External scripting workflows

BisQue | Automation
Outline

Intro to BisQue RESTful API and programmatic APIs

Uploading data via a script

- Using annotations from spreadsheets to make data searchable
- Graphical annotations, uploading points from x,y,z spreadsheet

Modifying annotations in BisQue via scripts

- Adding annotations, Removing, Modifying

Turning scripts into modules runnable from BisQue UI

Matlab live example

- Segmenting, classifying and visualizing seeds using matlab & UI
- Textual and 5D graphical annotations
- Biologically meaningful objects and groups
- Readable XML

Annotations

Visualization
- 5D images of any size
- 200+ formats
- Data summarization
- WebGL Volume Viewer
- Many modalities: images, molecules, PDFs, etc...

Flexible and hierarchical annotations

Analysis
- Large-scale
- Distributable
- Data parallelization
- Extensible
- Automated UI

Management
- Scalable and distributed
- Everything is web accessible
- Searchable
Bisque scalable services

Client tools

XML + binary

Blob + Image Services

Blob and pixel operations

Data Services

Annotations & queries

Analysis Services

Module execution

Client Services
(web pages, statistics, import, export, etc…)

HTML, XML, JSON, Binary

Backends

Python
Java

MathWorks

Client tools

Bisque scalable services

Backends
Scripting in Python

iPython notebooks

https://bitbucket.org/CBlucsb/bisque_examples_ipython/
Turning scripts into modules runnable from BisQue UI

Tutorial

AnnotationRename module

https://bitbucket.org/CBlucsb/bisque/src/77ebe31ad6dbf5a3f1edb8eed8309e538c84cd88/modules/AnnotationRename/?at=default
Module lifetime

Private module

Developer

Development cycles

module

Bisque data

Known users

Published module

module

execution

All users

+ Scores, Comments, Reviews

Curated module

module

curate

+ Access to all Bisque computational resources

Bisque
Modules run on the cluster
- Scheduling with Condor grid
- Amazon EC2
- Low cost on-demand pricing (EC2)

Automatic parallelization for datasets

Easy to create
- Wrapping binaries
- APIs: Matlab, Python, Java, C++
- Pipelines: ImageJ, CellProfiler
- Automated and rich web UI

Bisque infrastructure
- Basic image access
- Storage and retrieval of textual and graphical annotations
- Basic statistics and plotting
Matlab live example

API & Examples

https://bitbucket.org/CBluucsb/bisque_api_matlab
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