Analytical and other software on the Secure Research Environment

The Research Environment runs with the operating system: Microsoft Windows Server 2016 DataCenter edition. The environment is based on the Microsoft Data Science virtual machine template and includes the following software:

- R Version 4.0.2 (2020-06-22), as part of Microsoft R Open
- R Studio Desktop 1.3.1093 working with R 4.0.2
- Anaconda 3, including an environment for Python 3.8.5
- Python, 3.8.5 as part of the Anaconda base environment
- Jupyter Notebook, as part of the Anaconda3 environment
- Microsoft Office 2016 Standard edition, including Word, Excel, PowerPoint, and OneNote (Access not included)
- JuliaPro 0.5.1.1 and the Juno IDE for Julia
- PLINK
- JAGS
- WinBUGS
- OpenBUGS
- stan and rstan
- Apache Spark 2.2.0
- SparkML and pySpark
- Apache Drill 1.11.0
- MAPR Drill driver
- VIM 8.0.606
- TensorFlow
- MXNet, MXNet ModelServer
- Microsoft Cognitive Toolkit (CNTK)
- Weka
- Vowpal Wabbit
- xgboost
- Team Data Science Process (TDSP) Utilities
- VOTT (Visual Object Tagging Tool) 1.6.11
- Microsoft Machine Learning Server
- PowerBI
- Docker version 10.03.5, build 2ee0c57608
- SQL Server Developer Edition (2017), including Management Studio and SQL Server Integration Services (SSIS)
- Visual Studio Code 1.17.1
- Nodejs
- 7-zip
- Evince PDF Viewer
- Acrobat Reader
- Microsoft Photo Viewer
- PowerShell

6 March 2021
Version 1.2
And in the Premium research environments:

- STATA 16.1
- SAS 9.4, m4 (academic license)

Users also have the ability to bring in additional software if the software was specified in the data request, the software runs in the operating system described above, and the user can provide Vivli with any necessary licensing keys. Software licenses must be validated by the software only at installation or setup: software that validates the license on each invocation will not work. Users must attest that the license agreements they need for any of the software they want to bring in can be used in the Vivli research environment.

R Packages included in R version 3.5.2 in the Research Environment:

- abind
- acepack
- AnnotationDbi
- AnnotationFilter
- askpass
- assertthat
- backports
- base
- base64enc
- BBmisc
- BH
- bindr
- bindrcpp
- Biobase
- BiocFileCache
- BiocGenerics
- BiocManager
- BiocParallel
- BiocVersion
- biomaRt
- Biostrings
- biovizBase
- bit
- bit64
- bitops
- blob
- boot
- brew
- brglm
- brio
- broom
- BRugs
- BSgenome
- cairoDevice
- callr
- car
- carData
- caret
- ctools
- CBPS
- cellranger
- checkmate
- checkpoint
- chron
- class
- classInt
- cli
- clipr
- clisymbols
- cluster
- cmprsk
- cobalt
- coda
- codetools
- coin
- colorspace
- combinat
- commonmark
- compiler
- conquer
- corpus
- corrplot
- covr
- cowplot
- CoxBoost
- cpp11
- crayon
- credentials
- crosstalk
- crrp
- crrstep
- crskdiag
- Cubist
- curl
- data.table
- datasets
- DBI
- dplyr
- DelayedArray
- deployRserver
- desc
- devtools
- DiagrammeR
- dichromat
- diffobj
- digest
- doParallel
- downloader
- dplyr
- drat
- DT
- e1071
- earth
- ebal
- editrules
- ellipse
<table>
<thead>
<tr>
<th>Package</th>
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<td>stringi</td>
<td>testthat</td>
<td>usethis</td>
<td>xgboost</td>
</tr>
<tr>
<td>stringr</td>
<td>TH.data</td>
<td>utf8</td>
<td>xlsx</td>
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<tr>
<td>strucchange</td>
<td>tibble</td>
<td>utils</td>
<td>xlsxjars</td>
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<td>styler</td>
<td>tidyr</td>
<td>uuid</td>
<td>XML</td>
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<td>subselect</td>
<td>tidyselect</td>
<td>V8</td>
<td>xml2</td>
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<tr>
<td>SummarizedExperiment</td>
<td>tidyverse</td>
<td>VariantAnnotation</td>
<td>xopen</td>
</tr>
<tr>
<td>superpc</td>
<td>timeDate</td>
<td>vctrs</td>
<td>xtable</td>
</tr>
<tr>
<td>survAUC</td>
<td>timeROC</td>
<td>viridis</td>
<td>XVector</td>
</tr>
<tr>
<td>survey</td>
<td>timereg</td>
<td>viridisLite</td>
<td>yaml</td>
</tr>
<tr>
<td>survival</td>
<td>timeDate</td>
<td>visNetwork</td>
<td>zeallot</td>
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<td>survivalROC</td>
<td>tinytex</td>
<td>waldo</td>
<td>zip</td>
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<td>survminer</td>
<td>tmvnsim</td>
<td>WeightIt</td>
<td>zlibbioc</td>
</tr>
<tr>
<td>survMisc</td>
<td>tools</td>
<td>whisker</td>
<td>zoo</td>
</tr>
<tr>
<td>sys</td>
<td>translations</td>
<td>withr</td>
<td></td>
</tr>
<tr>
<td>tcltk</td>
<td>truncnorm</td>
<td>WriteXLS</td>
<td></td>
</tr>
<tr>
<td>TeachingDemos</td>
<td>ucmnf</td>
<td>xfun</td>
<td></td>
</tr>
</tbody>
</table>
Python Packages included in Python 3.5 in the Research Environment:

adal
alabaster
anaconda-client
anaconda-navigator
anaconda-project
applicationinsights
argh
argon2-cffi
asn1crypto
astroid
async-generator
atomicwrites
attrs
autopep8
azure
azure-cli-nspk
azure-common
azure-core
azure-data湖ake-store
azure-graphrbac
azure-keyvault
azure-keyvault-certificates
azure-keyvault-keys
azure-keyvault-secrets
azure-mgmt-advisor
azure-mgmt-applicationinsights
azure-mgmt-authorization
azure-mgmt-batch
azure-mgmt-batchai
azure-mgmt-billing
azure-mgmt-cdn
azure-mgmt-cognitiveservices
azure-mgmt-commerce
azure-mgmt-compute
azure-mgmt-consumption
azure-mgmt-containerinstance
azure-mgmt-containerregistry
azure-mgmt-containerservice
azure-mgmt-core
azure-mgmt-cosmosdb
azure-mgmt-datafactory
azure-mgmt-datalake-analytics
azure-mgmt-datalake-nspkg
azure-mgmt-datalake-store
azure-mgmt-datamigration
azure-mgmt-devspaces
azure-mgmt-devtestlabs
azure-mgmt-dns
azure-mgmt-documentdb
azure-mgmt-eventgrid
azure-mgmt-eventhub
azure-mgmt-hanaonazure
azure-mgmt-iotcentral
azure-mgmt-iot-hub
azure-mgmt-iot-hub-provisioningservices
azure-mgmt-keyvault
azure-mgmt-loganalytics
azure-mgmt-logic
azure-mgmt-machinelearningcompute
azure-mgmt-managementgroups
azure-mgmt-managementpartner
azure-mgmt-maps
azure-mgmt-marketplaceordering
azure-mgmt-media
azure-mgmt-monitor
azure-mgmt-msi
azure-mgmt-network
azure-mgmt-notificationhubs
azure-mgmt-nsplkg
azure-mgmt-policyinsights
azure-mgmt-powerbi-embedded
azure-mgmt-rdbms
azure-mgmt-recoveryservices
azure-mgmt-recoveryservicesbackup
azure-mgmt-redis
azure-mgmt-relay
azure-mgmt-reservations
azure-mgmt-resource
azure-mgmt-scheduler
azure-mgmt-search
azure-mgmt-servicebus
azure-mgmt-servicefabric
azure-mgmt-signalr
azure-mgmt-sql
azure-mgmt-storage
azure-mgmt-subscription
azure-mgmt-trafficmanager
azure-mgmt-web
azure-nsplkg
azure-servicebus
azure-servicefabric
azure-servicemanagement-legacy
azureml
Babel
backcall
backports-abc
backports.functools-lru-cache
backports.shutil-get-terminal-size
backports.ssl-match-hostname
backports.tempfile
backports.weakref
bcrypt
beautifulsoup4
bitarray
bkcharts
bleach
blinker
bokeh
boto
botocore
Bottleneck
brotlipy
bz2file
CacheControl
cached-property
certifi
cffi
chainer
chainercv
chainerrl
chardet
click
cloudpickle
clyent
colorama
comtypes
conda
conda-build
conda-package-handling
conda-verify
configparser
contextlib
CPython
cryptography
cycler
Cython
dcuitoolz
dask
datatime
decorator
defusedxml
diff-match-patch
distlib
distributed
docutils
entrypoints
et-xmlfile
fastcache

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Version 1.2
fastrlck
filelock
flake8
Flask
Flask-Cors
fsspec
funcsigs
future
gevent
glob2
greenlet
gym
h5py
HeapDict
helpdev
html5lib
idna
imageio
imagesize
importlib-metada
iniconfig
intervaltree
ipykernel
ipython
ipython-genutils
ipywidgets
isodate
isort
itsdangerous
jcac
jedi
Jinja2
jmespath
joblib
json5
jsonschema
jupyter
jupyter-client
jupyter-console
jupyter-core
jupyterlab
jupyterlab-launcher
jupyterlab-pygments
jupyterlab-server
Keras-Applications
Keras-Preprocessing
keyring
kiwisolver
lazy-object-proxy
libarchive-c
lightgbm
llvmlite
locket
lockfile
Mako
Markdown
MarkupSafe
matplotlib
mccabe
menuinst
mistune
mkl-fft
mkl-random
mkl-service
mock
more-ittertools
mpmath
msgpack
msrest
msrestazure
multipledispatch
navigator-updater
nbclient
nbconvert
nbformat
networkx
nltk
nose
notebook
numba
numexpr
numpy
packaging
pandas
pandas-datareader
pandocfilters
paramiko
parso
partd
path
pathlib2
pathools
patsy
pbr
pep8
pexpect
pickleshare
Pillow
pip
pkginfo
pluggy
ply
progress
prometheus-client
prompt-toolkit
protobuf
psutil
ptyprocess
py
py4j
pyarrow
pycodestyle
pysat
pycrypt
pycurl
pydash
pydocstyle
pydocumentdb
pydot
pyflakes
pyglet
Pygments
pygpu
PyJWT
pytest
PyNaCl
pyodbc
pyOpenSSL
pyparsing
PyQt5
PyQt5-sip
PyQtWebEngine
pyreadline
pyrsistent
PySocks
pyspark
pytest
python-dateutil
python-jsonrpc-server
python-language-server
pytz
PyWavelets
pywin32
pywin32-ctypes
pywinpty
PyYAML
pyzmq
QDarkStyle
QtAwesome
qtconsole
QtPy
regex
requests
requests-file
requests-oauthlib
rope
Rtree
ruamel-yaml
ruamel
ruamel.yaml
ruamel.yaml.clib
s3transfer
scikit-image
scikit-learn
scipy
seaborn
Send2Trash
setuptools
simplegeneric
 singledispatch
sip
This document describes the software contained on Research Environments provisioned after March 6, 2021.