Visual MODFLOW Flex Readme

Build 1.0.437.1 (June 2013)

Additions

- added support for defining and running transport models using MT3DMS
- enabled the Create Numerical Grid step, with options to define the grid extents and define layer elevations (constant value) or with surfaces
- improved the selection of workflow windows and viewer windows, with a "tab" approach across the top of the main window.
- added option to define the layer order in 2D Layer views (and move layers up, down, to top and to the bottom)
- improved Export PEST results to Charts; now populates pre-defined chart templates.
- added option to delete Pilot points in the PEST workflow
- improved error handling in PEST workflow, if you change the selected parameters, or adjust the numerical model.
- in PEST workflow, added option to export sensitivity results to Excel charts.
- added option to delete a PEST workflow from the model tree.
- PEST will not run using a numerical model generated from conceptual model boundary conditions that are all steady-state
- moved log files from ...\Schlumberger\HGB" to "...\Schlumberger\VMODFlex".
- PEST, default transformation set to log for Kx and Kz parameters
- provided an option to view/edit pumping well attributes at the Define Boundary Conditions step in the numerical model workflow.
- added option to import MT3DMS results, .UCN file
- added GUI shortcut to Define New Pumping Wells, at the Define Boundary Conditions step in the numerical model workflow.

Defects Addressed

- constant head BC cells were not being assigned to the correct layer, when using the "Use Surface" option, after converting conceptual model to numerical model
- fixed project specific issue, converting to numerical model caused error with incorrect Kx calculation
- could not add particles to a numerical model - project specific
- pathlines were shifed in the results with rotated grids
- received error when trying to edit boundary condition cells, if the numerical model originated from a conceptual model.
- unable to run Sensitivity Analysis in the PEST workflow - project specific
- error occurred when trying to show a structural zone or property zone in 3D viewer, if geometry was invalid.
- MODFLOW-LGR was not giving correct results with the SAMG solver.
- exception occurs during "Edit Grid" step (refine rows/cols), if you set End row to be the last row.
- error during translation to Finite Element model (project specific)
- error when closing the 2D viewer if it is in pick/edit mode.
- error in 2d viewer when showing a corrupted polyline (with only 1 vertex)
- in some cases, Heads and Drawdown were removed from the model tree, after reloading a previously saved project.
- the "Project/Save As" option was not working correctly; the MODFLOW packages were not being copied to the new directory.
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Build 1.0.351.0 (April 2013)

Defects Addressed

- Could not add particles to a numerical model - project specific
- Pathlines were shifed in the results with rotated grids
- Received error when trying to edit boundary condition cells, if the numerical model originated from a conceptual model.
- Constant head boundary cells were not being assigned to the correct layer, when using the "Use Surface" option, after converting conceptual model to numerical model

Build 1.0.311.0 (December 2012)

Additions

- Added support for PEST v.12.3 (with Pilot Point parameterization); new workflow can be launched from inside a numerical workflow, by selecting "PEST Run"
- Added option to define Property Zones, and Recharge and Evapotranspiration zones in the numerical model, using Assign / Polygon or Assign / Entire layer
- Added feature to create particles in Numerical Model Workflow
- Added option to view/edit attributes for Specified Flux numerical boundary condition
- Added numerical translation for Specified flux package (FHB)
- Added improved option to reload closed workflows, through the Workflow menu
- Add option to copy and paste pumping well schedules, in the wells spreadsheet.
- When importing VMOD projects files, all the package settings are set correctly to match the original model.
- When editing numerical boundary condition, added option to copy/paste for attributes (from Excel)
- View wall boundary condition cells (HFB), and attributes, after importing from VMOD project
- For LGR model, when doing translation, the .BFH package is generated so that the child model can be run on its own.
- In 3D View, cells are visible by default for properties/heads/drawdown into stand-alone 3D viewer.
- Set default vertical exaggeration to 10 for stand alone 3d viewer
- Improved performance when doing Conceptual Model to Numerical Model conversion
- LGR models now share a common set of property zones, between the parent and child grid(s)
- Improved 3D video animation for transient models
- Added import and georeference images for 64-bit version of VMOD Flex.
- In 3D viewer, improved the visualization of structural/property zones that have zero thickness
- For 3D Gridded data object, provide option to render cells as "smoothed" surfaces, similar to current VMOD 3D-Explorer
- Added link to readme contents online
- Added a check for .NET framework when launching the .exe setup

Defects Addressed

- At the translation step, the "steady-state" option for a stress period was not working
- Error when creating a rotated Finite Different Grids in the conceptual Model workflow
- LGR model: Boundary conditions were not displayed in 3D Flex view after converting to numerical workflow
- Parent numerical Boundary Conditions cells should not appear in the area that is covered by child grid for roated grid
- Removed wGraticule.dll from installation - no longer required

- Incorrect validation for river stage/bottom, for cell geometry, after doing conceptual to numerical conversion.
- When assigning boundary conditions, constant head (CHD), it is not possible to assign a head value above the current layer, it will always place it in the correct layer which is not desired.
- Error occurs when switching from zone to Kx rendering at Define Properties step in numerical workflow
- Boundary Condition Database values incorrect for transient time schedule data
- After doing Conceptual model to Numerical model conversion, the Boundary Conditions Cell zones for Rivers and const heads, do not show up in the correct layer.
- Error in saving numerical boundary condition attribute information after converting to a Numerical model workflow
- Stress periods from the translate tab are different from the time schedules from boundary conditions (due to time units in minutes)
- No Time Picker control appears when selecting recharge from the boundary condition dropdown box
- Time schedule is not correct after adding a new transient zone to recharge boundary condition
- After conceptual to numerical conversion, the values of SFlux and EFlux are not converted correctly.
- 3D viewer does not render property zones correctly for grids with child grids.
- The legend in the compostive view should update right away after a new zone is created
- For flow properties, the Database window should show all zones, regardless if you have the Parent grid properties visible, or the Child Grid properties visible.
- When digitize new property zone in a thin layer, the zone is also copied to the layer above.
- When showing properties for a grid with a child grid in Flex viewer, the Zones are not rendered correctly.
- Flex viewer does not get refreshed after create new property zone, and assign cells to existing zone.
- Long delay after creating new property zone (assign polygon) that covers the entire layer
- After create new property zone in numerical model (assign polygon), after save and reload, the conceptual Property Zones are not restored
- Backward Pathlines do not appear following Model Run (MODFLOW 2005 & MODPATH)
- Newly created numerical particles don't appear correctly in Plan View in the Flex viewer
- After import Wall boundary condition, the attributes are not correct; it seems thickness and conductivity are reversed during import.
- After defining Boundary Condition for Recharge, the first two items in the Boundary Conditions attributes toolbox options are disabled and no further Boundary Conditions's can be selected.
- Error when assigning recharge to anything except layer 1 (for airport model)
- Error when importing surface from .DEM file (if the format is not correct)
- Conceptual Property Zones created from polygon are not re-load correctly
- Error occurs when you create surface, and choose "use polygon" for extents, and do not choose a polygon.
- Error when deleting polygon with 2 points (i.e an incomplete polygon)
- In Numerical Workflow Cannot load observation wells into the model - load arrow is greyed out
- For a 2D (Cross-section) project, cannot create a surface and view in 2D or 3D
- Error occurred in creating the conceptual model when importing 2D cross sectional VMF file
- Error Message when trying to go to next step after Define Modeling Objectives, after reloading previously saved project
- When clicking the red X on the Define Boundary Conditions dialog box, the blue back and next buttons become greyed out
- After changing settings for 3D tri-slice, the 3d viewer no longer refreshes in Flex view.
- Isoline labels do not show up on the row or col view slices, in the 3d viewer in Flex viewer.
- Error loading workflows on specific Windows 7 machines, due to ports not being opened during the installation
- Boundary Wall (HFB package) not taken into consideration during Run
- Error when importing ASCII raster file, which does not follow the correct file formats
- In some cases, after vmod import, the head observation wells are not imported; they do not appear in the tree.
- Open a moved or deleted project from file menu causes error
- Specified Flux Boundary Conditions cell zone does not appear after doing Conceptual model to Numerical model conversion

- Calculation of the color intervals for the color legend (for heads, Kx, etc) in Flex viewer, is wrong; the value for each color does not match the style settings.
- Well labels do not show up correctly in 3d view of compos. viewer, including when export to image file
- Error when exporting Boundary Conditions to shapefile, for those that lie on a child grid
- Addressed licensing issues with MODFLOW-LGR on specific regional settings
- When showing property zones as cells in stand alone 3d viewer, a few cells around the edges are not filled in
- When defining numerical grid in concpetual workflow, the dialog is now modal and does not allow to add data objects to the preview screen
- No attributes show up in Isosurface settings for Conductivity
- Numerical grid layers do not look correct, when comparing to conceptual model layering, in 3D View (specifically around the edges adjacent to inactive cells)
- After save and reload project, the check boxes for model inputs/outputs are not restored

Build 1.0.150.0 (July 2012)

Additions

- Create new boundary condition cells by drawing polygon/polylines, in the numerical workflow (for all supported boundary conditions except Recharge and Evapotranspiration)
- More options to edit boundary condition attributes, including adding new time schedule rows, change attributes from steady state and transient, etc.
- Improved Run Engines GUI: it loads quicker and runs models quicker. Charts are currently not displayed, these will be added back in at a later date.
- In the view results, charts, add statistics to the charts (residual, RMS, etc..)
- Added more logging details when doing the Conceptual to Numerical conversion
- Translated MODFLOW, MODPATH and Zone Budget files now use relative paths instead of absolute directory paths.
- Added style settings for the "three-plane" slice that is shown in the 3D view of the Flex viewer.
- When you define a conceptual boundary condition with multiple shapes, after running conceptual to numerical conversion, this will result in one boundary condition cell group per shape.
- When you define conceptual property zones with polygon shapes, after running conceptual to numerical conversion, this will result in one property zone created per shape.
- When importing Visual MODFLOW project, an observation wells data object is now created that will allow for viewing and editing the data.

Defects Addressed

- Evapotranspiration and Recharge zone values were not saved after making edits in the database window.
- Wells Spreadsheet – in some cases, observation well data was not showing up correctly. Also, not all edits made in the spreadsheet were being correctly saved.
- Pathlines were not showing up in the project coordinate system (eg. UTM, State Plane)
- Incomplete stress periods when importing Visual MODFLOW model with multiple drain stress periods
- In some cases, the time series chart does not show up under the results tab.
- Initial head zones were not getting imported correctly from Visual MODFLOW project files in the numerical workflow.
- Improved the translation times for the Recharge package.
- In some cases, the CHD package was not being translated correctly for steady-state models, after importing from a Visual MODFLOW project.
- After reloading a saved project, in some cases the 3D Viewer would not reload correctly

- Incorrect validation when importing transient observation well data.
- Error during Translation of the drain package
- At view charts step, the buttons were cut off when using display settings with large fonts on.
- Cannot print the time series chart to PDF; it comes out with the observed vs. calculated heads chart.
- When running MODPATH in consecutive runs, this would result in multiple Pathlines added to the Output folder.
- In some cases, model translation failed when using PCG solver.
- Error failed to move to the target step, when going to the Define Modeling Objectives step in the Conceptual Workflow.
- Fixed the naming convention for the windows resulting from a Compare Heads or Compare Drawdown request
- During import of Visual MODFLOW project with transient recharge data (100 stress periods), the program did not respond. The project will now import in approximately 5-10 minutes, however we will continue to work on further improving the performance.
- Added shortcut buttons to Flex viewer to enable grid editing, when you are at the View Grid step in the Conceptual Model workflow
- In some cases, the contour labels show very small on the 3D view
- Could not import cross-section data objects (from Hydro GeoAnalyst)
- After doing Conceptual model to Numerical model conversion for LGR scenarios, boundary condition cell groups were unnecessarily created for the child grids that did not contain any cells.
- Added option to adjust default flow parameters when you create a new conceptual model or numerical model.
- When working with multiple model runs, in some cases the MODPATH results are added to the wrong Run.
- Problem with WEL translation after modifying the input for a copy of a model run
- Removed the Run selection step at the Translations step in the GUI; it is no longer needed.
- Added start date option for numerical models.

Known Issues with VMOD Flex

The following are the known issues with VMOD Flex:

- Defining inactive cells is currently not available in VMOD Flex; you can load the numerical model files into VMOD Classic and use the grid editing options in VMOD Classic; this is explained in the following guide: http://trials.swstechnology.com/software/VMODFlex/2012/Docs/VMODFlex-Exchanging-Models-Between-Interfaces.pdf
- Cannot adjust the numerical grid once the model inputs have been defined. As a workaround, you can create another numerical model, and run the Conceptual to Numerical model conversion for this new grid.
- When importing a VMOD model with transport, only the properties and reaction/sorption options will be loaded. The boundary conditions and concentration observation wells will not be loaded. You need to manually assign the sink/source parameters to boundary conditions (or wells), and import the concentration observation wells from Excel files; this will be addressed shortly.
- On Windows XP, sometimes when you Define a New Boundary condition the first time, the dialog may not be populated. Just click Cancel, and repeat the same steps again

- PEST: when plotting parameter sensitivity values, if a parameter is log-transformed, the sensitivity is expressed with respect to the log of that parameter. The relative composite sensitivity of a log-transformed parameter is determined by mutiplying the composite sensitivity of that parameter by the absolute log of the value of that parameter.
- Uninstalling VMOD Flex may impact the performance of VMOD Classic Interface and vice versa. If you need to uninstall VMOD Flex (for updates), then please reinstall the new version right away. Otherwise, if you intend on removing VMOD Flex from your computer, then you will need to reinstall VMOD 2011 prior to using this software again.
- If you are importing a Visual MODFLOW project with distributed properties, please be sure the $CND file (and $STR, $IHD) files have been generated in Visual MODFLOW. To do this, open your project in Visual

MODFLOW Classic Interface, go to Inputs/Properties. Select Tools/Cell Inspector. Turn on All Flow properties. Then, scroll through each layer in your model. When you are finished, save and close the project, and import into VMOD Flex.

- Rotated grids appear rotated in the 2D views.
- When show a cross-section through a child grid (for LGR) that has been rotated, the gridlines do not show up correctly. Workaround: Use 3D Viewer.
- When displaying a grid that contains a child grid (for LGR), and viewing in the Flex Viewer, the selected row, column, or layer is applied only to the parent grid; it is not applied to the child grid.
- When importing Points, Polygons or Polylines from a .DXF file, only the entities within the .DXF $EXTMIN and $EXTMAX will be imported; any entities outside these extents will not be imported. Therefore, please be sure to prepare your .DXF file properly, prior to importing.
- Some data object style settings are not saved to the project, e.g., points color, symbol size, etc.
- For some objects 3D viewer does not fully support color rendering/labelling
- Polygons with multiple parts are not rendered properly in the 2D Viewer; the holes on the polygons will appear the same color as the polygon for which it overlaps.
- When draping polygon or polyline over a surface, this is an approximation, since it relies on the vertices of the polygon or polyline to position this in 3D; there may be gaps/locations where it is not completely draped. The same problem occurs when viewing areal or linear boundary conditions in 3D Viewer
- Vertical datum shifts are currently not supported. VMOD Flex assumes that all data you import is in the same vertical datum.
- When using Kriging interpolation component, you may need to adjust the min and max radii in order to get an ideal interpolation; these parameter values will depend on your data set. Default values are 100 and 100, you will likely need to increase or decrease these values.
- A 3D Gridded data object will not be positioned correctly in a 3D Viewer, if the grid origin is modified during the import process.
- Grid rotation is not supported for imported 3D Gridded TecPlot (.DAT) data objects.
- In 3D Viewer, child grids may not display correctly if the parent grid only has one layer.
- In the color by attribute style settings, the MIN, MAX and color interval values may not update when a new attribute is assigned.
- In a minority of cases where the user has restricted rights on Windows, an error will occur when starting VMOD Flex due to the TEMP folder being set as read-only. Granting full access to the TEMP folder resolves the issue.
- If recharge boundaries are defined with a time schedule with multiple time entries for the same date, translation will be treated as static instead of transient.
- When working with a project in Local Cartesian coordinate system, coordinate conversion is currently not supported. Please ensure that any data you import is in the same coordinates, and length (XY) units, as your project local coordinates.
- An error occurs at the end of importing cross-section data objects
- In the conceptual model workflow, assigning boundary conditions to the sides of the model domain currently does not work.
- Import of 2D Cross-sectional models is currently not supported.
- Creating 2D Cross-sectional models is currently not supported.
- In some cases, the surface/cells button may not appear at the Define Properites or View Maps step in the Flex viewer: Workaround: Hide then show the appropriate data object from the model tree (eg. Conductivity or Heads) and the buttons should re-appear.
- In some cases, when opening a project from Hydro GeoBuilder or VMOD 3D-Builder, you may not be able to display and use specific grids or meshes; Workaround: Re-create the desired grids or meshes in VMOD Flex.