B.1 RELEASE 2026-04

The 2026-04 release consists of some new features and various improvements and bug fixes. These include the following highlights:

- Added the option to solve the energy equations sequentially after the black-oil equations.
- Support has been added for pressure and temperature dependent water viscosity for runs with brine (*BRINE*) and energy (*THERMAL*).
- Flow now supports runs with brine (*BRINE*) and energy (*THERMAL*).
- Added support for double precision WORK arrays for compressed property arrays (for example *SOGCR*).
- If necessary, the gas PVT tables *PVTG* and *PVDG* are modified internally to ensure that negative inverse formation volume factors will never be extrapolated.
- Implemented endpoint scaling for gas-water systems.
- Killough's hysteresis wetting phase modification (*EHYSTR* keyword item 13) is now supported.
- Added support for *RSCONST* keyword to define a constant solution gas-oil ratio for all dead oil PVT tables.
- Added support for *EQUIL* keyword item 9 (EQLOPT3) greater than zero.
- Added support for well energy injection/production rate and total summary vectors: WTPRHEA, WTPTHEA, WTIRHEA and WTITHEA.
- Support has been added for the gas lift injection total summary vectors: FGLIT, GGLIT, and WGLIT.
- Extended summary (ESMRY) files are now output by default. The command line option --enable-esmry is now set to true by default.
- Added support for region oil recovery efficiency summary vector ROE.
- Production and gas lift supply rates from satellite groups (*GSATPROD*) are now accumulated in summary output.
- Added support for inter-block flows of oil, water, and gas in the negative i, j, and k directions (BFLO[GOW][IJK]-).
- Added support for summary output of inter-block oil, water, and gas velocities in the positive/negative i, j, and k directions (BVEL[GOW][IJK][-]).
- All current well lists are now reported to the Print (PRT) file when the *WELSPECS* mnemonic is specified on the *RPTSCHED* keyword.
- Support for using the *WDFAC* and *BRANPROP* keywords in an *ACTIONX* block has been successfully tested.
- The grid independent well keywords *WELTRAJ* and *COMPTRAJ* now partially support multi-segment wells.

- Added support for using well completion quantities in *ACTIONX* Boolean conditions.
- Added partial support for the *TUNINGDP* keyword.
- Added support for *VFPPROD* tables with only one data record (single-line lift curves).
- The default value for the *NUPCOL* keyword has been reduced to from 12 to 3.
- Drift compensation is now applied to mass losses in the energy equations when using the temperature model (*TEMP*).

B.1.1 NEW AND DEPRECATED COMMAND LINE OPTIONS

The major command line changes made for this release are summarized in Table B.1

OPM Flow 2026-04 New And Deprecated Command Line Options

No.	Variable Name	Description	Default
1	--conserve-inner-energy-thermal	A boolean value. Conserve inner energy and not enthalpy even if *THERMAL* is used.	false
2	--enable-drift-compensation	A boolean value. Enable partial compensation of systematic mass losses via the source term of the next time step.	false
3	--enable-esmry	A boolean value. Write ESMRY file for fast loading of summary data.	true
4	--hy-ne-config-file	A character string. Use config files for Hybrid Newton. This option has been renamed --hybrid-newton-config-file.	"hybridNewtonConfig.json"
5	--hybrid-newton-config-file	A character string. JSON Config file path for Hybrid Newton.	"hybridNewtonConfig.json"
6	--max-newton-iterations-with-inner-well-iterations	An integer value. Maximum newton iterations with inner well iterations.	99
7	--network-max-outer-iterations	An integer value. Maximum number of outer iterations in the network solver before giving up.	3
8	--network-max-sub-iterations	An integer value. Maximum number of sub-iterations to update network pressures (within a single well/group control update).	100
9	--tolerance-cnv-energy	A positive real value. Local energy	0.4182

OPM Flow 2026-04 New And Deprecated Command Line Options			
No.	**Variable Name**	**Description**	**Default**
		convergence tolerance (maximum of local energy errors).	
10	--tolerance-cnv-energy-relaxed	A positive real value. Relaxed local energy convergence tolerance that applies for iterations after the iterations with the strict tolerance.	41.82
11	--tolerance-energy-balance	A positive real value. Tolerated energy balance error relative to (scaled) total energy present.	4.182e-06
12	--tolerance-energy-balance-relaxed	A positive real value. Relaxed tolerated energy balance error that applies for iterations after the iterations with the strict tolerance.	4.182e-05
13	--tolerance-max-dp	A real value. Tolerance for max pressure change during a Newton iteration. A value greater than 0.0 allows for convergence regardless of residual tolerances. Use with care!	0
14	--tolerance-max-drs	A real value. Tolerance for max *RS* change during a Newton iteration. A value greater than 0.0 allows for convergence regardless of residual tolerances. Use with care!	0
15	--tolerance-max-drv	A real value. Tolerance for max *RV* change during a Newton iteration. A value greater than 0.0 allows for convergence regardless of residual tolerances. Use with care!	0
16	--tolerance-max-ds	A real value. Tolerance for max saturation change during a Newton iteration. A value greater than 0.0 allows for convergence regardless of residual tolerances. Use with care!	0
17	--tpsa-ilu-fillin-level	An integer value. Fill-in level of TPSA linear solver ILU preconditioner.	0
18	--tpsa-ilu-relaxation	A real value. Relaxation factor for TPSA linear solver ILU preconditioner.	0.9
19	--tpsa-linear-solver	A character string. Configuration for linear solver. Valid preset options are: ilu0, dilu, amg or umfpack. Alternatively, you can request a	"ilu0"

OPM Flow 2026-04 New And Deprecated Command Line Options			
No.	**Variable Name**	**Description**	**Default**
		configuration to be read from a JSON file by giving the filename here, ending with '.json'.	
20	--tpsa-linear-solver-ignore-convergence-failure	A boolean value. Continue simulation even if TPSA linear solver did not converge.	false
21	--tpsa-linear-solver-max-iter	An integer value. Maximum TPSA linear iterations.	200
22	--tpsa-linear-solver-print-json-definition	A boolean value. Print JSON formatted configuration of the TPSA linear solver. Can be used to make a configuration JSON file for --tpsa-linear-solver.	false
23	--tpsa-linear-solver-reduction	A real value. Minimum residual reduction in TPSA linear solver for convergence.	0.001
24	--tpsa-linear-solver-restart	An integer value. Number of iterations before restarting GMRES if --tpsa-use-gmres=true.	40
25	--tpsa-linear-solver-verbosity	An integer value. Level of verbosity in TPSA linear solver: 0 = off, 2 = all.	0
26	--tpsa-newton-max-error	A real value. The maximum error tolerated by the TPSA Newton method which does not cause an abort.	1e+100
27	--tpsa-newton-max-iterations	An integer value. The maximum number of TPSA Newton iterations.	20
28	--tpsa-newton-min-iterations	An integer value. The minimum number of TPSA Newton iterations.	1
29	--tpsa-newton-target-iterations	An integer value. The 'optimum' number of TPSA Newton iterations.	10
30	--tpsa-newton-tolerance	A real value. The maximum absolute error tolerated by the TPSA Newton method for considering a solution to be converged.	0.001
31	--tpsa-newton-verbosity	An integer value. Verbosity level of TPSA Newton solver: 0 (=none), 1 (=basic), 2 (=all).	1
32	--tpsa-relaxed-linear-solver-reduction	A real value. A relaxed version of --	0.001

OPM Flow 2026-04 New And Deprecated Command Line Options			
No.	**Variable Name**	**Description**	**Default**
		tpsa-linear-solver-reduction (use with care!).	
33	--tpsa-use-gmres	A boolean value. Use GMRES linear solver. If false, BiCGStab is used.	false
34	--use-hy-ne	A boolean value. Whether or not to use Hybrid Newton. This option has been replaced by --use-hybrid-newton.	false
35	--use-hybrid-newton	A boolean value. Whether or not to use Hybrid Newton.	false

Notes:

1) Cells colored in green in the “No.” column indicate a new command line option or a change to an existing option for this release. Cells colored green in the "Default" column indicate that the default value for an existing option has been changed.
2) Cells colored red in the No. column indicate command line parameters that have either been decrepated or removed from this release.

Table B.1: OPM Flow 2026-04 New and Deprecated Command Line Options

B.1.2 NEW FEATURES

In addition to the changes to the command line options the following new features have been added to the simulator:

1) Support has been added for pressure and temperature dependent water viscosity for runs with brine (*BRINE*) and energy (*THERMAL*) (*#4656*).
2) Flow now supports runs with brine (*BRINE*) and energy (*THERMAL*) (*#6368*).
3) Added support for double precision WORK arrays for compressed property arrays (for example *SOGCR*) (*#4861*). Operating on "global" arrays, such as *MULTZ*, with WORK arrays is not currently supported. Item 8 of the *REGDIMS* keyword does not impose an upper limit on the number of distinct WORK arrays that can be used. Note that integer IWORK arrays are not currently supported.
4) Added support for *RSCONST* keyword to define a constant solution gas-oil ratio for all dead oil PVT tables (*#6971*, *#4993*).
5) Added support for *EQUIL* keyword item 9 (EQLOPT3) greater than zero (*#6519*). In this case the tilt of the grid blocks is taken into account when calculating the initial fluids in place.
6) Added support for inter-block flows of oil, water, and gas in the negative i, j, and k directions (BFLO[GOW][IJK]-), and improved the efficiency of the block flow summary output (*#6793*, *#4954*, *#4906*).

7) The grid independent well keywords *WELTRAJ* and *COMPTRAJ* now partially support multi-segment wells (*#4524*). If a well entry is added to the *WELSEGS* keyword, without defining the segment structure (i.e. only the first record is defined), information provided by the *WELTRAJ* and *COMPTRAJ* keywords is used to generate segments for that well (i.e. the missing *WELSEGS* records, and the *COMPSEGS* information). The generated multi-segment wells currently consist of one segment for each cell along the well trajectory defined by the *WELTRAJ*. The tubing internal diameter is currently set equal to the wellbore diameter specified on the *COMPDAT* keyword and the tubing roughness is set to zero. Future developments are expected to support reading additional *WELSEGS* records to give more control over the segment structure and tubing properties.

8) Drift compensation is now applied to mass losses in the energy equations to avoid unphysical temperatures if OPM Flow's temperature model (*TEMP* keyword) has been activated (*#6684*). See the command line option --enable-drift-compensation-temp (= true, by default).

9) The integer vector RUNTIMEI is now written to the SMSPEC file (*#5115*). This is needed by some external tools.

B.1.3 IMPROVEMENTS

Improvements to the simulator in this release include the following:

1) Renamed Hybrid Newton command line options from --hy-ne-config-file and --use-hy-ne to --hybrid-newton-config-file and --use-hybrid-newton (*#6588*).

2) Updated the descriptions of the command line options (*#6651*).

3) Added the option to solve the energy equations sequentially after the black-oil equations (*#5854*, *#4825*). This is activated by the *TEMP* keyword. Note that the fully implicit solution of the energy and black-oil equations can still be activated by using the *THERMAL* keyword.

4) Support has been added for non-neighbor connections ("NNC"s) when the corner point grid contains local grid refinement ("LGR") (*#6844*). Previously, the NNCs where not generated between coarse and refined grids. This is required for future support of LGRs in OPM Flow.

5) If necessary, the gas PVT tables *PVTG* and *PVDG* are modified internally to ensure that negative inverse formation volume factors will never be extrapolated (*#4828*).

6) Killough's hysteresis wetting phase modification (*EHYSTR* keyword item 13) is now supported (*#5032*, *#6912*).

7) Added support for well energy injection/production rate and total summary vectors: WTPRHEA, WTPTHEA, WTIRHEA and WTITHEA (*#6547*).

8) Support has been added for the gas lift injection total summary vectors: FGLIT, GGLIT, and WGLIT (*#4802*).

9) Extended summary (ESMRY) files are now output by default (*#6590*). The command line option --enable-esmry is now set to true by default.

10) Added support for region oil recovery efficiency summary vector ROE (*#4833*).

11) Production and gas lift supply rates from satellite groups (*GSATPROD*) are now accumulated in summary output (*#6725*, *#4892*).

12) Added support for summary output of inter-block oil, water, and gas velocities in the positive/negative i, j, and k directions (BVEL[GOW][IJK][-]) (*#6830*, *#4989*).

13) The code now forces a final write to the SMSPEC files at the last report time to ensure all potential changes (such as WGNAMES and KEYWORDS) due to *ACTIONX* keywords triggered at intermediate timesteps are captured (*#5062*). In addition, there may have been previous writes that missed information due to adaptive time stepping.

14) All current well lists are now reported to the Print (PRT) file when the *WELSPECS* mnemonic is specified on the *RPTSCHED* keyword (*#4788*). The well list report is generated whenever any of the well lists have been changed.

15) Restart file support has been added for the parameters defined by the *VAPPARS* keyword, and a flag to indicate if the *VAPPARS* keyword is active (*#4819*).

16) Added support for restarting runs using the temperature model (*TEMP*) and/or gas phase tracers (*#4811*). Note that UDAs are not yet supported for these features during restart.

17) Support for using the *WDFAC* and *BRANPROP* keywords in an *ACTIONX* block has been successfully tested (*#4847*).

18) The maximum number of Newton iterations with inner well iterations has been increased from 8 to 99 and is now applied to both standard and multi-segment wells (*#6098*). See the command line option --max-newton-iterations-with-inner-well-iterations(=99).

19) Added support for using well completion quantities (for example, WWCTL__3 'P1') in *ACTIONX* Boolean conditions (*#4855*, *#4898*).

20) A more detailed error message is now generated if the *COMPSEGS* keyword references an undefined segment (*#4907*). The message now includes the segment and branch numbers, as well as the connection's IJK location. Previously this would result in an exception being thrown giving the segment number only.

21) Added support for the *TUNINGDP* keyword items 3 to 6, which set the maximum pressure, saturation, Rs, and Rv changes respectively during a Newton iteration (*#6723*, *#4890*). Note that items 5 and 6 are OPM Flow specific items.

22) If the *WSEGAICD*, *WSEGSICD*, or *WSEGVALV* keywords reference an undefined segment then a warning message will now be output, and the device will not be added to the well (*#4908*). Previously an exception would be thrown.

23) Added support for *VFPPROD* tables with only one data record (single-line lift curves) (*#4909*). The BHP values depend only on flow rate (FLO) and are replicated across all THP/WFR/GFR/ALQ combinations.

24) A message is now output for Restart runs that do not include the *SKIPREST* keyword, but that contain explicitly defined *DATES* on or before the Restart time (*#4963*).

25) The default value for the maximum number of Newton iterations to update well targets specified using the *NUPCOL* keyword has been reduced from 12 to 3 (the same value as

the commercial black-oil simulator) (#4373). Also, the default value for the minimum number of Newton iterations to update well targets specified by the OPM Flow specific *MINNPCOL* keyword has been reduced from 6 to 3. The *MINNPCOL* keyword has been deprecated.

26) Support has been added for *GCONPROD* item 10 equal to POTN, which sets a group's guide rate equal to its production potential, i.e. the sum of potentials of all subordinate open producers (#5098).

27) When the convertECL utility is run with the -l option a list of the restart times in the specified unified restart file is generated (#4830). The output has been extended to include the time of day and use month names rather than numbers for the date (dd-Mmm-yyyy HH:MM:SS).

28) The building blocks for Krylov subspace methods and a highly optimized mixed-precision implementation of ILU0 and DILU preconditioned BiCGSTAB have been added (#6521, *README.md*).

29) The Machine Learning code has been refactored to remove the TensorFlow dependency, now only NumPy is required (#4857).

30) The code now avoids recreating the linear solver for every temperature model solve (#6898).

31) OPM Flow now reports and skips well connections in cells where the permeability in the directions perpendicular to the perforation interval is zero (#5079). This is currently only supported for X, Y, or Z direction perforation intervals as defined on the *COMPDAT* keyword.

32) Added file conversion support for *INSPEC* and *RSSPEC* files to the convertECL utility (#5116).

33) Updated the CMake file to allow opm-common to be used by other programs that do not use the OPM specific build system (#5121).

B.1.4 BUG FIXES

The following bug fixes have been incorporated into this release:

1) Correctly account for net-to-gross ratio when calculating the rock volume for use in the heat equation (#6542).

2) Implemented endpoint scaling for gas-water systems (#4923).

3) Fixed summary output of well tracer rates for cases with multi-phase tracers (#6577).

4) Ensure that the internal logic for generating unique region vector keys always computes the same string value (#4858). This also fixes a problem concerning inter-region flow vectors with a user defined region set, for example: ROFT_ABC, ROFT+ABC, and ROFT-ABC. Prior to this PR, these would be stored internally with duplicated region set names and would be incorrectly written as zero in the summary files.

5) Corrected the Summary output of iterations counts (for example *NEWTON*) (#6720). Previously these were off by one and incorrect following a timestep cut.

6) Ensure that all well segment connections defined during the report step using the *COMPSEGS* keyword are considered when updating the scaling factors for AICDs and SICDs defined using the *WSEGAICD* and *WSEGSICD* keywords (*#4803*, *#1413*).

7) Correctly account for permeability reduction due to salt precipitation when calculating the well connection factor (*#6565*, *#6562*).

8) Fixed the output units for *DRSDT* in the Restart file (*#4818*). This was only an issue if a Restart file generated by OPM Flow was used to restart a run in a different simulator.

9) Defer consistency checking of the *SCHEDULE* section for restart runs until the input data has been combined with information from the restart file (*#4822*). This avoids false positives for the 'requires' clause when checking the input data where the required data may be stored in the restart file.

10) Well perforation cell indices are now compared when checking for changes rather than just comparing the total number of cells (*#6609*).

11) An issue has been resolved in parallel runs where after a group was closed for economic reasons, some ranks could later try to perform well testing on wells that did not exist on the rank (*#6629*).

12) The *POLYMER* output array is now correctly treated as "concentration" instead of saturation when converting to output units (*#6640*, *#4749*).

13) Restored output of the mole fraction arrays XMFCO2, XMFH2, and YMFWAT when using the *CO2STORE* and *H2STORE* models (*#6637*, *#6580*). These arrays were not output by OPM Flow versions 2025-04 and 2025-10.

14) Mass balance of injected filtrate is now ensured in wells with cross-flow by assuming zero filtrate concentration in cross-flowing water, as well as complete mixing of the injected and cross-flowing water (*#6672*).

15) Fixed the units for artificial lift quantity (ALQ) when calculating pressure drops in branches of an extended network model (*#6675*, *#4844*).

16) Fixed the evaluation of accumulated efficiency factors during group constraint checks (*#6681*). Previously, this could cause incorrect constraint violations when checking higher-level group constraints.

17) Fixed the application of group efficiency factors to group gas consumption and import rates (*GCONSUMP*) (*#6737*).

18) Fixed an error in the calculation of injection rates when a voidage replacement target had been set (*#6784*).

19) Fixed the calculation of aggregated surface well rates when checking if an auto choke group is underperforming in parallel runs (*#6833*). Previously, only the rates on the current rank were considered.

20) Fixed the calculation of the target rate for auto choke groups (*#6835*). This prevents double-counting of reductions at intermediate groups with no group controlled wells, and corrects the common case where the control group is the immediate parent with no reductions.

21) The caller's Python interpreter is now used for file parsing (#6886). This is required to properly handle the *PYINPUT* keyword, otherwise the internal support for *PYINPUT* will fail trying to initialize a second Python interpreter and generate a misleading error message.

22) Injection rates for all phases are now accounted for correctly for multi-phase injection groups under reservoir volume rate (RESV) control (#6915).

23) Fixed the evaluation of the residuals for the temperature (*TEMP*) model when running in parallel (#6663).

24) Two bugs have been fixed relating to salinity handling when initializing diffusion coefficients, and the region-dependent salinity used for diffusion coefficients in *CO2STORE*/*H2STORE GASWAT* simulations (#5097). In addition, a one-iteration Batzle-Wang correction has been applied to the conversion from salt concentration to mass fraction.

25) Fixed the "duneilu" preconditioner choice available through the JSON interface for the linear solver (#6977).

26) Added a guard against running simulations using the Two-Point Stress Approximation (TPSA) option if a flow binary does not exist for this particular setup (#6990).

27) Ensure that all output is written when the simulation run is ended early using the *EXIT* keyword in an *ACTIONX* block (#6991). Previously this was only done if the last report step had been reached.

B.1.5 KNOWN ISSUES

Known issues in this release of the simulator include:

1) There is an error with the RSM header for summary vectors whose NUMS entry in the SMSPEC file is derived from more than a single number source (e.g., single region or segment ID). This applies to all block vectors (BGPV, BOPV, BWPV, etc.), connection level quantities (COPT, etc.), and inter-region flows such as ROFT etc (#3078). The work around is to plot the data in OPM ResInsight and right-click on the plot to view and copy the data.

2) As per previous releases of the radial model, the *COORDSYS* keyword item three must be set to COMP to complete the circle, this has not been implemented in this release. Also there appears to be a bug for full radial models when a well goes on BHP control that causes the well not to respect the BHP constraint, this eventually causes the well to die prematurely. See #2640 for a discussion on the topic.

3) As in previous releases there are some issues with the *OPERATE* and *OPERATER* keywords associated with the input parsing; for various reasons a few of the fields require special case treatment in the grid processing, including (at least) *MULTZ*, *PORV*, and *ACTNUM*, and for those keywords the *OPERATE*/*OPERATER* keyword does not work. The work around is to use the *MULTIPLY* keyword instead.

4) For the *UDQ* ASSIGN operator after the terminating "/" normally any comments can be entered; however, if there is "/" within the comment field, as per:

```
ASSIGN FUNGLYLD 1.196   /    Condensate Yield (63.5/56.7)/(1.0 – 0.065)
```

then the simulator will abort. The work around is to manually place the comment characters "--" after the ASSIGN terminating "/", like so:

```
ASSIGN FUNGLYLD 1.196   / -- Condensate Yield (63.5/56.7)/(1.0 – 0.06)
```

5) At the moment, one cannot initialize tracers using the *EQUALS* keyword. Instead use the array format, that is the keyword followed by the required number of values, or the *TVDP* keyword in the *SOLUTION* section to set the initial tracer concentrations as a function of depth.

6) Currently, gas tracers cannot be used if the dissolved gas phase, as per the *DISGAS* keyword in the *RUNSPEC* section, is active in the model.

7) The summary vector RTIPTHEA, that defines the energy in-place between the initial and the current time for regions, is not supported unlike the FTIPTHEA and BTIPTHEA vectors. Secondly, the error message:

```
Warning: Problem with summary keyword RTIPTHEA
In RSM-THERMAL.data line 492
FIP region FIPHEA not defined in REGIONS section - RTIPTHEA ignored
```

is incorrect, as the message indicates that it is being treated like a named region, as per the *FIP* keyword, when it is actually a *SUMMARY* vector (*#3870*).

8) If there are cells that are very distorted, which can occur near fault planes, then the simulator may abort because it cannot calculate the pore volume of such cells. The work around is to re-generate the grid in the static model, taking care that the cells around the fault planes are more or less orthogonal (*#2992* and *#3770*).

9) Currently the *OPERATER* keyword in the *EDIT* section does not work with the *DEPTH*, *TRANX*, *TRANY*, and *TRANZ* property arrays (*#2994* and *#748*).

10) If a standard well is fully declared in an *ACTIONX* block which is then activated at a later date, and later the well is modified to be a multi-segment well using the *WELSEGS* and *COMPSEGS* keywords, then this will cause the simulator to abort with an assert failure. The solution to this issue is to not use this type of work flow in declaring wells (*#2891* and *#2895*).

11) There are small differences in the behavior of the *NEXTSTEP* keyword in the *RUNSPEC* section between OPM Flow and the commercial simulator that remain unresolved (*#3745*).

12) OPM cannot be built with dune-fem version 2.9 or later (*#4934*). Please use a previous version.

13) The simulator uses an irregular corner-point grid geometry with adjusted pore volumes to represent radial grids so it is not possible to create a full ring (360 degree disk) with only one cell in the theta direction (NY=1). The work around is to model a slice (say *DTHETA*=60 degrees). Note that as the angle increases larger pore volume adjustments are required (*#4755*).

14) In some cases with the network option the simulator can wrongly report that a well has no THP constraints, for example

```
GLIFT WTEST: Well S-3H does not have THP constraints
```

when THP constraints have been defined (#4887).

15) Dispersion in the gas phase leads to convergence issues for the 11th SPE CSP (https://spe.org/csp) models Version 11B and Version 11C (and is not fully tested). Therefore dispersion in the gas phase has been removed and a warning added (#5101, #859).

16) The build system currently picks the system-installed version of DUNE, not the one available in the git repositories. The workaround is to use dunecontrol to perform the build. (#5126).

17) It is not currently possible to modify the *DEPTH* array in the *EDIT* section. (#6911).

18) Two phase VFP tables are only supported for oil-water systems. (#6817).

19) The saturation function end-point consistency checks generate an error for very small negative saturation end-points (for example *SOGCR* equal to -5.551115e-17). (#6606).

20) Using lower case for FACE, e.g. 'x', on the *FAULTS* keyword causes the simulation to abort. The workaround is to aways use upper case, e.g. 'X' (#4983).