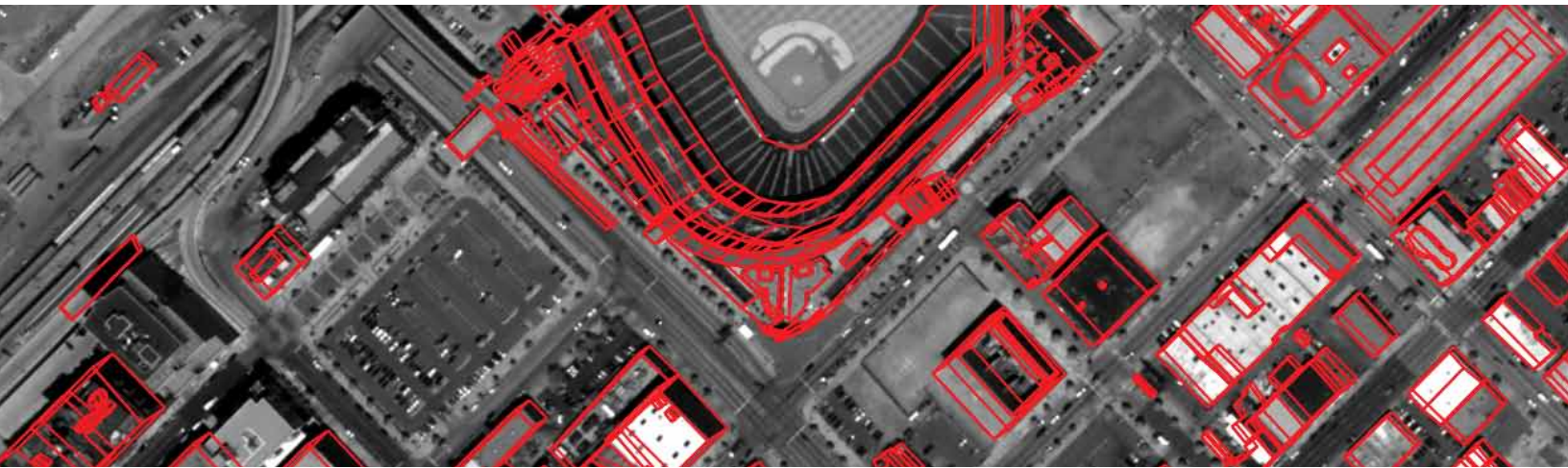


SOCET for ArcGIS®

Best practices and workflow guidelines



The purpose of this document is to provide GGI contractors, or other customers using SOCET for ArcGIS® for production, the recommended workflow guidelines for the SOCET for ArcGIS module in SOCET SET®. These guidelines were created as a joint effort between BAE Systems and ESRI®.

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Minimum software requirements

- Assumes technology dated 11/15/2007
- ArcGIS 9.2 service pack (SP) 3, SP4 pending; Production Line Tool Set (PLTS) 9.2, Foundation SP3; PLTS 9.2 Defense SP1, SP2 pending
- ArcSDE® 9.2 SP3
- SOCET SET v5.4.1

Hardware requirements

- Gigabit network
- Newer system: Dell Precision 690 dual core or equivalent
- Microsoft® Windows® XP SP2, 32-bit, latest updates
- Maximize RAM
- New graphics card: nVidia Quadro FX 4600 PCI Express or equivalent
- Dual monitors
- Dual hard drives: new technology

System configuration

- Latest service packs for hardware and software
- Optimize graphics card configuration, if available
- See link below, How To: Increase performance to make ArcMap® start and run faster

Application settings

- ArcMap properties: ArcGIS map document file (MXD) properties
 - Adjust properties to save relative paths; makes MXDs more portable
 - Adjust properties to not save image thumbnail with map; for faster saves
 - Make newly added layers not visible by default (uncheck)
- ArcMap advanced user settings
 - Adjust data frame refresh rate
 - Adjust current monitor dimensions
 - Adjust mouse move edit tolerance; limits accidental movement of features
 - Adjust JET Engine max number of records to calculate; requires admin privileges

Use PLTS forums and knowledge base articles

support.esri.com/index.cfm?fa=homepage.homepage

support.esri.com/index.cfm?fa=software.filteredGateway&PID=34

Pre-production

- Build project specific ReViewer batch jobs
- Customize VVTs/CNTs/FFTs
- Use FFTs to filter unused items or assign unattached domains
- Create PLTS Favorites based on known PSG valid and common attribute combinations
- Create PLTS Metadata Favorites based on source types for project area
- Create topology for production database
- Edgematch plan
- Order of extraction
- Quality control checklist: PLTS GIS Data ReViewer batch jobs
- Use different MXDs for different tasks
 - Collection: simple symbology and high level of layer management
 - Quality assurance and quality control: more complex symbols for relationship visualization
 - Finishing: complex symbology and labeling
- Data loading
 - Build appropriate XRef files for data loading requirements
 - Validate XRef for potential problems
 - If ArcSDE:
 - Consider saving all edits, removing all versions, removing topology
 - Set layers to load only mode
 - Load into SDE default
 - Reapply topology, validate versions, and continue editing
- Job and AOI management
 - Consider JTX
 - Otherwise, use Checkout/Replication to FileGDB, if possible
 - Some applications such as SOCET for ArcGIS perform better on a local gdb

Extraction: data collection and updating

- Use map cache
- Use ArcGIS shortcut keys
- Use PLTS context menus, also known as quick menus
- Use PLTS context sensitive help (question mark with arrow) for tool help and descriptions
- Limit number of vertices in feature delineation
 - Use scale appropriate collection
 - Place vertices where required to show appropriate feature “character”
 - Excessive vertices affect the performance of topology and other tools
 - Avoid creating excessively large features; look for natural breaks and logical junctions
- Collect vertices on features where intersections are anticipated, this adds to easy edge sharing, and connecting networks
- Use PLTS cursor halo to remedy spacing requirements
- Use bookmarks to flag significant features and relationships for review
 - Reduces excessive panning across AOI; jumps to correct location
 - Alternatively, add to ReViewer for tracking purposes; enter custom description
- Avoid editing In projected data frame (data frame different from native units of data)
 - Graphics refresh rates are faster if data does not have to be projected on-the-fly
 - Editing and graphics anomalies may be introduced if edits are performed on projected data
- Avoid external data sources
 - Keep as many datasets as possible internal to the edit workspace
 - Create an ancillary dataset and load necessary support data
 - Keep all data in the same spatial reference, such as extraction data
 - If unavoidable, generate spatial indices for external files, sample shapefiles, and coverages
- Avoid joins and relationships
 - Often unavoidable; some models rely on establishing these table relationships
 - Try adding the tables that participate in the join/relationship to ArcMap
 - If used during a collection task, remove join/relationship when possible
- Optimize TOC
 - Empty layers negatively affect redraw and refresh rates; remove empties
 - Turn off unnecessary layers for visualization
 - Keep symbology simple by using basic colors and symbols; complexity increases redraw performance
 - Limit fills if possible; complex fill patterns have a detrimental effect
 - Avoid labels on features during collection
 - Avoid using advanced drawing options
 - Optimize selectable layers
 - Manage selectable layers based on extraction
 - Queries are generated against the database for all selectable layers
- Optimize snapping environment
 - Manage snapping for associated layers; try to have snapping options synced with TOC on and off, and selectable layers
 - Manage hierarchical order of snapping priorities
 - Affect the performance of snapping and sketch feedback (rubberbanding)
 - Override snapping using the spacebar
- Scale suppression
 - Reduce layers drawn at smaller scales; limit admin boundaries, cell boundaries, and so on
 - Manage scale based on the representative editing scale
- Compact database
 - Monitor the size and performance of local geodatabases; edits cause databases to grow
 - As performance degrades, compact the database
 - Schedule a regular cycle for compacting the database

- Monitor MXD size and performance
 - MXDs may become fragmented or excessively large
 - Periodically perform a Save as command and save a new version of the MXD
 - Performing a Save as command removes unnecessary information from the MXD
 - If an MXD becomes corrupted, attempt to salvage it using the MXDDoctor
- Start edit session zoomed in (large-scale)
 - Save MXD when zoomed in to the appropriate scale
 - Limits initial screen refresh time on startup
 - Use Escape key to cancel out of long refresh cycles
- Use magnification window for panning
 - Avoids needless canvas redraw and refresh
 - Reduces the times for visualizing data
- Optional: Optimize spatial indexing
 - Update the spatial indices to enhance spatial query performance
 - For personal GDB (*.mdb), the database will have to be recreated; spatial indices cannot be adjusted after database is created
- Optional: Use redraw toggle
 - Temporarily stops the redraw event for the ArcMap canvas; allows for quick additions such as point collection on current image
 - Optional: Imagery related
 - Always ensure that pyramids and statistics are generated for imagery
 - If possible, attempt to move flat file imagery to a local drive
 - Refresh rates are fastest for Nearest Neighbor resampling method
 - If possible, consider ImageServer and ArcSDE for imagery
- SAVE REGULARLY
 - Save early, save often
 - If using ArcSDE, also reconcile and post frequently
- KEEP DATA ON LOCAL MACHINE
 - If necessary, try to keep client and server on the same operating system generation
 - Easiest to remove network issues

Resources

How To: Increase performance to make ArcMap start and run faster

www.support.esri.com/index.cfm?fa=knowledgebase.techarticles.articleShow&d=31672

FAQ: How can ArcMap symbology performance be improved and maintained?

www.support.esri.com/index.cfm?fa=knowledgebase.techarticles.articleShow&d=33098

How To: Compact a map document

www.support.esri.com/index.cfm?fa=knowledgebase.techarticles.articleShow&d=31029

Error: ArcMap.exe has generated errors and will be closed by Windows

www.support.esri.com/index.cfm?fa=knowledgebase.techarticles.articleShow&d=19980

Error: ArcMap.exe has encountered an error and needs to close. We apologize for the inconvenience

www.support.esri.com/index.cfm?fa=knowledgebase.techarticles.articleShow&d=32797

Problem: ArcCatalog (ArcMap) crashes on shut down and/or displays the ArcToolbox Results tab for several seconds or minutes

www.support.esri.com/index.cfm?fa=knowledgebase.techarticles.articleShow&d=33192

SOCET for ArcGIS performance options

Some of these suggestions are covered by the 'What's this' tips on the GUI.

- Disable toggling of Viewport on Top – During initial design, the viewport was envisioned as occupying the ArcMap canvas. Since this doesn't happen in practice, it should always be checked.
- Dynamically Match Viewable Extent – If there are several vectors to redraw, having this on can reduce performance. The ArcMap canvas resizes and re-centers whenever a zoom event or graphics refresh event happens in the stereo viewport.
- Dynamically refresh ArcMap Canvas – If this is off there will be a small performance boost since ArcMap doesn't have to draw each new feature created in the stereo viewport. The features exist in the ArcMap layer, but won't be visible until selected.
- Turn off Polygon Fill, Turn off Vertex Icons – This can significantly increase the time it takes to refresh graphics in the stereo viewport and increase roaming performance.
- Disable coordinate transformations – If you know that both the SOCET SET project and the ArcMap layers are the same coordinate system, turning this off will give a slight performance boost. The software doesn't have to convert to the WGS84 coordinate system and convert back after each communication.
- Disable loading map cache – When using SOCET SET Sketch tools, the map cache refreshes after every insert. Therefore the feature is available to snap to. Turning this off and refreshing as needed may increase performance.
- Use the middle mouse button for 3-D snapping with ArcMap tools – Enabling this will increase performance when snapping is turned on and ArcMap tools are being used. ArcMap tries to snap after every mouse movement. This can cause slow roaming in the stereo viewport. Turning this on disregards the snap attempt until a middle mouse button click is detected.

Performance tips

- Adjust the coverage of graphics drawn on a refresh. Set it to limited, instead of full, if you only need to have graphics drawn within the MBR of the stereo viewport.
- Use the SOCET for ArcGIS Accelerator Key Mappings. There are shortcuts for changing target layers, zoom, and so on, without toggling out of the stereo viewport and doing this in ArcMap.
- Set the minimum and maximum scale for a layer's visible scale range in ArcMap. SOCET for ArcGIS v5.4.1 will not draw and refresh the features in the stereo viewport if either of these thresholds has been crossed.

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