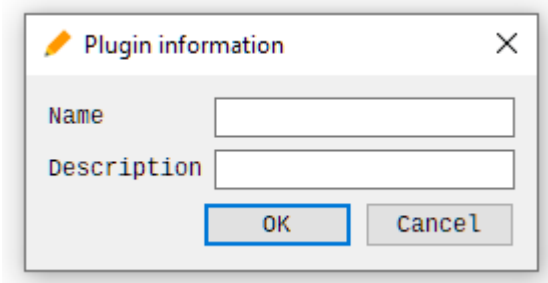
Features

The editor features almost everything you need to create plugins and plugin packages for Θrk easily. These tools include a package creator, a tool to export installed plugin packages, and a plugin code generator.

All three of these features can be found in the "Tools" menu:



- **New package.** This brings up a dialog asking the user for a package name and description:



This information is used to create an all-new plugin package in Θrk's plugin directory. This includes plugin and package icons, "package.txt", and a new plugin source file (named "plugin.py"); this file is opened in the editor, ready for editing.

- **Insert template.** This brings up a dialog asking for plugin information, and uses that data to generate a "blank" plugin, which is inserted wherever the cursor is in the editor.
- **Export package.** This will bring up a dialog allowing the user to select any installed package; the selected package will be placed in a zip archive and saved. This archive can now be installed with the "Install plugin" menu option in Θrk's "Plugins" menu.

Examples

"Hello, world!" plugin

This plugin will implement new command: "/hello". This will display the traditional "Hello, world!" message in the window where the command was entered.

```
1 from erk import *
2
3 class HelloWorld(Plugin):
4     def __init__(self):
5         self.name = "Hello World plugin"
6         self.description = "Example plugin for documentation"
7
8     def input(self, client, name, text):
9
10        # Look for our new command
11        if text=="/hello":
12
13            # Found it! Now lets display our message
14            self.print("Hello, world!")
15
16            # Now, we return "True" to make sure that
17            # "/hello" isn't sent to the IRC server as
18            # a chat messages
19            return True
```

Note taking plugin

This plugin will introduce three new commands: `/note` (for adding a note), `/notes` (for displaying all stored notes), and `/clear` (for deleting all stored notes).

```
1 from erk import *
2
3 class Notes(Plugin):
4     def __init__(self):
5         self.name = "Note taking plugin"
6         self.description = "Example plugin for documentation"
7         self.notes = []
8
9     def input(self, client, name, text):
10
11         # Tokenize the input
12         tokens = text.split()
13
14         # Handle the "/clear" command
15         # This will delete any stored notes
16         if len(tokens)>0 and tokens[0].lower()==" /clear":
17             self.notes = []
18             return True
19
20         # Handle the "/note" command
21         # This adds a new note to the stored notes
22         if len(tokens)>0 and tokens[0].lower()==" /note":
23             tokens.pop(0)
24             n = ' '.join(tokens)
25             self.notes.append(n)
26             return True
27
28         # Handle the "/notes" command
29         # This will display any stored notes
30         if len(tokens)>0 and tokens[0].lower()==" /notes":
31
32             # If there are no stored notes, let the
33             # user know and return
34             if len(self.notes)==0:
35                 self.print("No notes found")
36                 return True
37
38             # Format the note list using HTML
39             t = "<ul>"
40             for n in self.notes:
41                 t = t + "<li>"+n+"</li>"
42             t = t + "</ul>"
43
44             # Display the stored notes to the user
45             self.print(t)
```