

**Features new to VENUS THREE (relative to VENUS TWO):**

1. Validated for use with Windows XP Pro SP3 and Windows 7 Ultimate SP1 (both 32- and 64-bit versions)
2. Installation includes Microsoft .NET Framework 3.5 SP1, .NET Framework 4.0, and (optional) Microsoft SQL Server 2008 R2 Express Edition
3. Still uses Venus One versions of Dynamic Scheduler, TADM, and Database Plus
4. Support for new application-specific hardware components: Tube Twister Channel, Puncher, Gel Card Gripper, AutoLys Tube Channel, Capper/DeCapper Station, Micronic Tube Channel
5. New pipetting step: 1000ul Channel Aspirate 2<sup>nd</sup> Phase – uses pLLD to detect a bottom phase of a two-part liquid system. The two phases must have a significant detectable viscosity difference.
6. New movement steps: CO-RE 96 Head Move and CO-RE 384 Head Move
7. New tip types added: Slim Tip 300ul with and without filter, 150ul Piercing Tip with and without filter
8. System Deck – stacks can now be rotated at angles other than 90 degrees
9. Dispense On-The-Fly single steps (1000ul and 5ml) now enhanced with the option to automatically calculate the x-speed
10. 1000ul and 5ml channel Move To Position single steps now have a new mode available: “Move to sequence position”
11. Fixed Run Control bug where HxRun would occasionally hang after Pause or Single Step when using events in parallel processes
12. Fixed bug in Dispense-On-The-Fly command that caused run abort after the error handling “Exclude”
13. Added “Continue” as an error handling option after an ADC error
14. Fixed bug where Tube Gripper steps were unavailable if stacks were used
15. CO-RE Gripper transport single step commands now make use of new labware properties which allows using different CO-RE grip tools
16. New labware property – MIStarIsDropWaste – for Tip Eject single step allows for ejecting tips without the x movement
17. When Puncher device is used, the Daily and Weekly Maintenance module includes maintenance tasks for that device

**Features new to VENUS TWO (relative to VENUS ONE):**

18. Validated for use with Windows XP Pro SP3, Windows Vista Business/Ultimate SP2, and Windows 7 Professional/Ultimate (both 32- and 64-bit versions).
19. Compatible with Microsoft SQL Server 2008
20. Deck layout view has support to see multiple layers, in deck view and in Sequence Editor
21. Improved 3D graphics of deck layout
22. 3D deck view in Run Control, including ability to zoom, rotate and shift deck view while running
23. Ability to group labware by placement, category, or type
24. Ability to see list of sequences associated with a particular labware item
25. Built-in snapshot tool for deck layout
26. Can “Add to Stack” 1, 2, 3, 4, or 5 plates (instead of just 1, 2, or 4)
27. Pattern preview in Sequence Editor
28. Ability to search for a sequence
29. Ability to toggle Outline Expansion (If-Then, Loops, Groups, Actions can be more easily expanded/contracted)
30. New Custom Dialog editor
31. Ability to specify Retract Distance for Transport Air in Aspirate and Dispense steps
32. Ability to aspirate at a touch-off distance above bottom (similar to touch off mode for Dispense)
33. New Dispense-on-the-fly step for faster aliquoting, for 1ml and 5ml channels
34. New Dispense Mode: “Drain tip in jet mode” to set plunger to zero on dispense

35. Support for the 96 CO-RE TADM Head
36. New structure to error handling customization dialog
37. User Input and Output commands now have a checkbox to make a New Line (no longer have to type“\n”)
38. Ability to exclude duplicate entries in Mapping File, due to mixing of source liquid
39. Ability to specify float/integer result in Assignment with Calculation
40. Ability to configure TADM for 1000ul channels, 5ml channels, and/or CO-RE 96 TADM Head
41. Ability to configure Warning/Optional/Mandatory for Daily and Weekly Maintenance, individually
42. Auto-arrange function for Activity Editor
43. Schedule workflows up to 4 times faster
44. Labware editor allows for defining both plate clearance height and actual plate height
45. Compatibility with multi-touch screens (using Windows 7)
46. Compatible with the new FV2 (Field Verification 2) for Operations Qualification. Includes volumetric qualification of 1ml channels, 5ml channels, 96 heads and 384 heads. Also includes verification for heaters and shakers.
47. Recommended PC for VENUS TWO: Pentium IV,  $\geq$ 4GB RAM, 250GB hard drive, 16x DVD +/-RW, and DirectX 250MB graphic card

#### **Features new to VENUS ONE SP2 (relative to VENUS ONE):**

1. Support for new CO-RE 384 STP Head
2. Support for Nano Pipetter Service carrier
3. Modified 5ml channel VFV method for low volume
4. Maintenance methods for nano pipetter and 5ml channels
5. Optimized liquid following in mix mode independent from Aspiration/Dispense volume.
6. Optimized Report Mapping File using needles with mix settings
7. Support for Image Channel
8. Position correction in X for CO-RE 384 Head using Rocket Tips
9. Fixed situation where Method Editor closes when closing Run Control with open workflow

#### **Features new to VENUS ONE (relative to Vector v4.1):**

1. Validated for use with Windows 2000 SP4, Windows XP Pro SP2, Windows Vista Business, Windows Vista Enterprise. May also be compatible with Vista Ultimate (but not validated)
2. Uses Microsoft .NET Framework v2.0
3. Compatible with Microsoft SQL Servers 2000 and 2005
4. System/Deck view supports 3D visualization
5. Activity Editor (an optional way of creating methods in a more visual fashion)
6. Support for “Step Templates” (availability of skeleton methods to do common functions)
7. Support for “SuperSimpleMethods” (availability of wizards to create methods to do common tasks)
8. Favorites section of the command toolbox
9. Ability to check for unique barcodes
10. Ability to search for labware in the system deck editor
11. Support for the new 5ml channel pipetting option
12. Support for 1000ul version of the 96 head
13. Support for 384-head “Rocket” tips
14. Support for Tube Gripper
15. Support for Image Channel
16. Faster cLLD with containers taller than 40mm
17. Ability to verify plate presence using CO-RE grippers
18. More specific information for traverse height warnings
19. One-click sorting for stacks
20. Import/Export function no longer requires original Hamilton files be packaged

21. Gantt chart can be displayed when using Activity Editor
22. Generate Mapping File can be customized; files can also be created to show multiple sequences.
23. Ability to cut/copy/paste submethods
24. Faster iSWAP moves

**Features new to Vector v4.1 (relative to v4.0):**

1. Pictures of carriers associated with labware definitions
2. Tip touch-off (also described as "offset dispense")
3. Ability to imbed HSL code (especially useful for complex calculations)
4. Ability to group sections of methods, for easier navigation
5. Support of the 384 head, the nano head, and the landscape iSWAP
6. Better collision control for dual arm STARS
7. Ability to use volume and sequence Arrays in steps
8. New Variable View in the method editor, so you can see all variables in one list
9. Smarter error handling, to avoid method abort in more cases
10. Customized coloring of steps
11. Ability to Show All or Hide All when selecting the steps in the Configuration Editor
12. More and better graphics in command windows
13. Import Worklist and Load&Match are new commands that make worklisting much easier
14. Creating a new method will automatically create a blank deck layout with the same name
15. Compatible with Vector Dynamic Scheduler v5.0
16. ML SWAP software also at v4.1

#### **Features new to Vector v4.0 (relative to v3.2):**

1. Method and deck editors can be viewed simultaneously.
2. Adding labware to the deck layout is easier. Items are sorted by labware type, and can be dragged onto the deck.
3. Loops and If-Then sections can be collapsed for better navigation during method editing.
4. Speed of the simulation can be slowed down (via the configuration editor) for better visualization of the process.
5. Visualization of sequences is improved with the new “stamp tool.”
6. Groups of tips are automatically combined into one sequence.
7. New “golden commands” provide for quicker programming of the basic aspirate and dispense steps, because you can select which tips to use within the same dialogs. The dialog boxes also have dynamic drawings that graphically show the differences between dispense modes and LLD modes. Sequences can be selected from drop-down boxes or they can be dragged directly from the deck layout.
8. For systems with more than just a STAR, the “System Deck” feature provides mapping of all devices in one view. You can see where your plate reader, for example, sits in relation to your STAR.
9. There is an optional Maintenance module, that if activated will track the status of the STAR’s maintenance and verification procedures. When was the last time daily, weekly, or bi-annual maintenance was run? This module allows you to see this information, run those procedures and also print out reports about them. You can set the use of the Maintenance module to “mandatory” (the operator must run the procedures at certain intervals before running any method), “warning” (where the operator will get a warning that the maintenance period has expired, but he can still run methods), or it can be set to “off.”
10. You can now add commands to your method by double-clicking on the icon (or by the original drag-and-drop method). You are now able to click and drag command lines from one position to another (or by the original cut and paste method).
11. For long methods, you can turn the Analyzer off to speed programming. You can then analyze before saving, or at any time you choose.
12. There is a new iSWAP command that lets you check to see if a plate is in its correct place. Using this command can prevent crashes.
13. During method import, you now have the option Yes to All.
14. Ability to add in the Scheduler option.
15. Support for Anti-Droplet Control (ADC).

#### **Features new to Vector v3.2 (relative to v3.1):**

1. Support for the STARlet and STARPlus.
2. Support for STAR/STARlet IVD.
3. Support for the CO-RE 96 head and CO-RE 96 wash station.
4. Support for default waste design change (frame instead of box).
5. Requires Microsoft .Net Framework v1.0.
6. Support for 21 CFR Part 11 security settings.
7. Implementation of the “Hamilton Support Software” as part of the installation. This allows the programmer to select only the labware, library, and example method files desired, rather than install all of those automatically. This de-clutters the installation, and reduces confusion for the programmer. After installation, the “Hamilton Support Software” is still accessible via the Method Editor > Tools, so that items can be added when needed.
8. Automatic recognition of connected instrument configuration.
9. Support of plate stacking on deck layouts.
10. Two-step error recovery options.
11. Option to send email on error.
12. Option to trace Comments.
13. Run Control has a new look: configurable windows.