

# Multi-Stage Design Space Explorer

Multi-Stage Design Space Explorer (MSDSE) allows to explore design instances according to their aspects or detail development. Designer can load initial set of instances, then explore and select the ones, which are most promising and save them to generate a new set of design instances upon on this selection (see figure 1).

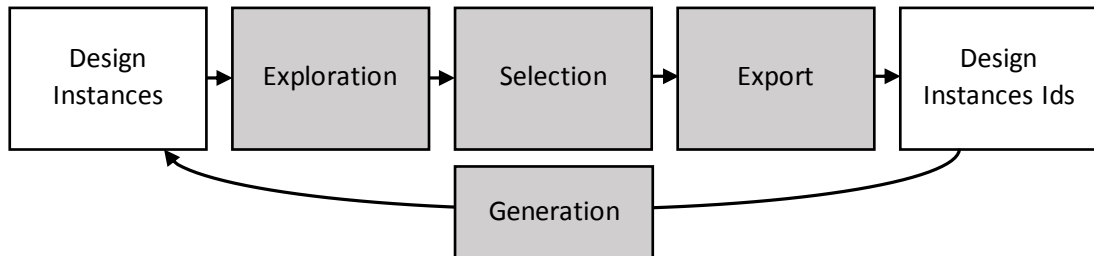


Figure 1. Multi-Stage Design Space Explorer cycle

## 1. Data Format

To process data correctly systems waits a CSV file with a following format:

- First six columns are fixed (order is important):

Aspect Id	Integer number. Sets up the order of stages
Aspect Title	String. Title of aspect ("Volume", "Window", etc.)
Instance Id	Integer number. Unique id of design instance.
Parent Id	Integer number. Id of parent if exists else 0.
Geometry	String. Up for now is not used and could be empty.
Image Path	String. Path to design instance image. Could be link to any public image storage where related images are stored. Or you can use local server (see section 4).

- Other columns are represents features computed for each design instance. They should be integer or real numbers.  
It could happen that too many features are generated and not all of them are required for exploration. For this purposes features that system needs take into account should be marked with special prefix "f\_".

## 2. Naming of images

Image related to each design image should have next format:

**<Instance Id>\_A.jpg**

Depending on instance ids images name could look like "1\_A.jpg" or "4567\_A.jpg".

### 3. Folder structure

Images are loaded according to their stage. Therefore, the fool link to the image will be built according to the following format:

**<Image Path>/Stage <Aspect Id>/<Instance Id>\_A.jpg**

For example:

[http://localhost:8080/Stage\\_0/1\\_A.jpg](http://localhost:8080/Stage_0/1_A.jpg)

[https://your\\_storage/d/5IS6315F7e/Stage\\_0/1\\_A.jpg](https://your_storage/d/5IS6315F7e/Stage_0/1_A.jpg)

### 4. Usage of local server to manage images

Among many possibilities simple Python server could be used.

a) Download the latest Python <https://www.python.org/downloads/>

b) Run the server from a folder with images via command line: `python -m http.server 8080`

c) Depending on your folder structure path to save in “image” column could be look like:

**<http://localhost:8080/>**

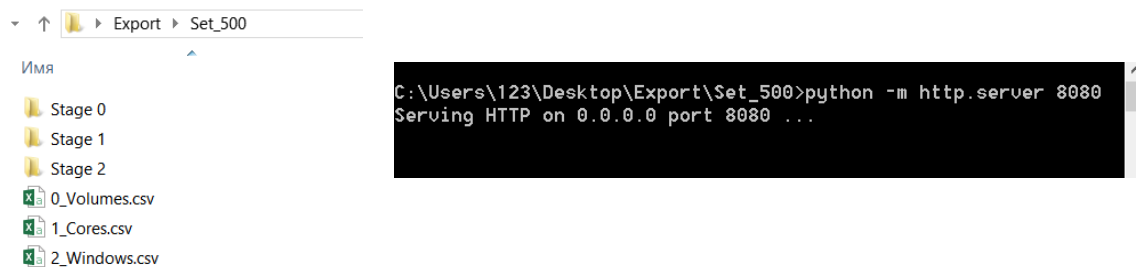


Figure 2. Launch local server via Python