Synology Audio Station

Lyrics Module Development Guide

Synology

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Introduction

On the Synology DiskStation with Audio Station 5.0 and onward, 3rd-party developers are allowed to develop lyrics modules for Audio Station to search lyrics from external sites.

This document is to provide guidelines to develop lyrics modules for Audio Station. Developers are encouraged to have PHP programming experience before reading this document.

Lyrics Module for Audio Station

AUM Module Content

On Audio Station 5.0 and onward, users are allowed to install lyrics modules onto Audio Station with .aum file extension. An aum module is actually a normal unix .tgz or .tar.gz archive. For example, if you have an aum module named **lyricwiki.aum**, after extracting the module, you will see the following files in the current directory:

```
DiskStation> tar zxf lyricwiki.aum

DiskStation> ls -l

-rwxr-xr-x    1 root     root           200 Nov 28 20:59 INFO

-rwxr-xr-x    1 root     root          1912 Nov 28 20:59 lyric.php
```

INFO

This is a mandatory file for module configuration. It defines the name of the module and describes how to locate the actual PHP module to search lyrics.

lyric.php

This is the actual PHP module which searches lyrics when being loaded by Audio Station.

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Content of INFO

The content of INFO is described by a JSON format using UTF-8 encoding and usually looks like below:

```
{
"name": "lyricwiki",
"displayname": "LyricWiki",
"description": "lyrics.wikia.com",
"version": "1.0",
"module": "lyric.php",
"type": "lyric",
"class": "LyricWiki"
}
```

Table 1. INFO file definition

Key	Description	Remarks
`name`	The unique name of the lyrics module among all Audio Station modules. The `name` must be one and only. If the `name` of the new aum conflicts with that of the existing one, the newly-added aum cannot be installed.	Mandatory
`displayname`	Texts displayed in the **Lyrics Plugin** settings of Audio Station.	Mandatory
`description`	The description shown in the **Lyrics Plugin** settings of Audio Station.	Recommended
`version`	The version number of the lyrics module.	Mandatory
`module`	The file name of the PHP module that performs lyrics search action. Usually it is `lyric.php`, but you can use other file names.	Mandatory
`type`	The module type. Currently only "lyrics" is supported.	Mandatory
`class`	The unique PHP class name within `lyric.php` among all lyrics modules. The `class` name must be one and only. If the `class` of the new aum conflicts with that of the existing one, the newly-added aum cannot be installed.	Mandatory

Lyric.php

Lyric.php is the PHP script that defines a PHP class performing lyrics search action. The class should include two mandatory methods which are used to communicate with Audio Station. Table 2, “Mandatory methods in lyric.php and arguments” explains the details of these two mandatory methods.

The content of lyric.php looks like below:

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```
<?php
class LyricWiki {
    private $apiUrl = 'http://lyrics.wikia.com/api.php';
    public function __construct() {
    }
    public function getLyricsList($artist, $title, $info) {
        $count = 0;

        $searchUrl = sprintf(
            "%s?artist=%s&song=%s&fmt=realjson",
            $this->apiUrl,
            urlencode($artist),
            urlencode($title)
        );

        $content = $this->getContent($searchUrl);

        $obj = json_decode($content, TRUE);
        if ($obj['lyrics'] !== 'Not found') {
            $id = $obj['lyrics'];
            $info->addTrackInfoToList(
                $obj['artist'],
                $obj['song'],
                $id,
                $obj['lyrics']
            );

            $count = 1;
        }
```

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```
        return $count;
    }
    public function getLyrics($id, $info) {
        $lyric = $this->getLyricById($id);
        $info->addLyrics($lyric, $id);
        return true;
    }
    private function getContent($url) {
        $result = '';
        // using curl to get content from url
        return $result;
    }
    private function getLyricById($id) {
        $lyric = '';
        // using id to get lyric content
        return $lyric;
    }
}
```

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Table 2. Mandatory methods in lyric.php and arguments

Method	Argument	Description
`getLyricsList`	`$artist`: string Artist name from the music info. `$title`: string Song title from the music info. `$info`: object The plugin class instance. Return value: integer Returns the number of results successfully parsed and added of the plugin.	The method is called to search lyrics by the given artist and title. Usually, this method will send an HTTP request to get lyrics search result, parse the result, and add it by using `addTrackInfoToList()`.
`getLyrics`	`$id`: string Id from the search result. `$info`: object The plugin class instance. Return value: boolean Shows whether the lyrics are successfully retrieved or not.	The method is called after results are returned from `getLyricsList()`. The `id` value filled in `getLyricsList()` will be passed to this method. Usually, this method will send an HTTP request to get lyrics content, parse it to a human readable text, and add the lyrics by using `addLyrics()`.

Methods to Add Search Results

Audio Station provides methods to add the lyrics search result. Please see Table 3, “Methods to add results into final result set” for detailed method explanation.

Table 3. Methods to add results to Audio Station’s final result set

Method	Argument	Description

`$info`
`->`
`addTrackInfoToList`
	`$artist`: string
	Artist of the song
	`$title`: string
	Title of the song
	`$id`: string
	Id of the song will be passed to `getLyrics()` later. Usually this `id` value would be set as a URL of the lyrics page.
	`$partialLyrics`: string
	Optional. Some lyrics sites provide partial lyrics for preview in the search result. This value will be displayed when you search lyrics manually via the **Song information** dialog.
		This method is used to add lyrics search result to the list.
		Usage
		`$info` -> `addTrackInfoToList` (`$artist`, `$title`, `$id`, `$partialLyric`)

`$info`
`->`
`addLyrics`
	`$lyric`: string
	Human readable text of lyrics.
	`$id`: string
	Song id passed from `getLyrics()`
		This method is used to set the parsed lyrics content.
		Usage
		`$info` -> `addLyrics` (`$lyric`, `$id`)

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Pack the AUM module

Module developers can use the following command to pack the .aum module:

```
linux> tar zcf mymodule.aum INFO lyric.php
```

Apply Your Lyrics Module

When the .aum module is completed, follow the steps below to add it to your Audio Station.

1 Open Audio Station, and click the **Settings** button.

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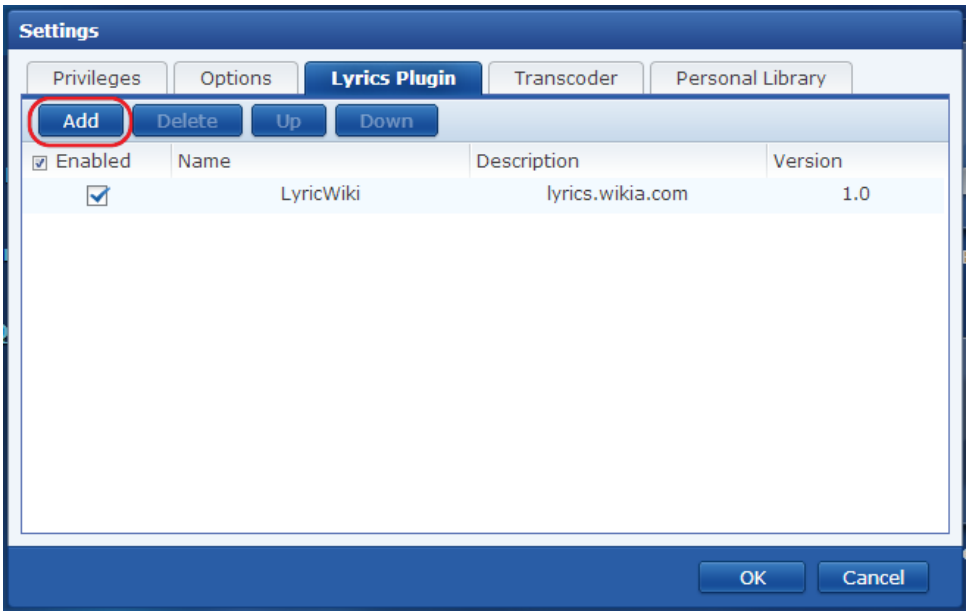
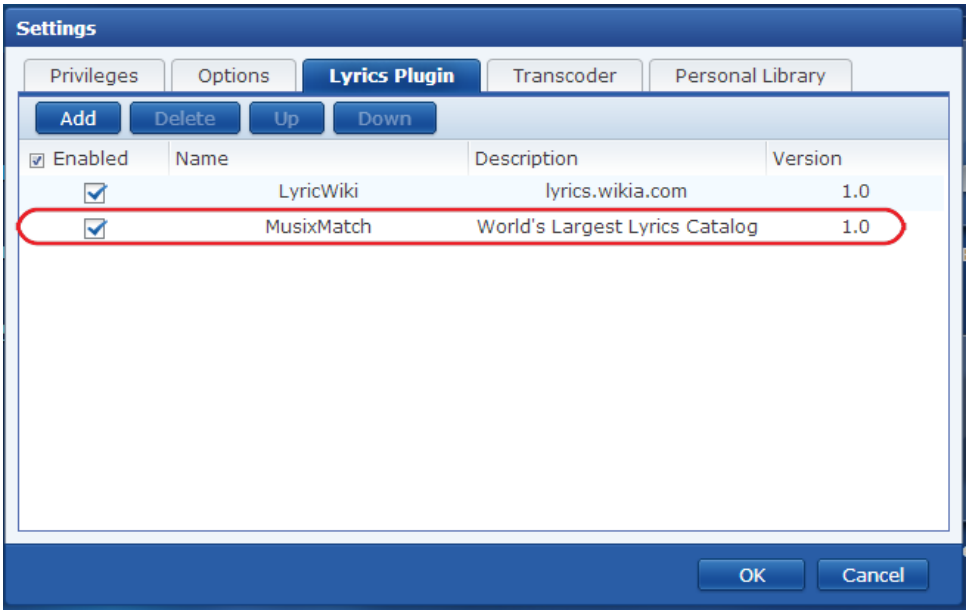
2 In the window that appears, click **Lyrics Plugin** > **Add**.



3 Specify the path of your .aum file, and click **Add** to add the lyrics module to the list.

4 The lyrics module is added to the list. Now you can search lyrics with the newly-added lyrics module.



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Restricted Runtime Environment

PHP scripts in Audio Station search module are run within a very restricted environment to protect Synology DiskStation from malicious scripts. The following restrictions apply to any PHP scripts run by Audio Station:

Minimal Privilege

Audio Station lyrics module is run using "nobody" privilege.

Restricted File Access

Audio Station lyrics module cannot access files stored in shared folders and system configuration directories.

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Document Revision History

This table describes the changes to the Synology Audio Station Lyrics Module Development Guide.

Date	Description
2013-01-08	First creation of this document

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