CRACKWISE 4 RELEASES – MOST RECENT FIRST

4.3.21872 AUGUST 5TH 2014 CUSTOMER RELEASE

BUG

- [CWIV-153] – Mk options available incorrect after changing level/calculation type, required checking the Mk box to reset the options.
- [CWIV-154] – 3D Mk parameter in equation g12 incorrectly changed in CWIV-91, following through in BS7910:2013, (Surface bending M.11.1.3 b) g12 has second term as 0.50338, should be 0.82526. The reference used [291] had a typo in its A16 term, the original reference [245] has the correct values.

4.3.18509 OCTOBER 14TH 2013 CUSTOMER RELEASE

BUG
- [CWIV-152] – PWHT orientation options were un-available to the user to change.

4.3.17532 AUGUST 28TH 2013 CUSTOMER RELEASE

BUG

- [CWIV-151] –Weight function with sensitive flaw dimensions or tearing wasn't calculation correctly (now refitting the weight function for differences in flaw).

4.3.15900 MAY 27TH 2013 CUSTOMER RELEASE

BUG

- [CWIV-150] – Reporting error, due to a 14th placed decimal rounding error for B' >=2a+2p in fracture + fatigue case with small growth. Changed check to ignore differences in 12th places.

4.3.14390 FEBRUARY 13TH 2013 CUSTOMER RELEASE

BUG
- [CWIV-141] – New check and warning for level 3 cases prior to start of all toughness points.
- [CWIV-142] – Plasticity should be set to 0 when KIS=KIP=0 rather than a lower limit of 0.1 whenever KIP = 0
- [CWIV-143] – Extra reported criticality value not always correct (correct value used in calculation though)
- [CWIV-144] – Secondary stress relaxation (14.a) not correctly implemented for the case where the assessment temperature is smaller than room temperature.
- [CWIV-145] – Impose lower limit for secondary stress relaxation, the minimum value of Qm permitted by the stress relaxation rules is $0.4\sigma'Y$ (where $\sigma'Y$ is the yield strength at assessment temperature), or the appropriate yield strength at room temperature, whichever is the lower. This clause is then compatible with Annex O of BS7910. This treatment of residual stress by CW4 is slightly different from that implied by equation 14b of BS7910, which gives no lower limit to Qm)
- [CWIV-146] – In the course of ductile tearing analysis, the points violating the validity limits were being assessed and plotted.
- [CWIV-147] – show theta for fracture and fatigue case in the intermediate results
- [CWIV-138] – a/B limit not applied to long surface external circumferential flaws.
- [CWIV-148] – Clarify description of primary stresses for through thickness flaws oriented circumferentially in pipes/cylinders.

4.3.13819 DECEMBER 12TH 2012 CUSTOMER RELEASE

BUG

- [CWIV-140] – User unable to choose different plots in summary screen plots tab (they were still shown in the summary report) .

4.3.13811 DECEMBER 11TH 2012 CUSTOMER RELEASE

BUG
- [CWIV-135] - Level 1 FAD plot not square.
- [CWIV-136] - Non consistent answers doing a re-calculation where secondary relaxation selected and tabular flaw geometry out of bounds towards end of calculation.
- [CWIV-137] - Fatigue case with cyclic stress data where applying first part would violate bounds reported as infinite blocks.

IMPROVEMENT
- [CWIV-139] – Introduction of a reference stress factor, which enables scaling of reference stress, where appropriate and as long as the use of it is sufficiently validated.

4.3.13638 NOVEMBER 27TH 2012 CUSTOMER RELEASE

BUG
- [CWIV-132] – Error with inclusion of Pm components for misalignment when using through-thickness flaws oriented circumferentially in pipes/cylinders for Lr calculation. Formerly
  ```
  Pb = Pbl+( (1-Me)*(PmP+PmB+Pma)) corrected as
  Pb = Pbl+(Me*(PmP+PmB+Pma))
  ```
- [CWIV-133] – Bulging correction factor M being applied to circumferential through thickness flaws contrary to M.4.2.1.c, where M should be set to 1
- [CWIV-134] – The 'Axial misalignment, flat plates, different thickness' Misalignment summary printout contained units for n but not for e , n should be unit less and e should be reported as a length.

4.3.13512 NOVEMBER 16TH 2012 CUSTOMER RELEASE

BUG
- [CWIV-122] - fixed typo in report (austenitic spelt incorrectly)
- [CWIV-123] - Don't generate 3000+ lines of error message if only showing the first 30 or so characters. Limited to 20 lines of message, any more will say that there are more but not show them
- [CWIV-124] - correct entry of Primary stresses for through-thickness flaws oriented circumferentially in pipes/cylinders, Proof stresses modified to accept 4 components, fatigue changed to only have 2 (SIF solution not affected)
- [CWIV-125] - check for fracture errors/warnings and abort in fatigue solver should now check Geometry to stop solver (Mainly a level 3 issue when tearing is applied).Don't plot FAD point if there are geometry errors.
- [CWIV-126] - Correct descriptions on screen for Primary stresses (x4)
- [CWIV-127] - Case of stress label on primary stress screen screen
- [CWIV-129] - Embedded fatigue solver issues, parametric depth z and p+2a values have been corrected throughout the calculation. CW4 now uses the stress intensity from the near-surface value of KI to calculate delta_a and delta_p. This approach is conservative. This will only apply when Mk is turned on.
- [CWIV-130] - reset pm with fatigue only solver in case user switches back to fracture and fatigue.

IMPROVEMENT
- [CWIV-128] - Show right directory with save-as and show filename without path
- [CWIV-131] - show p-a on the results screen for an embedded flaw to give guidance for possible re-characterisation.

CLARIFICATION
- [CWIV-90] – The radius used in the calculation of the reference stress for the external surface flaws oriented circumferentially in pipes/cylinders was wrong. Instead of Rm, Ro should have been used. This was not clear in BS7910:2005, equation (P.12).

4.3.13009 SEPTEMBER 26TH 2012 CUSTOMER RELEASE

BUG

- [CWIV-92] - Sensitivity/Criticality issue where base case is set to 0 and parameter is a constant ratio
- [CWIV-110] - Commercial installer not always working
- [CWIV-112] - Potential confusion when using secondary stress weight function if flaw dimensions are changed
- [CWIV-113] - Opening attached file causes error (using Norweigan Bokmal settings)
- [CWIV-114] - No FAD point plotted if fracture + fatigue with no damaging growth.
- [CWIV-115] - Lr limited to be > 0
- [CWIV-117] - Fatigue case Paris law setting incorrect limit when in US units
- [CWIV-120] - Ref stress solution Alpha" missing pi term

IMPROVEMENT

- [CWIV-121] - Slow calculation - level 3 fracture + fatigue

4.3.11027 FEBRUARY 10TH 2012 CUSTOMER RELEASE

BUG

- [CWIV-110] – Installer issues for people using cisco scansafe and installer not being downloaded due to password protected items in it. Separate installer created without the 7910 pdf included.
- [CWIV-111] – It was possible to generate a Kr < 0, restrict to 0 and warn users.
- [CWIV-113] – Possible parsing error when trying to reload old files which has been saved with . separator but re-loaded with , separator.
- [CWIV-114] – No FAD point plotted if fracture + fatigue with no damaging growth.
- [CWIV-115] – It was possible to generate an Lr < 0, restrict to 0 and warn users.

IMPROVEMENT

- [CWIV-112] – Potential confusion when using secondary stress weight function and changing the flaw dimensions (warnings in place to re-fit).

4.3.10702 DECEMBER 16TH 2011 CUSTOMER RELEASE

BUG

- [CWIV-83] - Changing from Fracture to Fracture+Fatigue doesn't turn off weight function if applied to primary stresses.
- [CWIV-82] - Parametric Depth not consistent if user enters 0 and 180 or -180 the result should be the same, it isn't.
- [CWIV-79] - For a Bar case under fatigue it reports growth of c, but c isn't an applicable dimension
- [CWIV-78] - Charpy error message for limits confusing
- [CWIV-75] - can get unhandled exception when trying to fit polynomial
- [CWIV-71] - Help file change
- [CWIV-76] - Copy to clipboard not working for Elevated Temp Toolkit
- [CWIV-90] - The Radius being used in some calculations is the wrong one (not explicitly stated) in BS7910:2005
- [CWIV-91] - 3D Mk parameter corrections (Some parameters incorrect in BS7910:2005)
- [CWIV-93] - Entering Pm/Pb ratio with Pb=0 causes problems for sensitivity/criticality solver.
- [CWIV-107] - Don't calculate Annex Q BS7910:2005 on entry if validity limits are exceeded.
- [CWIV-108] - Report 0 blocks when failed by fracture instead of infinity in a combined fracture and fatigue analysis.
- [CWIV-109] - Check that radius is entered and > 0 where required.

IMPROVEMENT

- [CWIV-70] - Show Low/Medium/High label for Heat input for Annex Q BS7910:2005 if appropriate.
- [CWIV-72] - Improve appearance of FAD step at 1
- [CWIV-73] - ISO 15653 hardness equations
- [CWIV-74] - Only show heat input description after calculating (Annex Q BS7910:2005).
- [CWIV-81] - Note that the weight function is not currently covered in BS7910:2005
- All Annex Q BS7910:2005 distributions tested and enabled.
- [CWIV-86] - Include filename in printout header or footer
- [CWIV-88] - Improved Embedded flaw image to show theta with directionality
- [CWIV-94] - For critical solver a warning should be added if the number of iterations are reached.
- [CWIV-96] - Command line option to turn off warning about not being able to check for new version (-nowebcheck)
- [CWIV-97] - Sensitive/Critical solver can plot strange shapes where there are warnings on some points and theta switches, now shows tooltip points where there are issues and if >1 theta will show different coloured symbols together with tooltips.
- [CWIV-98] - Explanation of how fatigue solver works included on screen where increments entered.
- [CWIV-103] - Equation (P.11) in BS7910:2005 should be W rather than $\pi.ri$ (will be corrected in next version of standard)
- [CWIV-104] - Improve description/layout of Annex Q BS7910:2005.

NEW FEATURE
- [CWIV-47] - Elevated temperature toolkit using API579 Annex F and DNV-OS-F101.
- [CWIV-84] - Sensitivity flaw height for embedded case doesn't also change p, would be nice if it would change both (as fatigue solver)
- [CWIV-106] - show CSA:Z662-07 idealised stress strain curve option.

4.2.8693 JANUARY 20TH 2011 CUSTOMER RELEASE

BUGS/CHANGES
- [CWIV-62] - error in error message format for internal long surface case.
- [CWIV-63] - Limits on equation O.1 [Proof stress] for ref stress.
- [CWIV-64] - extra protection when BindingManagerBase is used to stop null object being used (loading a case with a different toughness type and then calculating potentially caused an exception).
- [CWIV-65] - Issues with PSF screen not updating underlying datamodel and switching back to default settings, also fixes Issue [CWIV-66]
- [CWIV-67] - show correct units for weight function if using SI or US (just interface change)
- [CWIV-68] - Error calculating plasticity correction factor (rho) when using UserDefined K Solution

4.2.8303 SEPTEMBER 21ST 2010 CUSTOMER RELEASE

BUGS/CHANGES
- [CWIV-56] - Mk and minimum parametric depth not used as originally intended when developed, but as written in standard
- [CWIV-58] - Mkm_a,c and p were not output in the intermediate results for fracture+fatigue cases
- [CWIV-61] - Can't enter decimal places using Norweigan Bokmal locale in grids, will presumably also affect other locales.

IMPROVEMENT
- [CWIV-60] - Changes to Help/Interface for Level 3 fracture and fatigue [CWIV-53] - Level 2 Sensitivity case not producing summary report.

4.2.8147 JULY 9TH 2010 CUSTOMER RELEASE

BUGS/CHANGES
- [CWIV-53] - Level 2 Sensitivity case not producing summary report.
- [CWIV-54] - Yield strength room temperature not used on tensile properties screen.
- [CWIV-55] - Use Distinct Mk checkbox could become disabled when reloading a file where it was applicable.

NEW FEATURE
- [CWIV-45] - Remaining Annex Q residual stress distributions

4.2.8112 JUNE 28TH 2010 CUSTOMER RELEASE

BUGS/CHANGES
- [CWIV-40] - Rho factor mistakenly extended to 5.4, it stop at 4.0
- [CWIV-44] - Embedded Defect Fatigue case used the wrong method to decrement ligament for length only and depth only, it was decrementing for length only but not for depth only where it should have been.
- [CWIV-49] - Summary report shows result as unacceptable when case is acceptable (level 3 sensitivity).
- [CWIV-50] - Level 2 sensitive critical not clearing error messages and throwing an exception when generating summary report.
- [CWIV-51] - PSF's being used in fracture and fatigue case for fatigue solution.
- [CWIV-52] - PSF screen not setting values correctly.
- [CWIV-43] - Problem using material specific data when not having (0,0) entered

4.2.7659 DECEMBER 23RD 2009 CUSTOMER RELEASE

BUGS/CHANGES
- When entering data into a grid it was possible for the data to not be used if you didn't leave the grid control before moving screens.
- Make sure that the parametric angle is set to max in the calculation as well as on the screen.
- Number of points in FAD will default back to 100 in cases where the number of points are not specified.
- Revert the change for maximum number of points in an FAL to be an advisory warning rather than resetting the number to 100.

4.2.7604 NOVEMBER 24TH 2009 CUSTOMER RELEASE

ADDITIONS
- annexQ changes and corrections - only available for girth welds at the moment.
- reverse direction of annex Q distribution when going back into weight function.
- notification of limits in Annex Q also check limits prior to calculation

BUGS/CHANGES
- Default to max parametric angle
- Steels/aluminium checked by default
- Re-setting FAD.Points every time
- trap null cycles in fatigue spectra.
- Limit the number of points in the FAL to be a maximum of 100
- Make progress bar Red if error for table lookup data.
- Warning if user defined cutoff has insufficient data in material specific stress strain curve
- add misalignment warning message to cyclic stress screen.
- Units added to grid for user defined toughness at level 3.
- add units to paris constants Delta K grid column
- set back initial parameters if out of bounds error fires in solver
- create new template every time software starts.
- Flaw description changed to remove Bulging from text.

- Updated to have correct links in database and working links in help file.
- Update help document.

4.1.7209 JUNE 19TH 2009 BETA RELEASE

ADDITIONS
- initial update so that version number reads 4.2

BUGS
- Check for null values in fatigue stress spectra and ignore any rows with these in (previously causing the program to abort a calculation with no feedback to the user and changing the initial flaw size).
- Problem with material specific FAD and Engineering/True radio button coming back in right state when reloading files.

4.1.7142 JUNE 4TH 2009 BETA RELEASE

ADDITIONS
- Annex Q calculations included for secondary stress weight function.

BUG
- Updated error message in database for Circumferential Internal Surface Flaw in Cylinder which would cause an exception and close the program if fired.

4.1.6795 MARCH 31ST 2009 CLIENT RELEASE

BUG
- Bug with installer not including correct DLL's. This would result in an exception when choosing the weight function option.

4.1.6724 MARCH 23RD 2009 CLIENT RELEASE

BUG
- Yield cannot be used as a sensitivity or criticality parameter when there is a user defined stress strain curve.

4.1.6644 FEBRUARY 27TH 2009 BETA RELEASE

BUG
- Over zealous error reporting for fatigue only case. No need to check FAD settings, or to reset the FAD before running the solver. Report was also including material specific stress strain curves for fatigue only cases.

4.1.6520 JANUARY 28TH 2009 BETA RELEASE

BUG
- Error message for some cases where B/ri <= 0.25 had a formatting error and was causing an exception to be thrown when the rule was violated.

4.1.6486 JANUARY 21ST 2009 CLIENT RELEASE

CRITICAL BUGS
- Error in Surface Flaw Cylinder Internal Axial case for parametric depth (was setting theta the wrong way around and miscalculating Mk hence K etc.). **Cases using this geometry should be repeated.**
- Error in Surface Flaw Cylinder External Axial, inside/outside were calculated the wrong way around, together with Mk as above. **Cases using this geometry with 'deepest' or 'surface' selected as the position for K calculation should be repeated.**

BUG
- The image for Bar-Long surface flaw showed a cylinder rather than a bar and rm rather than r
- when twisoftware.com website was down the application wouldn't start.
- For the surface external and internal axial flaw in a cylinder, CW now reports K for the 'surface' and 'deepest' positions instead of 'inside' or 'outside'

4.1.6423 DECEMBER 16TH CLIENT RELEASE

BUG

- check both yield at assessment temperature and yield at room temperature are less that UTS

4.1.6392 DECEMBER 8TH 2008 BETA RELEASE

BUG

- check tensile properties in solver, new check added for yield < UTS
- Re-instated 2 sensitivity/criticality parameters (secondary stress appropriate yield and Tensile strength with constant yield/UTS ratio).
- Wording of error message changed to give more idea of what's wrong in the report.
- line up Pm and units.

4.1.6380 DECEMBER 5TH 2008 BETA RELEASE

BUG

- Proof relaxation only calculated for initial fatigue case.
- Warning if relaxation < 0.4 yield
- Wording of warning message for Mk reloading changed.

4.1.6284 NOVEMBER 18TH 2008 BETA RELEASE

BUG

- If using a Fatigue Crack Growth curve with more than 2 lines of paris constants, the constant chosen would be incorrect and actually the one above where it should have been.

4.1.6094 OCTOBER 8TH 2008 BETA RELEASE

CHANGE

- Parametric depth incorrect when using US units, it should be 0.15/25.4inches rather than the constant 0.15 it was.

4.1.6042 SEPTEMBER 30TH 2008 BETA RELEASE

CHANGE

- First iteration of Neuber toolkit available on toolbar.
- Somehow it had been possible to turn on Relaxation with known secondary stresses (This could not be reproduces), files with these settings will now reload without relaxation applied.
- 'Curved plate' changed to 'Curved shell' in geometry descriptions.
- Templates now stored in temporary location.

4.1.5906 SEPTEMBER 5TH 2008 BETA RELEASE

CHANGE

- Loading of crackwise 4 cases will now correctly set the proof stress yield value and also the whether or not Mk is enabled.

4.1.5619 JUNE 24TH 2008 BETA RELEASE

CHANGE

- Wording changed for attachments (addition of load bearing/non load bearing to options) to help with interpretation of Amendment 1.

4.1.5616 JUNE 23RD 2008 CLIENT RELEASE

BUG

- Post weld heat treatment option included in summary report.

4.1.5594 JUNE 19TH 2008 BETA RELEASE

BUG

- Labels for k location changed for axial external surface flaw to deepest/surface instead of inside/outside.
- Option added for Post Weld Heat Treatment to take account of Amendment 1 change in 7.2.4.2

4.1.5568 JUNE 16TH 2008 BETA RELEASE

BUG

- Software will work on windows 64 bit versions.
- After calculating fatigue life in fatigue only case and switching to fracture+fatigue the parametric angle setting wasn't being correctly set in the interface.

4.1.5429 MAY 15TH 2008 BETA RELEASE

BUG

- Problem identified with K location in Surface flaw - Internal Axial Cylinder where the K location was always using the deepest point.

4.1.5390 MAY 9TH 2008 CLIENT RELEASE

MAIN CHANGES

- If blank rows were placed in the weight function grid they were treated as 0,0 and messed up the fit without being very apparent.

4.1.5251 APRIL 14TH 2008 CLIENT RELEASE

MAIN CHANGES

- Weight function not visible due to a licence restriction, this should now be visible to everyone.

4.1.5250 MARCH 10TH 2008 CLIENT RELEASE

MAIN CHANGES

- Full customer release
- .Net framework 2.0 required available from '**Windows Update**' or directly from either http://www.twi.co.uk/private/dotnet/dotnetfx2.exe or http://www.microsoft.com/downloads/details.aspx?FamilyID=0856eacb-4362-4b0d-8edd-aab15c5e04f5&displaylang=en
- Weight function
- Updated version of 7910 pdf
- May requires re-activating (manually copy the existing *.lic licence files from previous version if the application fails to start).
- Various bug fixes

4.0.0.5199 26TH FEBRUARY 2008 BETA

BUGS

- unit problem with switching from si to us and then back to si again with ctod toughness.
- Plot property grid modified to show symbol property for single point chart.
- Switching solution type (Fracture/Fatigue/Fracture+Fatigue) caused the software to reset the crack growth data source back to BS7910 (Recommended).

4.0.0.4772 30TH NOVEMBER 2007 BETA

BUGS

- CW4-611: Secondary stress relaxation for Residual stresses was using Qm/Qb from previous Known cases during the calculation [R4638].
- CW4-592: Column in printout too small for data so truncating (Fatigue cycles) [R4348].
- CW4-591: User can't enter numbers in exponential format into grids (e.g crack growth) [R4538]
- Column in printout too small for data so truncating (Fatigue cycles) [R4358].
- User can't enter numbers in exponential format into grids (e.g crack growth) [R4348].

- Secondary stress relaxation for Residual stresses was using Qm/Qb from previous Known cases during the calculation [R4638].

NEW FEATURES

- Updated to use .Net 2.0
- New installer which works with vista etc.
- Weight Function option to calculate stress intensity factor for a crack loaded by a non-uniform stress distribution. This option is available for fracture analysis of semi-elliptical cracks in plates and cylinders (external crack) for primary and secondary stresses. This if for fracture only cases.
- Extra misalignment solution for girth weld from DNV, 2003:Project guideline for engineering critical assessments for pipeline installation methods introducing cyclic plastic strain, TWI/DNV/SINTEF, DNV Report No. 2003-3135.
- Check for latest version on solution setup screen
- Version number changed to x.x.x.x format.
- Extra text on cruciform geometry screen to clarify that W=B+2h
- Critical/sensitivity analyses for 'Section mean radius' and 'Flaw parametric angle' were removed.
- Extra line for file names in summary report – any characters > position 80 will be on the next line.
- User can enter T0 or T27J or T40J in Charpy toughness correlation toolkit.
- Updated included BS7910 document to current release (BS 7910:2005 Incorporating Amendment No. 1)
- Updated help file.

4.0.4077 4TH JULY 2007 CUSTOMER RELEASE

ID	CW4-240
Problem	Data not always being committed if you didn't tab off of the control before changing screen.
Severity	Bug
Workaround	
Resolution	Fixed in R4068

4.0.4048 29TH JUNE 2007

ID	CW4-567
Problem	Extra images added to interface to better show flaw details
Severity	Enhancement
Workaround	
Resolution	Images added in R4047

ID	CW4-569
Problem	Length is shown but not used for Bar Solution
Severity	Enhancement
Workaround	
Resolution	Modification so length label isn't show on screen or printout for Bar Solution in R4024

ID	CW4-568
Problem	Relaxation shouldn't be allowed for known secondary stresses
Severity	Enhancement
Workaround	
Resolution	Option is turned off for know stresses in R3782.

OUTSTANDING ISSUES

ID	CW4-570
Problem	Changing the annotation on a plot crashes the software
Severity	Bug
Workaround	
Resolution	

4.0.3629 14TH MAY 2007

ID	CW4-560
Problem	Uncertainty in the coefficient of (L/B)^2 in g12 of M.5.1.3.3 (b), the surface point in bending in 3D Mk solution (0.5033 or 0.81526)
Severity	Clarification
Workaround	
Resolution	Changed in R3628 Reverted in R3636 - It is confirmed that 0.81526 is correct

4.0.3564 27TH APRIL 2007

ID	CW4-559
Problem	Fatigue/Fracture+Fatigue case of K Solution for Internal surface flaw in cylinder oriented circumferentially (M.4.3.3.2) was using surface/deepest the wrong way round
Severity	Bug
Workaround	
Resolution	Fixed in R3564

ID	
Problem	Fatigue solver changed to report last good step.
Severity	Change
Workaround	
Resolution	Changed in R3564

4.0.3546 26TH APRIL 2007

ID	CW4-558
Problem	Changing from Fatigue to Fracture solver could result in the parametric angle being set incorrectly. It will report what has been used on the results screen, but may require some toggling on the Flaw Geometry screen.
Severity	Bug
Workaround	Toggle the parametric angle on the flaw geometry screen if affected.
Resolution	Fixed in R3628

ID	CW4-557
Problem	The Fracture+Fatigue case was showing the result for the terminating condition, rather than the reported final flaw condition.
Severity	Bug
Workaround	
Resolution	Fixed in R3546

4.0.3543 25TH APRIL 2007

ID	CW4-556
Problem	Fatigue growth of ligament not growing correctly. **This will have affected all fatigue and fracture+fatigue cases which had a ligament since R3240**

Severity	Serious Bug
Workaround	
Resolution	Fixed in R3542

4.0.3514 17TH APRIL 2007

ID	CW4-555
Problem	The help file wasn't being found
Severity	Bug
Workaround	
Resolution	Fixed in R3513

4.0.3507 16TH APRIL 2007

ID	CW4-554
Problem	The results are not updated when the fatigue solver doesn't find any damaging cycles.
Severity	Bug
Workaround	
Resolution	Fixed in R3506

4.0.3451 29TH MARCH 2007

ID	CW4-550
Problem	Post weld head treatment Transverse flaw orientation should be 30% appropriate yield at RT
Severity	Bug
Workaround	
Resolution	Fixed in R3451

4.0.3449 28TH MARCH 2007

ID	CW4-549
Problem	Improvements to summary report to reflect screen layout.
Severity	Enhancement
Workaround	
Resolution	Fixed in R34496

4.0.3441 27TH MARCH 2007

ID	CW4-548
Problem	Change sensitivity/criticality parameters to be more user friendly.
Severity	Enhancement
Workaround	
Resolution	Fixed in R3441

4.0.3306 19TH FEBRUARY 2007

ID	CW4-539
Problem	Switching from Ramberg Osgood to Material Specific FAD's the transfered stress strain data is in absolute terms not in a percentage for strain so has to be manipulated to get equivalent results.
Severity	Bug
Workaround	
Resolution	Fixed in R3306

4.0.3289 13TH FEBRUARY 2007

ID	CW4-534
Problem	Reloading a data file with a stress ratio value other than 1 is not being propogated into the interface (but appears to be set in the datamodel and used)
Severity	Bug
Workaround	
Resolution	Fixed in R3263

ID	CW4-537
Problem	K Solution for Internal surface flaw in cylinder oriented circumferentially (M.4.3.3.2) was using the deepest/surface k points the wrong way around.
Severity	Bug
Workaround	
Resolution	Fixed, will need user to toggle the K position field to make it take effect for old cases. Also amended printout to show Surface/Deepest rather than inside/outside.

4.0.3240 25TH JANUARY 2007

ID	CW4-517
Problem	User defined Mk wasn't limiting the minimum parametric depth to 0.15 for surface flaws.
Severity	Bug
Workaround	
Resolution	0.15 minimum imposed for surface flaws.

ID	CW4-518
Problem	User defined Mk now allows the user to specify distinct values of Mkm and Mkb for both the deepest and surface points.
Severity	Enhancement
Workaround	
Resolution	Implemented in R3240

ID	CW4-519
Problem	Would like to be able to see the values of Mk used for fatigue calculations.
Severity	Enhancement
Workaround	
Resolution	Implemented in R3240 in Fatigue intermediate values.

4.0.3212 16TH JANUARY 2007

ID	CW4-513
Problem	Would like ability to enter true stress strain rather than engineering stress strain (also the ability to enter ey0).
Severity	Enhancement
Workaround	
Resolution	Added functionality and new images.

4.0.2858 3RD SEPTEMBER 2006

ID	CW4-293
Problem	Error introduced when fixing CW4-293 in 4.0.2328, K solution not being correctly calculated
Severity	Bug
Workaround	
Resolution	This fix has now been made specific to the k solutions affected (M.4.3.2.1, M.4.3.2.2, M.4.3.2.3, and M.4.3.3.2)

4.0.2726 13TH JULY 2006

ID	CW4-364
Problem	BS7910 gives a value of Mm*=3.369 for lambda=6.097, r/B=20 (Table M.1a page 205). Within the development of FITNET procedure, it was found that this value lies outside the smooth trend of the other point. Substitution of the value of Mm*=3.65 for lambda 6.097, r/B=20 produce a smooth curve. BS7910 also gives Mb*=-0.399 for lambda=6.097, r/B=20 (Table M.1b page 206). Substitution of the value of Mb*=-0.2 for lambda 6.097, r/B=20 produce a smooth curve.
Severity	Enhancement
Workaround	
Resolution	Data changed to implement this

ID	CW4-330
Problem	Internationalisation issue when using , as decimal separator
Severity	Bug
Workaround	
Resolution	Using decimal places when specifying file version, changed to use no decimal places.

4.0.2338 2ND MAY 2006

ID	CW4-294
Problem	Spurious error message for fatigue only cases
Severity	Bug
Workaround	
Resolution	Check for CW-284 is only applied when fracture calculations are required.

4.0.2328 28TH APRIL 2006

ID	CW4-293
Problem	Speed of fatigue solver reduced after 2131 (Issue 278).
Severity	Bug
Workaround	
Resolution	This fix has now been made specific to the k solutions affected (M.4.3.2.1, M.4.3.2.2, M.4.3.2.3, and M.4.3.3.2)

4.0.2272 6TH APRIL 2006

ID	CW4-281
Problem	Charpy correlation had ambiguous message when truncating to 55MPam^0.5
Severity	Bug
Workaround	
Resolution	Changed warning message to tell user that they should choose the 'upper limit for Kmat case'

ID	CW4-282
Problem	Level 1 cut-off not resetting after changing level or value and reverting.
Severity	Bug
Workaround	
Resolution	Level 1 cutoff will now always revert to 0.8 if there is no user defined value.

ID	CW4-283
Problem	1) Embedded flaw limit should be inclusive i.e. 2a+2p <= B 2) Unit conversion toolkit has Mpa and not MPa

Severity	Bug
Workaround	
Resolution	1) Changed limit 2) Text changed

ID	CW4-284
Problem	Appropriate yield strength of 0 should not be allowed on secondary stress screen.
Severity	Bug
Workaround	
Resolution	Check implemented and warning message added.

ID	CW4-285
Problem	Different answers between CW3 and CW4 for P.6.2
Severity	Bug
Workaround	
Resolution	Table P1 advisory limit implemented in CW3 but not in CW4, now implemented in CW4

ID	CW4-288
Problem	J Toughness units for US were shown as $ft.lb/in^2$ but were actually $in.lb/in^2$
Severity	Bug
Workaround	
Resolution	Labels changed

4.0.2244 23RD MARCH 2006

ID	CW4-279
Problem	MK is turned off but still being applied to the results.
Severity	Bug
Resolution	Work around found : Turn on/off/on/off the MK box and it will really be off. Fixed in R2244 : Problem traced to not resetting the value when saving the file, now reset to blank as required sill required use of workaround to get into correct state, but on save it will be maintained.

ID	CW4-280
Problem	US units not being restored correctly. The units on the calculation panel shows the problem is in US units, but the summary report shows it in SI units
Severity	Bug
Resolution	Fixed in R2242, however affected cases will need a workaround to get back to the correct state. The solution is to change to SI and then back to US

4.0.2132 6TH MARCH 2006

ID	CW4-275
Problem	Typo in misalignment error message
Severity	Bug
Resolution	Fixed in R2130

ID	CW4-278

Problem	Flaw location for tabular lookup cases Surface Cylinder Internal circumferential/axial, Surface Cylinder external axial not correctly working. Now forcing Surface/Deepest points so will require checking data before re-running a previous calculation.
Severity	Bug
Resolution	Fixed in R2131

ID	CW4-277
Problem	R-Ratio not being reset, and not resetting 7910 recommended paris law constants
Severity	Bug
Resolution	Fixed in R2129

4.0.2104 1ST MARCH 2006

ID	CW4-276
Problem	Secondary stress values were being set wrongly internally if there were known Qm/Qb values and not using Know secondary stresses (i.e the Qm/Qb were greyed out). Will now use 0 for these values internally for non Known flaw solutions.
Severity	Bug
Resolution	Fixed in R2104

4.0.2076 16TH FEBRUARY 2006

ID	CW4-274
Problem	Parametric angle setting reverting to Max on reloading case which had specific angle previously.
Severity	Bug
Resolution	Fixed in R2076

4.0.2027 7TH FEBRUARY 2006

ID	CW4-265
Problem	PSF's not printing for all cases, only for known flaw case.
Severity	Bug
Resolution	PSF's now print for all fracture cases.

4.0.1966 1ST FEBRUARY 2006

ID	CW4-259
Problem	Embedded flaw limit checks
Severity	Bug
Resolution	Software was doing 2a+p < B, not 2a+2p < B. Check changed

4.0.1777 19TH NOVEMBER 2005

ID	CW4-190
Problem	Misalignment not included in M.4.3.2, P.4.2.2
Severity	Bug
Resolution	Misalignment factor on Pb was not being included in these cases, found that the implementation in CW3 and 4 differ with CW4 being correct

4.0.1443 2ND NOVEMBER 2005

ID	CW4-170
Problem	Big difference in answers between CW3 and CW4 for Through-thickness flaw in cylinder oriented circumferentially and axially

Severity	Bug
Resolution	The MK factors weren't applied to this case, now applied and answers agree

ID	CW4-177
Problem	Fatigue crack propagation threshold at elevated temperature – 7910 offers no provision for temperature effects
Severity	Bug
Resolution	Remove the correction factor applied to the threshold value.

ID	CW4-178
Problem	Tearing direction always shown as length
Severity	Bug
Resolution	Length was always being used, make sure that the user selected value is used.

ID	CW4-179
Problem	Once the user defined Lrmax has been selected it doesn't deselect, just continues to use the user defined value.
Severity	Bug
Resolution	After deselecting the Lrmax ensure that the default value is used again.

ID	CW4-184
Problem	Ramberg osgood stress strain curve not registering correctly
Severity	Bug
Resolution	The stress strain curve wasn't cleared before regenerating so was appended to resulting in unpredictable answers (and multiple lines on the stress strain plot).

ID	CW4-186
Problem	The toughness type was changed to J when reloading a case that was previously set as K (level 2)
Severity	Bug
Resolution	The file was stopping applying interface settings after the tensile properties screen, stopped it aborting early and now settings are applied correctly

ID	CW4-187
Problem	PmP+PmB+PbP+PbB through thickness cases in cylinders
Severity	Bug
Resolution	Level 1 should be Mm only Level 2 should be (PmP+PbP)*Beta ** Not as document says

ID	CW4-188
Problem	Misalignment screen not accepting changes
Severity	Bug
Resolution	After visiting the misalignment page, loading an existing case with misalignment you couldn't set the values or turn it back on. Changed to make sure that settings are correct on that screen.

4.0.1443 5TH SEPTEMBER 2005

ID	CW4-171
Problem	Material specific FAD not being re-calculated when changes made to the stress strain data
Severity	Bug
Resolution	Force re-calculation of the FAD before at the start of the calculation

ID	CW4-172

Problem	When changing Youngs modulus in Fatigue Non Ferrous Crack growth the crack growth curve points weren't changing
Severity	Bug
Resolution	Catch the changing of the value events and act on it.

4.0.1439 2ND SEPTEMBER 2005

ID	CW4-170
Problem	Proof stress calculated Qm value < 0
Severity	Bug
Resolution	Added check to make min Qm value 0

4.0.1425 22ND AUGUST 2005

ID	CW4-165
Problem	Grid on Tensile properties screen shows too many columns first time through
Severity	Bug
Resolution	Columns being turned off weren't kept when the grid was invisible. Changed to turn off when shown, also re-sized the columns to be larger and equal.

ID	CW4-166
Problem	Parametric angle other than max not being taken
Severity	Bug
Resolution	You can now enter a specific value

4.0.1283 – 26TH JULY 2005

ID	CW4-162
Problem	FAD plot points not easy to get to
Severity	Enhancement
Resolution	You can now double click on the graph and the closest dataset will appear in a grid allowing copying of all the data

4.0.1236 – 18TH JULY 2005

ID	CW4-14
Problem	Readonly result boxes aren't visible enough
Severity	Minor
Resolution	Changed to have full black text and 'inactive caption' background

ID	CW4-32
Problem	Double clicking .cw4 file doesn't start crackwise
Severity	Minor
Resolution	Double clicking a case file will now auto-start the application and load the case

ID	CW4-33
Problem	The FAD shown on the 'plot' screen (and summary pages) has no 'Kr' label on the y-axis
Severity	Minor
Resolution	Specific to the sensitivity case FAD and fixed.

ID	CW4-34
Problem	The primary stress screen for a tt axial flaw refers to 'membraine', not 'membrane'
Severity	Minor
Resolution	Changed text

ID	CW4-36
Problem	Can no longer save a chart for inclusion in a report
Severity	Minor
Resolution	Added right click on charts to allow this option

ID	CW4-40
Problem	Number of decimal places on calculated results excessive
Severity	Minor
Resolution	Changed to have a maximum of 5 decimal places

ID	CW4-117
Problem	Image for fatigue crack growth has 'Pairs Law'
Severity	Minor
Resolution	Changed to 'Paris Law'

ID	CW4-135
Problem	Trial mode not very clear for some users
Severity	Minor
Resolution	Added button to activate trial mode

ID	CW4-150
Problem	MK calculation wrong for embedded flaws, parametric depth (z) was never set to anything other than p
Severity	Major
Resolution	Corrected parametric depth for this case so that it's now p, a+p and 2a+p for 90,0, and -90 degrees

ID	CW4-151
Problem	Fracture & Fatigue never changes p for an embedded case, Fatigue embedded case has different p to that of CW3
Severity	Major
Resolution	Fatigue only : CW3 only uses Kp to determine the Paris constants CW4 used it to also calculate growth Fracture+Fatigue : CW4 wasn't calculating p, set to now check whether or not to calculate p

ID	CW4-152
Problem	Wrong results label for ligament (P) and copyright on printout incorrect
Severity	Minor
Resolution	Changed label to be p, and updated copyright

4.0.1016 – 27TH MAY 2005

ID	CW4-115
Problem	The radio buttons "fixed ends" and "pinned ends" don't work properly (Angular Misalignment, Vessels).
Severity	Minor
Resolution	Setting now kept

4.0.988 – 13TH MAY 2005

ID	CW4-37
Problem	The printing of some of the parameters used to calculate the misalignment stresses (namely the exponent, n, and Poisson ratio) is incorrect for the

	longitudinal weld case
Severity	Minor
Resolution	Altered misalignment printing to tidy up this and some other issues (units with no associated numbers and alignment)

4.0.980 – 4TH MAY 2005

ID	CW4-28
Problem	Copy from grid didn't work correctly on one machine
Severity	Minor
Resolution	Added right click option on grid to 'save to excel'

4.0.966 – 29TH APRIL 2005

ID	CW4-12
Problem	The telephone number in the activation screen is blank.
Severity	Minor
Resolution	Added telephone number to screen.

ID	CW4-13
Problem	User can't see license agreement after installation
Severity	Minor
Resolution	Added linked label to the about screen which opens the RTF file.

ID	CW4-39
Problem	The solver doesn't use the users selection of transverse/parallel on the secondary stress screen (PWHT)
Severity	Minor
Resolution	Solver now uses the setting