



ASCENT 2.4.0 Release Notice

Ascent™ cardiorespiratory diagnostic software's latest version 2.4.0 offers a seamless, integrated platform for pulmonary function and gas exchange testing on MGC Diagnostics systems. Ascent software will replace MGC Diagnostics' BreezeSuite™ software platform.

Ascent supports the following systems:

Platinum Elite D Series Plethysmograph

- Part Number 830006-002

Platinum Elite DL Series Plethysmograph with Gas Chromatography

- Part Number 830004-002

Platinum Elite DX Series Plethysmograph with Gas Chromatography

- Part Number 830005-002

NOTE: N2 is not supported on this model.

Platinum Elite DL Series Plethysmograph with RTD

- Part Number 830007-002
- Part Number 830007-902

Platinum Elite DX Series Plethysmograph with RTD

- Part Number 830008-002
- Part Number 830008-902

Ultima Series CPX

- Part Number 800810-XXX

Ultima Series PF

- Part Number 800820-XXX

Ultima Series PFX

- Part Number 800830-XXX

Ultima Series Cardio2

- Part Number 800840-XXX

Ultima Series Cardio2 PFX

- Part Number 800860-XXX

CPFS/D

- Part Number 762042-003 (subset of 800704-003)
- Part Number 762042-904 (subset of 800704-904)
- Part Number 762042-905 (subset of 800704-905)
- Part Number 762042-906 (subset of 800704-906)

FOT Resmon Pro FULL V3

- Part Number 536722-003

Ascent supports the following pulmonary function system accessories:

- Davis VantageVue Environmental Monitor

Ascent supports the following exercise external device accessories:

- Ergoline 800 & 900
- Ergoselect 100 & 200
- Lode Corival, Examinar, Excalibur and Rehcor
- HP Cosmos Mercury, Orbiter, Pulsar, Quasar, Stellar and Venus
- Lode Treadmill
- Trackmaster 425 & 428
- RAM Treadmill
- Woodway
- Nonin WristOx BLE, Xpod 7500 & 9700
- Suntech Tango +/-M2
- Zephyr BioHarness
- Phillips ECG
- Custom ECG
- Mortara ECG

Ascent supports the following pulmonary function tests:

- Spirometry (FVC, SVC, MVV)
- Single Breath DLco
- Plethysmography (TGV, Raw)
- Multiple Breath Nitrogen Washout (FRC)
- MIP/MEP

Ascent gas exchange supports the following test types:

- Treadmill Exercise Tests
- Bike Exercise Tests
- Other Exercise Tests
- Face Tent Metabolic Tests
- Resting Metabolic Tests
- High Altitude Simulation Tests

Ascent supports the following software options:

- Bronchial Provocation
- Pulmonary Consult
- Electronic Signature
- Networking (Multi-User)
- Physician Review Server Installation (Citrix and RDS support)
- Offline Mode
- Exercise Consult
- Exercise Flow Volume Loop
- ExerScript
- HAST
- Mortara ECG
- Unidirectional ECG
- Six Minute Walk (Automated)
- Data Query
- Lab Manager
- Test Data Logging

Ascent supports the following features:

- Report Designer
- User Configurable Predicteds (Reference Normals)
- Locally Managed or Active Directory User Authentication
- Roles Based Security
- Security Audit Trail
- Pediatric Incentives
- Physician Review

Ascent supports the following languages: English (default), Spanish, French, Italian, Portuguese, Russian

Note: After the installation of Ascent software go to: **Main Menu>Admin>Organization** to change the language used in the Ascent software.

Workstation Computer Specification

Operating System	Windows 11 (Pro, Enterprise or LTSB) NOTE: <i>The Ultima CardiO2 (CPET & ECG) with Mortara does not support and has not been validated with Windows 11, it is the only device supported with Windows 10.</i>
Processor	Intel Core i5 10 th generation processor or Greater *
Hard Disk	250+ GB Recommended
Memory	16+ GB Recommended
Display	1920 x 1080 (widescreen) Resolution Recommended 1024 x 768 Resolution Minimum
Other Hardware	3+ USB Ports
System Type	x64 (64-Bit)

*MGC has identified an issue where the Ascent application may freeze or become unresponsive during normal use while connected to an external testing device. When this occurs, the Ascent application must be manually terminated via the Task Manager. This will occur when using older intel core processors.

Server Specification for Multi-User Network Option

Operating System	Windows Server 2016 Windows Server 2019 Windows Server 2022 Windows Server 2025
SQL Versions Supported	SQL Server 2016 (Standard, Enterprise) SQL Server 2017 (Standard, Enterprise) SQL Server 2019 (Standard, Enterprise) SQL Server 2022 (Standard, Enterprise)
Processor	2.0 Ghz or faster recommended
Hard Disk	250+ GB Recommended
Memory	16+ GB Recommended
System Type	x64 (64-Bit)
Virtual Machine Support	Yes
Cloud Database Support	Yes (Google Cloud Database, Microsoft Azure Database, or Amazon Cloud Database)
SQL Server Cluster Support	Yes

MGC Diagnostics recommends software installation instructions be followed. Contact Technical Support by calling 800-333-4137 or visit our website at <https://mgcdiagnostics.com/support/technical-support> to review options that best suit your facility needs. For information on installing Ascent software, see the Installation Manual on the installation media (USB flash drive, etc.).

NOTE: Upgrading to Ascent from BreezeSuite software is supported from the following versions: BreezeSuite 8.5 or 8.6 and their Service Packs.

Highlighted Changes from Ascent 1.1 to Ascent 1.1.1

- Ascent 1.1.1 is considered a Service Pack to Ascent 1.1; however, it is a full software install. This means that it can be installed on top of Ascent 1.1 OR it can be installed on a computer by itself – without a previous version of Ascent being installed
- Resolved the issue of testing screens not displayed properly when the computer had Microsoft Update Version 1903 installed

Highlighted Changes from Ascent 1.1.1 to Ascent 1.1.2

- Corrected an issue with predicted values when using GLI 2012 and setting Race to “Other”

Highlighted Changes from Ascent 1.1.2 to Ascent 1.1.3

- Corrected an issue of Test Data Grid columns in Physician Review not updating when switching from a Pre-Bronchodilator test to a test containing Post efforts
- Corrected Offline Mode connection string when upgrading from 1.1.1 to 1.1.2
- Corrected Exception issue when Network Connection is lost before starting the Ascent application

Highlighted Changes from Ascent 1.1.3 to Ascent 1.1.4

- Corrected an issue in DLCO where an error message would be displayed and Ascent would close

Highlighted Changes from Ascent 1.1.4 to Ascent 1.1.5

- Corrected an issue with the LLN for FEV0.75/FVC being off by 0.02 units.

Highlighted Changes from Ascent 1.1.5 to Ascent 1.2

- Added the functionality of AscentConnect which allows interfacing to the facility’s EMR.
- Added preconfigured statements for the Comments dialog box. Statements can be edited, added or deleted.
- The order of the variables in the test screens can be changed with drag and drop. Click on the variable column/row header to be moved and hold down the mouse, and drag the column to its’ new position.
- Added Marijuana, E-Cigarette and Cannabis to the smoking history drop down.
- The Trend Page table can be added to any report.
- Enhanced the local to network database conversion to resolve conflicts such as identical account numbers, ID’s or differences in name, DOB or gender.
- When creating a new visit for a previous patient, the smoking history from the previous visit is carried into the new visit.
- In the calibration screen, a Trend view has been added for reviewing Biologic and Quality Control data. The Biologic Subject or Quality Control device can be selected and which variable(s) to view. Biologic Subject trends are evaluated on the recent data points Z-Score relative to the baseline mean. Baseline will default to the first 10 data points and may be changed by the user. QC data is evaluated on upper and lower limits.
- In Admin>Site settings, the user is able to specify the order of the tests.
- Delivered Dose has been added to the PF Protocol, replacing Number of breaths.
- Methacholine Protocols use Delivered Dose to calculate PDx and the Mannitol Protocol uses CDUs to calculate PDx.
- In the Ascent Physician Review screen, if a section does not contain test data, that section is hidden.
- A default word dictionary is included for spell checking in the Comments and Interpretation dialog boxes.
- F4 key displays the Manual Data Entry dialog.
- In F5 Settings>Unit Settings, added a Percent Predicted/Change setting for the Number of decimal places to display. If the Number of decimal places is set to zero and the percent predicted or change is less than 1, the system will display a zero instead of a blank field.

- For the FVC Incentive Display, the percent incentive can go above as well as below 100%.
- In Admin>Patient Visit Review Statuses, the label of each Review Status can be changed.
- When creating a new patient, a Gear Icon has been added for selection of BioQC Subject or Syringe testing. BioQC subjects and Syringe tests are not displayed on the Home Page. Use the Quick Patient Search function on the Home Page to find these tests.
- Added a message on the Home Page reminding when the Support Agreement is going to expire in 10 days or less.
- The Application User Name minimum has been decreased from 5 characters to 3 characters.
- The units for the variable Lung Clearance Index have been removed.
- Corrected an issue when the Airway Resistance option was turned off, pressing the Spacebar on the first effort would start Raw instead of TGV.
- Corrected an issue of all MIP/MEP efforts not showing on the final report when selected.

Highlighted Changes from Ascent 1.2 to Ascent 1.2.1

- Corrected an issue of plethysmography testing intermittently not collecting data.
- Corrected an error in Offline Mode when the Ethernet cable was physically unplugged.

Highlighted Changes from Ascent 1.2.1 to Ascent 1.3

- Updated the spirometry test module to conform to the 2019 ATS/ERS Technical Statement. These changes include but not limited to:
 - End of Forced Exhalation (EOFE) criteria
 - Minimum 6 seconds exhalation has been eliminated
 - Looking for either a plateau OR maximum of 15 seconds exhalation
 - Computer beeps once when plateau achieved
 - Computer beeps twice when patient exhales for longer than 15 seconds
 - Updated the grading criteria for FVC & FEV1
 - Updated the Acceptability and Usability criteria for FVC & FEV1
 - Added the ability to select the FEV1 values separate from the FVC values. An additional "FEV1" Select column has been added.
 - The reported IVC will come from the effort immediately after the forced exhalation maneuver
 - The Back Extrapolated Volume must be <5% of the FVC or 100 mls, whichever is greater
 - Displays a message if the IVC is 100 mls or 5% greater than the FVC
 - Warn when there is over 15 minutes between Pre Bronchodilator efforts
 - Warn when the first Post Bronchodilator effort has begun if it is less than 15 minutes from the last Pre-BD maneuver
 - Warn user if hesitation time before forced maneuver is greater than 2 seconds
- Added a third FVC Incentive graph (bird flying to a nest)
- Corrected an issue in FVC where the software would close on its' own. Implemented a 3 second wait after the end of a valid effort before the Start button or Space Bar can be pressed.
- Added the variable FIVC/FVC
- Updated the exhalation time in FVC to include the exhalation after a glottic closure as long as the subject did not inhale

- Added the name of the selected report to the top of Physician Review screen
- Updated the DLCO test module so that Pre DLCO efforts only look at Pre VC for its' target, and Post DLCO efforts only look at Post VC for its' targets
- Corrected an issue when "Allow DLCO SVC Auto-Select" was turned OFF in SVC Settings, the SVC from DLCO was still being selected
- In DLCO, if the user unselects an acceptable effort, the computer will continue to keep the user selection as is
- Added the ability to display hemoglobin and COHb in the DLCO data table
- Corrected an issue where the DLCO graph on the report would show data, even when no DLCO effort was performed
- Removed the requirement for a Flow Calibration each day. However, per the ATS guidelines, a Flow Verification must be done daily. If flow verification fails, the software will automatically correct the flow gains and force another flow verification.
- Whenever a Flow Calibration is performed, the software will require a Flow Verification
- After creating a new protocol, the software allows you to set that protocol as the new default going forward
- If the order of Blood Gas variables in Manual Entry have been changed by the user, the software now retains that order
- Added the ability to unlock a patient from the patient management tool (Main Menu>Patient Management)
- Corrected an issue where the application automatically logged out due to inactivity and the patient would remain locked
- Added the ability to enter Ulna length in place of height for calculating predicted values
- For SVC, changed breath stability requirements to 3 consecutive breaths with end exp volumes within 15% of VT
- Allow column sorting by clicking on Column Header on the Home Screen
- Corrected issue of predicted values not being updated after race change
- Corrected an issue where the Trend Report/Table would show incorrect values, depending on the order of variables
- To save space, the different sections in the Physician Statement Dictionary are minimized/collapsed by default when initially opening
- Corrected an issue when the software would say the electronic signature (e-signature) was invalid when it was still valid
- Updated the 2017 DLCO GLI predicted values based on the recently released updates from GLI
- Corrected an issue where an ATS Error Code was being displayed in the Physician Review Screen when no ATS code was present in test screen
- Enhanced the adjustment of airway resistance loops while performing a "Quiet Breathing" maneuver
- Corrected an issue in Methacholine testing where the Pre-BD % Change was not being displayed when the Diluent stage was selected as the Baseline Stage
- Data from both BreezeSuite 8.5 & 8.6 can now be converted into an empty Ascent database
- Added a new hemoglobin variable in Mmol/L units
- Corrected an issue where the %Predicted was not displayed in the Pleth Tab
- Corrected an issue of the inspiratory time not matching actual inspiratory time
- Added the Export path to the Audit Log when patient visits are exported

- Added a timer on locked out accounts to allow them to retry after a certain time – default is 15 minutes
- Corrected issue of Ascent closing when going into the MIP/MEP test screen
- Changed to averaging of the VI/VC for DLCO variable so it can be displayed on a report
- Improved the accuracy of FRC N2 Washout when using in Syringe QC mode
- Added the flagging of Bio QC results when outside of 2 Standard Deviations
- Verified that the offline connection string is able to be edited from the Database Management application as expected.
- Added the ability to have the current date on the auto interpretation
- Changed the FVC data collection to accept an effort that did not perform an inspiratory loop
- Added a message that the software is zeroing the flow sensor in calibration if the Start button is pressed immediately

Highlighted Changes from Ascent 1.3 to Ascent 1.3.1

- Changed the flow sensitivity to resolve an issue with flow run-on in the FVC and SVC test screen. This still allows the system to pass the ISO Waveforms.
- Added three new Text Reports called “BRP with LLN & ULN” & “Complete Challenge with LLN & ULN” & “Complete with LLN.
- Added a Text Report selection entry in the testing screens. Added the option to show the Text Report selection in Admin>Organization>Site settings
- In the BRP Text Report, fixed an issue where the % Change for various stages was not being displayed
- Updated all Text Reports with the following:
 - Do not show variables that do not have a value
 - If a variable value is empty, do not show a 0
 - Do not show the Interpretation Header if there is no interpretation
 - Add Technician Comments to all reports
 - All reports will use Site Name rather than Organization Name
 - Added blood gas values
 - Corrected an issue with Packs/day and Years Quit for smoking were not showing
 - Corrected an issue with Expired Time not displaying
- Updated the Admin settings to allow the Default Predicted Set to be set to “Inactive”
- Updated the criteria for patients 6 and younger so they need to have a minimum of 3 acceptable efforts
- Updated the System Information export file to include additional information on the version of Windows Operating System
- When creating a visit via the Orders Management Interface, the software will use the Site setting to preset the Protocol and Predicted Set
- Corrected an issue where the first MIP/MEP effort after an FRC effort would not graph
- When using the HL7 Interface (AscentConnect), the manual “Post The Visit” button on the test screen will now send an XML file to the interface

Highlighted Changes from Ascent 1.3.1 to Ascent 1.4.0

- Added search functionality to the Order Management screen to allow to search orders by the Order Id, Patient Id, Visit Number, and Patient Last Name

- Added a new order status of 'Assigned,' and when a test is started, all orders related to the visit are updated to assigned
- Added 'Assigned' to the Order Management Screen to allow this new visit status filtering
- Added the ability to allow a new order to be assigned to an existing visit
- Updated HL7 result message to be sent for every order; for example, the site attached three orders and received three HL7 results
- Corrected an issue where multiple visits were created from one order when different order codes (New, Update) were sent for the same order
- Updated the units for height and weight in the XML/Interface to honor the report setting units.
- Removed the zero gain values obtained during verification, thus eliminating the problems caused when moving the baseline window
- Changed the O2/CO2 PF Calibration limits for CO2 to 5-35 for the Platinum Elite and UltimaPF-010 Hardware
- Added the device name to appear on the Calibration Report, QC Trend Page, and Service Log Entry
- Changed the flow calibration graph to not automatically be displayed on the report; added a General Setting in the Organization Management screen to enable the display
- Added the 'Smoking Status' shortcut to the Reports Editing toolbar
- Updated text reports to remove invalid filename characters (< > : " / \ ? *) rather than throw an exception
- Created two new text reports with increased text report width
- Added the Available Options of 'Order Id' and 'Visit Number' to the Reports Export Option File Name Format
- Added 'Pre / Post / Supine' and 'Pre / Supine / Post' to the PF Protocol editor
- Updated the Diagnosis Management Tool to ensure duplicate codes are not allowed
- Updated the software so that changes in column widths on the home screen, patient list grid, and patient search results are saved as User Settings
- Improved performance of loading tests with a high number of efforts (i.e. BRP)
- Corrected an issue when updating the time using a colon on the Alarm/Stopwatch
- Corrected an issue when the Lockout Timer is set to 900

Highlighted Changes from Ascent 1.4.0 to Ascent 1.4.0 Rev C

- Corrected BreezeSuite to Ascent conversion tool

Highlighted Changes from Ascent 1.4.0 to Ascent 1.4.1

- On the Patient Visit Screen, under Test Details (selecting technician and/or physician), placed a "plus" sign at the top of the screen to be able to add a new physician without having to go to the Admin Screen
- Changed the calculation of the Post Bronchodilator Response based on the 2021 Interpretive Strategies for PFTs from the ATS/ERS. The FVC and FEV1 only are calculated:

$\text{Bronchodilator Response} = \frac{(\text{Post-bronchodilator value (l)} - \text{Pre-bronchodilator value (l)}) * 100}{\text{Predicted value (l)}\#}$
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This does

not affect the calculation for other variables

- Corrected an issue where the calibration report may not print the flow graph (blank page) or the calibration report may not print if longer than one page
- When hovering over the Information Icon for Arm Span, the displayed equation was incorrect, even though the actual equation used was accurate
- Corrected an issue importing a report when a report of the same name already exists. Previously that report was

also marked "Inactive" after importing

- Updated graph driver to improve functionality when generating graphs in the Test Screen and Reports
- Added the new ATS 2022 Pulmonary Interpretation including the Zephyr Valve option
- Because of newer Intel graphics cards in computers, graphs may not be displayed properly. Added a setting in Admin>Organizations>Workstations to switch between the newer Device Type Setting and older version. The newer Device Type version is the default
- Added "Requested Visit Date" column to the New Patient Orders list to show when the test is scheduled to be performed
- Corrected an issue when the Z-Score was 0.00 (rounded from 0.00xx), the dot on the Z-Score Bar graph would not show up
- When using GLI as a predicted author, removed the calculation/display of Standard Deviation (SD) for any variable using GLI. GLI has equations for Z-Score and LLN/ULN, but not SD. However, previous Ascent software was back-calculating SD based on these items, which lead to some confusion
- Corrected an issue when converting BreezeSuite data into Ascent when the smoking history (packs/day or pack/years) were out of range
- Updated the default variables in manual entry to better reflect the order of the variables in the test screen

Highlighted Changes from Ascent 1.4.1 to Ascent 1.4.2

- Corrected an issue where the data from a BioQC patient was not appearing on the QC Trend graph. Also corrected an issue with the baseline window not adjusting properly in the QC Trend
- Changed the way graphed efforts are updated when the Test Setting for 'Graph All Selected Efforts' is turned on. This setting will no longer display all selected efforts upon completion of a test instead it will be based on the individual test setting for 'Efforts Plotted Upon Test Completion'. This setting will cause selected efforts to be graphed when entering a test screen
- Added a setting to Admin>Reports>Export Options to include Electronic Signature on text reports. The default is turned off
- Corrected an issue where expiration on the FVC loop graph was not starting at zero flow when hesitation was not present
- Improved patient purge functionality when patient visits are tied to Orders
- Corrected a memory usage leak when the Cake or Balloon FVC incentives were in use
- Corrected an issue where the application crashes if duplicate stage headers exist in the PF Protocol Log table

Highlighted Changes from Ascent 1.4.2 to Ascent 2.1

- Added support for the Ultima Series Cardiopulmonary Exercise Testing
- An automatic Six-Minute Walk Test has been added, allowing the interface of HR and SPO2
- Added support for the FVC Train Incentive
- Added calibration support to WFATester
- Added the ability to print the calibration trend presented on the screen
- Added the ability to add new physicians from the patient visit screen
- Header rows are now visible when scrolling through test data in Patient Review
- Improved Bronchial Provocation report graph scaling
- Manual entry has been updated where either '0' or deleting a value will remove a value
- Corrected the Z Score graph to display the bubble marker when the value is zero or close to zero

- Added audible double beep at 15 seconds during SVC testing if no plateau is achieved
 - Renamed the variable TGV to FRC (Pleth)
 - Added the ability to sort patient visits by date in Trend
 - Default PF Predicted Set no longer has the option "Force SVC same as FVC" auto selected
 - Update flow calibration to look at % error Z score instead of mean Z score
 - Admin tool updated not to allow duplicate diagnoses
 - Added report setting to Show values outside limits in red
 - Environmental Calibration records will be updated and stored only when calibration is done
 - Added Audible setting for the metronome; this can be set independent of whether the gauge/metronome is displayed
 - Updated licensing information to include a separate licensing tab
 - Added the ability to choose whether CDUs are displayed in the BRP Report
 - Multi-Character search/filter while in the Care Professional dropdown list is now available for use in the Patient test setup screen
 - Added ability to Patient search by Unspecified Gender in Patient Management
 - Allow preset test questions to be available via the test question icon
 - Two visits can be merged under specific criteria
 - Updated and added patient filters on the home screen; set filter now persist once they are set
 - Added a format configuration to the Organization settings that affect the entire application: this formats dates, times, and numbers according to the selected country
 - Added a radio button to display the report on the review screen
 - Added ability to lock test Settings (F5)
 - Added serial number and device name to a report using a dynamic expression
 - Added the Variables FEV1Q, FEV0.25, FEV0.25/FVC and O2Hb
 - Added FeNO Test Type and variable
 - Added limits to environmental sensor adjustments
 - Added GLI Lung Volume 2021 Predicted equations
 - Added the ability to convert recent visits and new sites, and staff tied to the recent visits from BreezeSuite to the existing Ascent database; this is used to support a site with mixed environments of BreezeSuite and Ascent
 - Added a unique identifier to the Ascent database
 - Added ability to overlay graphs for PF Trending
 - Added support for LDAPS authentication
 - Update Canned comments to allow for rearranging the order they are displayed
 - Added Birth Gender option to the patient demographics selection
- Highlighted Changes from Ascent 2.1 to Ascent 2.1 Rev B**
- Updated installer to correct custom review header issues involved during upgrade. No code changes.

Highlighted Changes from Ascent 2.1.0 to Ascent 2.2.0

- Correct issues with manual entered 6MWT entries for Patient Review
- Added a permission that activates use to the F5 Setting
- Added address information and logos for sites to use on reports
- Added a combo box for electronic signature users to choose between Always, Only the first time per session or Never for password entries
- Updated the AT Guide selection to a combo box and display the three phase regression lines when the Three Phase Guide is selected
- Added an Auto Register feature to prevent adding a new workstation when workstation names change
- Added the ability to inactivate a workstation and only allow deletion if there are no references to it in the system
- Corrected an issue with Occupational Information not being sent to a report
- Corrected an issue with manual HAST entries not populating on reports
- Update how manually entered variables are stored during a GX test. Only Speed, Grade and Watts are set to persist through the end of the test. All other manually entered variables are tied to the associated breath.
- Add a Visit Identifier field to the patient visit record
- Corrected an issue when re-assigning orders to a visit
- Export options have been renamed for clarity.
- Added a site setting for 'Auto Update/Populate Reviewing Physician'.
- Updated the transition from Calibration to Verification in flow calibration
- Added an Organization setting for 'Posted Visits must be associated with an Order'
- Added the actions to the Audit Trail including 'Post Visit', 'Assign Orders' and 'Unassign Orders'
- Corrected the Audit Trail to also log when an "add visit" is done via an order
- Added options to Un-assign and Delete/Purge orders
- Added Lung Volumes bars to the SVC report graph
- Added ability to clear Pending Exports from within Organization Management. Administrative Control permission is required for the link to be enabled.
- Diagnosis will now carry forward from visit to visit for returning patients.
- Allow for Diagnosis Code and Diagnosis Description to be separated on reports
- Updated RTD gain lower limits on Ultima Series and Platinum Elites systems
- Added a setting to Admin>Reports>Export Options to include electronic signatures on text reports. The default setting is off.
- The Electronic Signature has been added as a default to reports that include interpretation
- Allow Blood Gas entries to be edited and deleted individually from the Protocol Log
- Following Dynamic Expressions have been added to reports: Exercise Protocols, Exercise Device, GX Averaging Method, Curve Fit Values, Diagnosis, Test Questions
- A default footer has been added to all Default Reports
- Improved performance of the Order Management dialog
- Updated how the 6MWT test type (Manual versus Auto) is selected. If Manual option is enabled, users can right click on the test icon to 'Switch to 6MWT Manual Test'.

- Corrected report graphs that were displayed blurry
- Added a step to customize the SA and database passwords during installation
- Updates to GX Predicted functionality. GX Predicted authors will now include an 'Ignore Race' checkbox to allow for race specific equations. All GX variables will be added to the variable list and all GX variables are also available when building predicted equations.
- Added an Organization setting to 'Enable flow calibration graph in calibration report'
- Corrected an issue where the spacebar would not function to start the first calibration
- Added a Site Setting called 'Override GLI max age' that will calculate predicted values for ages beyond the GLI authors various limits. This is for all GLI authors but will only calculate up to maximum adult age range
- Corrected an issue where the DLCO timer does not display after navigating to the visit information screen
- Added the variables FRC/TLC (Pleth) and FRC/TLC (N2)
- Corrected an issue where the visit information is not carried forward when the visit is added via an Order
- Allow for a new Order to update visit fields when attached to a pre-existing visit
- Added the ability to track Diagnosis changes in the Audit trail
- Changed the pressure calibration graphs used in Pleth and MIP/MEP calibrations to allow the voltage to be displayed even when the voltage is less than zero
- Added a Site setting to hide 'Add Patient Visit' from within the Quick Search menu
- When interfaced with the Resmon Pro FOT V3, added support for AX, Resonant Frequency and Within Session Cov%
- Added additional filtering options to the Testing Queue screen which includes a button to edit the filters
- Removed the ability to delete used Diagnosis Codes. Diagnosis Codes can now be deactivated
- Corrected an issue with a Custom Interpretation that would cause Ascent to crash when two evaluations from Dynamic Expressions in a row were NULL
- During an ExFVL test, if the user cancels the ExFVL recording during an IC measurement it is automatically canceled.
- Added Site to the Patient Visit screen. Updated Text Reports and Dynamic Expressions to be pulled based on the Site name in the Patient Visit screen
- Updated the Pleth test module to conform to the 2023 ATS/ERS Technical Statement. The acceptability criteria will only be evaluated when the 'ATS 2023 Acceptability and Grading' Site Setting is turned on. These changes include but not limited to: TFS 40423
 - Stable tidal breathing prior to switch in. Which is defined as greater than three or more tidal breaths with difference between the maximum and minimum expiratory lung volume within 15% of average tidal volume
 - Acceptability of closed shutter panting evaluated for thermal drift and closed loop integrity
 - Breath Frequency:
 - Acceptable closed loop: 30 bpm – 90 bpm (with no or minimal obstruction on spirometry)
 - OR Acceptable closed loop: 30 bpm – 60 bpm (with obstruction)
 - OR Useable closed loop: <= 120 bpm (with no or minimal obstruction on spirometry)
 - OR Useable closed loop: <= 90 bpm (with obstruction)
 - Linked SVC > FVC - 150 ml with plateau

- Implemented Pleth test grading to conform to the 2023 ATS/ERS Technical Statement. Grading will only occur when the 'ATS 2023 Acceptability and Grading' Site Setting is turned on
- Added a link to the Site Settings for 'ATS 2023 Acceptability and Grading' with adjustable limits for acceptability and usability.
- Added an SVC Select column to the Pleth test to conform with 2023 ATS/ERS Technical Statement
- When using the HL7 Interface (AscentConnect), the manual "Post The Visit" button on the test screen will now send an XML file to the interface
- Corrected an upgrade issue with GLI Global (Race-neutral) 2022 predicted equations for Spirometry
- Added dropdown filter options (all, active and inactive) for the workstation list on the Workstation Management screen
- Added ability to sort workstation list by headers on both Workstation and Site admin screens
- Added support for the CPFS/D -906 spirometer
- Corrected EOV calculations
- Minimum FVC Volume of 0.2L has been removed
- Fixed Montage graph
- Fixed all selected montage graphs to show in report
- Added order Envelope to appear in the patient visits list
- Added a scrollbar to workstation management
- Added the ability to delete erroneous calibration values out of a trend
- Added support for the RAM Treadmill
- Increased the time between DLCO calibrations from 2 minutes to 20 minutes

Highlighted Changes from Ascent 2.2.0 to Ascent 2.2.0 Rev B

- Updated the Ascent 2.2.0 Installer to include multiple bug fixes for the upgrade from an existing Ascent Installation to Ascent 2.2.0.

Highlighted Changes from Ascent 2.2.0 to Ascent 2.3.0

- Updated version of .Net Framework installed to .Net Framework v8.0
- When calculating %Pred or %Chg we now round the values going into the calculation. They will be rounded to either the decimal value in the variable editor or 2 decimal places, whichever is larger.
- Added the ability for users to open comments, ATS score card and other applicable secondary windows while being able to write in the interpretation box when in the review screen.
- Added the Site setting 'FVC and FEV1 Post Bronchodilator Percent Change Calculation'
- Added a Testing Queue filter setting in Care Professionals management
- Added a Lab Manager Admin Tool as a licensed feature
- Added Plateau and Time indicators for FRC (N2) and FRC (Pleth) for SVC maneuver
- Added the ability to choose the 'Best' expiratory loop in FVC testing
- Added an option to allow a Formatted Patient ID value to be used in report naming
- Added XML support for symbols
- Added the variable Inspiratory Time to an FVC test

- Allow only Admin users the ability to Add/Edit/Delete canned Comments
- Added Occupational Information to the Patient Details view available in Review
- Displaying Rest data in the minutes log of the 6MWT to be consistent with Recovery
- Added additional items to the Audit Log as related to Orders
- Added a Site Setting to set mandatory fields when entering Patient Demographics
- Added the IC variable to the gas exchange variable list for use with Exercise Flow Volume loop testing
- %Predicted, %P/C and Zscore values will appear in red when the actual value is outside of limits
- Report name has been added to the test review screen
- Added the ability for PF Protocols with Supine challenge agents to appear in the BRP Trend graph
- Added ULN, LLN, ZScore, %Pred, etc. to Data Query Tool
- Header will now appear on each page of the default ATS reports if it's more than one page
- Axis Title label for the DLCO Graph Type: Collection Window ATS 2017 is now visible
- The WFATester window will open maximized initially and the state will also persist
- Added the ability for predicted to be re-run from Patient Management
- Updated the functionality of how the F5 setting is locked/unlocked. Locking the F5 settings after making changes will save the changes.
- Corrected the DLCO equation reference on the Disability report
- Organization name has been added to the System Information export as a unique identifier
- Corrected P(A-a)O₂ gradient calculations
- Corrected an issue where the new order icon was displayed when there were no new orders
- An order will now return to New status if a visit is deleted
- Added the ability to append a Phillips ECG PDF report to the Ascent PDF Report
- Added an Organization setting to 'Allow height and weight to be populated from an Order'
- Clicking Save/Close after re-running predicted values will save and update predicted values
- When demographics change from within patient demographics, a dialog pop-up will notify the user and give the user the option to re-run the predicted for all visits.
- Labeling and handling of Sex/Gender fields has been updated
- When no FEV1 or FVC efforts are selected, no values will be reported related to those variables
- Corrected an issue with the Efforts Plotted Upon Test Completion setting not displaying correctly in FVC
- Added the ability to use the Tab key from systolic to diastolic when inputting BP into a Automatic 6MWT
- Both open and closed loop panting frequency errors will now be flagged in the Pleth ATS scorecards regardless of whether that ATS 2023 setting is active or not
- Updated the default filters to 'Past 2 weeks' for date and 'All' for Visit Status
- Added Test Data Logger as a licensed option
- Corrected an issue that caused the application to crash when a patient visit is created where the Default GX Script was set to an inactive GX Script
- Allow batch exporting of patient visits in XML format in Data Query

- Corrected an issue where the Pleth ATS 2023 flag was not being set when the site setting 'Create visit with each order' was selected
- Added a workstation setting that enables updates to the graph rendering mode, addressing instances of lag when drawing graphs
- Corrected an issue when 0 is set for the distance walked and the results get sent through Data Services
- Fixed an upgrade problem when visits from the upgrade were being tagged with the incorrect Site ID
- Updated the software to fix low FRC (N2) values

Highlighted Changes from Ascent 2.3.0 to Ascent 2.3.1

- Corrected the Hgb field in text reports to report in (gm/dl)
- Updated the verbiage for Offline Mode workstations not licensed for Offline Mode testing
- Added the ability for queries to compare two variable values for a PF test
- Corrected an issue where Pleth efforts were being deselected after performing DLCO tests
- Corrected Pleth Raw Graphing issues
- Added the ability to export a custom comma separated value data file (.CSV)
- Added PetO2 and PetCO2 variables as options to the GX test gauges
- Corrected labeling of Posted Visit in Audit Trail
- Added the ability to exclude Syringe and Bio QC patients from Data Query
- Added the ability to copy and modify an existing Data Query
- Corrected an issue when reviewing ExFVL graphs when set the FVC graph was set to Montage view
- Corrected an issue where the analog calibration does not save after Ascent is closed
- Corrected an issue where the Active Directory SAM account name was disabled until the application was restarted after changing authentication modes

Highlighted Changes from Ascent 2.3.1 to Ascent 2.3.2

- Fixed an issue where visits under review without a selected report were not displayed correctly.
- Fixed an issue with the DLCO calibration where, in certain instances, the CO2 was not cleared to room air during the initial CO/CH4 measurement. As a result, the time interval between DLCO calibrations has been reset to 2 min.
- Removed the need for local admin user to have access to the Ascent DB during install when using windows authentication

Highlighted Changes from Ascent 2.3.2 to Ascent 2.4.0

- Added the ability to add a timestamp for each reported effort on Ascent reports.
- BMI was added as a visible demographic variable in the patient visit review screen.
- Added support for the Data Query functionality for GX Data
- Added the ability to trend the Z-score in both grid and graph configurations of the Trends
- Update the software so that when an Hgb gets entered, it will persist throughout all test stages
- Fixed issue where auto Interpretation string was disappearing when lean body Mass was blank
- Fixed issue where the Visit Status and Review Status in the Testing Queue Filters didn't filter independently
- Updated the test data logger to include Plethysmography variables
- Fixed the Issue when the Limit Calculation Method changed; multiple variables were erroneously displayed in red.

- The following updates to the Nitrogen(N2) Multiple Breath Washout test have been implemented based on the 2023 lung volume guidelines (These changes are active when the ATS2023 Settings are activated)
 - ATS 2023 grading for the Multiple Breath Washout Lung Volume test has been implemented
 - ATS 2023 acceptability criteria for the Multiple Breath Washout Lung Volume test has been implemented.
 - Moved the SVC Stage of N2 washout test to after washout
 - Changed end of test criteria to 3 consecutive breaths of $N_2 \leq 1/40$ of initial N2
 - Added streaming flow data for future N2 tests. This is only available for Graph Type 'N2 – Time Bars'.
 - Added the need to re-establish End Expiratory Lung Volume (EELV) after washout for use in IC calculation
 - Updated FRC adjust screen to have the EELV from Switch-in and EELV from SVC
 - Added the Cv on the FRC washout graph and R2 on the Pleth closed loop Graph
- Added multiple variables for use with Pleth and FRC(N2) ATS 2023 (IcN2, SvcN2, IcPleth, SvcPleth)
- SVC Selection will now be disabled (in FRC and Pleth) when ATS2023 is inactive
- Updated the 6MWT in the review screen to have a dedicated radio button to display results.
- Updated all existing default reports with the addition of 6 new reports.
- Added tooltip that explains why certain variables are grayed out when the ATS2023 Standards are active.
- Updated the Role Admin Screen so that when the SAM account name is populated when loading a role, it will display a list of Users who belong to that AD group
- Added Lab Manager functionality to allow viewing of test grades obtained by each technician.
- Added the ability to invert the volume axis on FVLs as was previously available in Breeze.
- Updated for artifacts being seen on flow signal during Pleth testing
- Updated Ascent to properly handle when Rawl value stored is very large
- Fixed an issue where a DLCO test, when canceled before completion, caused the distal valves to become stuck.
- Added the ECG Data field in Site Setting when customers use the Unidirectional ECG option
- Updated Licensing details to factor whether a license is active or not and also updated if the user has the server option to show "unlimited" instead of "99999".
- Fixed a bug related to GX and PF condition in consult to allow editing
- Fixed the functionality of the option 'Show Rest in Minutes' within the 6MWT general options.
- Added an organization setting to force patient name and Id to be capitalized.
- Updated syringe patient to recognize 100ml tidal breathing
- Fixed a bug where the DLCOunc predicted for Miller was not showing when the subject was a non-smoker
- Updated the BxB value string in XML export to remove leading '0'