

KAN Imagery Catalog

Release v0.1.3

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QGIS plugin to get satellite images from different providers.

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CHAPTER

ONE

API REFERENCE

This page contains auto-generated API reference documentation¹.

1.1 src

This script initializes the plugin, making it known to QGIS.

1.1.1 Subpackages

src.core

Submodules

src.core.catalogs

Catalogs module.

Module Contents

Functions

$get_catalog(\rightarrow dict)$	Get catalog data from a specific provider.
$get_catalogs_from_collection(o list)$	Get catalog list from a specific provider.
$get_thumbnail(\rightarrow dict)$	Get catalog thumbnail from a specific provider.
$get_quicklook(\rightarrow dict)$	Get catalog quicklook from a specific provider.
$get_download(\rightarrow dict)$	Get catalog download from a specific provider.
<pre>get_download_url(provider)</pre>	Get catalog download url from a specific provider.

 $src.core.catalogs.get_catalog(provider: str, host_name: str, search_params: dict) \rightarrow dict$ Get catalog data from a specific provider.

 $src.core.catalogs.get_catalogs_from_collection(collections: list, provider: str, search_params: dict)$ $\rightarrow list$

Get catalog list from a specific provider.

¹ Created with sphinx-autoapi

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 $src.core.catalogs.get_thumbnail(provider: str, host_name: str, image_id: str) \rightarrow dict$ Get catalog thumbnail from a specific provider.

 $src.core.catalogs.get_quicklook(provider: str, host_name: str, image_id: str) \rightarrow dict$ Get catalog quicklook from a specific provider.

 $src.core.catalogs.get_download(provider: str, host_name: str, search_params: dict) \rightarrow dict$ Get catalog download from a specific provider.

src.core.catalogs.get_download_url(provider: str)

Get catalog download url from a specific provider.

src.core.collections

Collections module.

Module Contents

Functions

 $\texttt{get_collections}(\rightarrow \mathsf{dict})$

Get collections from a specific provider.

 $src.core.collections.get_collections(provider: str, search_params: dict = None) \rightarrow dict$ Get collections from a specific provider.

src.core.providers

Providers module.

Module Contents

Functions

 $check_credentials(\rightarrow bool)$

Check credentials from a specific provider.

 $\verb|src.core.providers.check_credentials(|provider: str, credentials: dict)| \rightarrow bool \\ Check credentials from a specific provider.$

src.core.results

This module contains the functions to create the results layers.

Module Contents

Functions

```
src.core.results.create_results_layers(provider_name, host, feature_data, layer_name, group_name, footprints_layer)
```

Create results layers.

src.core.settings

PluginSettings module.

Module Contents

Classes

PluginSettings PluginSettings class.

class src.core.settings.PluginSettings
 PluginSettings class.
 property provider_settings: dict
 property selected_collections: list
 property last_cleaning_date: datetime.datetime
 language: str = 'english'
 back_days: int = 20
 cloud_coverage: int = 10
 max_catalog_results: int = 10
 max_features_results: int = 5

```
download_path: str = './downloads'
_last_cleaning_date: str | None
_provider_settings: dict
_selected_collections: list
__post_init__()
    Init settings.
save()
    Save settings.
```

clean_temporary_files_if_needed()

Checks whether temporary files need to be deleted based on the days before the last activity date and delete files.

update_last_cleaning_date()

Update last activity date.

src.gui

Subpackages

src.gui.helpers

Submodules

src.gui.helpers.forms

Form helpers functions module.

Module Contents

Functions

<pre>load_combobox(obj_combobox,</pre>	key_member,	Load a QComboBox with provided data.
value_member,)	•-	•
<pre>set_form_stylesheet(parent)</pre>		Set stylesheet to a form.
<pre>set_elided_text_to_label(label, t</pre>	ext)	Set elided text to a QLabel if the text is too long.
<pre>set_tooltips(form)</pre>		Set tooltips to all QLineEdit widgets in a form.
<pre>get_shadow_effect()</pre>		Get shadow effect for widgets.
<pre>init_tableview(obj_tableview,</pre>	column_count,	Initialize tableview with provided data, headers and
row_count,)		columns.
load_table_data(obj_table, data[, he	eaders, columns,	Load table with provided data, headers and columns.
])		
<pre>check_int_not_empty(txt_widget)</pre>		Check if the value is an integer and greater than 0 in a
		QLineEdit.

```
src.gui.helpers.forms.load_combobox(obj_combobox, key_member, value_member, lst_data,
                                          block signals=False)
     Load a QComboBox with provided data.
src.gui.helpers.forms.set_form_stylesheet(parent)
     Set stylesheet to a form.
src.gui.helpers.forms.set_elided_text_to_label(label, text)
     Set elided text to a QLabel if the text is too long.
src.gui.helpers.forms.set_tooltips(form)
     Set tooltips to all QLineEdit widgets in a form.
src.gui.helpers.forms.get_shadow_effect()
     Get shadow effect for widgets.
src.gui.helpers.forms.init_tableview(obj_tableview, column_count, row_count, headers,
                                           default_row_height=25)
     Initialize tableview with provided data, headers and columns.
src.gui.helpers.forms.load_table_data(obj_table, data, headers=None, columns=[], fn_custom_items=[],
                                            cols_to_stretch=[], cols_width=[], cols_to_hide=[],
                                            add_dict_object=False, literal_values=False,
                                            default row height=25, default alignment=None,
                                            checkable_columns=[], num_decimals=2)
     Load table with provided data, headers and columns.
src.gui.helpers.forms.check_int_not_empty(txt_widget)
     Check if the value is an integer and greater than 0 in a QLineEdit.
```

Submodules

src.gui.custom_widgets

Custom widgets module.

Module Contents

Classes

CustomWidgetListItem

Custom widget for list item.

Bases: PyQt5.QtWidgets.QWidget, ui.custom_widget_list_item.Ui_CustomWidgetListItem Custom widget for list item.

```
property name
     property acquisition_date
     property incidence_angle
     property cloud_coverage
     set_thumbnail(image_bytes)
          Set thumbnail image in label.
     download_images()
          Download image action.
     view_details()
          View details action.
     get_quicklook()
          Get quicklook action.
src.gui.form_base
Module Contents
Classes
 FormBase
class src.gui.form_base.FormBase(parent=None, accept_btn=False, cancel_btn=False, close_btn=True,
                                    closing_plugin=None)
     Bases: PyQt5.QtWidgets.QDialog
     set_control_buttons(accept_btn, cancel_btn, close_btn)
     btn_close_click()
src.gui.form_catalog_info
Form Catalog Info Module.
Module Contents
Classes
 FormCatalogInfo
                                                  Form Catalog Info Class.
```

class src.gui.form_catalog_info.**FormCatalogInfo**(parent=None, data=None, closing_plugin=None)

Bases: gui.form_base.FormBase, ui.frm_catalog_info.Ui_frm_catalog_info

Form Catalog Info Class.

normalize_dict_data(data)

Normalize data to be loaded in table.

load_data(data)

Load data in table.

src.gui.form_default_collections

Collection selection form module.

Module Contents

Classes

FormDefaultCollections

Collection selection form class.

Bases: gui.form_base.FormBase, ui.frm_default_collections.Ui_frm_default_collections Collection selection form class.

btn_accept_clicked()

Event handler for accept button click.

btn_add_selected_clicked()

Event handler for add selected button click.

btn_remove_selected_clicked()

Event handler for remove selected button click.

btn_filter_results_clicked()

Event handler for filter results button click.

load_filtered_collections(data)

Load filtered collections in table.

load_selected_collections()

Load selected collections in table.

src.gui.form_settings

Form settings module.

Module Contents

Classes

FormSettings

Form PluginSettings Class.

class src.gui.form_settings.FormSettings(parent=None, closing_plugin=None)

Bases: gui.form_base.FormBase, ui.frm_settings.Ui_frm_settings

Form PluginSettings Class.

update_cloud_coverage_label()

Update cloud coverage label text.

btn_accept_clicked()

Event handler for accept button click.

txt_default_back_days_text_changed()

Event handler for default back days text changed.

txt_max_catalog_results_text_changed()

Event handler for max catalog results text changed.

txt_max_features_results_text_changed()

Event handler for max features results text changed.

btn_up42_check_credentials_clicked()

Event handler for check credentials button click.

src.services

Submodules

src.services.sentinel_hub

Module for Sentinel Hub API calls

Module Contents

Functions

<pre>get_token(client_id, client_secret)</pre>	Get token from Sentinel Hub API
<pre>get_token_info(client_id)</pre>	Get token info from Sentinel Hub API

```
src.services.sentinel_hub.get_token(client_id, client_secret)

Get token from Sentinel Hub API

src.services.sentinel_hub.get_token_info(client_id)

Get token info from Sentinel Hub API
```

src.services.up42

Module for Up42 API calls

Module Contents

Functions

$get_token(\rightarrow str)$	Get token from UP42 API
<pre>get_collections()</pre>	Get collections from UP42 API
$get_catalog(\rightarrow dict)$	Get catalog data from UP42 API
<pre>get_thumbnail(token, host_name, image_id)</pre>	Get catalog thumbnail from UP42 API
<pre>get_quicklook(token, host_name, image_id)</pre>	Get catalog quicklook from UP42 API

Attributes

```
DOWNLOAD_URL

DOWNLOAD_URL

DOWNLOAD_URL
```

```
src.services.up42.REQUEST_TIMEOUT = 120
src.services.up42.DOWNLOAD_URL = 'https://console.up42.com/catalog/new-order'
src.services.up42.get_token(project_id: str, api_key: str) → str
    Get token from UP42 API
src.services.up42.get_collections()
    Get collections from UP42 API
src.services.up42.get_catalog(token: str, host_name: str, search_params: dict) → dict
    Get catalog data from UP42 API
src.services.up42.get_thumbnail(token: str, host_name: str, image_id: str)
    Get catalog thumbnail from UP42 API
src.services.up42.get_quicklook(token: str, host_name: str, image_id: str)
    Get catalog quicklook from UP42 API
```

```
src.services.utils
```

Module for API auxiliary functions

Module Contents

Functions

```
encode\_base64(\rightarrow str)
```

Encode a string to Base64

```
src.services.utils.encode_base64(text\_to\_encode: str) \rightarrow str Encode a string to Base64
```

src.ui

Submodules

src.ui.custom_widget_list_item

Module Contents

Classes

 ${\it Ui_CustomWidgetListItem}$

Attributes

app

```
src.ui.frm_catalog_info
```

Module Contents

Classes

```
Ui_frm_catalog_info
```

Attributes

```
app
```

Module Contents

Classes

```
Ui_frm_default_collections
```

Attributes

```
app
```

```
class src.ui.frm_default_collections.Ui_frm_default_collections
    Bases: object
    setupUi(frm_default_collections)
    retranslateUi(frm_default_collections)
src.ui.frm_default_collections.app
```

```
src.ui.frm_settings
```

Module Contents

Classes

Ui_frm_settings

Attributes

арр

```
class src.ui.frm_settings.Ui_frm_settings
    Bases: object
    setupUi(frm_settings)
    retranslateUi(frm_settings)
```

src.ui.frm_settings.app

src.utils

Submodules

src.utils.constants

Module Contents

Classes

CustomEnum StyleVariables	Generic enumeration. Generic enumeration.
MessageType	

Attributes

```
DEBUG_MODE
 RESULTS_GROUP_NAME
 RESULTS_LAYER_NAME
src.utils.constants.DEBUG_MODE = True
src.utils.constants.RESULTS_GROUP_NAME = 'kan_imagery_catalog_preview'
src.utils.constants.RESULTS_LAYER_NAME = 'kan_imagery_catalog_footprints'
class src.utils.constants.CustomEnum
     Bases: enum. Enum
     Generic enumeration.
     Derive from this class to define new enumerations.
     \_repr\_() \rightarrow str
          Return repr(self).
     \__{str}_{()} \rightarrow str
          Return str(self).
     __eq__(other)
          Return self==value.
     classmethod listar()
     classmethod to_dict() \rightarrow dict
     classmethod to_key_value_list() \rightarrow list
class src.utils.constants.StyleVariables
     Bases: CustomEnum
     Generic enumeration.
     Derive from this class to define new enumerations.
     FONT_SIZE_DEFAULT = '12px'
     FONT_SIZE_SMALL = '8px'
     COLOR_MAIN_DARK = '#6597AF'
     COLOR_MAIN_LIGHT = '#F5F5F5'
     COLOR_TEXT_DEFAULT = '#2D2D2D'
     COLOR_TEXT_LIGHT = '#E8E8E8'
     COLOR_BACKGROUND_DEFAULT = '#E8E8E8'
```

class src.utils.constants.MessageType

INFO = 0

WARNING = 1

CRITICAL = 2

SUCCESS = 3

src.utils.debug

Module Contents

Functions

```
pyqt_set_trace()
```

src.utils.debug.pyqt_set_trace()

src.utils.encoders

Custom JSON encoders for the application.

Module Contents

Classes

CustomJsonDecimalEncoder

Custom JSON encoder for Decimal objects.

Bases: json.JSONEncoder

Custom JSON encoder for Decimal objects.

default(o)

Encode Decimal objects as float.

src.utils.exceptions

Custom exceptions module.

Module Contents

exception src.utils.exceptions.PluginError(message=", message_type=MessageType.CRITICAL)

Bases: Exception

Base class for custom exceptions.

exception src.utils.exceptions.**ProviderError**(message='Error to get results from provider.')

Bases: PluginError

Custom exception for provider related errors.

exception src.utils.exceptions.**HostError**(message='Error to get results from host.')

Bases: PluginError

Custom exception for host related errors.

exception src.utils.exceptions.**AuthorizationError**(message='Error to get results from authorization.')

Bases: PluginError

Custom exception for authorization related errors.

exception src.utils.exceptions.**SettingsError**(message='Please check the plugin settings.')

Bases: PluginError

Custom exception for settings related errors.

exception src.utils.exceptions.DataNotFoundError(message='No data found.')

Bases: PluginError

Custom exception for data related errors.

src.utils.general

General utilities for the KAN Imagery Catalog plugin.

Module Contents

Functions

_get_plugin_name([missing])	Get plugin name from metadata.txt file.
<pre>get_plugin_dir()</pre>	Get plugin directory.
<pre>clean_temporary_files()</pre>	

Attributes

PLUGIN_NAME

```
src.utils.general._get_plugin_name(missing='KAN Imagery Catalog')
    Get plugin name from metadata.txt file.
src.utils.general.get_plugin_dir()
    Get plugin directory.
src.utils.general.PLUGIN_NAME
src.utils.general.clean_temporary_files()
src.utils.helpers
```

Module Contents

Functions

```
\textit{open\_url}(\rightarrow bool)
```

 $src.utils.helpers.open_url(url: str, params: dict | None = None) \rightarrow bool$

src.utils.qgis_helper

QGIS helper functions module.

Module Contents

Functions

```
get_bounding_box_canvas()
                                                      Get bounding box from canvas.
get_bounding_box_selected_feature(layer_name)
                                                     Get bounding box from selected feature.
get_single_polygon_layers()
                                                      Get single polygon layers from current project.
save_setting(setting_name, value)
                                                      Save setting.
read_setting(setting name[, default value])
                                                      Read setting.
save_json_setting(setting name, value)
                                                      Save ison setting.
read_json_setting(setting_name[, default_value])
                                                      Read ison setting.
error_message(title, text)
                                                      Show error message.
                                                      Show warning message.
warning_message(title, text)
info_message(title, text)
                                                      Show info message.
success_message(title, text)
                                                      Show success message.
get_or_create_group(group name)
                                                      Get or create group.
get_layer_by_name(layer_name)
                                                      Get layer by name.
                                                      Get or create footprints layer.
get_or_create_footprints_layer(layer_name,
group_name)
get_current_crs()
                                                      Get crs from active layer.
create_layer(layer_name, group_name)
                                                      Create a layer.
add_feature_to_layer(feature_data,
                                         feature id,
                                                      Add feature to layer.
create_quicklook_layer(layer_name, group_name,
                                                      Create a layer with a quicklook image.
...[, ...])
```

```
src.utils.ggis_helper.get_bounding_box_canvas()
     Get bounding box from canvas.
src.utils.qgis_helper.get_bounding_box_selected_feature(layer_name)
     Get bounding box from selected feature.
src.utils.ggis_helper.get_single_polygon_layers()
     Get single polygon layers from current project.
src.utils.qgis_helper.save_setting(setting_name, value)
     Save setting.
src.utils.qgis_helper.read_setting(setting_name, default_value=None)
     Read setting.
src.utils.qgis_helper.save_json_setting(setting_name, value)
     Save json setting.
src.utils.qgis_helper.read_json_setting(setting_name, default_value=None)
     Read json setting.
src.utils.qgis_helper.error_message(title, text)
     Show error message.
src.utils.qgis_helper.warning_message(title, text)
```

Show warning message.

Show info message.

src.utils.ggis_helper.info_message(title, text)

```
src.utils.qgis_helper.success_message(title, text)
     Show success message.
src.utils.qgis_helper.get_or_create_group(group_name)
     Get or create group.
src.utils.qgis_helper.get_layer_by_name(layer_name)
     Get layer by name.
src.utils.qgis_helper.get_or_create_footprints_layer(layer_name, group_name)
     Get or create footprints layer.
src.utils.qgis_helper.get_current_crs()
     Get crs from active layer.
src.utils.qgis_helper.create_layer(layer_name, group_name)
     Create a layer.
src.utils.qgis_helper.add_feature_to_layer(feature_data, feature_id, layer)
     Add feature to layer.
src.utils.qgis_helper.create_quicklook_layer(layer_name, group_name, feature, crs,
                                                   layer_type='Polygon', image_path=None)
     Create a layer with a quicklook image.
```

1.1.2 Submodules

src.kan_imagery_catalog

Module Contents

Classes

KANImageryCatalog

QGIS Plugin Implementation.

```
class src.kan_imagery_catalog.KANImageryCatalog(iface)
    QGIS Plugin Implementation.
    tr(message)
    Get the translation for a string using Qt translation API.
    We implement this ourselves since we do not inherit QObject.
    Parameters
        message(str, QString) - String for translation.
    Returns
        Translated version of message.
    Return type
        QString
```

Add a toolbar icon to the toolbar.

Parameters

- **icon_path** (*str*) Path to the icon for this action. Can be a resource path (e.g. ':/plug-ins/foo/bar.png') or a normal file system path.
- **text** (*str*) Text that should be shown in menu items for this action.
- callback (function) Function to be called when the action is triggered.
- enabled_flag (boo1) A flag indicating if the action should be enabled by default. Defaults to True.
- add_to_menu (bool) Flag indicating whether the action should also be added to the menu. Defaults to True.
- add_to_toolbar (bool) Flag indicating whether the action should also be added to the toolbar. Defaults to True.
- status_tip (str) Optional text to show in a popup when mouse pointer hovers over the action.
- parent (QWidget) Parent widget for the new action. Defaults None.
- whats_this Optional text to show in the status bar when the mouse pointer hovers over the action.

Returns

The action that was created. Note that the action is also added to self.actions list.

Return type

QAction

initGui()

Create the menu entries and toolbar icons inside the QGIS GUI.

onClosePlugin()

Cleanup necessary items here when plugin dockwidget is closed

unload()

Removes the plugin menu item and icon from QGIS GUI.

run()

Run method that loads and starts the plugin

src.kan_imagery_catalog_dock

Module Contents

Classes

KANImageryCatalogDock

KANImageryCatalogDock Dockwidget class.

class src.kan_imagery_catalog_dock.KANImageryCatalogDock(parent=None)

Bases: PyQt5.QtWidgets.QDockWidget, FORM_CLASS

KANImageryCatalogDock Dockwidget class.

closing_plugin

closeEvent(event)

Run close plugin event.

txt_max_catalog_results_text_changed()

Event handler for textbox 'txt_max_catalog_results'.

update_cloud_coverage_label()

Event handler for slider 'slider_cloud_coverage'.

chk_search_by_dataframe_update()

Event handler for checkbox 'chk_search_by_dataframe'.

btn_update_layers_list_clicked()

Event handler for button 'btn_update_layers_list'.

btn_settings_clicked()

Event handler for button 'btn_settings'.

btn_select_catalogs_clicked()

Event handler for button 'btn_select_catalogs'.

btn_sort_results_clicked()

Event handler for button 'btn_sort_results'.

btn_show_hide_search_area_clicked()

Event handler for button 'btn_show_hide_search_area'.

btn_show_hide_catalogs_clicked()

Event handler for button 'btn_show_hide_catalogs'.

btn_show_hide_filters_clicked()

Event handler for button 'btn_show_hide_filters'.

btn_get_data_clicked()

Event handler for button 'btn_get_data'.

get_results(layer_name, cloud_coverage, date_from, date_to, max_catalog_results)

Get results from selected catalogs with selected filters.

Add item to results list.

add_feature_to_footprints_layer(feature_data, footprint_id)

src.plugin_upload

This script uploads a plugin package to the plugin repository. Authors: A. Pasotti, V. Picavet git sha: \$TemplateVCS-Format

Module Contents

Functions

main(parameters, arguments)	Main entry point.
<pre>hide_password(url[, start])</pre>	Returns the http url with password part replaced with '*'.

Attributes

```
PROTOCOL

SERVER

PORT

ENDPOINT

VERBOSE

parser
```

Parameters

- parameters Command line parameters.
- **arguments** Command line arguments.

src.plugin_upload.hide_password(url, start=6)

Returns the http url with password part replaced with '*'.

Parameters

• **url** (*str*) – URL to upload the plugin to.

```
• start (int) – Position of start of password.
```

src.plugin_upload.parser

src.resources

Module Contents

Functions

```
qInitResources()

qCleanupResources()
```

Attributes

```
qt_resource_data
qt_resource_name
qt_resource_struct_v1
qt_resource_struct_v2
qt_version
rcc_version
```

1.1.3 Package Contents

Functions

classFactory(iface)	Load KANImageryCatalog class from file KANIm-
	ageryCatalog.

src.classFactory(iface)

Load KANImageryCatalog class from file KANImageryCatalog.

Parameters

iface (*QgsInterface*) – A QGIS interface instance.

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