Python Installation Guide

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If you have any questions, submit a request through https://issuetracker.factset.com under the “OnDemand” category and for more queries you can chat with a representative through FactSet Support (@HELP). For unlimited access to FactSet Consulting Services you can reach out to FactSet global support numbers.

If you do not have login credentials for Issue Tracker, Email to datadirect_support@factset.com

For general assistance, contact your local FactSet Consultant or Salesperson or Email support@factset.com.
Introduction

This document provides an overview of the FactSet OnDemand Services Toolkit Setup and installation process for Python.

The FactSet OnDemand Python Toolkit is available at https://www.factset.com/download. The download link can be found within a dropdown menu listed as “OnDemand Developer’s Toolkit (version) Downloads” under the section “STATISTICAL PACKAGE INTEGRATION”.

The zip file includes sample projects under the Python folder illustrating the integration of the OnDemand service in Python.

These files also include authentication methods with sample calls to the FactSet databases.
Purpose

This document describes accessing FactSet OnDemand services through Python programming, provides information on setups, and aids the troubleshooting process for common issues during the installation process. This guide is intended for Python programmers.

Users should be acquainted with the Python programming language and its troubleshooting protocols.

System Requirements

Before proceeding, we recommend that you note the following system requirements:

- Operating System: Windows
- Version: Python 2.7 or later
- Framework: .NET framework 4.5 or later
- Programming Languages: Microsoft Visual C++ 2013 redistributable
Pre-Installation Requirements

Ensure that you whitelist https://*.factset.com on firewalls / URL inspectors / IPS / IDS

Ensure that https:// (TCP 443) is allowed for FactSet production destination subnets:

- 192.234.235.0 (255.255.255.0)
- 64.209.89.0 (255.255.255.0)
FactSet Developer’s Toolkit Installation Procedure

Python

1. Download the Developer’s Toolkit from https://www.factset.com/download/.

2. For users running previous versions of the Developer’s Toolkit, delete clr.pyd and python.runtime.dll

3. Copy the latest version of Developer’s Toolkit, Toolkit.zip, into your Python directory.
   a. Example: C:\python27

4. To install pythonnet, perform the following steps:
   a. Open the Command Prompt in Windows.
   b. Navigate to the Python directory in Windows.
   c. Type command “pip install pythonnet”.

   ![Command Prompt](image1)
   Figure 1: Command Prompt

5. Run pythonSample.py to output results from the sample queries.
   a. Unzip Toolkit.zip
   b. Unzip SampleProjects.zip
   c. Navigate to SampleProjects\Python
   d. Open pythonSample.py in the Python IDLE editor
   e. Enter your OnDemand credentials in the Config section of script as shown below.
   f. To verify the sample script, run the entire module in the Python IDLE editor.

   ```python
   fod = FactSetOnDemand()
   config = fod.getConfig()
   
   # Set our configuration. We definitely need to set our username and password, as given to us by FactSet Support staff
   config.setConfig(ConfigOptions.DataDirectUserName, "<ENTER USERNAME HERE>")
   config.setConfig(ConfigOptions.DataDirectPassword, "<ENTER PASSWORD HERE>")
   
   # Run the sample script
   if __name__ == '__main__':
       ...execute...
   ```
   ![Config section file credentials](image2)
   Figure 2: Config section file credentials
IronPython

1. Download the Developer’s Toolkit from [https://www.factset.com/download/](https://www.factset.com/download/).

2. For users running previous versions of the Developer’s Toolkit, delete `clr.pyd` and `python.runtime.dll`

3. Copy the latest version of Developer’s Toolkit, Toolkit.zip, into your Python directory.
   a. Example: `C:\python27`

4. To install pythonnet, perform the following steps:
   a. Open the Command Prompt in Windows.
   b. Navigate to the Python directory in Windows.
   c. Type command “pip install pythonnet”.

   ![Command Prompt]
   
   **Figure 3: Command Prompt**

5. Run `pythonSample.py` to output results from the sample queries.
   a. Unzip Toolkit.zip
   b. Unzip SampleProjects.zip
   c. Navigate to `SampleProjects\Python`
   d. Open `pythonSample.py` in the IronPython command line.
   e. Enter your OnDemand credentials in the Config section of script as shown below.
   f. To verify the sample script, run the entire module in the IronPython command line.

   ```python
   # Set our configuration. We definitely need to set our username and password, as given to us by FactSet Support staff
   config = FactSetOnDemand()
   config.setConfig(ConfigOptions.dataDirectUsername, "[ENTER USERNAME HERE"])
   config.setConfig(ConfigOptions.dataDirectPassword, "[ENTER PASSWORD HERE"])
   
   Figure 4: Config section file credentials
   ```
Anaconda

1. Download the Developer’s Toolkit from https://www.factset.com/download/.

2. For users running previous versions of the Developer’s Toolkit, delete clr.pyd, python.runtime.dll, Newtonsoft.Json.dll and Kratos_3.dll

3. Copy “clr.pyd” file to the directory below.
   Example: C:\ProgramData\Anaconda2\Lib\site-packages\clr.pyd

4. Copy the “Python.Runtime.dll” file to the directory below.
   Example: C:\ProgramData\Anaconda2\Lib\site-packages\Python.runtime.dll

5. Copy the “Newtonsoft.Json.dll” file to the directory below.
   Example: C:\ProgramData\Anaconda2\Lib\site-packages\Newtonsoft.Json.dll

6. Copy the “Kratos_3.dll” file to the directory below.
   Example: C:\ProgramData\Anaconda2\Lib\site-packages\Kratos_3.dll

7. To install pythonnet, perform the following steps:
   a. Open the Anaconda Prompt in Windows
   b. Type command “conda install pythonnet”.

[Image: Command Prompt]

Figure 5: Command Prompt

8. Run pythonSample.py to output results from the sample queries.
   a. Unzip Toolkit.zip
   b. Unzip SampleProjects.zip
   c. Navigate to SampleProjects\Python
   d. Open pythonSample.py in the Python IDLE editor
   e. Enter your OnDemand credentials in the Config section of script as shown below.
   f. To verify the sample script, run the entire module in Anaconda Spyder or Jupyter Notebook.

```python
fsod = FactSetOnDemand()
config = fsod.getConfig()

# Set our configuration. We definitely need to set our username and password, as given to us by FactSet Support staff
config.setConfig(ConfigOptions.DataDirectUserName, "<ENTER USERNAME HERE>")
config.setConfig(ConfigOptions.DataDirectPassword, "<ENTER PASSWORD HERE>")
```

Figure 6: Config section file credentials
Troubleshooting – Blocked .dll files

The following steps describe blocked .dll files with the error responses listed below:

- System Error: Dynamic module not initialized properly.
- Import Error: Dynamic module does not define module export function.
- Unable to find assembly ‘Kratos_3’.
- Error while loading a file or assembly ‘Newtonsoft.Json’.

Solution 1:

2. If the Unblock option is unavailable, see Solution 2.

**Solution 2:**

1. To verify whether the file is blocked, open a Command Prompt and type:

   ```
   More < yourFile.exe:Zone.Identifier
   ```

2. If ZoneId = 3 or 4, your file is blocked.

   If you have PowerShell version: 3 or later, then you can open a PowerShell window and type:

   ```
   C:\>Unblock-File -Path C:\Path\ToFile\yourFile.exe
   ```

3. If Solution 1 or 2 do not work, proceed to Solution 3.
Solution 3:

1. Add the path where your .dll files are stored as environment variables.
Once the environmental variable path has been added, add the lines of code below to the top of your pythonsample.py file.

1. Import sys:
   Import OS sys.path.insert (0, os.path.abspath ('./')) # add the current file location to sys path so that the clr module is searchable.
Troubleshooting – pythonnet

The following steps describe pythonnet download issues with the error responses listed below:

- SSL: CERTIFICATE_VERIFY_FAILED
- SSLError

**Solution 1:**

For Python and IronPython Setups:

1. Run the following from the Command Prompt.
   a. `pip install --trusted-host pypi.org --trusted-host pypi.python.org --trusted-host files.pythonhosted.org pythonnet`

**Solution 2:**

For Python and IronPython Setups:

1. Create a pip folder in "C:\Users\<username>\AppData\Roaming"
2. Create a text file containing the code below:
   ```
   [global]
   trusted-host = pypi.python.org
   pypi.org
   files.pythonhosted.org
   ```
3. Rename the file name to `pip.ini`