



Ascent cardiorespiratory diagnostic software offers pulmonary function testing within a seamless, integrated platform. Ascent version 1.4.0 is the latest software platform available for the MGC Diagnostics pulmonary function systems and replaces BreezeSuite software.

Ascent supports the following pulmonary function 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

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)

Ascent supports the following pulmonary function system accessories:

Davis VantageVue Environmental Monitor

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 supports the following software options:

Bronchial Provocation  
Pulmonary Consult  
Electronic Signature  
Networking (Multi-User)  
Physician Review Server Installation (Citrix and RDS support)  
AscentConnect HL7  
Offline Mode

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
- Six Minute Walk Data Entry

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**

<b>Operating System</b>	Windows 11 (Pro, Enterprise or LTSB) Windows 10 (Pro, Enterprise or LTSB) <b>NOTE: Windows 7 support ended January 2020.</b>
<b>Processor</b>	Intel Core Duo or Greater
<b>Hard Disk</b>	250+ GB Recommended
<b>Memory</b>	16+ GB Recommended
<b>Display</b>	1920 x 1080 (widescreen) Resolution Recommended 1024 x 768 Resolution Minimum
<b>Other Hardware</b>	3+ USB Ports
<b>System Type</b>	x64 (64-Bit) Recommended

### **Server Specification for Multi-User Network Option**

<b>Operating System</b>	Windows Server 2012 or 2012 R2 Windows Server 2016 Windows Server 2019 Windows Server 2022
<b>SQL Versions Supported</b>	SQL Server 2014 (Standard, Enterprise) SQL Server 2016 (Standard, Enterprise) SQL Server 2017 (Standard, Enterprise) SQL Server 2019 (Standard, Enterprise) SQL Server 2022 (Standard, Enterprise)
<b>Processor</b>	2.0 Ghz or faster recommended
<b>Hard Disk</b>	250+ GB Recommended
<b>Memory</b>	16+ GB Recommended
<b>System Type</b>	x64 (64-Bit) Recommended
<b>Virtual Server Support</b>	Yes
<b>SQL Server Cluster Support</b>	Yes

MGC Diagnostics recommends software installation by a qualified service technician. Contact Technical Support by calling 800-333-4137 to discuss the service option that best suits your

facility's 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 only 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:

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

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 the GLI Global (Race-neutral) 2022 predicted equations for Spirometry
- 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