

Developer's Guide for Video Info Plugin



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Introduction

About Video Info Plugin

Starting with Video Station 3.0.0 for DSM 7.0 and 2.5.0 for DSM 6.0, you can upload plugins to retrieve video information for movies and TV shows with the Video Info Plugin function. This document specifies the information retrieval workflow, file requirements, packaging instructions, and testing details for the Video Info Plugin.

[Download sample codes here](#)

Information Retrieval Workflow

To run the Video Info Plugin in Video Station, main steps are as follows:

Step 1: Trigger video information search

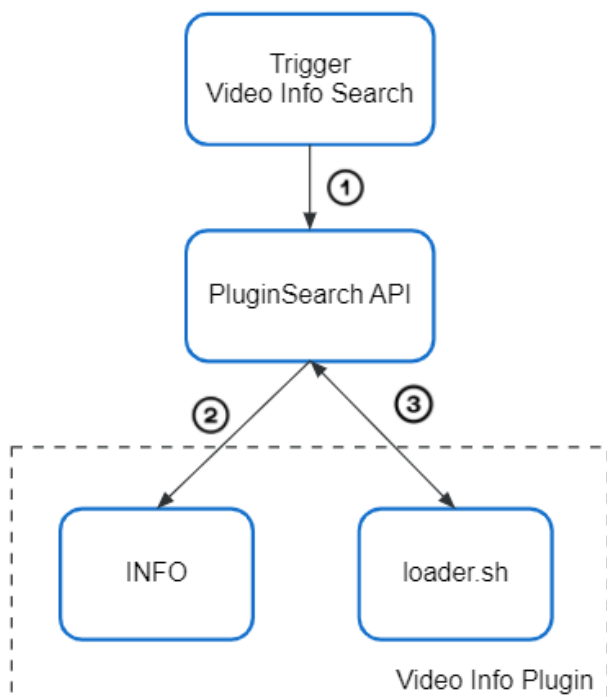
Once the “Search from Video Info Plugin” button in Video Station is clicked, a PluginSearch API request will be sent to trigger a video information search.

Step 2: Parse the INFO file

Video Station checks the plugin status and retrieves the information such as the plugin ID and the entry file path from the INFO file.

Step 3: Run the plugin

Video Station locates the entry file (loader.sh) and runs it with the “nobody” privilege. Once the information search is complete, Video Station will parse the plugin response and save it to the database.



File Requirement

INFO

The INFO file provides the plugin ID, supported video types, entry file location, and test examples to verify the plugin. The content must be encoded with UTF-8 in the JSON format, which usually looks like the following:

```
{
  "id": "com.synology.TMDBExample",
  "description": "",
  "version": "1.0",
  "site": "http://www.themoviedb.org/",
  "entry_file": "loader.sh",
  "type": ["movie", "tvshow"],
  "language": ["enu"],
  "test_example": {
    "movie": {
      "title": "Harry Potter",
      "original_available": "2001-11-16"
    },
    "tvshow": {
      "title": "Game of Thrones",
      "original_available": "2011-04-17"
    },
    "tvshow_episode": {
      "title": "Game of Thrones",
      "original_available": "2011-04-17",
      "season": 1,
      "episode": 1
    }
  }
}
```

Table 1. Contents in the INFO file

Key	Type	Description	Mandatory
id	string	The unique plugin ID, which should be the same as the plugin folder name. If the plugin ID is duplicated, the plugin cannot be uploaded.	Mandatory
entry_file	string	The relative file path of the entry file, loader.sh.	Mandatory
type	array of string	The supported video type of a plugin, which must be one of the following: ["movie"], ["tvshow"], or ["movie", "tvshow"].	Mandatory

Key	Type	Description	Mandatory
version	string	The version of a plugin.	Optional
description	string	The description of a plugin (e.g., "The Movie DB plugin").	Optional
site	string	The information source of a plugin (e.g., "http://www.themoviedb.org/").	Optional
language	array of string	The supported languages of a plugin (e.g., ["enu", "cht"]).	Optional
test_example	JSON object	<p>This value ensures that your plugin is available when you upload it or test the connection of your plugin. Here is a <i>test_example</i> for a movie:</p> <pre>"movie": { "title": "Harry Potter", "original_available": "2001-11-16" }</pre> <p>If the plugin supports the "tvshow" type of videos, you have to provide a test_example for both "tvshow" and "tvshow_episode".</p> <pre>"tvshow": { "title": "Game of Thrones", "original_available": "2011-04-17" }, "tvshow_episode": { "title": "Game of Thrones", "original_available": "2011-04-17", "season": 1, "episode": 1 }</pre>	Mandatory

loader.sh

Video Station will execute loader.sh to retrieve video information. You can implement the search algorithms using PHP or Python 3.x and run it in loader.sh. Video Station will run your plugin with the following arguments:

```
/bin/bash loader.sh --type movie --lang enu --input "{\"title\":\"Toy Story\", \"original_available\": \"1995-11-22\"}" --limit 1 --allowguess false
```

The table below explains the details of the arguments passed by Video Station:

Table 2. Arguments sent to loader.sh

Argument	Type	Description	Mandatory
input	JSON object	The query input must be a JSON object including the following contents: <i>title</i> (mandatory) and <i>original_available</i> (optional). To search video information of <i>tvshow_episode</i> , the query input must contain <i>episode</i> and <i>season</i> as well. ¹	Mandatory

Argument	Type	Description	Mandatory
lang	string	The preferred languages (must be any of the following: chs, cht, csy, dan, enu, fre, ger, hun, ita, jpn, krn, nld, nor, plk, ptb, ptg, rus, spn, sve, trk, tha).	Mandatory
type	string	The video type of the query, which must be one of the following: <i>movie</i> , <i>tvshow</i> , <i>tvshow_episode</i> .	Mandatory
limit	int	The maximum number of search results allowed for a plugin.	Mandatory
allowguess	boolean	This is only available if the title guessing function is supported. ²	Optional

Notes:

1. If the *season* value is 0, it means the video is a special episode. If you get only *season* but no *episode* for the input query of the type *tvshow_episode*, it means you should return the information of all episodes in this season.
2. The title guessing function should be implemented by the plugin. See our sample code *searchinc.py* *get_guessing_names* for details.

Plugin Response

All plugin responses should be encoded as JSON objects. The search result of the plugin is represented by the key "success", whose value can be true/false (boolean value) depending on the status of the request.

Success

A successful response will contain the key "success" with the value "true" and the key "result" with a value described as a JSON array. The contents of JSON objects contained in the JSON array varies with the video types (e.g., movies, TV shows, TV show episodes) as described below.

Movies

The retrieval results for movies will include attributes as follows.

```
{
  "success": true,
  "result": [
    {
      "title": "Toy Story",
      "tagline": "",
      "original_available": "1995-10-30",
      "original_title": "Toy Story",
      "summary": "Led by Woody, Andy's toys live happily in his
room until Andy's birthday brings Buzz Lightyear onto the scene.
Afraid of losing his place in Andy's heart, Woody plots against
Buzz. But when circumstances separate Buzz and Woody from their
owner, the duo eventually learns to put aside their differences.",
      "certificate": "G",
      "genre": [
        "Animation",
        "Adventure",
        "Family",
        "Comedy"
      ],
      "actor": ["Tom Hanks"],
      "director": ["John Lasseter"],
      "writer": ["Andrew Stanton"],
      "extra": {
```


Plugin Response

```

"com.synology.TMDBExample": {
    "rating": {"com.synology.TMDBExample": 7.9},
    "poster": ["https://image.tmdb.org/t/p/w500/
uXDfjJbdP4ijW5hWSBrPrlKpxab.jpg"],
    "backdrop": ["https://image.tmdb.org/t/p/original/3Rfvhy1N16sSG
Jwyjb0QiZzZY1B.jpg"]
}
}
}
]
}

```

The table below shows the common keys for movie search results.

Table 3. Result objects for movies

Key	Type	Description		Mandatory
title	string	The title of a movie.		Mandatory
tagline	string	The tagline of a movie.		Optional
original_available	string	The release date of a movie, which follows the format “year-month-date” (YYYY-MM-DD).		Mandatory
summary	string	The summary of a movie.		Mandatory
genre	array of string	The genre of a movie, which should be listed in a JSON array.		Mandatory
certificate	string	The motion picture content rating (e.g., “PG-13” in the United States).		Optional
actor	array of string	The actors’ names of a movie, which should be listed in a JSON array.		Mandatory
writer	array of string	The screenwriters’ names of a movie, which should be listed in a JSON array.		Mandatory
director	array of string	The directors’ names of a movie, which should be listed in a JSON array.		Mandatory
extra	JSON object	backdrop	A JSON array of strings containing backdrop URLs.	Optional
		poster	A JSON array of strings containing poster URLs.	
		rating	The rating value of the movie which should be described in a JSON object. The key should be your plugin ID and the value should be in the double precision floating-point format (e.g., {"com.synology.TMDBExample": 7.4}).	

TV Shows

The search result of TV shows will include attributes as follows:

```
{
  "success": true,
  "result": [
    {
      "title": "Elementary",
      "original_available": "2012-09-27",
      "original_title": "Elementary",
      "summary": "A modern-day drama about a crime-solving duo
that cracks the NYPD's most impossible cases. Following his fall
from grace in London and a stint in rehab, eccentric Sherlock
escapes to Manhattan where his wealthy father forces him to live
with his worst nightmare - a sober companion, Dr. Watson.",
      "extra": {
        "com.synology.TMDBExample": {
          "poster": [
            "https://image.tmdb.org/t/p/w500/
q9dObe29W4bDpgzUfOOH3ZnzDbR.jpg"
          ],
          "backdrop": [
            "https://image.tmdb.org/t/p/original/7sJrNKwzyJWnFPFPp
DL9wnZ859LZ.jpg"
          ]
        }
      }
    }
  ]
}
```

The table below explains the meaning of each attribute for TV shows.

Table 4. Result objects for TV shows

Key	Type	Description		Mandatory
title	string	The title of a TV show from the source.		Mandatory
original_available	string	The release date of a TV show, which should follow the format“year-month-date” (YYYY-MM-DD)..		Mandatory
summary	string	The summary of a TV show.		Mandatory
extra	JSON object	backdrop	A JSON array of strings containing backdrop URLs.	Optional
		poster	A JSON array of strings containing poster URLs.	

TV Show Episodes

The search results for a particular episode of a TV show will include attributes as follows:

```
{
  "success": true,
  "result": [
    {
      "title": "Elementary",
      "tagline": "Pilot",
      "original_available": "2012-09-27",

      "summary": "Detective Sherlock Holmes, along with his sober
companion, Dr. Joan Watson, uses his uncanny ability to read people and
analyze crimes to assist the NYPD on some of their more difficult cases.",

      "certificate": "TV-14",
      "genre": ["Drama", "Mystery", "Crime"],
      "actor": ["Jonny Lee Miller", "Lucy Liu"],
      "director": ["Michael Cuesta"],
      "writer": ["Robert Doherty"],
      "season": 1,
      "episode": 1,
      "extra": {
        "com.synology.TheMovieDb": {
          "tvshow": {
            "title": "Elementary",
            "original_available": "2012-09-27",
            "original_title": "Elementary",

            "summary": "A modern-day drama about a crime-solving duo
that cracks the NYPD's most impossible cases. Following his fall from
grace in London and a stint in rehab, eccentric Sherlock escapes to
Manhattan where his wealthy father forces him to live with his worst
nightmare - a sober companion, Dr. Watson.",

            "extra": {
              "com.synology.TMDBExample": {
                "poster": ["https://image.tmdb.org/t/p/w500/
q9dObe29W4bDpgzUfOOH3ZnzDbR.jpg"],

                "backdrop": ["https://image.tmdb.org/t/p/original/7sJrNK
wzyJWnFPFpDL9wnZ859LZ.jpg"]
              }
            }
          }
        },
        "rating": {"com.synology.TheMovieDb": 7.4}
      }
    },
    {
      "poster": ["https://image.tmdb.org/t/p/w500/14PEsYWzZGYaQONPxQ
HaHjqufK5.jpg"],
    }
  ],
}
```

```

    }
  }
}
]
}

```

Description for each attribute is described in the following table:

Table 5. JSON objects for TV show episodes

Key	Type	Description		Mandatory
title	string	The title of a TV show.		Mandatory
tagline	string	The title of an episode.		Optional
original_available	string	The release date of an episode, which should follow the format "year-month-date" (YYYY-MM-DD).		Mandatory
summary	string	The summary of an episode.		Mandatory
certificate	string	The television content rating (e.g., "TV-14" in the United States).		Optional
genre	array of string	The genre of a TV show, which should be listed in a JSON array.		Mandatory
actor	array of string	The actors' names of an episode, which should be listed in a JSON array.		Mandatory
directors	array of string	The directors' names of an episode, which should be listed in a JSON array.		Mandatory
writer	array of string	The writers' names of an episode, which should be listed in a JSON array.		Mandatory
episode	int	The episode number.		Mandatory
season	int	The season number.		Mandatory
extra	JSON object	tvshow	The TV show information described in Table 4. Result objects for TV shows.	Mandatory
		poster	A JSON array of strings containing poster URLs.	Optional
		rating	The rating value of an episode which should be described in a JSON object. The key should be your plugin ID and the value should be in the double precision floating-point format (e.g., {"com.synology.TheMovieDb": 7.4}).	Optional

Errors

When an API request fails due to some search errors, the response will contain the key "success" with the value "false" and an error code indicating the condition that

Plugin Response

caused the failure.

```
{"success":false,"error_code":1003}
```

Depending on the type of error that occurred, the following status code is displayed:

Table 6. Error codes

Error code	Description
1003	The code indicates a search failed. For example, a plugin may fail to connect to the source website or fail to retrieve data for the request.
1004	The code indicates the response result could not be parsed. This may be due to the missing of mandatory information or other unexpected errors.

You can use the following commands to pack your plugin. The compressed plugin file name

Pack Your Video Info Plugin

should be the same as the folder name and your plugin ID. Video Station will extract the .tar with tar and the .zip with 7z.

```
System# tar --no-xattrs -cvf com.synology.TMDBExample.tar com.  
synology.TMDBExample
```

```
System# 7z a com.synology.TMDBExample.zip com.synology.  
TMDBExample
```

Test Your Video Info Plugin

During the development phase, you can use the plugin tester to check if your plugin works.

Quick Testing

This method allows you to test the search functions of your plugin. To test your plugin functions fully, please refer to the Full Testing section.

1. Install **Video Station** where the plugin tester is located.
2. Upload the plugin files to your Synology NAS using **File Station**.
3. Enter the following commands using the “nobody” privilege to test your plugin. The definition of each argument is described in Table 7. Plugin tester arguments.

```
sudo -u nobody
```

```
/var/packages/VideoStation/target/plugins/syno_plugin_tester/loader.  
sh --type movie --lang enu --input "{\"title\":\"{movie title}\",  
\"original_available\":\"2001-11-16\"}" --limit 1 --path "${entry file  
path of your search plugin}" --pluginid ${your plugin id}
```

4. If the plugin is verified, you will receive a successful response: {"success": true}
5. Otherwise, the value of the success key will be false with an error code indicating the condition that caused the failure:

```
{"success": false, "error_code": 1004, "msg": "execute plugin fail"}.
```

Table 7. Plugin tester arguments

Argument	Type	Description	Mandatory
input	JSON object	The query input should be a JSON object including the following contents: <i>title</i> (mandatory) and <i>original_available</i> (optional). To search video information for <i>tvshow_episode</i> , the query input must contain <i>episode</i> and <i>season</i> as well. ¹	Mandatory
lang	string	The preferred languages that must be any of the following: chs, cht, csy, dan, enu, fre, ger, hun, ita, jpn, krn, nld, nor, plk, ptb, ptg, rus, spn, sve, trk, tha.	Mandatory
type	string	The query video type, which must be one of the following: <i>movie</i> , <i>tvshow</i> , <i>tvshow_episode</i> .	Mandatory

Argument	Type	Description	Mandatory
limit	int	The maximum number of search results allowed for this plugin.	Mandatory
path	string	The absolute file path of the entry file.	Mandatory
pluginid	string	The plugin ID.	Mandatory

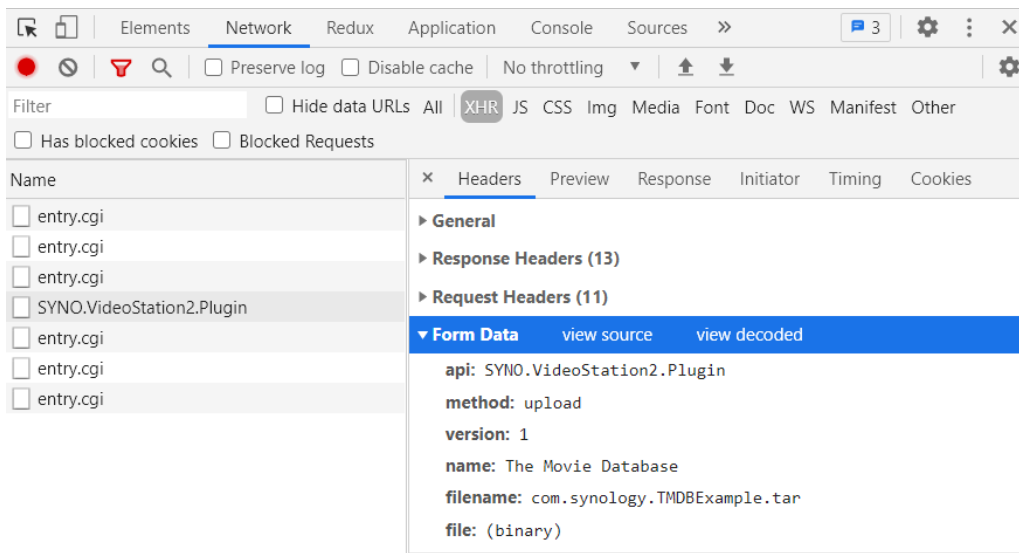
Notes:

1. If the *season* value is 0, it means the video is a special episode. If you get only *season* but no *episode* for the input query of the type *tvshow_episode*, it means you should return the information of all episodes in this season.

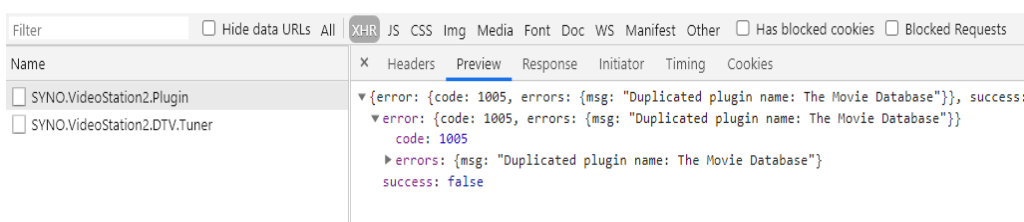
Full Testing

To fully test your plugin, you can upload your plugin to Video Station and use Chrome DevTools to check the status of plugin upload.

1. Launch **Video Station** in your browser.
2. Press “F12” to open the DevTools of your browser and switch to the “Network” tab.
3. Set the filter to “XHR” to filter out the API requests.
4. Upload your plugin via **Video Station > Settings > Video Info Plugin**.
5. You may check the plugin information at **Headers > Form Data**.



6. Switch to the “Preview” or “Response” tab to check the error message if the plugin upload failed.



Restricted Runtime Environment

The video information plugins are run with specific restrictions to protect your Synology NAS from malicious scripts. The following restrictions apply to any files in your plugin run by Video Station.

Minimal Privilege

The Video Info Plugin function is run using the “nobody” privilege.

Timeout Limitation

If the limit of the search result is 1, the search query should be completed within 10 seconds; if the limit is more than 1, the search query should be completed within 40 seconds. Otherwise, Video Station may terminate the process and return an empty result.

File Limitation

A Video Info Plugin should be compressed into a .tar or .zip file. The size of the plugin should not exceed 10 MB before and after compression. All files should be regular files without any extended attributes.

Development Limitation

The search logic can be developed in PHP or Python 3.x and executed in the entry file, loader.sh. All JSON objects, files (e.g., INFO), and the information retrieval results should be UTF-8 encoded.

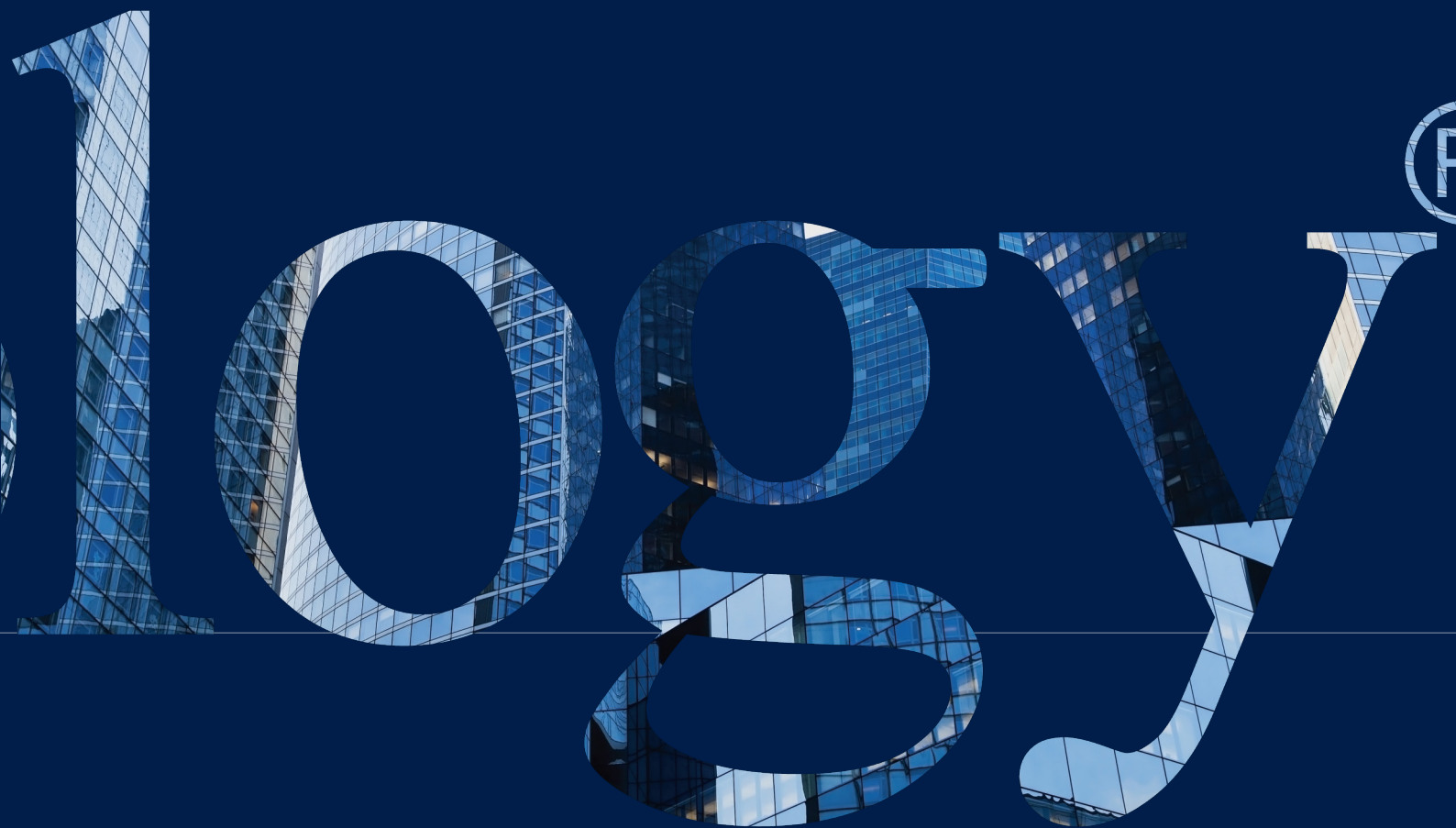
Since the binary path of python3 will be different between DSM 6.0 and DSM 7.0, we strongly encourage you to use `/usr/bin/env python3` to run your python files. See our sample code [loader.sh](#) for details.

All source codes should be in one folder with the same folder name as the plugin ID and the compressed file name

Document Revision History

The table describes the changes to the Synology Video Station: Video Info Plugin Guide.

Date	Description
May 7, 2021	First creation of this document.



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