**NGCHM JAVA Heat Map Generator**

**Proposed Performance Enhancement Phase II**

**Requirements:**

1. To stop the HMDG from writing tile files **OR…**
2. To run the HMDG JAVA process without reading the matrix into memory. Essentially, the HMDG would be running to regenerate mapData and mapConfig configuration data used by the NG-CHM Viewer.

**Benefits:**

Greatly reduced run time if modifying certain specific aspects of the displayed heat map. No time or memory would be required to read in and cluster multiple matrices into an internal matrix of heat map data. No time would be spent in writing binary data tiles.

**Modifications permitted without writing tiles OR reading a clustered matrix into memory:**

1. Covariate bars could be added/modified/removed.
2. Data Layer Matrix colors/breakpoints could be modified. (ONLY if provided in heatmapProperties.json).
3. Cluster-based covariate bars could be added.
4. The following Heat Map Display options could be modified

* Selection Color
* Grid Color
* Grid Show
* Summary Display Width
* Dendrogram Show (row/col)
* Dendrogram Height (row/col)
* Max Label Length (row/col)
* Label Trim Position

1. Heat Map Gaps Color may be modified.
2. Cluster-based covariate bars could be added/modified/removed.
3. Label Type (row/col) could be added/modified/removed.
4. Top Items (row/col) could be added/modified/removed.
5. Heat Map Attributes could be added/modified/removed.

**Modifications NOT permitted without writing tiles OR reading a clustered matrix into memory:**

1. Data clustering method (Ordering, Distance, and/or Agglomeration) may not be modified.
2. Data Layers may not be added or removed. (removed possibly?)
3. Data Layer Pixel Summary Method may not be modified.
4. Data Layer Data Start and Covariate Bar Location may not be modified (for embedded data and changing data location in matrix file).
5. Data Layer colors and breakpoints may not be calculated by default (must be provided in properties).
6. Heat Map Gaps (row/col) may not be added//removed.
7. Heat Map Gaps Height may not be modified.
8. JAVA generated PDF documents may not be generated.
9. JAVA generated thumbnail .PNG images may not be generated.