Understanding how Python is configured with BDC

FINISHED

The servers in your BDC cluster have two separate installations of Python: "system" and "user"

- System Python: This is version 2.6.6. This is the version that is shipped and standard with the version of Oracle Linux currently used in BDC. This version is left unchanged to not disrupt other operating system processes and procedures which depend on it.
- User Python : This is version 2.7.x. BDC configures this version for PySpark and Zeppelin. It is located at /u01/bdcsce/usr/local/bin/python

It should be noted that the default PATH for shell sessions will pickup the system python installation, but the BDC tools (like Zeppelin and pySpark) are configured for the user python installation.

You should be using the User Python. See below for examples on how to add packages to the User python installation.

Took 0 sec. Last updated by anonymous at March 01 2018, 3:32:53 PM.

Illustration of the 2 Python installations

FINISHED

```
%sh
echo "System python versions."
python -V
pip -V

sleep 8
# use a sleep so that output does not appear out of order
echo "."
echo ".."

echo "User python versions."
/u01/bdcsce/usr/local/bin/python -V
/u01/bdcsce/usr/local/bin/pip -V
```

```
Python 2.6.6
System python versions.
pip 9.0.1 from /usr/lib/python2.6/site-packages (python 2.6)
.
..
User python versions.
Python 2.7.14
pip 9.0.1 from /u01/bdcsce/usr/local/lib/python2.7/site-packages (python 2.7)
```

Took 9 sec. Last updated by anonymous at March 01 2018, 11:12:34 AM. (outdated)

Illustration that Zeppelin and Pyspark are configured for the user Python installation (2.7)

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```
%pyspark
import sys
print (sys.version)
```

```
2.7.14 (default, Oct  6 2017, 22:49:22)
[GCC 4.4.7 20120313 (Red Hat 4.4.7-18)]
```

Took 44 sec. Last updated by anonymous at March 01 2018, 11:03:44 AM. (outdated)

How to install additional packages for the User python installation

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```
%sh
# This will put packages into /u01/bdcsce/usr/local/lib/python2.7/site-packages/


sudo /u01/bdcsce/usr/local/bin/pip install numpy


Requirement already satisfied: numpy in /u01/bdcsce/usr/local/lib/python2.7/site-packages
```

Took 0 sec. Last updated by anonymous at March 01 2018, 11:39:35 AM. (outdated)

Example to show that your package was installed

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```
%pyspark
import numpy
a1 = numpy.array([1,2,3,4,5])
a1sum = a1.sum()
print(a1sum)
```

```
15
```

Took 0 sec. Last updated by anonymous at March 01 2018, 11:33:41 AM. (outdated)

Example to show that your package works with spark

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```
%pyspark
#simple example from https://gist.github.com/koverholt/a2cc2a0ab51acb13ae57
import numpy as np

def mult(x):
    y = np.array([2])
    return x*y

x = np.arange(1000)
distData = sc.parallelize(x)

results = distData.map(mult).collect()

print results
```

```
[array([0]), array([2]), array([4]), array([6]), array([8]), array([10]), array([12]), array([14]), array([16]), array([18]), array([20]), array([22]), array([24]), array([26]), array([28]), array([30]), array([32]), array([34]), array([36]), array([38]), array([40]), array([42]), array([44]), array([46]), array([48]), array([50]), array([52]), array([54]), array([56]), array([58]), array([60]), array([62]), array([64]), array([66]), array([68]), array([70]), array([72])
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```

Took 8 sec. Last updated by anonymous at March 01 2018, 3:31:07 PM.

```
%md
```

READY