Empower projects since Empower 2 FR5 - Reasons to upgrade to Empower 3

Empower 2 Service Pack F – 4 issues addressed; no new features

Empower 2 Service Pack F Hotfix 1 – 3 issues addressed; no new features

Empower 2 Service Pack G – 18 issues addressed; features:

- Support for Network Authentication by Microsoft Active Directory (LDAP) groups
- LDAP authentication in Empower now uses User Principal Name (UPN, for example, SmithJ@domain.com) to uniquely identify users rather than the Fully Qualified Domain Name (FQDN, for example CN=John Smith,OU=Folder,DC=Domain,DC=com).
- When LDAP authentication is enabled, you can now define multiple domains, if desired.

Empower 2 Service Pack G Hotfix 1 – 3 issues addressed; no new features

Empower 2 Service Pack G Hotfix 2 – 2 issues addressed; no new features

Empower 2 Service Pack H – 21 issues addressed; no new features

Empower 2 Service Pack H Hotfix 1 – 1 issue addressed

Empower 3 (base release) – 38 issues addressed; features:
- Windows 7 (64-bit) support
- Windows Server 2008 (64-bit, Enterprise edition, R2) support for the Empower Enterprise database server
- Windows Server 2008 (64-bit, Enterprise edition, R2) support for the Empower Enterprise Citrix server
- Oracle 11 database support
- Process-only Sample Set – the ability to create a new Sample Set from previously acquired data
- Calculation of USP, EP, and JP signal-to-noise ratio using a blank reference
- Mass Spec – Ion Ratio processing (peak ratio processing)
- Mass Spec – Enter up to 5 target masses
- Fraction Collection – fraction identification information
- Method Validation Manager (MVM) – Accuracy profile capability
- MVM – Linearity of Method
- MVM – Limit of Quantitation and Limit of Detection calculations using USP or JP signal-to-noise value
- ACQUITY UPLC e-cord data

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- ACQUITY UPLC sample loop support: partial loop with needle overfill (PLNO) or full loop
- ACQUITY UPLC sample queue functionality: auto-addition, fixed vials, column selection
- Post Run Report group – allows instruments that have messages not associated with a data channel to store and report information
- Discontinued option – webserver user interface
- Discontinued option – pattern matching
- Discontinued option – the Waters data converter options have been discontinued and replaced by the Waters Data Converter 2 software (WDC 2)
- Discontinued option – separate GPC, GPCV, and GPCVLS options have been discontinued and replaced by the single GPC/SEC option, which contains all previous functionality
- Discontinued option – AutoArchive for Empower Workgroup; AutoArchive for Empower 3 Personal remains available
- Discontinued option – AutoArchive for Empower Enterprise; AutoArchive for Empower 3 Personal remains available
- Discontinued support for the 410 RI detector, 486 TUV detector, 996 PDA detector, and the 474 Fluorescence detector

Empower 3 Service Release 1 (SR1) – 8 issues addressed; no new features

Empower 3 Feature Release 1 (FR1) – 49 issues addressed; features:
- Oracle database update to version 11.2.0.2
- Support for the Solaris 10 operating system as an Empower database server
- Dual-tower injection capability support for the Agilent 7890 GC
- Implementation of web-enabled Empower Toolkit programmer's interface
- Introduction of the Empower SystemsQT for Software to replace ConnectionsAQT for Empower 3

Empower 3 High Availability Compatibility released

Empower 3 Feature Release 2 (FR2) – over 70 issues addressed; features:
- User Interface refresh
- Support for the Red Hat Enterprise Linux 6.2 operating system as an Empower database server
- Support for VMWARE 5.0 and 5.1
- Support for Windows Server 2008 R2 Standard edition
- Support for Citrix XenApp server 6.5
- Introduction of Empower Analytics to provide key chromatography performance dashboards: System Summary, System Usage, Project Usage, User Analysis (optional), and Methods Analysis
- Mass Spec – new Mass Analysis window for analyzing MS, PDA, and UV data in a single view

- Mass Spec – new mass calculator to determine average and monoisotopic mass from the empirical formula
- Mass Spec – peaks can be labeled based on Base Peak Intensity m/z
- Mass Spec – unprocessed MS and UV chromatograms can be overlaid
- Mass Spec – improved channel descriptions for processed data channels
- Mass Spec – automatic noise removal for centroid data using CODA (COmponent Detection Algorithm).
- Mass Spec – continuum data can be viewed as centroid data
- Mass Spec – improved signal-to-noise through automatic subtraction of a user-selected region in the 3D mass channel
- Method Validation Manager (MVM) – access to validation projects is now available through the QuickStart user interface
- MVM – grouped peaks can be included in all validation tests
- MVM – unnamed Impurity peaks can be included in processing parameters and acceptance criteria for all tests
- MVM – the channel and matrix can now be specified for each acceptance criteria
- MVM – when performing multiple injections and preparations, the type of averaging can be specified
- MVM – the 'Pass Validation Test' reporting field has been added to indicate pass or fail for each particular validation test
- MVM – additional fit types are available to assess linearity
- MVM – additional options for calculating results are available in the Stability, Specificity, and Filter Validation tests
- ICH Impurity processing can now be included in processing and reporting
- Empower Toolkit programmer's interface (Toolkit) – two new viewers are available: Audit Trail and Message Center
- Toolkit – improved ELN integration
- Toolkit – new toolkit enhancements for mobile applications
- Toolkit – read-only access to Global System Policies
- Toolkit – access to set the group administrator
- Toolkit – ability to show plots for Mass Spec and PDA channels
- LDAP – implemented support for non-Active Directory LDAP servers
- LDAP – the use of SSL is now optional
- LDAP – local accounts can now be created or modified while still in LDAP mode
- Review – implementation of the Result Audit Viewer shows all audit trail information for Results in one place
- Review – integration events may now be modified or deleted using a graphical user interface
- Review – implementation of the Redo button for integration events
- Review – allows display of the Purity field

- Run Samples – a running Sample Set that has been paused may now be resumed or aborted by another user with appropriate privilege
- Run Samples – the option to Abort a run without proceeding to the Shutdown method has been added
- Processing – peaks may now be named with their Relative Retention Time
- Processing – components may be defined based on their Relative Retention Time
- Processing – peak data may be processed using another processing method without having to re-integrate the peaks
- Processing – two data channels (example: UV and fluorescence) may be combined into a single processed result
- Processing – System Suitability parameters have been added to the New Processing Method wizard
- Processing – relative acceptance criteria using a formula can now be specified
- Project Window – customized views can be saved to all project windows
- Project Window – navigation between 'view as' conditions is now available
- Project Window – a new Instrument Method can now be saved with a new Method Set in one step
- QuickStart – the "Show Me" interactive Help guided workflow wizard has been updated and re-introduced
- Configuration Manager – long project names are more easily viewable
- Configuration Manager – users in groups may now be viewed based on their status, such as 'view active users only'
- Configuration Manager – an empty library can be created in Configuration Manager before adding libraries to it
- Report Publisher – the ability to suppress mismatched data messages has been added
- Report Publisher – the filters available for viewing the level of sign off have been expanded
- Report Publisher – there are additional features and report groups to support the enhancements to Mass Analysis and Method Validation Manager
- Agilent 6890 GC Control – the syringe size used for the Sample Set can be viewed in the Sample Set report
- Agilent 6890 GC Control – COM ports on the PC can now be used to control the Agilent 6890 GC
- Agilent 6890 GC Control – the Agilent 7693A autosampler is now supported on the Agilent 6890 GC as a basic GC injector

Empower 3 FR2 Hotfix 1 – 5 issues addressed; no new features

Empower 3 Service Release 2 (SR2) – 92 issues addressed; features:

- Empower can now calculate and report 'statistical moments' in Review and Report Publisher when the System Suitability option is enabled
- There is a new result field, Maximum Impurities Threshold, which contains a copy of the Maximum Allowed Value, Maximum Impurity from the impurity tab of the processing method. There is also a new result field, Total Impurities Threshold that contains a copy of the Maximum Allowed Value, Total Impurities from the impurity tab of the processing method
- A new processing method component field, Impurity RRF, is now used to adjust peak area values when calculating % Adjusted Area, Total Adjusted Area, % Area against Main Component, and %w/w if wValue is Area. Impurity RRF is also used to adjust the peak height values when calculating % w/w if wValue is Height
- Email service is now available on Empower Personal
- The Open Access interface has been renamed Walk-Up. All references to Open Access in the user interface and online help have been changed to Walk-Up

Empower 3 SR2 Hotfix 1 – 5 issues addressed; no new features

Empower 3 SR2 Hotfix 2 – 1 issue addressed; no new features

Empower 3 Feature Release 3 (FR3) – 61 issues addressed; features:
- Support for Microsoft Windows 8.1 Professional or Enterprise, 64-bit
- Support for Microsoft Windows Server 2012 R2 Standard Edition, 64-bit as a database server
- Support for Microsoft Windows Server 2012 R2 Standard Edition, 64-bit as a server for Citrix Server XenApp 7.6
- Discontinued support for the Microsoft Windows XP operating system
- Oracle database update to version 11.2.0.4
- MS Peak Tracking – You use the MS Peak Tracking function to identify peaks in a set of chromatograms where the peak's retention time varies because of different separation conditions. The peak-tracking function uses the peak's mass-to-charge ratios to automatically track peaks for all results.
- Peak Labels – the ability to label peaks with up to 3 peak fields in both the review window and preview mode
- Component Summary Table – new component summary table option, summarize by field, provides the ability to summarize by a text string
- Waters Database Manager – new web based tool which replaces the Oracle Enterprise Manager
- Waters Net Configuration Assistant – this utility replaces the Oracle Net Configuration Assistant
- Location Fields – the ability to assign a location to a user, system and node
- Improvements to Software Qualification Tool (SQT) – the process for reporting and performing handwritten or electronic signatures for SQT for Installation Qualification (IQ) and Operational Qualification (OQ) has been streamlined

- System Control Licenses – Shimadzu LC and GC and Hitachi LC Instrument control licenses will be truly counted in FR3 (similar to Agilent LC and GC Licenses). This is important to know before installing or upgrading Empower to FR3, to ensure the correct licenses are available.
- Custom Fields Addition – new custom field formula function called TOTEXT which converts a formula result to a text string
- QuickStart – the ability to create, view and modify export methods in the QuickStart interface
- Sample Set Method – new export function can be added to a sample set method
- MS Processing Improvements – with the MS option enabled in a project the MS 3D Channel tab is available for all types of processing methods. If collecting both PDA and MS data this allows the user to extract the MS spectra for peaks when building a PDA processing method
- MS Ion Ratio – improvements to MS ion ratio functionality when processing several components in the same processing method. Additionally the method set editor retains the original names of the derived channels when they are no longer listed in the channel table.
- Automatic Peak Tracking Processing – a peak's Assigned Mass Value is set according to the Spectra for Assigned Mass field in the processing method. The Assigned Mass Value is formatted as a string to the precision specified in the Assigned Mass Precision field in the processing method.
- LDAP – improvements to Empower allow more robust use in varied LDAP environments
- NuGenesis Option for Empower Personal (workstations) and Empower Enterprise installations. The "SDMS Archive Properties" option that is visible in the Empower configuration manager, under the View menu, is automatically enabled when installing Empower Personal.   (If the Autoarchive option is installed then the "SDMS Archive Properties" option will not be available.) To use NuGenesis for Archiving Empower projects and capturing Empower reports requires a licensed and installed version of NuGenesis to be available on the network.   For Empower enterprise installations the "SDMS Archive Properties" is not automatically enabled and requires activation through the Waters Licensing Wizard; this is a no cost license and comes with the purchase of the NuGenesis software.

Empower 3 FR3 Hotfix 1 – 4 issues addressed; no new features