



# **Montage Manual**

*Release 3.0.1*

**Montage Healthcare Solutions, Inc.**

October 22, 2015



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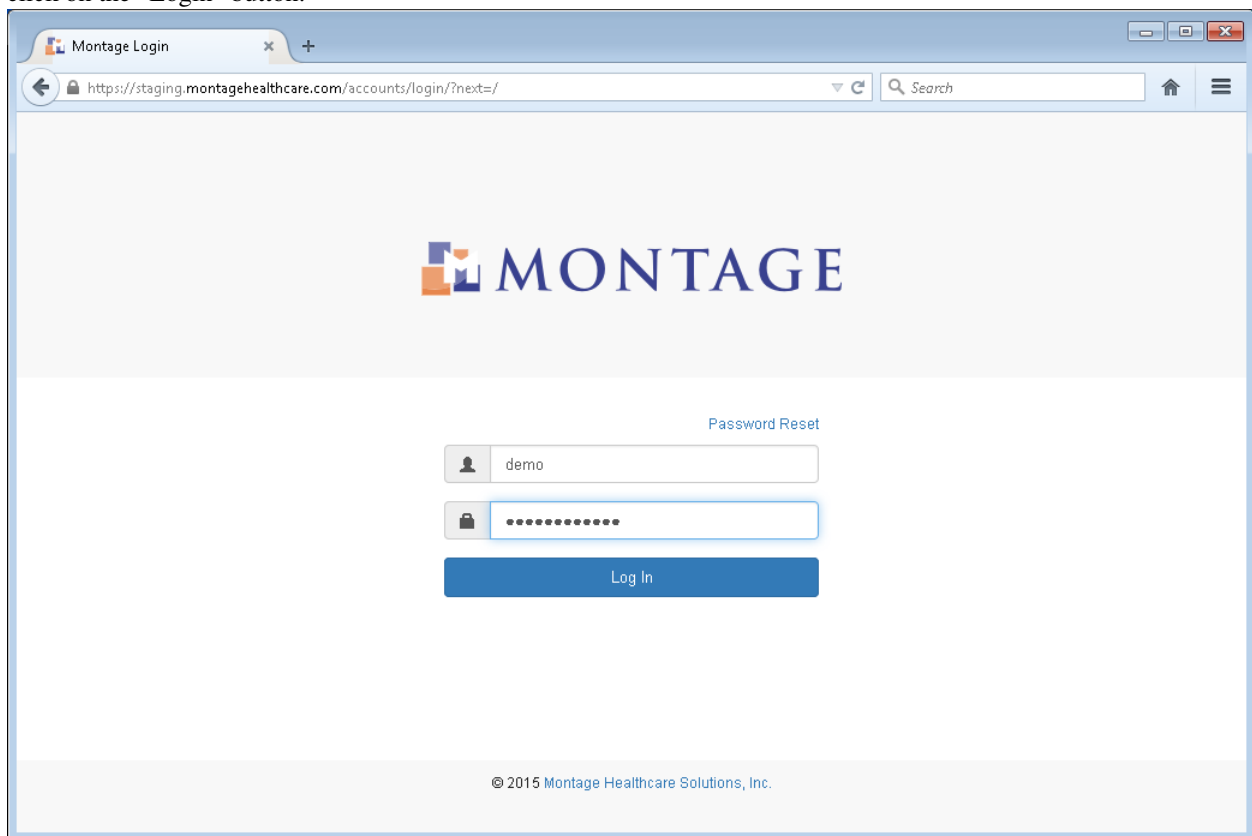


# MONTAGE USER GUIDE

## 1.1 User Login

Montage user accounts can be managed by the builtin user management system or connected to a facility's LDAP or Active Directory (AD) infrastructure. Please contact your system administrator if you require more information regarding the login infrastructure at your facility. All user transactions are logged and can be audited at any time in accordance with HIPAA guidelines.

To access Montage, navigate to the URL provided by your system administrator (e.g. <https://demo.montagehealthcare.com>). Enter the username and password provided to you by your facility and click on the "Login" button.



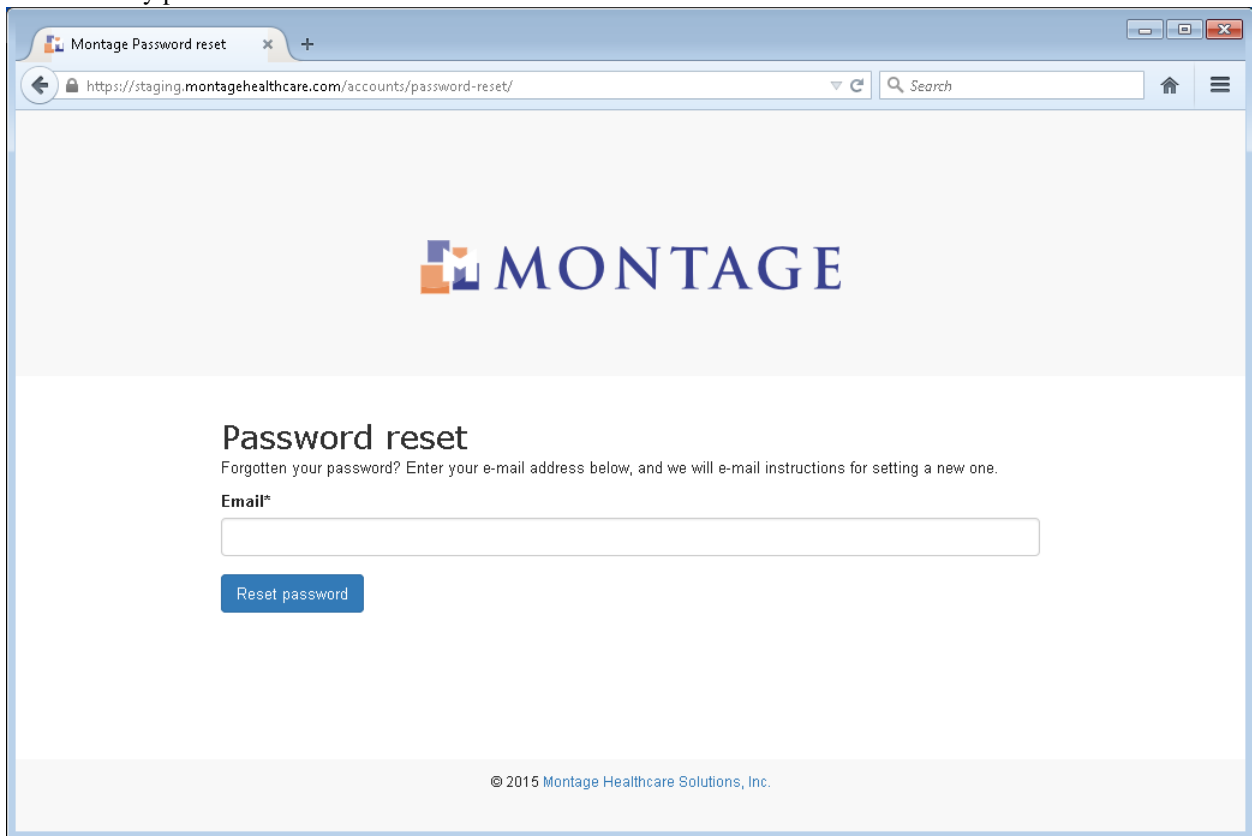
### 1.1.1 Forgotten Password

---

**Note:** The “Forgotten Password” feature only works if using the builtin user management. If your system has LDAP/AD user administration, please contact your system administrator to reset your LDAP/AD password.

---

If you have forgotten your password, you can update your password. First click on the “Forgotten Password?” link on the login screen, which will navigate you to a page where you will need to enter your email address and then click on the “Reset my password” button.



You will receive an email with instructions to navigate to a page to complete the password reset for your account:

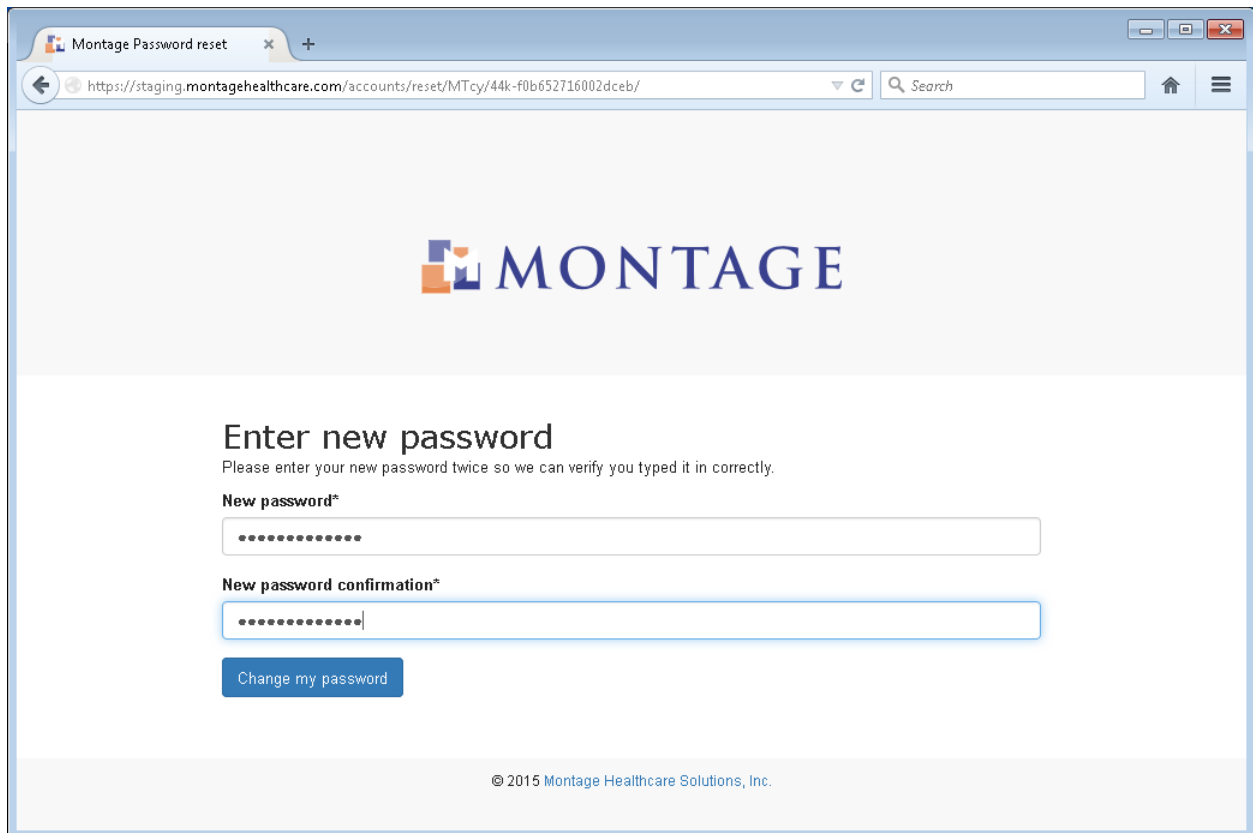
You are receiving this e-mail because you requested a password reset for your user account at [demo.montagehealthcare.com](https://demo.montagehealthcare.com).

Please go to the following page and choose a new password:

<https://demo.montagehealthcare.com/accounts/reset/098abcd7654/>

Your username, in case you have forgotten: demo

This page will require you to enter a new password and then re-enter it to confirm. After that is completed, click on the “Change my password” button. This completes the password change and you can now *login*.

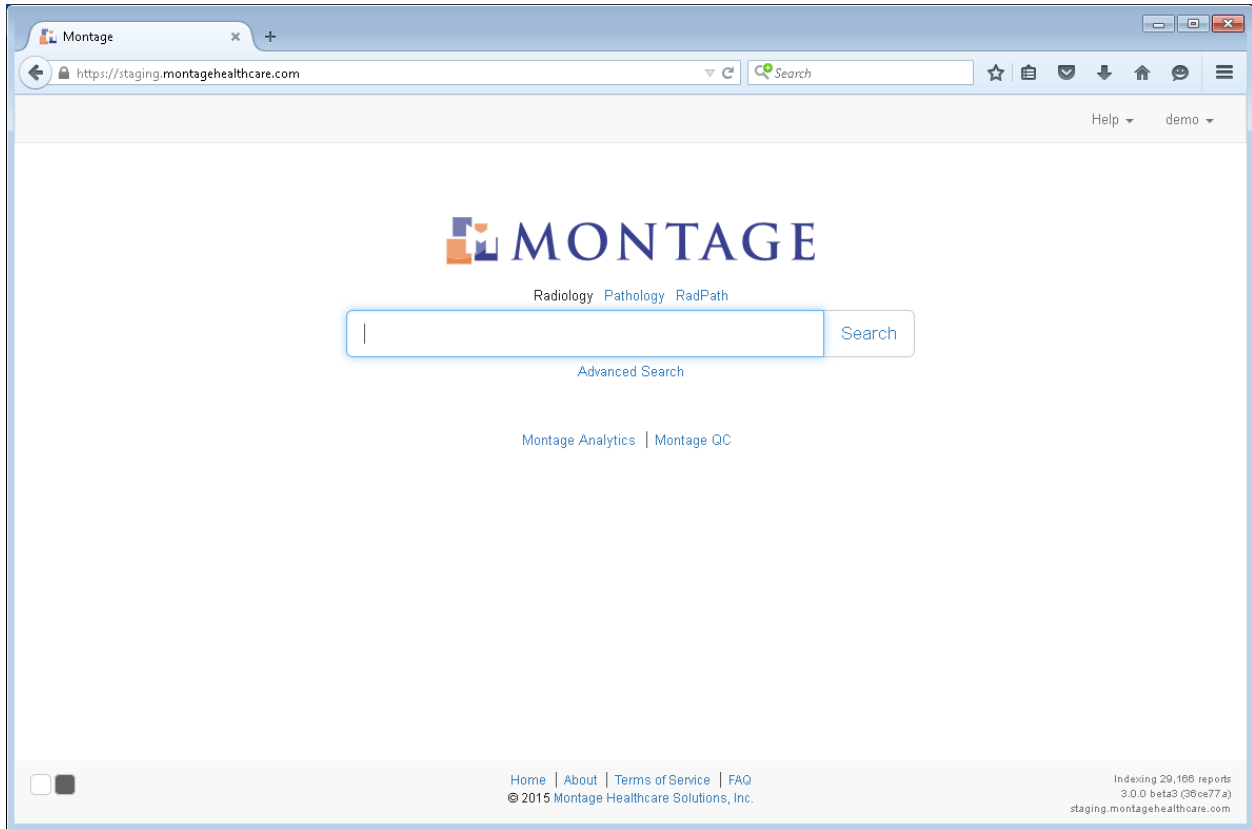


The screenshot shows a web browser window with the title "Montage Password reset". The address bar contains the URL "https://staging.montagehealthcare.com/accounts/reset/MTcy/44k-f0b652716002dceb/". The page features the Montage logo at the top center. Below the logo, the heading "Enter new password" is displayed, followed by the instruction "Please enter your new password twice so we can verify you typed it in correctly." There are two input fields: "New password\*" and "New password confirmation\*", both containing masked characters. A blue button labeled "Change my password" is positioned below the second field. At the bottom of the page, the copyright notice "© 2015 Montage Healthcare Solutions, Inc." is visible.

## 1.2 Montage Search

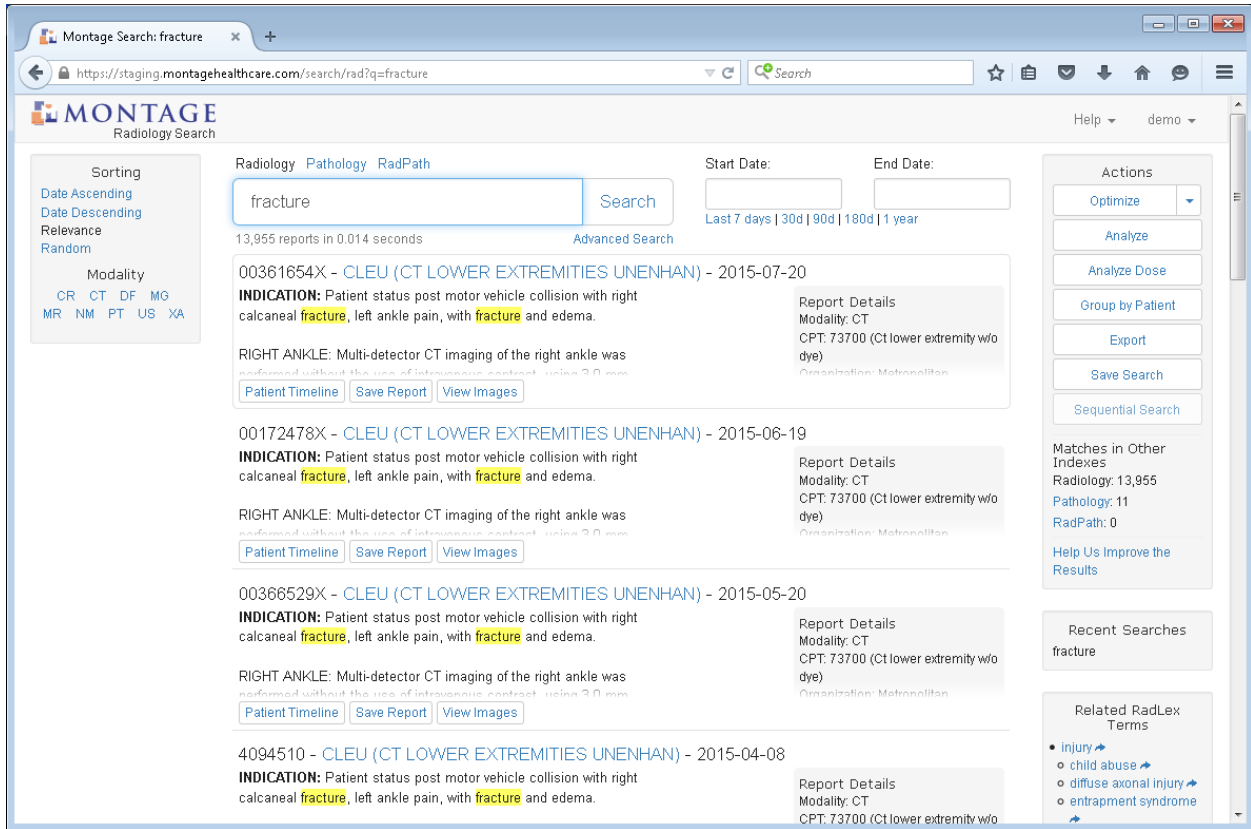
### 1.2.1 Searching

Montage is designed with ease of use as the top priority. After you have *logged into* the system, the search page will look similar to many of the top Internet search engines.

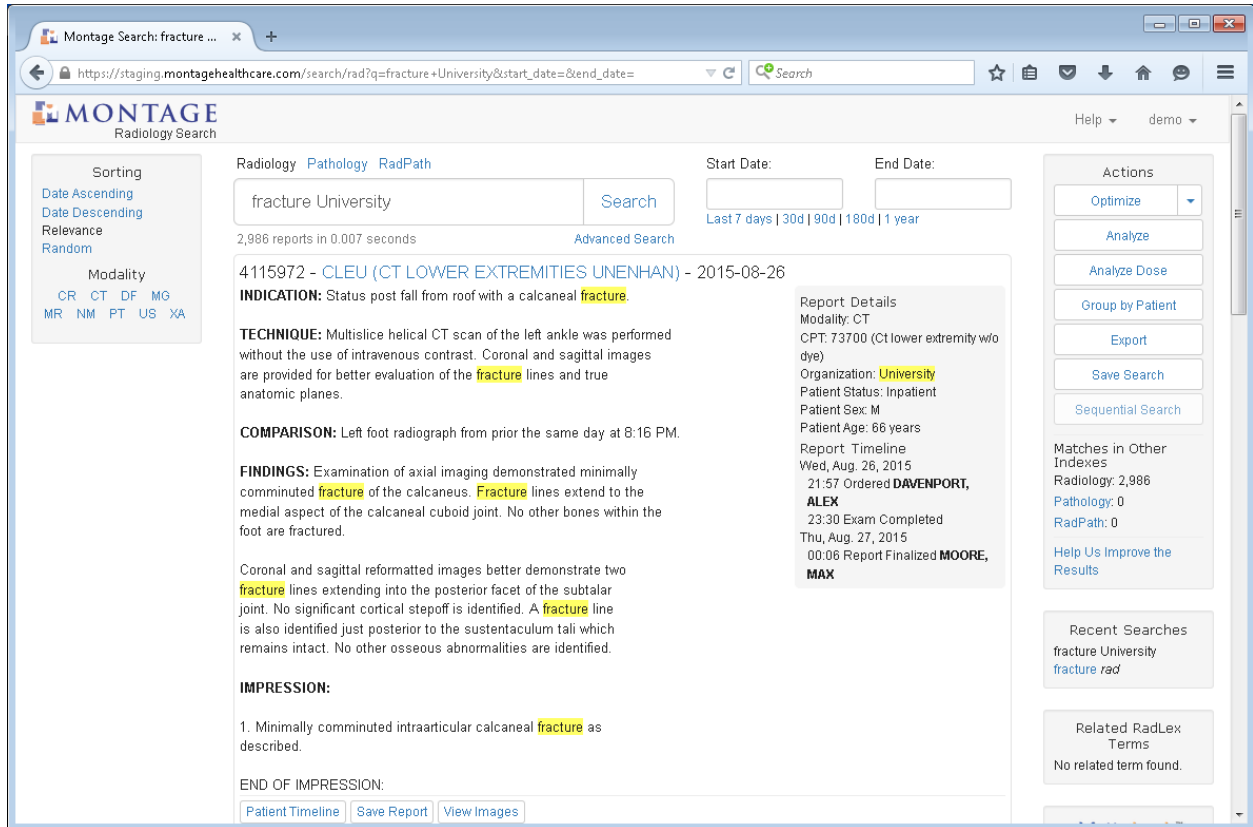


To perform a basic search, enter your search terms into the search box and click on the “Search” button or simply press the `Enter` button on your keyboard. The search results are then returned in a format that is similar to a typical Internet search engine.





The basic search box will search associated report *metadata* as well as the report text. As an example, the user has entered the search phrase *fracture University*, which will return all radiology reports that contain the word *fracture* and also contain *University*, these two elements can be located anywhere within the body or metadata. In this case, *University* was the organization in the metadata. Click on the report text to expand view the entire report.



## Boolean Search Syntax

The *Advanced Search* page allows you to build complex queries without having to know the actual Boolean search syntax.

However, there may be complex cases where you will need to build a complicated query using this syntax. You can enter the Boolean operators directly into the search box.

**AND operator** By default, all terms are AND’ed together, but to make this explicit:

`moderate & cardiomegaly`

**OR operator** Asthma or pneumonia:

`asthma | pneumonia`

**NOT operator** Pneumothorax, but not tension:

`pneumothorax -tension`

**Phrase** The exact phrase “moderate cardiomegaly” must exist in the report, not just the words “moderate” and “cardiomegaly”:

`"moderate cardiomegaly"`

**Grouping** Group operations with Parentheses. Here we search for reports about tension pneumothorax that do not have the an endotracheal tube:

`pneumothorax tension -(endotracheal tube)`

**Proximity Searching** “catheter” must occur within 5 words of “internal”:

```
"internal catheter"~5
```

**Exact Form**

New in version 2.3. To prevent the use of *stemming*, we can ensure the exact word form is only retrieved. To find “tumors” but not “tumor”:

```
=tumors
```

**Impression & Indication Searching**

New in version 2.2. To limit a search to the Impression section:

```
@impression pneumothorax
```

Similarly, limiting to the Indication:

```
@indication headache
```

Any boolean syntax is permitted inside the field limit:

```
@impression tension pneumothorax -(endotracheal tube)
```

## Advanced Search

To filter the results by specific fields or to perform advance Boolean searches without knowing the *Boolean Search Syntax*, you can use the Advanced Search page, available under the search box.

The screenshot displays the Montage Radiology Search interface. The search term "fracture" is entered in the search box, and the "Advanced Search" button is highlighted with a red box. The results show a list of reports for "fracture" with details for each report, including patient status, indication, and report details.

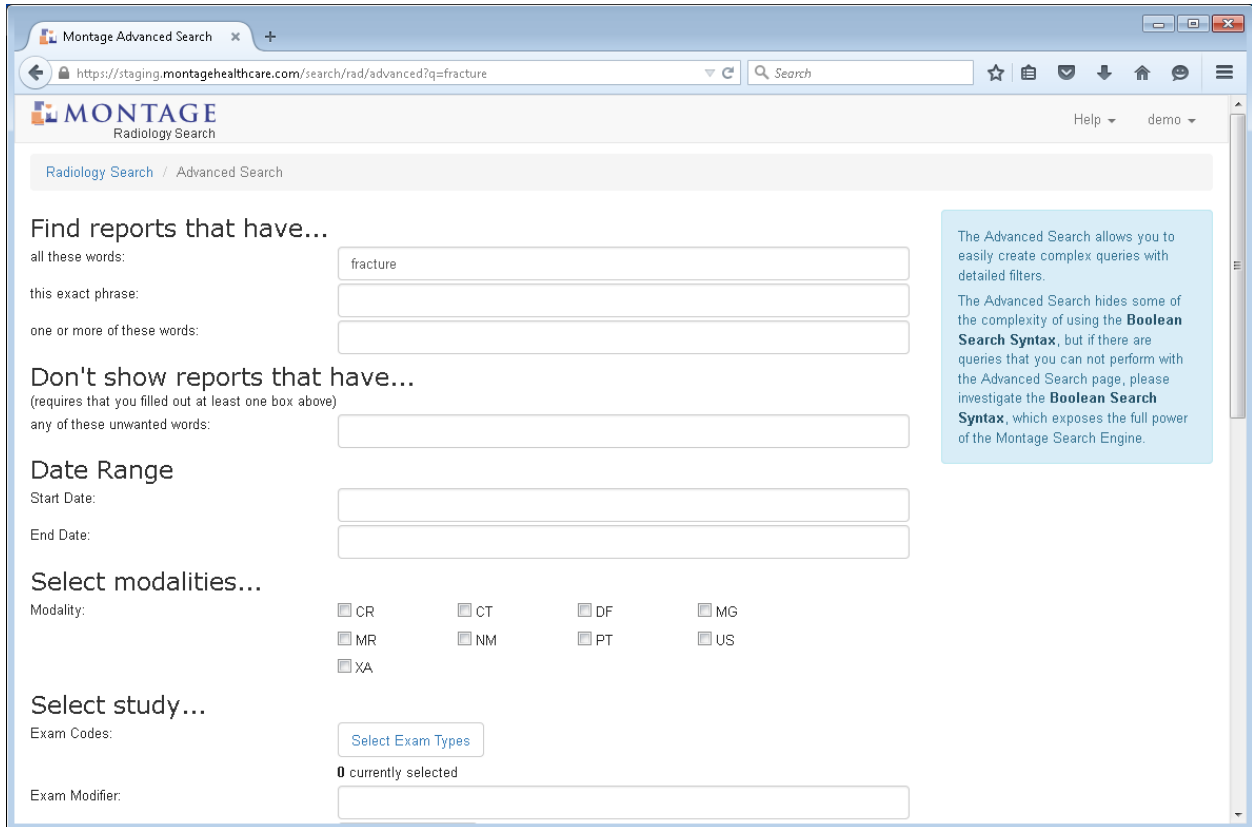
**Search Results:**

- 13,955 reports in 0.014 seconds
- Start Date: Last 7 days | 30d | 90d | 180d | 1 year
- End Date:
- Actions: Optimize, Analyze, Analyze Dose, Group by Patient, Export, Save Search, Sequential Search
- Matches in Other Indexes: Radiology: 13,955, Pathology: 11, RadPath: 0
- Help Us Improve the Results
- Recent Searches: fracture
- Related RadLex Terms:
  - injury
  - child abuse
  - diffuse axonal injury
  - entrapment syndrome

**Report Details:**

- 00361654X - CLEU (CT LOWER EXTREMITIES UNENHAN) - 2015-07-20
  - INDICATION: Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.
  - RIGHT ANKLE: Multi-detector CT imaging of the right ankle was performed without the use of intravenous contrast using 3.0 mm.
  - Report Details: Modality: CT, CPT: 73700 (CT lower extremity w/o dye), Organization: Metropolitan
  - Buttons: Patient Timeline, Save Report, View Images
- 00172478X - CLEU (CT LOWER EXTREMITIES UNENHAN) - 2015-06-19
  - INDICATION: Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.
  - RIGHT ANKLE: Multi-detector CT imaging of the right ankle was performed without the use of intravenous contrast using 3.0 mm.
  - Report Details: Modality: CT, CPT: 73700 (CT lower extremity w/o dye), Organization: Metropolitan
  - Buttons: Patient Timeline, Save Report, View Images
- 00366529X - CLEU (CT LOWER EXTREMITIES UNENHAN) - 2015-05-20
  - INDICATION: Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.
  - RIGHT ANKLE: Multi-detector CT imaging of the right ankle was performed without the use of intravenous contrast using 3.0 mm.
  - Report Details: Modality: CT, CPT: 73700 (CT lower extremity w/o dye), Organization: Metropolitan
  - Buttons: Patient Timeline, Save Report, View Images
- 4094510 - CLEU (CT LOWER EXTREMITIES UNENHAN) - 2015-04-08
  - INDICATION: Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.
  - Report Details: Modality: CT, CPT: 73700 (CT lower extremity w/o dye), Organization: Metropolitan
  - Buttons: Patient Timeline, Save Report, View Images

The Advanced Search page allows filtering by modality, exam code, organization, patient sex and age, and by the reporting and ordering providers.



## 1.2.2 Search Results

The search results are returned in a format that is similar to standard Internet search engines. Once you have narrowed your search terms down, you can perform additional tasks with the data that you have. In this section, we will describe how the system displays your results by default as well as instructions on how to modify the layout and look of your search results.

### Sorting

By default the system will sort your search results by relevance. The relevancy of the report is determined by a complex algorithm based upon multiple factors.

The system also allows the user to modify how the results are sorted:

- Relevance (using the relevancy algorithm)
- Date ascending (oldest reports first)
- Date descending (newest reports first)

The screenshot displays the Montage Radiology Search interface. The search term 'fracture' is entered in the search box, and the results show 13,955 reports in 0.014 seconds. The interface includes a sorting menu on the left, a search bar, and a list of results. Each result entry includes a patient ID, date, and a detailed indication of the fracture. The 'fracture' text in the indications is highlighted in yellow. The interface also features a sidebar with 'Actions' (Optimize, Analyze, Analyze Dose, Group by Patient, Export, Save Search, Sequential Search) and 'Matches in Other Indexes' (Radiology: 13,955, Pathology: 11, RadPath: 0). Recent searches and related RadLex terms are also visible.

Montage Search: fracture  
 https://staging.montagehealthcare.com/search/rad?q=fracture

**MONTAGE**  
Radiology Search

Start Date: End Date:  
 Last 7 days | 30d | 90d | 180d | 1 year

fracture Search

13,955 reports in 0.014 seconds Advanced Search

00361654X - CLEU (CT LOWER EXTREMITIES UNENHAN) - 2015-07-20  
**INDICATION:** Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.  
 RIGHT ANKLE: Multi-detector CT imaging of the right ankle was performed without the use of intravenous contrast using 3.0 mm  
 Report Details  
 Modality: CT  
 CPT: 73700 (Ct lower extremity w/o dye)  
 Organization: Metropolitan  
 Patient Timeline Save Report View Images

00172478X - CLEU (CT LOWER EXTREMITIES UNENHAN) - 2015-06-19  
**INDICATION:** Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.  
 RIGHT ANKLE: Multi-detector CT imaging of the right ankle was performed without the use of intravenous contrast using 3.0 mm  
 Report Details  
 Modality: CT  
 CPT: 73700 (Ct lower extremity w/o dye)  
 Organization: Metropolitan  
 Patient Timeline Save Report View Images

00366529X - CLEU (CT LOWER EXTREMITIES UNENHAN) - 2015-05-20  
**INDICATION:** Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.  
 RIGHT ANKLE: Multi-detector CT imaging of the right ankle was performed without the use of intravenous contrast using 3.0 mm  
 Report Details  
 Modality: CT  
 CPT: 73700 (Ct lower extremity w/o dye)  
 Organization: Metropolitan  
 Patient Timeline Save Report View Images

4094510 - CLEU (CT LOWER EXTREMITIES UNENHAN) - 2015-04-08  
**INDICATION:** Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.  
 Report Details  
 Modality: CT  
 CPT: 73700 (Ct lower extremity w/o dye)

Actions  
 Optimize  
 Analyze  
 Analyze Dose  
 Group by Patient  
 Export  
 Save Search  
 Sequential Search

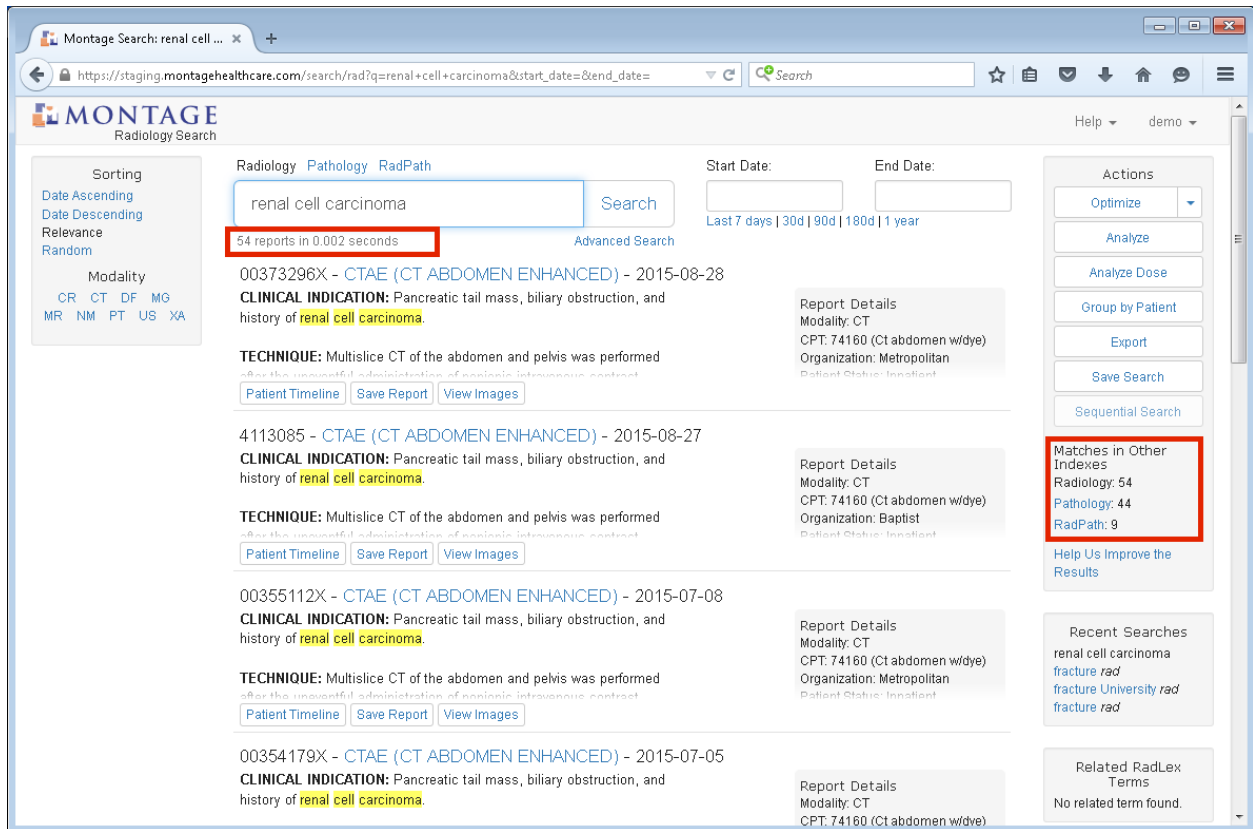
Matches in Other Indexes  
 Radiology: 13,955  
 Pathology: 11  
 RadPath: 0  
 Help Us Improve the Results

Recent Searches  
 fracture

Related RadLex Terms  
 • injury  
 • child abuse  
 • diffuse axonal injury  
 • entrapment syndrome

## Number of Results

The system will return the number of matching results and the amount of time it took to search the data for those results. If you have more than one medical specialty report database connected to Montage then it will also display the number of results found in each of those report database. For example, if Montage has indexed both radiology and pathology report database, then it will show the number of results for each.



## Viewing Reports

Montage makes it easy to view the full report text and related reports from other information systems all within the Montage interface.

To quickly view the full report text, just move your mouse cursor over the procedure code link for a result. A small pop up window will appear with the full report text.

The screenshot displays the Montage Radiology Search interface. The search term 'pneumonia' is entered in the search bar. The results list includes three entries:

- 7034785 - CTCE (CT CHEST W...)
- 00358568X - CTU (CT CHEST...)
- 4109899 - CTU (CT CHEST W...)

The report for patient 00358568X is expanded, showing the following details:

- INDICATION:** ARDS/pneumonia.
- CT CHEST. TECHNIQUE:** Multislice helical CT scan of the chest was performed without the use of intravenous contrast.
- COMPARISON:** CT scan of chest 11/6/05.
- FINDINGS:** Examination on lung windows demonstrates some change in appearance to the pattern of diffuse bilateral areas of ground glass opacification. More focal areas of consolidation are seen within both lower lobes. Additional consolidation is seen dependently within both lower lobes, which may represent atelectasis.
- Examination on mediastinal windows demonstrates interval insertion of the endotracheal tube, nasogastric tube and a right subclavian central venous catheter, all of which are in acceptable position. Heart and great vessels are unremarkable. Central airways are patent. There is no pathologic lymphadenopathy. There are bilateral pleural effusions.
- Examination of the visualized portions of the upper abdomen do not reveal any abnormalities.
- Examination on bone windows does not reveal any focal lytic or blastic lesions.
- IMPRESSION:**
  1. Bilateral lower lobe consolidation compatible with pneumonia.
  2. Changing pattern of diffuse bilateral ground glass opacities, compatible with pulmonary edema or pneumonia.
  3. Bilateral pleural effusions.
- END OF IMPRESSION:**

Additional interface elements include a sorting menu on the left, an actions panel on the right with buttons like 'Optimize', 'Analyze', and 'Export', and a 'Recent Searches' list at the bottom right.

Another method of viewing the full text report is by clicking anywhere within the result. The result will expand to show the full report. To collapse the report, double click on the expanded report.

The screenshot displays the Montage Radiology Search web application. The search term 'pneumonia' has been entered, resulting in 1,216 reports found in 0.003 seconds. Two report entries are visible:

- 7034785 - CTCE (CT CHEST W CONT) ST/2K - 2015-08-18**  
**CLINICAL HISTORY:** Worsening shortness of breath. PE versus pneumonia.  
**TECHNIQUE:** Contiguous axial CT images of the chest was performed with the use of intravenous contrast.  
[Patient Timeline](#) [Save Report](#) [View Images](#)
- 00358568X - CTCU (CT CHEST WO CONT) - 2015-07-17**  
**INDICATION:** ARDS/pneumonia.  
**CT CHEST. TECHNIQUE:** Multislice helical CT scan of the chest was performed without the use of intravenous contrast.  
**COMPARISON:** CT scan of chest 11/6/05.  
**FINDINGS:** Examination on lung windows demonstrates some change in appearance to the pattern of diffuse bilateral areas of ground glass opacification. More focal areas of consolidation are seen within both lower lobes. Additional consolidation is seen dependently within both lower lobes, which may represent atelectasis.  
 Examination on mediastinal windows demonstrates interval insertion of the endotracheal tube, nasogastric tube and a right subclavian central venous catheter, all of which are in acceptable position. Heart and great vessels are unremarkable. Central airways are patent. There is no pathologic lymphadenopathy. There are bilateral pleural effusions.

Report details for the second entry include: Modality: CT, CPT: 71250 (Ct thorax w/o dye), Organization: Metropolitan, Patient Status: Inpatient, Patient Sex: M, Patient Age: 56 years, Report Date: Fri, July 17, 2015, 16:07. Ordered by MYERS, LOUIS. Exam Completed at 16:13. Report Finalized by JONES, JOHN. Radiation Exposure: Effective ICRP 103: 11.41 mSv, Cumulative ICRP 103: 27.06 mSv.

The interface includes a search bar, sorting options (Date Ascending, Date Descending, Relevance, Random), modality filters (CR, CT, DF, MG, MR, NM, PT, US, XA), and various action buttons like 'Optimize', 'Analyze', 'Export', and 'Save Search'.

### Export To Excel

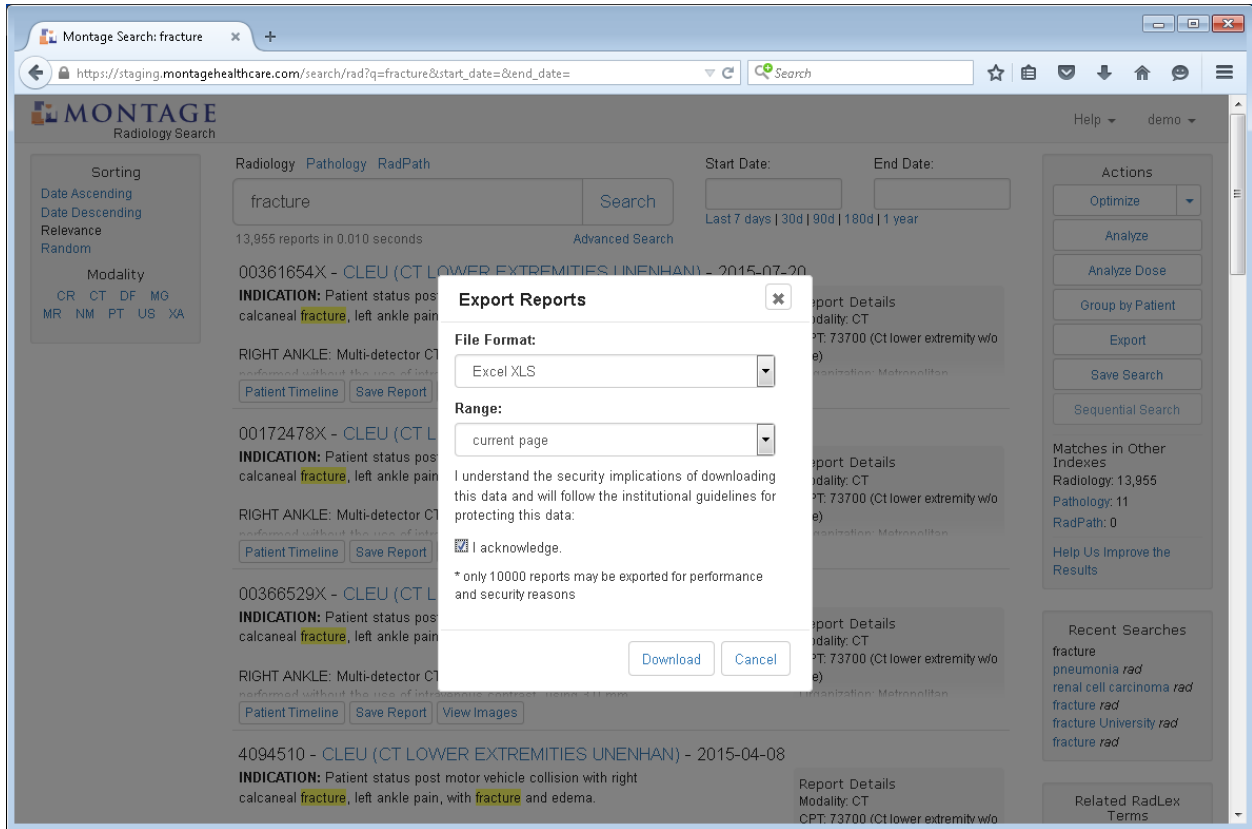
Montage allows you to export the reports into MS Excel (XLS) or Comma Separated Value (CSV) files. To export click on the “Export” button.



The screenshot shows the Montage Radiology Search interface. The search term 'fracture' is entered in the search box, and 13,955 reports are returned. The interface includes a sidebar with sorting options (Date Ascending, Date Descending, Relevance, Random) and modality filters (CR, CT, DF, MG, MR, NM, PT, US, XA). The main content area displays search results for 'fracture', including patient information, indication, and report details. The 'Export' button in the Actions panel is highlighted with a red box.

Montage Search: fracture  
 https://staging.montagehealthcare.com/search/rad?q=fracture  
 MONTAGE Radiology Search  
 Help demo  
 Radiology Pathology RadPath  
 Start Date: End Date:  
 fracture Search  
 Last 7 days | 30d | 90d | 180d | 1 year  
 13,955 reports in 0.014 seconds Advanced Search  
 00361654X - CLEU (CT LOWER EXTREMITIES UNENHAN) - 2015-07-20  
 INDICATION: Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.  
 Report Details  
 Modality: CT  
 CPT: 73700 (Ct lower extremity w/o dye)  
 Organization: Metropolitan  
 Patient Timeline Save Report View Images  
 RIGHT ANKLE: Multi-detector CT imaging of the right ankle was performed without the use of intravenous contrast using 3.0 mm  
 00172478X - CLEU (CT LOWER EXTREMITIES UNENHAN) - 2015-06-19  
 INDICATION: Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.  
 Report Details  
 Modality: CT  
 CPT: 73700 (Ct lower extremity w/o dye)  
 Organization: Metropolitan  
 Patient Timeline Save Report View Images  
 RIGHT ANKLE: Multi-detector CT imaging of the right ankle was performed without the use of intravenous contrast using 3.0 mm  
 00366529X - CLEU (CT LOWER EXTREMITIES UNENHAN) - 2015-05-20  
 INDICATION: Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.  
 Report Details  
 Modality: CT  
 CPT: 73700 (Ct lower extremity w/o dye)  
 Organization: Metropolitan  
 Patient Timeline Save Report View Images  
 RIGHT ANKLE: Multi-detector CT imaging of the right ankle was performed without the use of intravenous contrast using 3.0 mm  
 4094510 - CLEU (CT LOWER EXTREMITIES UNENHAN) - 2015-04-08  
 INDICATION: Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.  
 Report Details  
 Modality: CT  
 CPT: 73700 (Ct lower extremity w/o dye)  
 Organization: Metropolitan  
 Actions  
 Optimize  
 Analyze  
 Analyze Dose  
 Group by Patient  
 Export  
 Save Search  
 Sequential Search  
 Matches in Other Indexes  
 Radiology: 13,955  
 Pathology: 11  
 RadPath: 0  
 Help Us Improve the Results  
 Recent Searches  
 fracture  
 Related RadLex Terms  
 • injury  
 • child abuse  
 • diffuse axonal injury  
 • entrapment syndrome

Select either CSV or Excel, the amount of results you would like to export, and check the acknowledgment field. Finally, click on the download button.



## Patient Timeline

To quickly view all reports associated with a patient, click the “Patient Timeline” button.

The screenshot shows the Montage Radiology Search interface. The search term 'pneumonia' is entered in the search bar, and 1,216 reports are displayed. The results are color-coded by patient. The first patient's report (ID 7034785) is highlighted in yellow, indicating it contains the search query. The second patient's report (ID 00358568X) is highlighted in blue. The third patient's report (ID 4109899) is highlighted in red, and its 'Patient Timeline' button is circled in red. The fourth patient's report (ID 00372862X) is highlighted in yellow. The interface includes a sidebar with sorting options, a top navigation bar, and a right-hand panel with actions and search filters.

You then see a color coded boxes for each report related to that patient. Hovering over each box displays the full report text. Clicking on the box takes you to the *Patient Jacket*. Different color codes allow quick assessment of the types of reports that exist for the patient; for example, a yellow box indicates that report also contains the search query.

The screenshot displays the Montage Radiology Search web application. The browser address bar shows the URL: `http://staging.montagehealthcare.com/search/rad?q=pneumonia&start_date=&end_date=`. The page title is "MONTAGE Radiology Search".

**Search Interface:**

- Search Bar:** Contains the text "pneumonia" and a "Search" button.
- Filters:** "Radiology Pathology RadPath" tabs are visible. "Start Date:" and "End Date:" fields are present, with a filter for "Last 7 days | 30d | 90d | 180d | 1 year".
- Sorting:** A sidebar on the left offers options: "Date Ascending", "Date Descending", "Relevance", "Random", and "Modality" (with sub-options: CR, CT, DF, MG, MR, NM, PT, US, XA).
- Results:** 1,216 reports were found in 0.003 seconds. The first result is for report ID 7034785, dated 2015-08-18. The clinical history notes "Worsening shortness of breath. PE versus pneumonia." The technique describes a "Contiguous axial CT images of the chest...".
- Report Details:** For the first report, details include Modality: CT, CPT: 71260 (Ct thorax w/dye), and Organization: University.
- Actions:** A sidebar on the right provides actions such as "Optimize", "Analyze", "Analyze Dose", "Group by Patient", "Export", "Save Search", and "Sequential Search".
- Recent Searches:** A list on the right shows previous searches for "pneumonia", "fracture rad", "pneumonia rad", "renal cell carcinoma rad", "fracture rad", "fracture University rad", and "fracture rad".

**Timeline View:** At the bottom, a horizontal timeline shows a sequence of study codes (CR, CT, XA) for the years 2015 and 2014, with a legend indicating "current study", "also matches search query", "same exam code", and "different exam code".

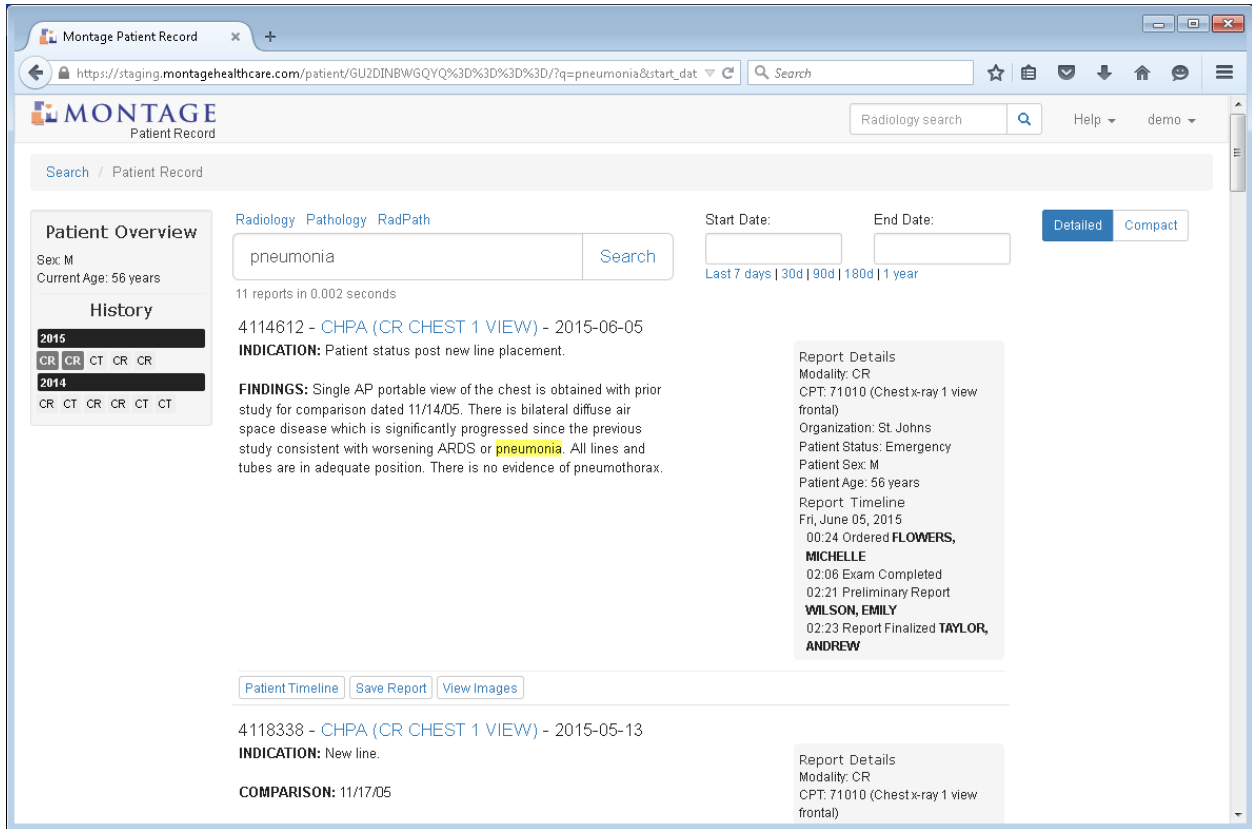
## Patient Jacket

There is also an advanced patient timeline view, which allows you to look at the patient’s entire history within a single page. To reach this Patient Jacket, click on the procedure code link at the top of a report.

The screenshot shows the Montage Radiology Search interface. The search term 'pneumonia' is entered in the search box. The results list several reports, with the third report, '4109899 - CTCTU (CT CHEST WO CONT) - 2015-04-24', highlighted with a red box. The interface includes sorting options, modality filters, and various action buttons like 'Optimize', 'Analyze', and 'Export'.

The screenshot shows the Montage Patient Record interface for patient GU2DINBWGQYQ%3D%3D%3D/#10513. It displays a detailed view of the report '4109899 - CTCTU (CT CHEST WO CONT) - 2015-04-24'. The report includes sections for 'INDICATION', 'TECHNIQUE', 'FINDINGS', and 'IMPRESSION'. The 'IMPRESSION' section lists three findings: 1. Bilateral lower lobe consolidation compatible with pneumonia. 2. Changing pattern of diffuse bilateral ground glass opacities, compatible with pulmonary edema or pneumonia. 3. Bilateral pleural effusions. The interface also includes a 'Patient Overview' sidebar with history and a 'Report Details' panel on the right.

The Patient Jacket allows searching within only the given patient's reports.



### 1.2.3 Optimizing the Search

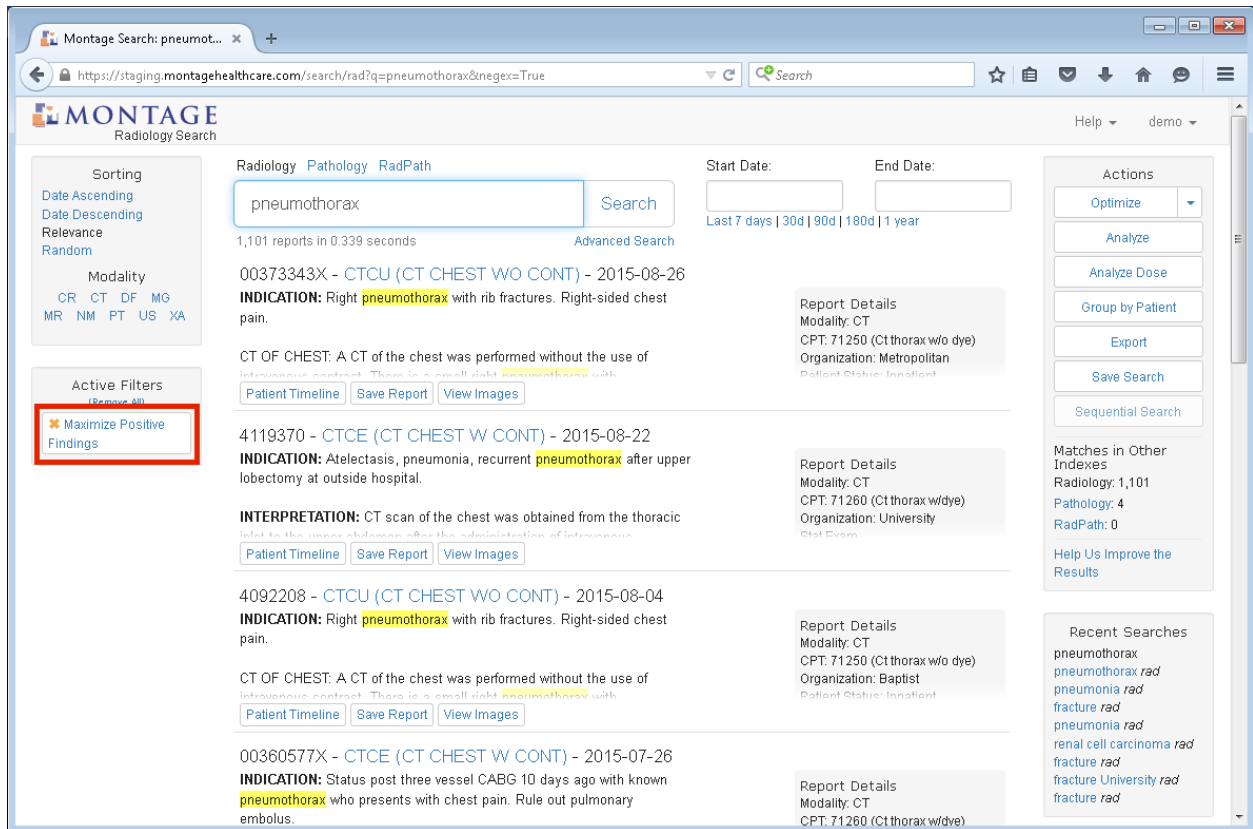
Montage offers several tools to easily optimize your search.

The screenshot shows the Montage Radiology Search interface. The search term is 'pneumothorax'. The results list includes several entries with their respective dates and indications. The 'Actions' menu on the right is highlighted with a red box, showing options such as 'Optimize', 'Maximize Positive Findings', and 'Query Expansion'.

## Maximize Positive Findings

The first optimization tool allows a user to “Maximize Positive Findings” by eliminating false positives from the search results. This tool utilizes a natural language processing (NLP) algorithm that removes results that contain a negation of the search term.

For example, simply searching for *pneumothorax* will likely result in many reports which contain a negative finding of pneumothorax (e.g. *no pneumothorax* or *no findings of pneumonothorax*). “Maximize Positive Findings” will show only reports that are positive for pneumothorax.



## Query Expansion

The next search optimization is the “Query Expansion” tool. Query Expansion uses a radiology-specific ontology to expand the original search query with related terms (i.e. acronyms and synonyms).

For instance, if you search for *ms* and then invoke the query expansion tool, results that match related terms, such as *multiple sclerosis* will also be returned.

Each related terms can be removed individually if so desired, giving the user full control over the query expansion option once invoked.



The screenshot shows the Montage Radiology Search interface. The search term is 'ms', and 25 reports were found in 0.003 seconds. The interface includes a search bar, sorting options (Date Ascending, Date Descending, Relevance, Random), and modality filters (CR, CT, DF, MG, MR, NM, PT, US, XA). The 'Active Filters' section on the left is highlighted with a red box and contains the following related terms: demyelinating disease, globoid cell, leukodystrophy, Krabbe's disease, and multiple sclerosis. The search results are displayed in a list format, with each entry showing the report ID, title, date, indication, and technique. The first three results are for 'Multiple sclerosis' with various MRI scans of the spine. The fourth result is for 'MRI23 (MRA NECK W/O CONTRAST)' dated 2015-09-04. The interface also includes an 'Actions' panel on the right with buttons for Optimize, Analyze, Analyze Dose, Group by Patient, Export, Save Search, and Sequential Search. A 'Recent Searches' panel at the bottom right lists previous searches like 'ms rad', 'ms rad + filters', 'pneumothorax rad + filters', 'pneumothorax rad', 'pneumonia rad', 'fracture rad', 'pneumonia rad', and 'renal cell carcinoma rad'.

### 1.2.4 Search Analytics

Montage can aggregate the results to display analytics, broken down by sex, age, ordering provider, etc. Once you have narrowed down your search to the target population, click the “Analyze” button.

The screenshot shows the Montage Radiology Search interface. The search term is 'fracture', and 13,955 reports were found in 0.014 seconds. The results are sorted by Date Ascending. The first result is for patient 00361654X, dated 2015-07-20. The indication is: 'Patient status post motor vehicle collision with right calcaneal fracture, left ankle pain, with fracture and edema.' The report details show Modality: CT, CPT: 73700 (Ct lower extremity w/o dye), and Organization: Materonilton. The right sidebar contains an 'Actions' menu with 'Analyze' highlighted in a red box. Other actions include Optimize, Analyze Dose, Group by Patient, Export, Save Search, and Sequential Search. Below the search results, there are sections for 'Matches in Other Indexes' and 'Recent Searches'.

In real-time, Montage will compute the analytics and provide the appropriate graphs.

The screenshot shows the Montage Radiology Search interface with analytics enabled. The search term is 'fracture', and 13,955 reports were found in 0.011 seconds. The interface displays three analytics graphs: a pie chart for 'Sex', a stacked bar chart for 'Patient Status', and a bar chart for 'Patient Age'. The 'Sex' pie chart shows a distribution of Male (M), Female (F), and Unknown (U). The 'Patient Status' stacked bar chart shows Report Volume for Emergency, Inpatient, and Outpatient, with Non-Stat (blue) and Stat (red) categories. The 'Patient Age' bar chart shows Report Volume across age groups. The right sidebar contains an 'Actions' menu with 'Analyze' highlighted in a red box. Other actions include Optimize, Analyze Dose, Group by Patient, Export, Save Search, and Sequential Search. Below the search results, there are sections for 'Matches in Other Indexes' and 'Recent Searches'.

## 1.3 Montage Sequential Search

Sequential Search is a powerful extension to the normal *Montage Search*, allowing you to find patients who have two specified imaging studies within a defined period of time.

One way to think about it is conducting a search for **A**, then a search for **B**, then finding the intersection of patients who have at least one report with **A** and at least one report with **B**

### 1.3.1 Sequential Search Example

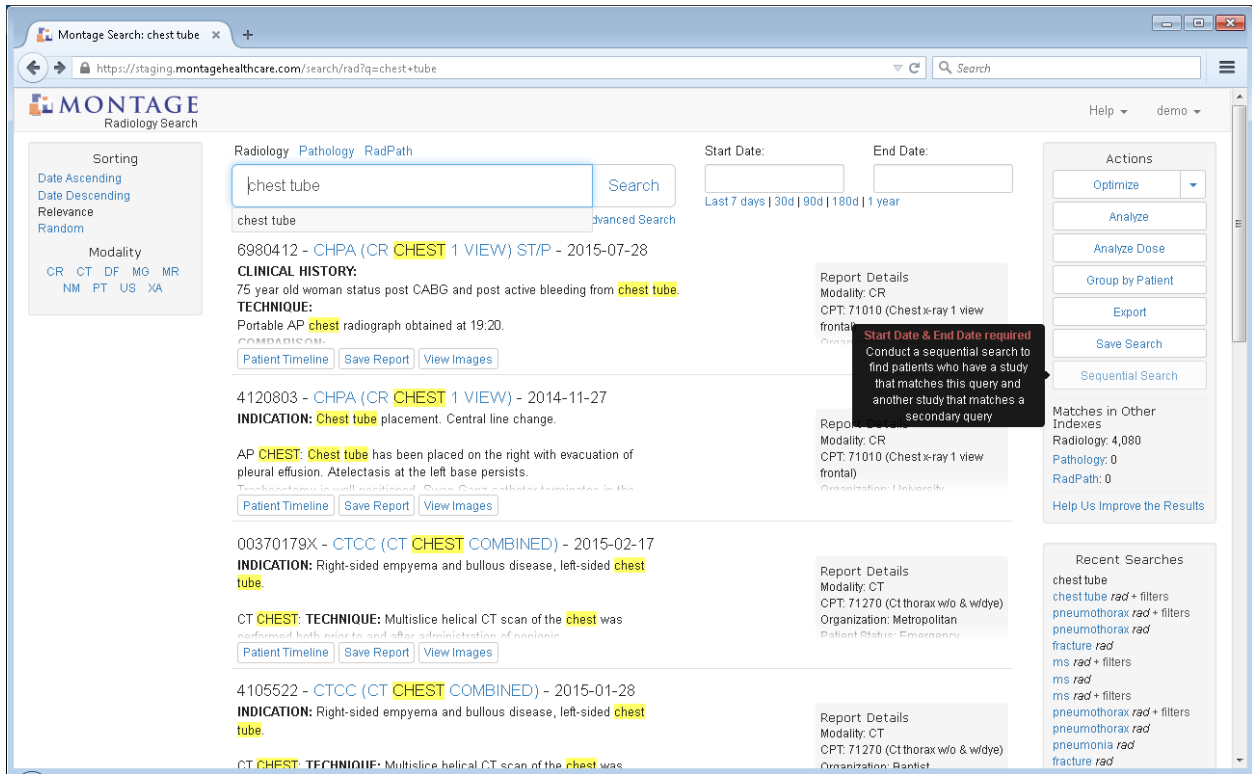
Let's try to find the set of patients who had a chest tube placed, and within 10 days had a positive pneumothorax.

To start, we conduct a normal search for *pneumothorax* and click the “*Maximize Positive Findings*” button. You will notice that our search is now in the bottom right under “Recent Searches,” this will be what we call our “Secondary Query.”

The screenshot displays the Montage Radiology Search interface. The search term 'pneumothorax' is entered in the search box, and the results are sorted by 'Maximize Positive Findings'. The interface shows four search results, each with patient ID, date, and clinical details. The 'Recent Searches' panel on the right lists the current search and other recent queries.

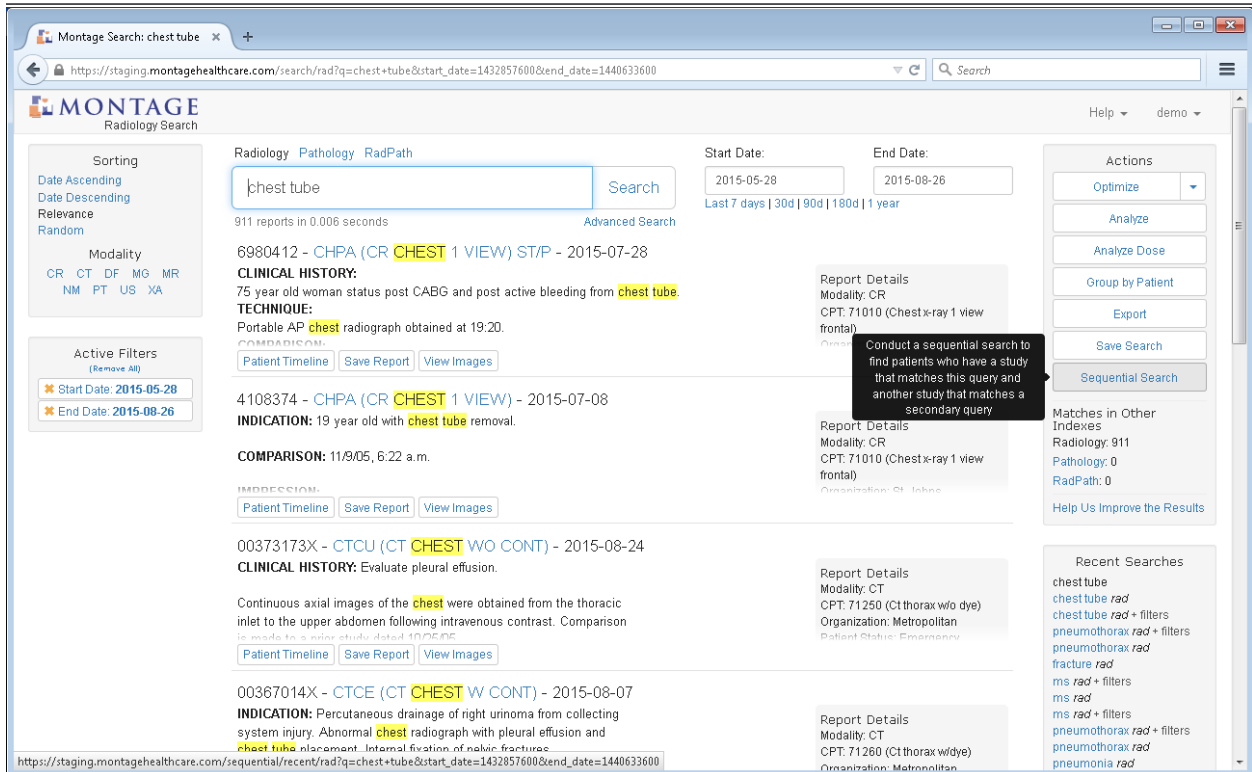
Search ID	Modality	Organization	Date	Indication
00373343X	CTCU (CT CHEST WO CONT)	Metropolitan	2015-08-26	Right pneumothorax with rib fractures. Right-sided chest pain.
4119370	CTCE (CT CHEST W CONT)	University	2015-08-22	Atelectasis, pneumonia, recurrent pneumothorax after upper lobectomy at outside hospital.
4092208	CTCU (CT CHEST WO CONT)	Baptist	2015-08-04	Right pneumothorax with rib fractures. Right-sided chest pain.
00360577X	CTCE (CT CHEST W CONT)	Metropolitan	2015-07-26	Status post three vessel CABG 10 days ago with known pneumothorax who presents with chest pain. Rule out pulmonary embolus.

Now, clear out all searches and conduct a new search for *chest tube*. You will see the “Sequential Search” button, but it is not currently enabled.

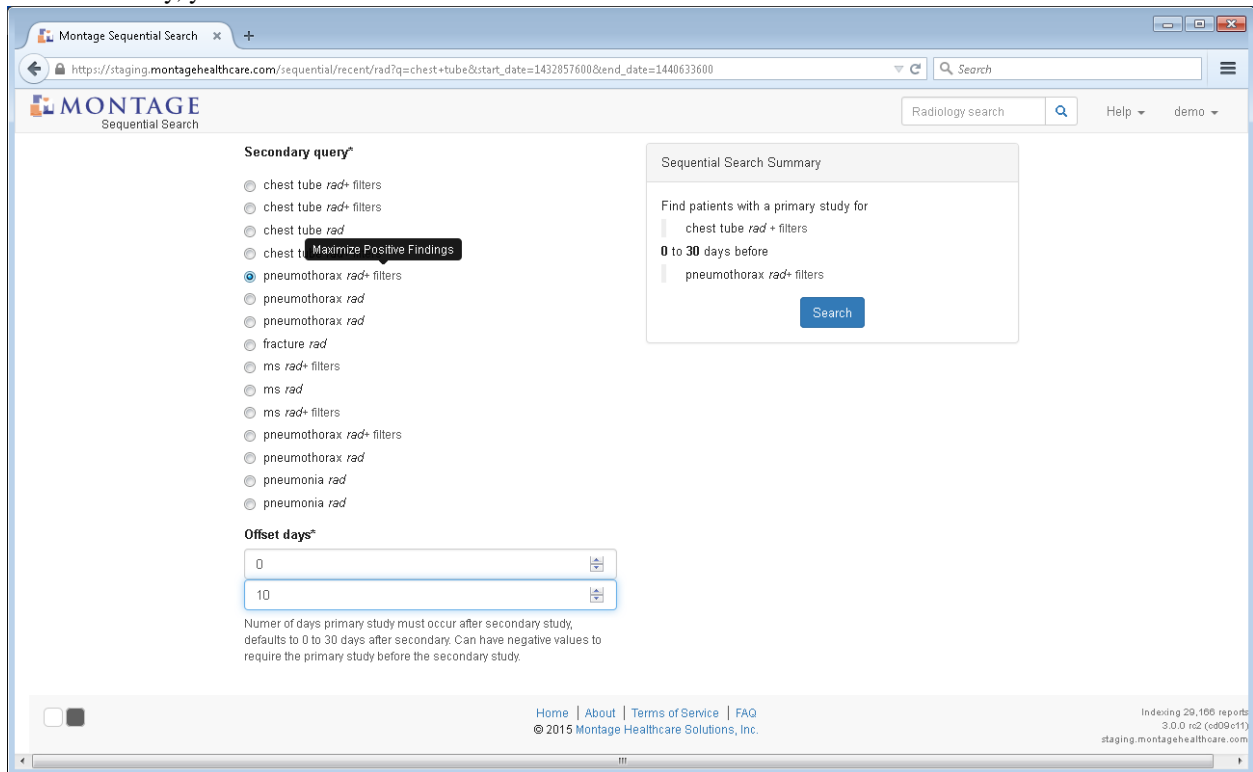


To allow us to conduct a Sequential Search, we must currently limit our query to a specified date range. This *chest tube* query is what we call our “Primary Query”. Once that is done, we can click “Sequential Search”.

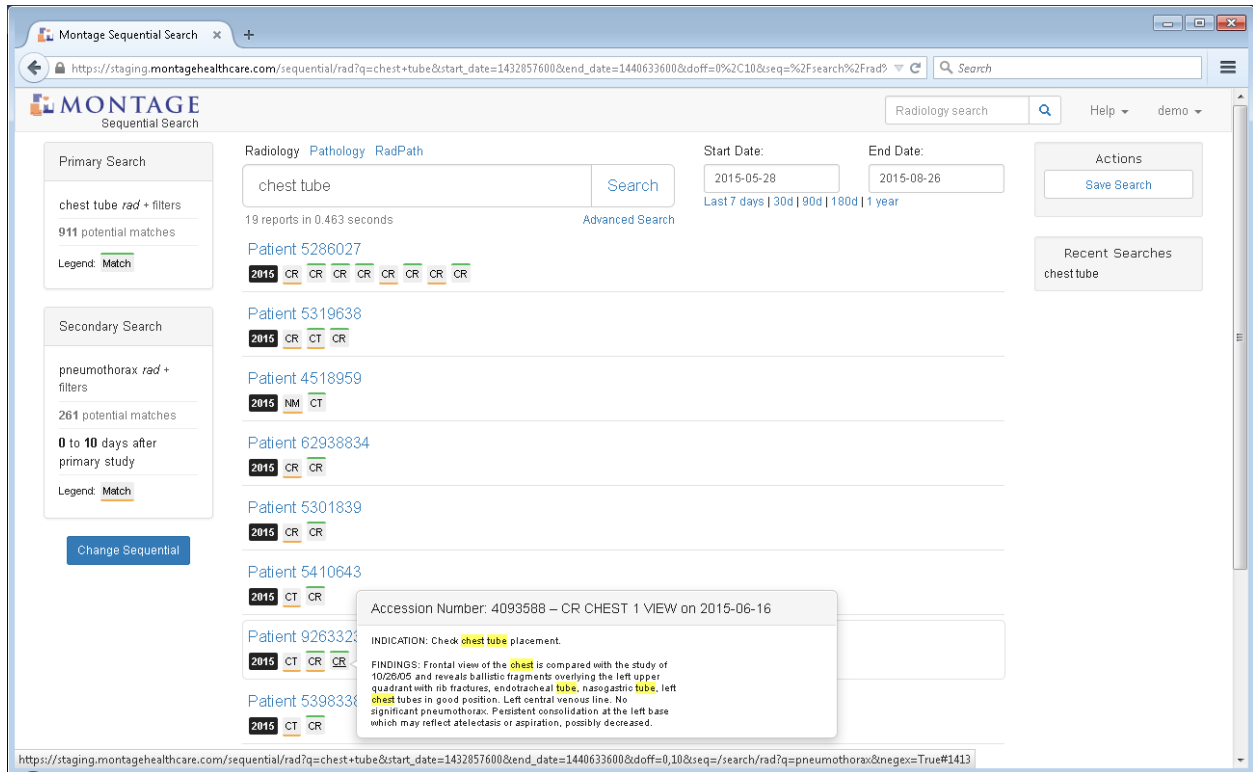
**Note:** As of Montage v3.0, a Date Range on the Primary Query is required for performance reasons. See *Limitations*.



We are taken to another page to build our sequential search. We need to combine our Primary Query with our Secondary Query, so we select the *tension pneumothorax* with the Positive Findings filter. We can reduce the default offset days from 30 to 10. The panel at the right gives a plain-English description of what our sequential search will do. When ready, you can click “Search”.



The results page will show the results grouped by Patient. Clicking on the Patient will go into their Patient Jacket. Hovering over any report will show the report’s content. Green lines above the report indicate it matched the Primary Query. Orange lines below the report indicate it matched the Secondary Query. Reports with both Green and Orange lines matched both queries.



The Patient’s MRN is only visible if the user has the **Can view PHI (MRN)** permission, otherwise it just displays “Patient” with a link to that patient’s jacket.

### 1.3.2 Offset Days

By default, Sequential Search looks cases that matches the Secondary Query that occurred 0 to 30 days *after* the case that matches the Primary Query. We could change to look for Secondary cases that exist 30 to 90 days after the Primary case.

But you are not limited to only Secondary cases that occur *after* the Primary case, you can enter negative ranges. For example we could enter -90 to -45 to look for Secondary cases that occur 45 to 90 days *before* the Primary case.

Order can also be ignored by using a negative to positive range, e.g -30 to 30 days, which would find Secondary cases that occurred within 30 days of the Primary case

### 1.3.3 Limitations

Sequential Search requires on-demand computation of a huge amount of data. For that reason, Sequential Search is currently limited to only 100k results per individual Search (i.e. the Primary Query can only match 100k reports and the Secondary Query can only match 100k reports). If either query returns more than 100k reports, an error message will occur. It is recommended to use a smaller date range on the Primary Query to reduce the search space down below 100k reports. You can then iterate through date ranges.

### 1.3.4 Exporting

Sequential Search can be exported similarly to the regular Search Export, but with several additional columns related to the sequential results:

**Patient Counter** Each row contains 1 report, the “Patient Counter” column contains an incrementing counter indicating which rows below to which patient. For example, if rows 2-4 have a value of “1”, the reports in rows 2-4 would be for the same patient, then rows 5-6 have a value of “2” that would be for the second patient. The “Patient Counter” is especially useful when users lack the **Can export PHI (MRN)** permission

**Primary Match** Contains a True/False value. If True, the report in this row positively matched the Primary Query. If False, the report in this row did not match the Primary Query.

**Secondary Match** Contains a True/False value. If True, the report in this row positively matched the Secondary Query. If False, the report in this row did not match the Secondary Query.

**Days Offset from Primary** The number of fractional days, within the defined “Offset Days,” to the closest Primary match. A positive number indicates this row occurred after the primary, a negative number indicates this row occurred before the primary.

In cases when there are multiple positive results that satisfy the criteria, the absolute minimum (i.e. the closest Primary match) is used.

Most Primary matches will have a 0 value, since it is offsetting from itself. However, if a Primary match also fulfills the Secondary Query (e.g. the “Primary Match” and “Secondary Match” columns are both True), the “Days Offset” will contain the number of days from the other Primary.

## 1.4 Montage Analytics

Montage Analytics is designed to be a easy-to-use tool for understanding practice productivity. It presents commonly useful visualizations as pre-built *dashboards*, while allowing users to dig deeper with *custom graphs*.

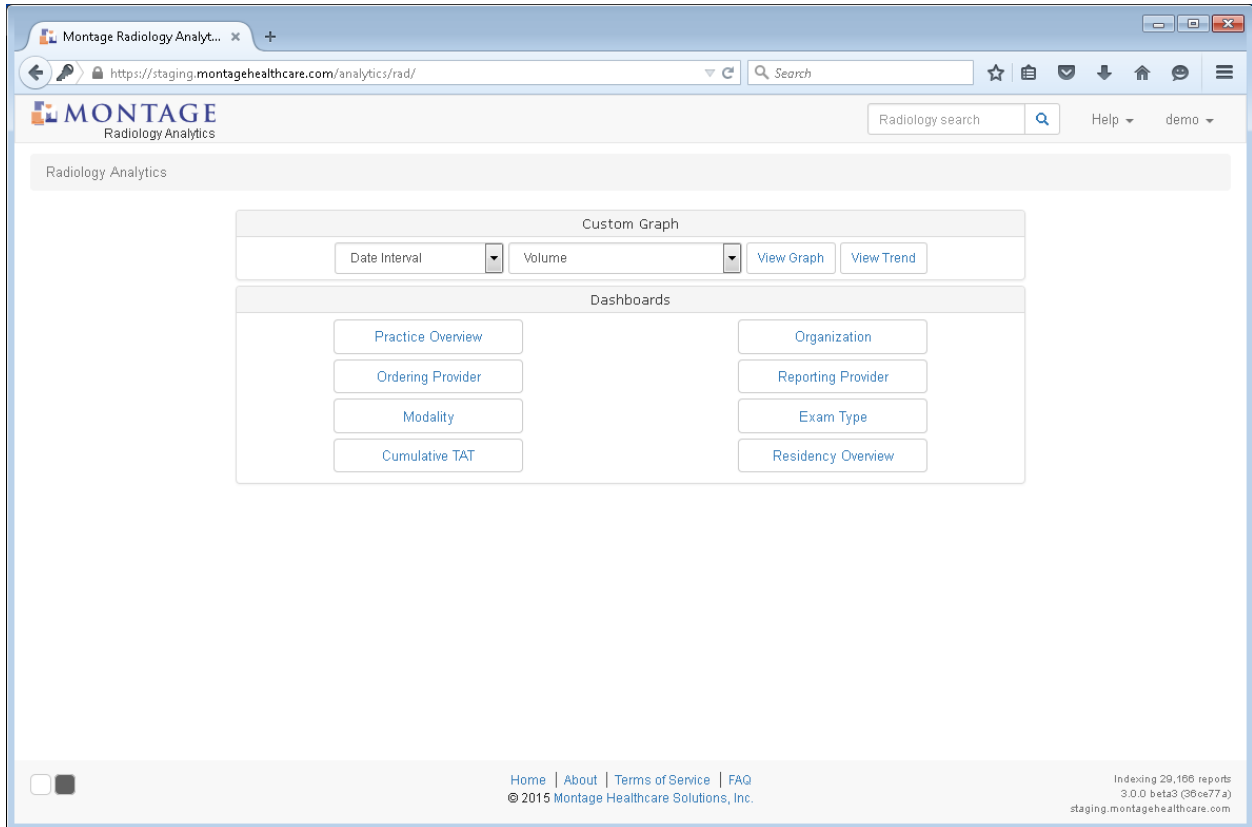
- Custom Graph
  - Concepts and Measurements
  - Chart Types
  - Filters
  - Exporting
  - Permalink
- Dashboards
- FAQ

### 1.4.1 Custom Graph

The Custom Graph forms the basis of Montage Analytics, allowing the user to define the *axes*, *filters*, and *visual presentation* of the data. And if Montage Analytics is unable to provide an answer to a complex question, you can *export* your existing filtered dataset into Excel.

#### Concepts and Measurements

On the Montage Analytics page, you will see the option for the *Custom Graph* at the bottom with two drop downs, one for *Concepts* and one for *Measurements*. *Concepts* are typically the X-axis on a graph, i.e. the independent variable. *Measurements* are the dependent variable that typically forms the Y-axis.



For instance, to examine radiologist volume, you would pick *Reporting Provider* as the Concept and *Volume* as the Measurement.

There are currently 3 basic Measurements:

- *Volume* - A count of the number of reports (effectively by Accession Number)
- *Turnaround Time* - The difference in time between two time-points (user-selectable). Both a Median and Mean version are offered. The Mean can be overly influenced by outliers.
- *Relative Value Units* - The summed RVU value for the user-selected unit type (e.g. Work RVU). Note that the Relative Value Units requires an acceptable upload of the current chargemaster.

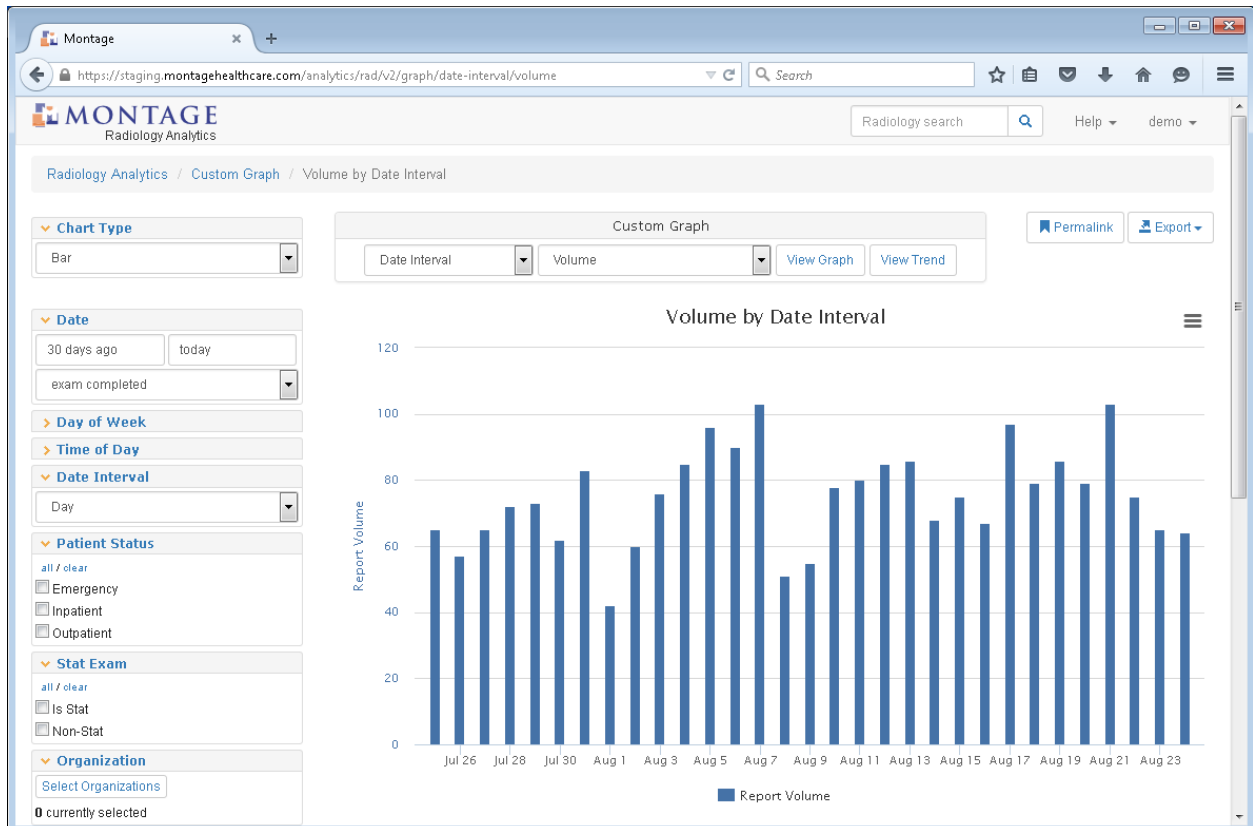
Most Concepts are self-explanatory, but to address several common questions:

- *Date Interval* - Show trends over time, for instance the volume by date over the past 30 days. Both the date range (start and end date) and resolution (hour, day, month, year) are user-selectable.
- *Date Group* - Show what the average hour-of-day, day-of-week, month-of-year over a period of time. For example, does the Turnaround Time spike on average every Saturday and Sunday. The date grouping and date range are both user-selectable.

## Chart Types

On the top of the left-hand side of the Custom Graph page, there is a *Chart Type* drop-down, which let's you pick the visual presentation style of the graph data.





For instance, if you would rather the data be available as a Bar chart instead of a Line graph, you can. For results with dozens or hundreds of elements, a Table is likely the best option.

For most Concept-Measurement pairs, Montage tries to automatically pick a sane default

## Filters

The Filters on the left-hand side of the Custom Graph page, allow you to narrow down the data you are interested in analyzing. For example, you can filter RVU calculations by specific Organizations or analyze a specific date range.

Most filters are self-explanatory, but a few notes about several:

- *Date* allows the start and inclusive-end date to be selected. The *Smart Date* is the preferred method of use, since Montage can learn what analysis you typically perform and pre-build the analytics before you log on.
- *Date Event* allows you to decide what event should the start and end date limit by (e.g. By exam ordered, exam completed, prelim report, final report, etc).
- *Date Interval* appears when using the Concept of the same name, allowing you to select the resolution to examine the data (e.g. Hour, Day, Month, Year)
- *Date Grouping* appears when using the Date Group Concept, allowing you to select the resolution of the grouping, e.g. by hour-of-day, day-of-week, day-of-month, week-of-year, and month-of-year.
- *Turnaround Events* appears when using the Turnaround Time Measurements. It allows you to select the start and end timepoints to compute the Turnaround Time. For example, you may want to know the median time between exam ordered and a finalized report, or perhaps exam completed to a preliminary report. The available values here depend upon what information Montage is able to extract from the RIS.
- *RVU Types* appears when using the Relative Value Units Measurement and allows selection of the RVU to use (e.g. Work, PE, MP, or Total)

### Exporting

The Custom Graph has several options for downloading the data once you have obtained the answer you need or perhaps need to perform further analysis.

The export buttons are towards the upper right of the Custom Graph.

- *Export Report Data* is the most powerful option and will provide the same Excel export as the *Search Export*, but with the same filters applied to the data. So if you filtered for stat exams in a specific time range, the XLS file will only have stat exams during that time period. There is an upper bounds for performance and privacy reasons, but this limit can possibly be increased by Montage Support if needed (however, Excel itself has several hard-limits).
- *Export Graph Summary* will export the underlying X-Y points behind the graph (very similar to the Table Chart Type), so you can re-create the graph yourself in Excel.
- The download icon in the top right of the chart allows saving of the chart image (only supported in modern browsers).

### Permalink

The *Permalink* button in the upper right, allows you to create a bookmarkable URL that saves the concept, measurement, and filters that you built. You can save or share this Permalink, allowing quick access without having to re-select filters if you perform the same regular analytics usage.

## 1.4.2 Dashboards

The Montage Analytics Dashboards, found as buttons on the main analytics page, present an graphical information overview that our practice domain experts have put together that allows a quick understanding of practice productivity.

The Dashboards behind the scenes use the same *Custom Graph* described above and assemble multiple graphs on a single page

## 1.4.3 FAQ

**Are the graphs real-time?** The answer largely depends on how Montage is configured to crawl the data from the RIS or other source data system

**Why do some analytics take a long time to run?** Montage Analytics has to, on-demand, crunch a huge amount of data using arbitrary sets of filters, so it can take some time for all the filtering and computations to run. However, Montage does several approaches to make this as fast as possible, including *precomputing* commonly asked graphs before the user even logs on

**The Ordering Provider Dashboard or Concept is not displaying data** It is likely that Montage is unable to capture the time of exam order from the RIS or source system. You can select a different *Date Event* to use.

## 1.5 Montage QC

Montage QC is a powerful NLP-based tool that flags reports for common clinical, safety, documentation, and billing errors.

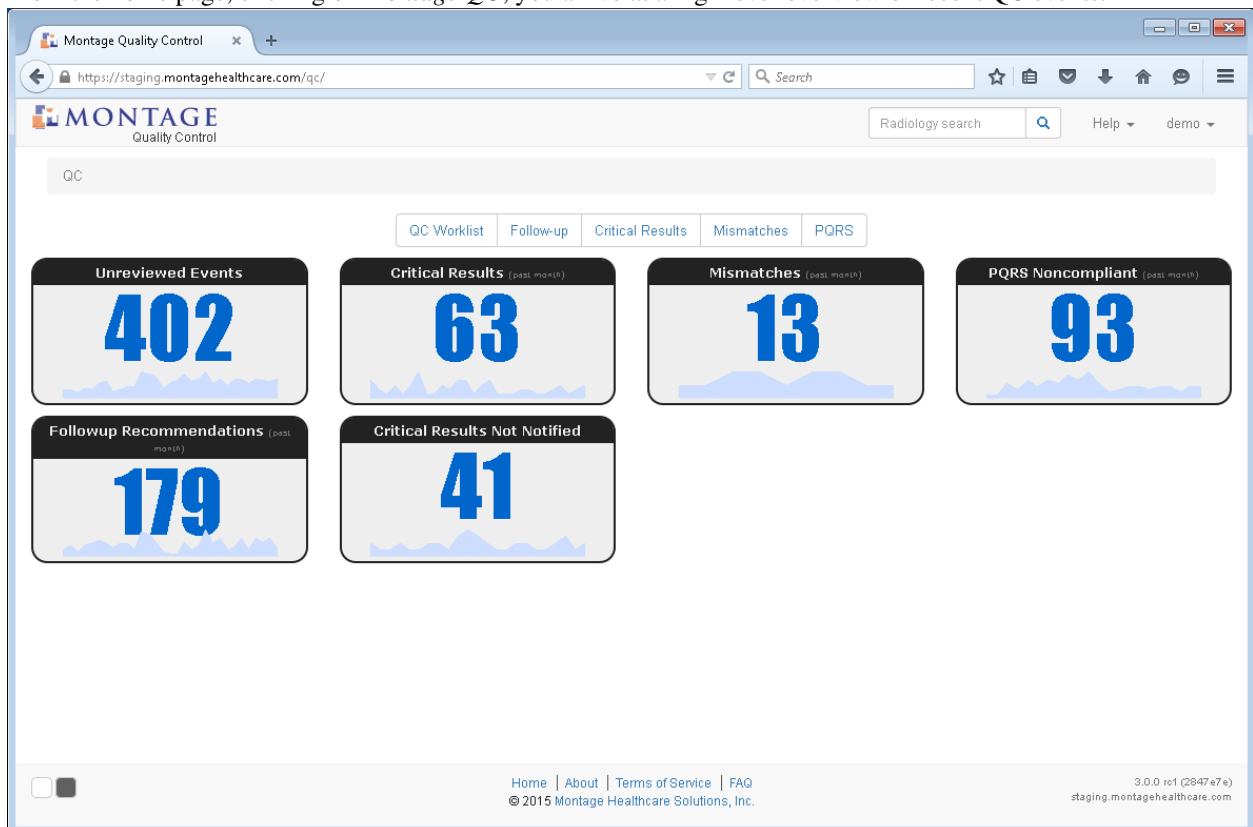
Currently, Montage QC has three major areas, *Critical Results*, *Mismatches*, and *PQRS*. A full list of available Montage QC Algorithms is provided.

Montage QC is developed by domain experts and has been extensively validated. However, due to the complexity of human language and subtle differences in dictation styles, incorrect detections can occur. Montage QC provides a workflow for hiding incorrectly flagged cases. If there are common failures, speak with Montage Support to assist in improving the accuracy.

**Note:** Many of the Montage QC algorithms require that or provide improved accuracy when CPT information is associated with each report. An *appropriate chargemaster* must be uploaded.

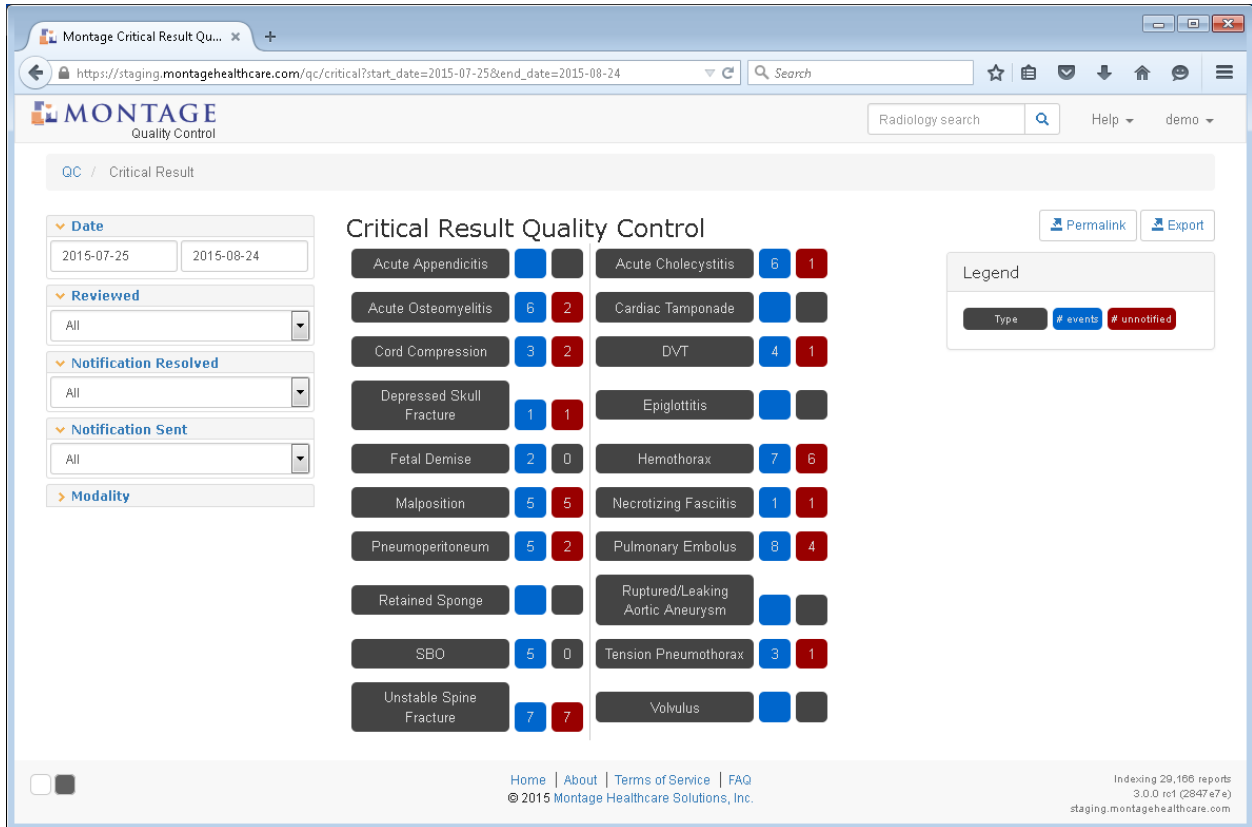
### 1.5.1 QC Dashboards

From the home page, clicking on *Montage QC*, you arrive at a high level overview of recent QC events.



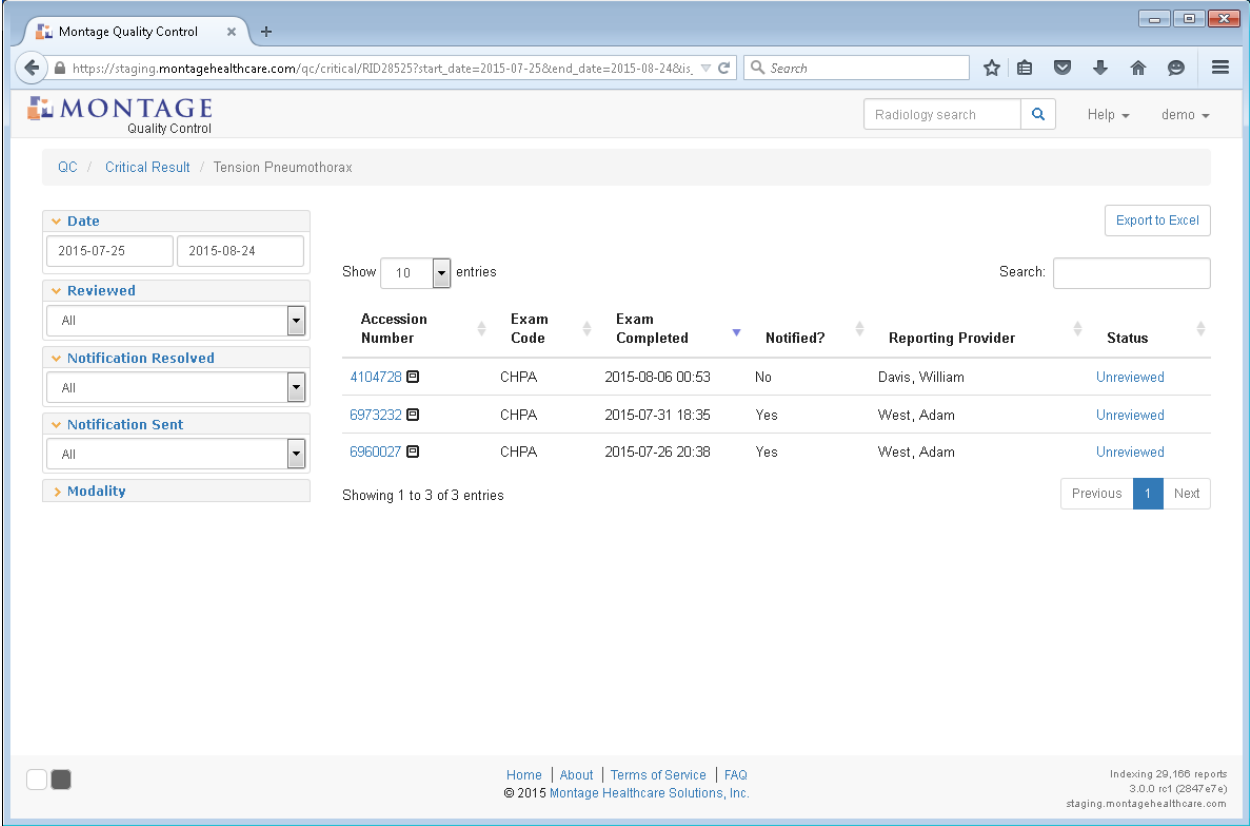
This dashboard shows the number of Critical Results, Mismatches, and PQRS events across the past 30 days.

Clicking on any of the numbers, sparklines, or titles will deliver you to the specific dashboard for that QC type. Let's click on the *Critical Results* box to explore.



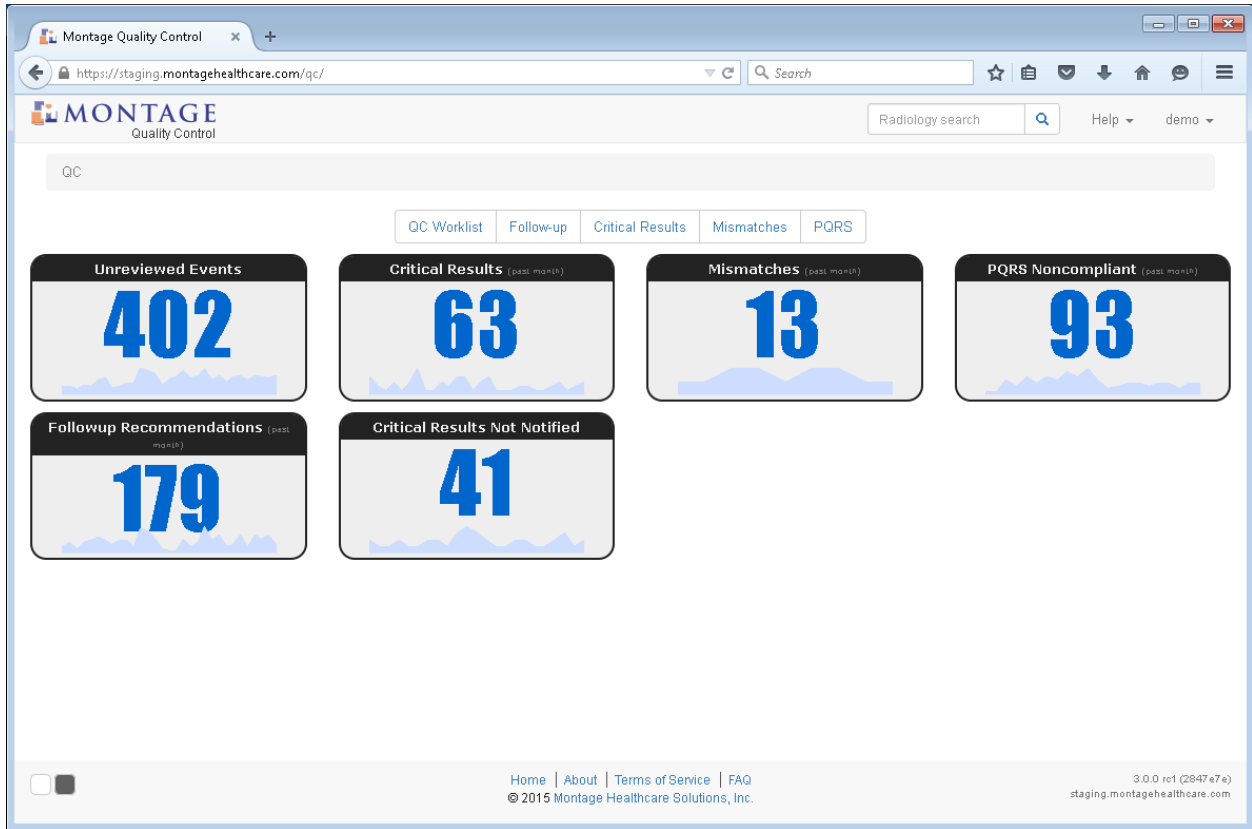
On the Critical Result dashboard, we can see all the active Critical Result Algorithms and counts of the number of reports that have issues. For example, in this screenshot, there are three reports that Montage QC identified *Tension Pneumothorax* in, one of which lacked a statement of notification.

Now click on *Tension Pneumothorax* to drill into these cases and examine:



### 1.5.2 QC Worklist

Back on the QC landing page, click on the *Unreviewed QC Events*



You will see a list of all the QC reports that have not been reviewed.

The screenshot shows the Montage QC Worklist page. The page title is "Unreviewed QC Events". There is a search bar and a "Show 25 entries" dropdown. Below the search bar is a table with the following columns: Accession Number, Exam Code, Detection, Detection Date, and Review. The table contains 15 rows of data, each representing an unreviewed QC event. The "Review" column for each row contains a "Review" link. There is also an "Export to Excel" button in the top right corner of the table area.

Accession Number	Exam Code	Detection	Detection Date	Review
4121509	NGAM (DF NEPHROSTOGRAM)	Recommendation Follow-Up	2016-06-19 10:50	Review
4101165	ANG395 (XA ANGIO PELVIC SEL/SUPR)	Recommendation Follow-Up	2015-12-27 19:00	Review
4101164	ANG395 (XA ANGIO PELVIC SEL/SUPR)	Recommendation Follow-Up	2015-09-26 07:32	Review
6982181	MRLJ (MR LOWER EXTREMITY JOINT)	Laterality Missing Mismatch	2015-09-05 21:31	Review
4098412	MR123 (MRA NECK W/O CONTRAST)	Stenosis Measurement PQRS	2015-09-03 22:10	Review
4091149	MR123 (MRA NECK W/O CONTRAST)	Stenosis Measurement PQRS	2015-09-03 21:07	Review
4120303	MR123 (MRA NECK W/O CONTRAST)	Stenosis Measurement PQRS	2015-09-03 05:46	Review
4093944	MR123 (MRA NECK W/O CONTRAST)	Stenosis Measurement PQRS	2015-09-03 04:16	Review
BMR5971272	CANN (CTA NECK COMBINED)	Stenosis Measurement PQRS	2015-09-03 02:35	Review
4107335	MR123 (MRA NECK W/O CONTRAST)	Stenosis Measurement PQRS	2015-09-03 00:51	Review
4112246	MR123 (MRA NECK W/O CONTRAST)	Stenosis Measurement PQRS	2015-09-02 20:17	Review
4104335	UCAB (US EXTRACRANIAL ARTERIES BIL)	Stenosis Measurement PQRS	2015-09-02 17:00	Review
4094341	XRA751 (DF OG/NG TUBE PLACEMENT)	Fluoro Time PQRS	2015-09-02 16:17	Review

Clicking *Review* on an individual report will allow you to mark Montage's QC Algorithm as correctly or incorrectly detecting the issue in the report.

### 1.5.3 FAQ

**Can I add my own algorithms?** Not currently, but the same underlying NLP technology is used in *Montage Search*, so you can build your own search and add it as a Saved Search

**Can I customize the algorithms?** Not currently. The algorithms have been developed by domain experts and carefully validated, so small changes can have significant unintended consequences to algorithm performance. If there are consistent failures, contact Montage Support and we can evaluate reasons for the failures.

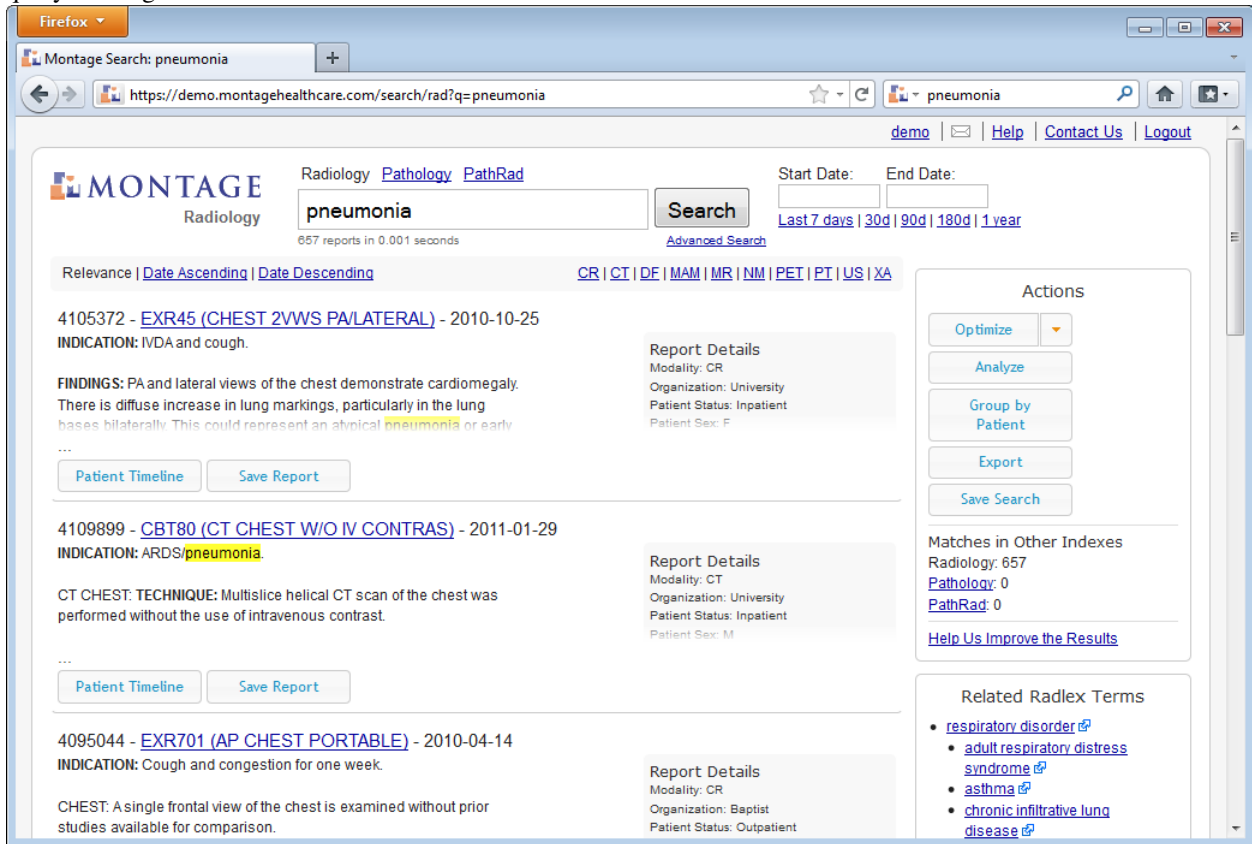
**Can I turn off specific algorithms?** Yes, via the Montage Admin, individual algorithms can be disabled. Please consider reaching out to Montage Support if you are seeing consistent false positives, so we can work together to improve the algorithm's performance. As of *Montage v3.0*, Montage Support can disable specific algorithms for a set of Exam Types or for a set of stop words.

## 1.6 Montage Tips & Tricks

- Montage Search as Browser Search Provider
  - Firefox
  - Chrome
  - Internet Explorer

## 1.6.1 Montage Search as Browser Search Provider

You can register Montage as a search provider in your web browser, allowing you to use the browser’s search box to query Montage.

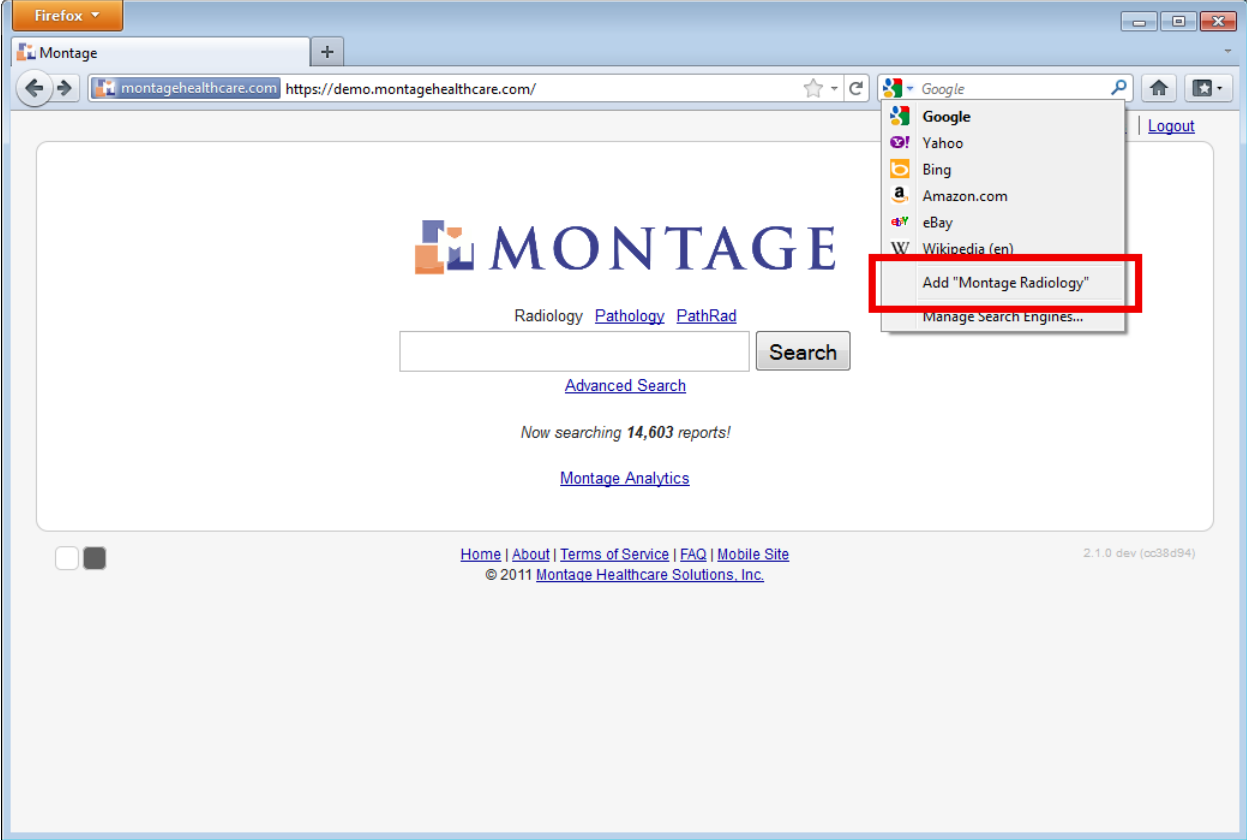


Montage has separate search providers for each index, so navigate to the index you wish to search (e.g. Radiology or Pathology), then follow the browser-specific instructions for *Firefox*, *Chrome*, or *Internet Explorer*.

### Firefox

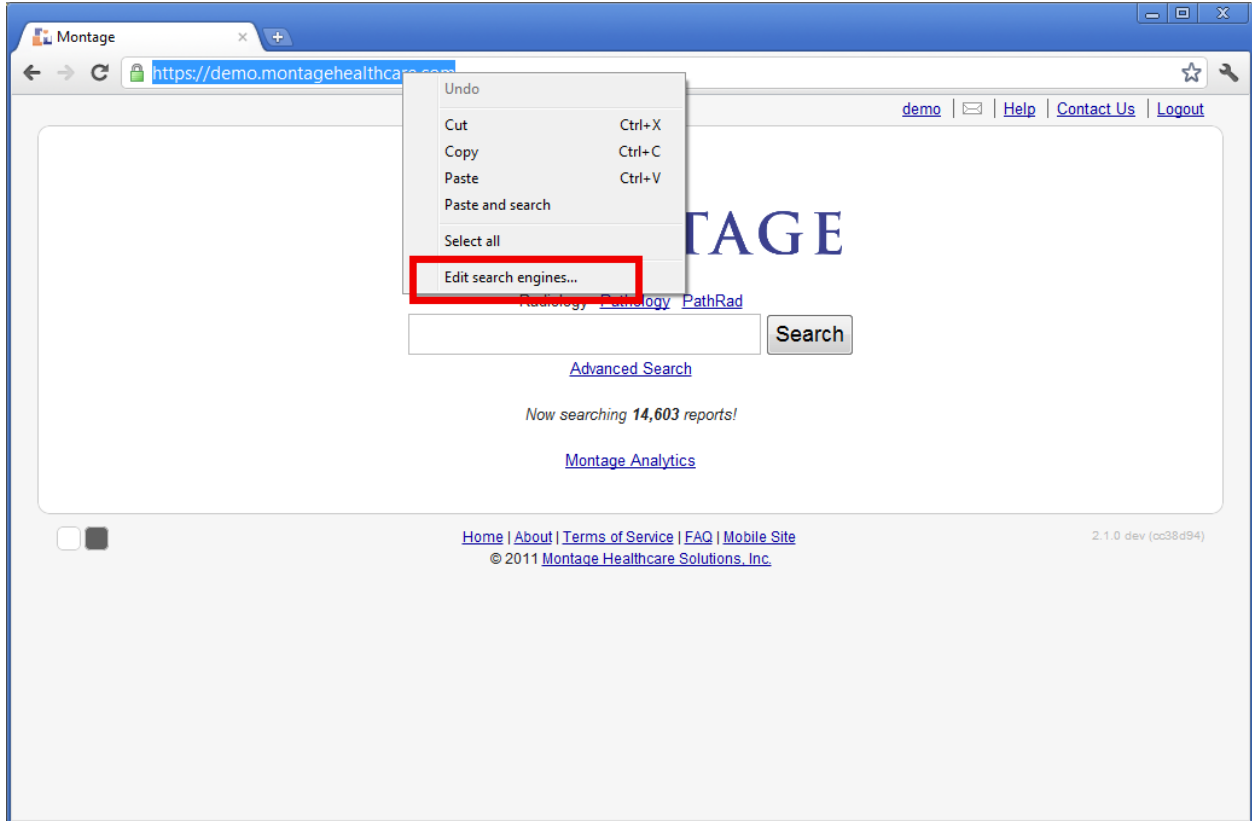
In Firefox, click the down arrow next to the current search provider, then click “Add Montage Radiology”.



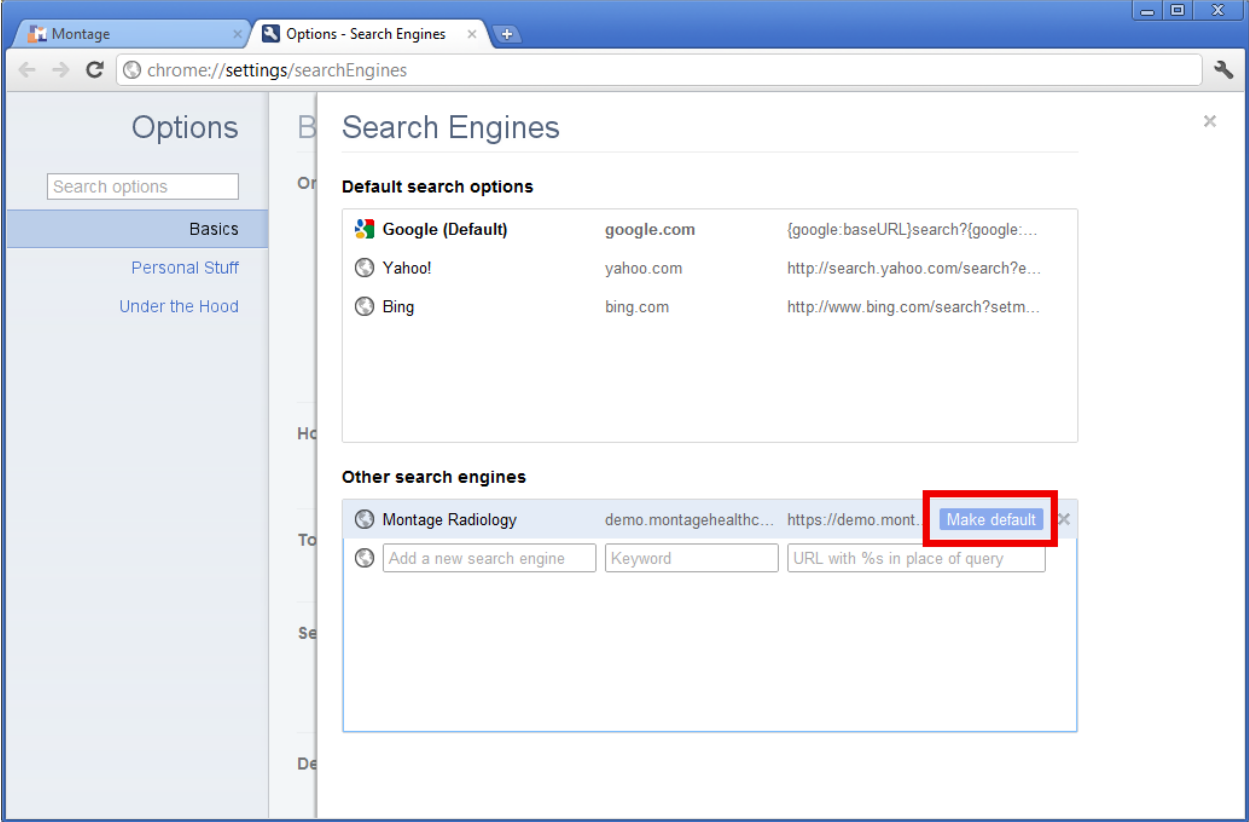


**Chrome**

In Chrome, right click the URL, then click “Edit search engines...”

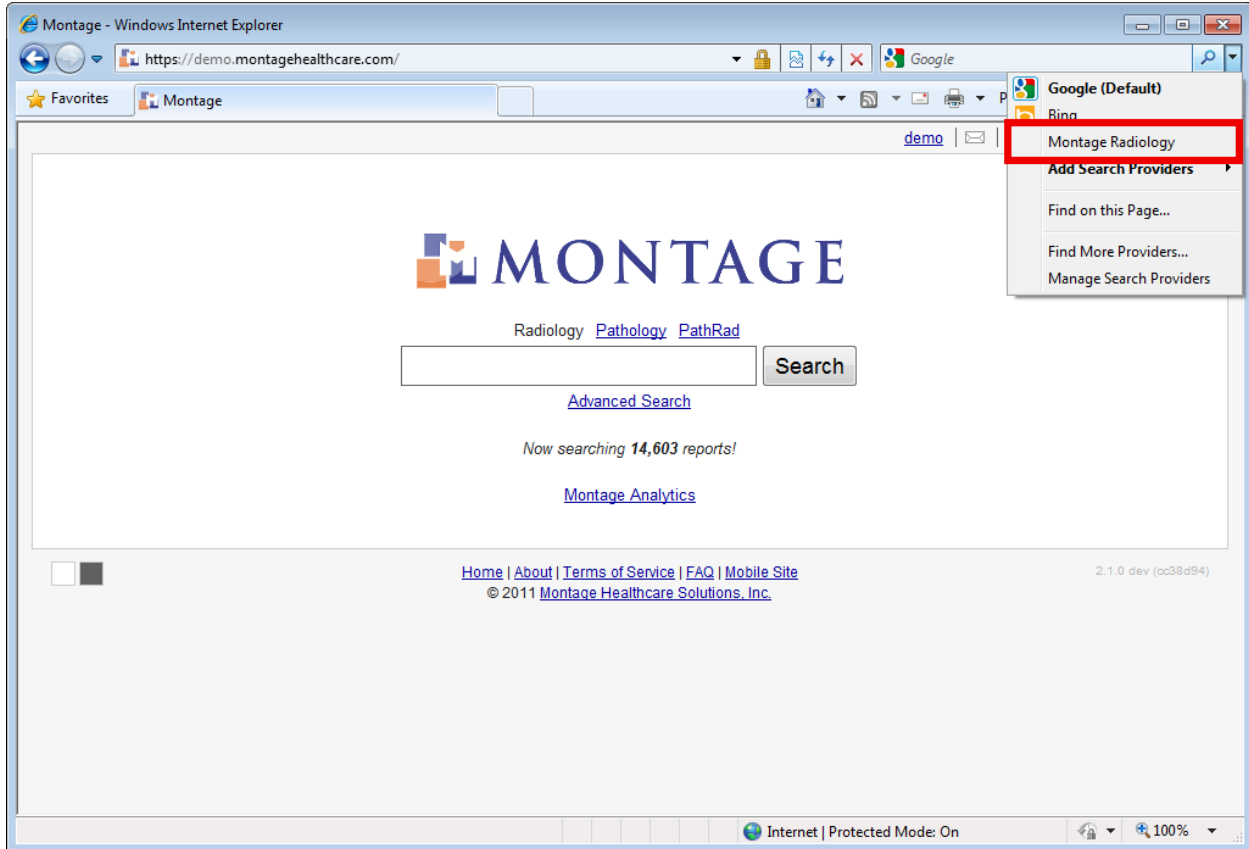


A preference tab will be opened, click on the “Make default” button on the “Montage Radiology” line (it will likely be at the bottom of the list). You can then close the preference tab.



**Internet Explorer**

In recent versions of Internet Explorer, click the down arrow at the far right of the search box, then click “Add Montage Radiology”.



## 1.7 Frequently Asked Questions

**Note:** Also see the *Analytics FAQ* and *QC FAQ*

**Can I do Boolean searches?** Yes you can. See *Boolean Search Syntax* for details.

**How can I see the full report?** You can view the full report without having to log in to the RIS separately. There are two ways. First, you can simply mouseover the title of each returned result. Second, you can click anywhere on the report text. This will show the rest of the report which you can also hide again with a double click.

**I want to look for cases of pneumothorax but I see a lot of results with “no pneumothorax”. Is there a way for me to remove the**  
Try the “Maximize Positive Findings” filter under the “Optimize” action. However, please note that this filter may remove true positive cases.

**What is the Analyze button?** Montage will analyze all the results and give you breakdown of the results as to gender, location, age groups, study years, most frequent exam codes, and most frequently ordering physicians.

**How can I filter by dates?** You can input the date range within the field boxes at the time of search or choose quick filters by clicking on one of the predetermined filters (like “90 d” which would filter to only last 90 days) after you do your initial search.

**I noticed the results are not in chronological order. How come? Can I sort by date?** The results are not in chronological order as Montage returns what it feels are best matches first regardless of the date of study. If you would like to sort by date, however, you can click on one of the sorting options.

**How can I filter by modality?** You can simply click on one of the modalities. This modality filter looks up all the exam codes associated with that particular modality to filter.

**How can I select more than one modality?** Select “Advanced Search” and you can select multiple modalities.

**What is the “Patient Timeline”?** When you click this, you will get a “timeline” of all the studies of this particular patient. The orange-colored box indicates the current study. The blue-colored boxes are other studies of same Exam Code. The gray-colored boxes are other studies which are of different Exam Code. When you mouse over each box, you will get to see the full report for that particular study.

**How can I export all the search results?** You have two options. You can either export just the 10 results that are currently on the screen or the entire result set. It will ask you to download a .xls or .csv file which can be opened with Excel. You will find that this allows for quick exporting of data bypassing any manual inputting of data into a spreadsheet.

**Can I export more than 10,000 reports?** By default, for performance reasons, Montage limits exports to 10 thousand records. You can slice the data into smaller date ranges to export more data.

If that is not sufficient, it is possible to change a setting in Montage to increase this 10,000 limit, but it may have performance consequences. Please contact your Support representative to perform the max export setting change. Note that the XLS file format also has a relatively low limit to the number of rows supported in a file.

**Can I save individual result to, say, a personal folder?** Yes. You can click on the “Save Report” button.

**Can I save also searches?** Let’s say you repeat certain searches all the time. Especially if they are complex, you do not want to retype that search string each time. So you can click on the “Save Search” button.

**How do I search across patient’s jackets?** Look at *Montage Sequential Search* as a way to combine two regular searches to find patients who have studies that match both searches.



# MONTAGE ADMINISTRATOR GUIDE

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**Note:** The Administrator Guide is only intended for Montage “site staff,” not for normal users.

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## 2.1 User Accounts

Montage features a powerful authentication and permission system, allowing administrators to define users and groups, and assign permissions to either individual users or whole groups.

By default, Montage ships with a secure, internal system for storing user credentials. However, Montage can also be configured to make use of user credentials from an *LDAP provider*, such as Microsoft’s ActiveDirectory.

### 2.1.1 User Management

User account management exists under the Admin page for users who have the **Can use site admin**. A listing of current users can be found at User List.

#### Adding a User

Adding a new user is done on the Create User page, which prompts for the username, name, and email address.

Once the *Create* button is clicked, Montage will create an account for that username and assign that account the basic permissions.

#### Editing a User

From the User List, Administrators can edit individual user accounts, by clicking on the username, then clicking on the *Edit User* button.

The following properties can be set on the user’s account once the *Save* button is clicked.

#### Active

If unchecked, the user’s account is disabled, preventing the user from logging into Montage, effectively “deleting” the user while preserving auditing information on the user.

## Groups

Each user can be assigned to multiple groups. Groups can be assigned permissions, thus providing a easy way to assign common permissions to sets of users.

By default, Montage comes with a single group called **Montage Users** which is required to use Montage. If **Montage Users** is not selected, the user's account will be effectively disabled.

## User permissions

Select what permissions the user should have. Note that the user can also have permissions applied at the group-level.

Permission	Usage
<b>Can export to Excel</b>	Allow data to be exported into Excel. Export will only be available if the user also has access to that part of Montage.
<b>Can export PHI (Accession Number)</b>	Allow user to export the Accession Number.
<b>Can export PHI (MRN)</b>	Allow user to export the MRN.
<b>Can export PHI (Patient Name)</b>	Allow user to export the patient name.
<b>Can use Site Admin</b>	Grant system administrator privileges.
<b>Can use Montage Analytics</b>	Allow access to Montage Analytics.
<b>Can use Montage</b>	Allow access to Montage.
<b>Can use Montage QC</b>	Allow access to Quality Control.
<b>Can use Reporting Provider Filters</b>	Display reporting provider filters in Advanced Search and Montage Analytics.
<b>Can use External Launchers (e.g. PACS)</b>	If configured, a View Images button is available.
<b>Can use Analyze in Montage Search</b>	Provide Search Analytics which allows the search results to be represented in various graphs after clicking the 'Analyze' button.
<b>Can view Own Analytics</b>	Enable 'My Dashboard' in Montage Analytics.
<b>Can view PHI (Accession Number)</b>	Allow user to view the Accession Number. Note, if <b>Can use External Launchers</b> is enabled and this permission is disabled, the PAC's context may still require the Accession Number, making it visible if depending upon the PACS. Note, this setting does not control the content of exports, also use <b>Can export PHI (Accession Number)</b>
<b>Can view PHI (MRN)</b>	Allow user to view the MRN. Note, this setting does not control the content of exports, also use <b>Can export PHI (MRN)</b>
<b>Can view PHI (Patient Name)</b>	Allow user to view the patient name. Note, this setting does not control the content of exports, also use <b>Can export PHI (Patient Name)</b>

**Warning:** Before enabling the **Can view PHI** or **Can export PHI**, ensure that your institution wishes Montage to display patient information, such as the patient's name and MRN.

**Note:** For permissions granted allowing the exporting of data, the user will still be prompted to acknowledge that PHI is contained.

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## 2.1.2 LDAP / ActiveDirectory

If Montage is configured to use LDAP, such as ActiveDirectory, Montage will use the LDAP server to authenticate the user. Permissions are still managed inside Montage.

The user account must either be pre-created in Montage or enabled after the user tries to log in the first time. If a user account has not been pre-created and the user successfully authenticates against LDAP, Montage will create an account for the user but not assign it any permissions (thus it can not fully log in).

---

**Note:** If you receive an error message “A user with that username already exists,” it possibly indicates that the account was created when authenticating the user against LDAP but that the account lacks the necessary permissions to access Montage.

If the user exists in the User List, see *Editing a User*, to make sure the user is in the **Montage Users** group.

---

If pre-creating the user account the username must match the username stored in LDAP for the user exactly.

## 2.2 Group Organizations

New in version 2.5.

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**Note:** The *Group Organizations* feature is not enabled by default in Montage. Enabling it requires a server configuration modification done by your Montage Support personnel.

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Montage *Group Organizations* allows users to only access reports from the Organizations they have been granted permission to view. Useful for multi-hospital installs that wish to limit what data each hospital can view.

### 2.2.1 How it Works

If the *Group Organizations* feature has been enabled and *configured*, when a user conducts a search, analyzes data, or tries to view any results, Montage will check to see what Organizations the user has been granted permission to access and only display data from those permitted organizations.

Permission is granted via the Groups a user is assigned, and not directly to user accounts, to make the configuration more re-usable. A Group may be allowed access to any number of Organizations.

The user’s effective Organization permissions are the union of all Organization permissions at the Group-level.

For example:

- There are four Organizations (*Organization 1*, *Organization 2*, *Organization 3*, and *Organization 4*).
- *Group A* has permission to access *Organization 1* and *Organization 2*.
- *Group B* has permission to access *Organization 3*.
- *User Jane* is a member of *Group A* and *Group B*.

Therefore:

- *User Jane* **can** view data from *Organization 1*, *Organization 2*, and *Organization 3*
- *User Jane* **can not** view data from *Organization 4*

## 2.2.2 How to Configure

To configure, go the *Admin -> Groups*. Either in a new or existing group, you can edit the Group. If the *Group Organizations* feature has been enabled, you will see a select box with all the Organizations (if not visible, the feature has not been enabled yet). You can select one or more Organizations this Group will have access to.

If you have created a new Group, make sure you go to relevant User accounts and assign them to this group.

On the User detail page, you will see a “Organization Audit”, under the “Permissions Audit”, which will state all the Organizations data this user will see based upon her Group memberships.

When a new Organizations are added, it is the responsibility of the Montage Admin to keep the Groups up to date.

Not every Group is required to have assigned Organizations. It is actually recommended to use separate groups, one set of groups for Permissions and one set of groups for Organizations, then assign users into the appropriate Groups.

**Warning:** If this feature is enabled, extra Admin effort is required to set up and maintain the Organization-to-Group and Group-to-User mappings.  
If a user does not see any data in the application, it is likely that her account has not been put into any Groups that have an Organization mapped.

## 2.2.3 Common Configurations Patterns

There are a number of patterns you can follow when setting up the Group-Organization mapping, however some approaches will be easier to manage and maintain over the long-term. Below we provide several recommendations and examples to assist in making effective mappings.

*Organization Groups* was designed with the Group abstraction between the User and the Organization to allow for:

- Easy bulk modifications. If a health system purchases a new hospital, it should be easy to grant access to a few groups, without having to manually update every user’s account
- Grouping of user’s by role and/or location in a meaningful, atomic way, making it easy to add a Radiologist who reads at two Organizations to two Groups.
- Separate Groups for Permissions and for Organizations, making it easy to create an “Admin” Group that has the “Can use Montage Analytics” permission separate from a “Hospital A” and “Hospital B” Groups that have those respective Organizations.

### Multiple Radiology Groups within one Health System

A common configuration is a health system with a single RIS, serving multiple hospitals with radiology groups at each hospital. Perhaps several radiologists read at multiple hospitals. The health system wants each radiology group to only see reports read at the hospital they are associated with. There are a handful of health system administrators who should have access to all data.

In this case, it is common to configure:

- A Group per radiology group, with each Group granted access to its associated organization. For instance, “University Hospital Radiology” and “City Hospital Radiology”. The relevant radiologists would be assigned into their respective Group.
- A Group for the Health System Administrators, with all Organizations selected.

## Radiology Practice Serving Multiple Hospitals

Some Montage implementations are for a single Radiology Group that serves multiple unassociated hospitals. The radiologists and admins at the Radiology Group should have access to all data, but each Hospital should only view reports for that hospital.

Montage could be configured in this case with:

- A Group for the Radiology Practice, with permission to all Organizations. All radiologists and admins at the practice would be placed in this Group.
- A Group per hospital, with the appropriate users from the respective hospitals assigned into those Groups.

### 2.2.4 Common Issues & Questions

A user does not see any results.

The user is likely not assigned to any Groups that have associated Organizations. Check the User's page in the Admin, under "Organization Audit" – most likely there will be a warning that no data will be displayed.

To fix, add the user to a group with an associated Organization

Is this feature recommended?

The *Group Organizations* feature is not enabled by default, because it puts extra burden on the administrators to maintain the Group mappings.

Additionally, for most practices, displaying only subset of the data is not recommended, since it reduces the benefit of a data mining tool such as Montage. Only after careful consideration of the side-effects should this feature be enabled.

We have a new Organization since installing Montage, what do we do?

Depending on how the Group-Organization mapping is configured, a Montage administrator must edit the existing Groups to add the Organization or add a new Group, associating the relevant users with that new Group.

## 2.3 Montage Tags

New in version 2.5. Montage *Tags* provide a method for grouping sets of related types. A *Tag* by itself is simply an abstraction that can link to as many items as needed. A *Tag* appears to the user as just a name and a count, and when a user searches, the count of every visible *Tag* is actively updated. When a *Tag* is clicked, items contained in the *Tag* appear in the dialog table. There are two categories of *Tags*, those created by Montage, often referred to as *System Tags*, and those created by administrators called *User Tags*.

### 2.3.1 Use Tags

Tag based dialogs have replaced the traditional dialogs and there is no configuration required. The dialogs replaced are as follows.

- Exam Types
- CPT Codes
- Organizations

- Ordering Providers
- Reporting Providers
- Point of Care

These dialogs are found in *Advanced Search* and *Analytics*.

## 2.3.2 Manage Tags

*System Tags* are managed exclusively by Montage. However, *User Tags* are created, edited, and deleted by the administrator. To manage *Tags*, navigate to *Admin -> Data -> Tags*. Tag names for any particular type are unique, and the names of *Tags* managed by Montage are considered reserved. Names which are unavailable include *All*, *Selected*, and *Top*.

## 2.4 Data Integrity Checks

Data quality is critical for the accuracy of Montage. The **Data Integrity Checks** are designed to identify potential areas that lack the necessary data quality to generate complete and correct results.

The status of these checks should be reviewed often. If a potential problem has been identified, action should be taken. In some cases the problem can be resolved by using tools already provided in Montage. In other cases, it will be necessary to contact customer support to resolve the issue.

### 2.4.1 Integrity Check Management

#### Integrity Check Status

Integrity Checks automatically run at the end of every week. At any time, an administrator can run integrity checks individually or as a group. There are 3 levels of severity that any check may produce.

Status	Description
Alert	Serious condition that needs immediate attention
Warning	Can be tolerated (with caution) until a resolution
Pass	Check found no problems

If an **Alert** status is generated, immediate attention is needed, since there may be seriously impact to the usage of Montage and the results it provides.

A **Warning** status reflects a less severe problem, that may or may not impact usage of Montage, depending on the site.

A **Pass** status indicates that the check found no reason for concern.

The status of a particular check may change over time, and therefore, it is important to review the status of checks periodically.

#### Administrator Interface

The results of the **Integrity Checks** are available on the Admin page, which lists any current Alert or Warning statuses, with a link to the main Integrity Check Dashboard.

From the Integrity Check Dashboard, there is the ability to run all Integrity Checks or an individual Integrity Check.

The dashboard has a lists all checks, providing instructions to resolve, details on impact, and links to relevant documentation.

## User Display

Certain alert or warning status Integrity Checks, when especially relevant, are displayed to the user in the application near the top of the page.

### 2.4.2 Integrity Check Descriptions

The following Integrity Checks are currently available.

#### Exam Types without CPT Codes Associated

The association between Exam Type and CPT Code (aka “chargemaster”) is critical for operations in Montage. This check will produce a Warning if more than 5% of Exam types do not have a CPT Code associated. It will Alert if more than 10% of Exam Types do not have a CPT Code associated.

Relative Value Units (RVUs) are computed based on the linkage between Exam Type -> CPT -> RVU. Therefore, any report that has an Exam Type that does not have an associated CPT Code will not be including in RVU measurements.

For Montage QC, many of the algorithms use CPT Codes to identify applicable reports or to improve NLP precision and recall. The PQRS and Follow-up QC will not operate without proper Exam Type to CPT mappings.

If new Exam Types are added over time, please ensure Montage is given a mapping to the relevant CPTs in the **Chargemaster Upload**.

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**Note:** For sites that do not use CPT Codes, this check is not relevant and should be disabled. If this check appears incorrectly, please contact support.

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#### Exam Types without Modality

The association between Exam Type and Modality is critical for operations in Montage. This check identifies if more than 10% of Exam Types do not have an associated Modality.

As new Exam Types are added over time, please ensure Montage is given a mapping to the relevant Modality in the **Chargemaster Upload**.

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**Note:** This check will only alert if it meets the conditions described above and `use_modality` is configured on at least 1 index. Otherwise, this check will pass.

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#### Spurious Modalities

The Spurious Modalities check is intended to identify unnecessary repetition in Modality naming. This naming is can be a source confusion for users. If more than 10 modalities exist this check will produce a Warning.

Montage will import the modality as-is, and as a result, tasks such as filtering will become more arduous for users, if for example they must select “CT”, “CTI”, and “CAT”

Montage recommends using the **Chargemaster Upload** to consolidate to a standard set such as “FL” “XR” “MR” “CT” “US” “DX” “NM” “MG” “PT”. Once the chargemaster is updated, it may be possible to remove the spurious modalities by contacting support.

### **Relative Value Units Outdated**

At least once a year the Centers for Medicare and Medicaid Services publish a an updated mapping of CPT Codes and their associated Relative Value Units. Montage uses this file compute the value of reports. If an updated version of this document has not been imported within the last year, it is possible that the RVU calculations made using Montage Analytics do not accurately reflect the most recent value of the report.

### **QC Detection**

This check will produce a Warning if Montage QC is enabled but no events have been detected in the past week. There could numerous reasons for why this might occur.

# RELEASE NOTES

## 3.1 Montage 3.0 release notes

Montage 3.0 contains a refreshed *User Interface* and numerous new features, including:

- *Follow-up QC* provides detection and tracking of follow-up recommendations made by the radiologist, ensuring the patient receives the proper care and that the practice is not experiencing leakage.
- *QC Analytics* expose Montage QC events within Montage Analytics, allowing complex filtering, trend analysis, and pattern detection
- *Montage QC* features NLP-improvements as well as new Critical and Mismatch algorithms
- More powerful *Search Analyze* that allows drilling down and viewing of more results
- *Sequential Search* enables searching across multiple imaging encounters
- New *Data Integrity Check* framework allows support and admin personnel to see if there are common data mismappings (e.g. procedures without CPTs that impact QC performance)

Montage 3.0 also contains numerous usability and performance improvements to *Montage Search*, *Montage Analytics*, and *Montage QC*.

Montage 3.0 builds upon *2.5.3 Patch Release* and prior patch releases.

### 3.1.1 New User Interface

While remaining familiar, Montage 3.0 introduces a modern refresh to its User Interface. The new interface is responsive, taking better advantage of both larger screens and smaller devices.

In addition to the color and layout changes, you will notice:

- The Tag dialog features several tweaks for a better user experience
- The Report popups are better centered on the screen
- The Dark theme has several adjustments to improve the colors and contrast
- Retina-images are now used for higher pixel density displays

The new user interface is completely mobile-friendly, allowing the full power of Montage from small devices. Therefore, the limited “Montage Mobile” has been removed.

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**Note:** Montage 3.0 has dropped official support for Internet Explorer 6.0 and 7.0.

Internet Explorer 8.0 is supported, but lacks native HTML5 support. Montage works around these issues, but an improved user experience is provided by modern browsers such as Internet Explorer 10/11, Firefox, Chrome, and Safari.

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### 3.1.2 Montage QC

Since *Montage 2.5* the following new Critical Result algorithms are available in Montage 3.0:

- Acute Appendicitis
- Cardiac Tamponade
- Deep Venous Thrombosis
- Depressed Skull Fracture
- Epiglottitis
- Portal Venous Gas
- Necrotizing Fasciitis
- Ruptured/Leaking Aortic Aneurysm
- SVC Syndrome
- Unstable Spine Fracture
- Uterine Rupture
- Volvulus

There is one new Mismatch algorithm:

- Laterality Missing will flag reports that lack an explicit statement of the correct laterality in the report text (e.g. left report but “left” never mentioned).

The existing algorithm, Laterality Mismatch, is similar but tries to find discrepancies between the assigned laterality and the report text (e.g. left report but “right” mentioned). Both the missing and mismatch versions are provided, please look at the one that appropriate for your institutions dictation style.

A complete list of Montage QC Algorithms is available.

Additionally, there are hundreds of adjustments to the NLP of the existing Critical, Mismatch, and PQRS algorithms based upon feedback.

Montage QC also provides an improved QC Review Process to allow for faster and more accurate reviews of QC events detected by Montage.

Finally, the *Montage Admin* now features the ability to hide individual algorithms from display, depending on site preferences. Not currently exposed in the Admin, but available to support personnel, is the ability to disable algorithms for certain procedures or when specific wording occurs in the report text.

### Follow-up QC

Montage 3.0 introduces the automated detection of follow-up recommendations. Montage’s NLP will extract what was recommended and when it was recommended.

The recommendation is then presented on a worklist for manual review and adjustment if needed.

When the recommendation is upcoming or past due, it is presented on the respective dashboard.



The Patient Jacket, viewable in PowerScribe 360 also displays if the patient has any upcoming or past due recommendations.

### 3.1.3 Montage Search

Montage Search introduces the new *Sequential Search* and powerful improvements to *Search Analyze*.

#### Sequential Search

*Sequential Search* is a powerful new searching feature that allows you to find patients who have 2 specified imaging studies within a defined period of time.

One way to think about Sequential Search is “joining” the results of two distinct Montage Search queries and finding the set of patients who have a result for both queries.

For example, we can find all the patients who had a Chest X-Ray with a positive finding of “pneumothorax”, who also had a Chest interventional procedure 0-3 days prior.

#### Search Analyze

In Montage Search, the *Analyze* button has been powerfully enhanced. The graphs are now clickable, to allow drilling down. So if you conduct a search for “fracture”, click *Analyze*, then click “Male” in the Patient Sex graph, it will run a search for “fracture” for Male patients.

The Graphs now also feature a *Show More* button in the upper right if the data is truncated, i.e. the Ordering Providers shows only the top 15 by default, but now clicking on *Show More* will reveal all the Ordering Providers.

### 3.1.4 Montage Analytics

Montage 3.0 introduces a number of additions to Montage 3.0:

- *QC Analytics*
- Customizable *Trend* Lookback Period, allowing for lookbacks at other intervals than just 1 year
- New ACGME requirements for Residency Dashboard & a fix for the cache missed warning
- Large performance improvement for date filtering
- When Dollar values are loaded into the RVU table, use “Dollars” as the column header and graph axis label

#### QC Analytics

Using the power of Montage Analytics, you can now analyze, filter, and explore the data produced by Montage QC. QC Analytics allows you to spot trends (e.g. are our unnotified critical results decreasing over time?) and find patterns (e.g. is the radiologist with the fastest TAT making the most mismatch errors?).

Four new Measurements:

- Critical Result Events
- Follow-up Recommendations
- Mismatch Events
- PQRS Events

Three new Concepts:

- Critical Result
- Mismatch
- PQRS

There are also filters for the QC Category and various attributes on the Concepts

### 3.1.5 Montage Admin

The Montage Admin has several additions for Montage 3.0:

- *Data Integrity Checks*
- The *Tag admin* now uses the Tag widget itself for faster and easier creating of new tags. The 15-character limit on the tag name has been removed.
- The Chargemaster Upload has been improved and features the ability to force recomputation of RVU values for historical studies after a chargemaster is uploaded
- Improved pagination for faster management
- Ability to hide individual QC Algorithms from display in Montage QC

#### Data Integrity Checks

*Data Integrity Checks* is a powerful new framework in which Montage checks for common data integrity issues and provides tooling, where possible, to try to fix the issues.

### 3.1.6 Montage REST API

The REST API has several additions, including resource filtering. Contact Montage Support to learn more.

### 3.1.7 Patch Releases

#### 3.0.1 Patch Release

3.0.1 is bug fix release. For most sites, it is recommended to upgrade from 2.5.x to 3.0.1. For sites already on 3.0.0, it is not urgent to upgrade, unless experiencing an issue that 3.0.1 resolves.

#### Changes

- Export has been enabled for *Sequential Search*
- Duplicate rows removed from drill down as well as performance improvements
- Performance improvement to the Follow-up and other QC lists
- Dozens of improvements to the accuracy QC Algorithms based upon review of customer data
- Promoted a number of `Critical Results Algorithms` to released status:
  - Abdominopelvic Abscess
  - Active Hemorrhage

- Active Tuberculosis
  - Acute Arterial Occlusion/Stenosis
  - Acute Cholecystitis
  - Acute Diverticulitis
  - Acute Intra-abdominal Hemorrhage
  - Brain Herniation
  - Dissection
  - Nonaccidental Trauma
  - Pneumomediastinum
  - Pseudoaneurysm
  - Testicular/Ovarian Torsion
- Improved Notification Statement detection
  - New “Laterality” QC Algorithm algorithm that is highly specific and optimized to reduce False Positives. The previously available “Laterality Mismatch” and “Laterality Missing” are still available, but in new installs they will be set to inactive by default. Site Admins can easily enable the laterality algorithm that best works given the prevailing dictation patterns at their site.
  - Upgraded to RVU15D
  - Integrity Checks automatically run weekly
  - Analytics graphs sorted high to low, to be more consistent with rest of application

## 3.2 Montage 2.5 release notes

Montage 2.5 contains numerous new features, including:

- *New Tag Selector* in Advanced Search and Analytics for faster, more powerful filtering
- New Critical algorithms in Montage QC
- *Residency Dashboard*
- New *report-level drilldown* from Analytics graphs
- *Trend Analysis*
- Optional feature to *restrict the organizations* a user has access to
- Support for *Point of Care*
- Improved *PACS launch* with permissions and optional auditing

Montage 2.5 also contains many usability and *performance* improvements to *Montage Search*, *Montage Analytics*, and *Montage QC*.

Montage 2.5 builds upon *2.4.6 Patch Release* and prior patch releases.

### 3.2.1 Montage QC

Three Montage QC algorithms have been promoted out of beta:

- Hemothorax
- Intracranial Hemorrhage
- Unstable Spine Fracture

For the existing algorithms, there have been hundreds of improvements based upon review and customer feedback, yielding improved QC accuracy. CPT restrictions and the communication phrase detection have been updated as well.

In the review and overview pages, the View Images & Save Report button are now displayed.

### 3.2.2 Montage Analytics

Montage Analytics includes numerous improvements:

- The filters on the custom graph and dashboards now only run when the new “Apply” button is clicked. Additionally, a new “Reset” button allows quickly returning to original form state.
- When switching between Measurements on the Custom Graph, the current filter state is now passed along, avoiding having to relick the filters.
- The addendum turnaround time is now included by default for the turnaround period selection.
- Technical and Professional RVUs now available
- Display the Exam Type’s description in the Exam Type Dashboard
- The Chart Type is listed alphabetically
- Prefer bar charts for the Custom Graphs over pie and line graphs
- Improved error messages when no data is return
- *Montage Tags* used for the popup selectors of the Organization, Exam Type, CPT Code, Reporting & Ordering Providers
- The Reporting Providers dashboard now shows the Report Volume and RVUs compared to the practice’s average.

### Residency Dashboard

Montage can now track progress of residents according to the ACGME requirements. A new dashboard is available on the Analytics page.

The feature must be enabled by Montage Support in the server configuration.

Additionally, a local site administrator must configure the residents in Montage’s Admin, setting the expected graduation date in the *Admin > Providers > Edit*, in order to compute the Years Post Grad.

### Report Drill Down

From the Analytics graphs and tables, users now have the ability to see the underlying reports that contribute to the statistics. Clicking data points in most charts and Analytics tables, will take you to the new Report List, which allows viewing of individual reports and the relevant measures at an individual report level.

## Trend Analysis

In addition to Viewing a Custom Graph, users can now view now any Concept and Measurement change between years, using the “View Trend” button. The trend will take the period defined by the start and end date filters, then look back over the same period one year ago, computing differences between the current period and prior period. This feature is useful for referral pattern analysis of ordering providers.

### 3.2.3 Montage Search

Montage Search has several usability additions:

- Analyze button has an improved layout, a new Modality graph, and shows the top 25 reporting providers
- Multiple Patient Statuses can be selected in Advanced Search
- *Montage Tags* used for the Advanced Search popups
- Mozilla Firefox goes directly to the selected report in the Patient Record
- The “click to expand” message is only displayed when applicable
- Improved highlighting for quotes and colons
- Improved character support of search characters
- The number of selected CPTs and Organizations are now shown in the Advanced Search

### 3.2.4 Tags & New Selector

*Montage Tags* offers a new popup selector interface, allowing searching, sorting, and site-defined groups of “tagged” exam types, CPT codes, organizations, points of care, ordering and reporting providers.

### 3.2.5 Group Organizations

A new feature that allows sites to control user access to data from specific *Organizations*, which is useful for multi-hospital installs of Montage.

See the Admin documentation for the *Group Organizations* feature for additional information.

Must be enabled by Montage Support. Adds complexity to the user interface and account setup, so recommend to only be used when needed.

### 3.2.6 Point of Care

At a level below *Organization*, the *Point of Care* can now be crawled, indexed, and used for filtering. Currently crawler support exists for IDX, PowerScribe 360, and HL7.

### 3.2.7 View Images

The View Images button received a number of improvements:

- View Images displayed on all pages showing the “report widget”, not just on Montage Search pages anymore. Now available in Patient Record, Montage QC, etc.
- New Permission to allow specific users or groups the ability to View Images

- Ability to have multiple View Image buttons per report

If your site does not currently have a PACS launcher enabled in Montage, contact Montage Support if you are interested.

### 3.2.8 Performance Improvements

A number of performance improvements were added as part of Montage 2.5.

- Faster Patient Record page loading
- Reduced memory usage during Excel Export, allowing for increased export limits. Contact Montage Support if your site needs a higher export limit.
- Backend improvements to report text storage to allow faster analytics performance
- Faster Analytics Graphs for specific conditions that had historically slower than desired performance

### 3.2.9 Additional Improvements

Montage 2.5 features a number of additional improvements:

- Patient age is displayed in months when under 2 years old
- The Provider name is now ordered by last name & first name
- When exporting to Excel, truncate the filename if very long, to avoid Excel's maximum path length bug
- Improve the dark theme
- Additional monitoring of system performance

### Admin Improvements

The Permissions have been improved as part of 2.5:

- The “Can view PHI” has been split into 2 permissions, “Can View PHI (Patient Name)” and “Can view PHI (MRN)”. “Can export PHI” is split similarly.
- A new permission protects the Accession number, “Can view PHI (Accession Number)”. By default, all users get this permission.
- A new permission determines if a user can use the *View Images*, “Can use External Launchers (e.g. PACS)”
- New permissions for restricting user's actions and filters: “Can use Reporting Provider Filters” and “Can use Analyze in Montage Search”
- The Group & User edit pages use checkboxes for the permissions to simplify selection

Additionally, the chargemaster upload now has improved support when not using the download template.

### 3.2.10 Patch Releases

#### 2.5.1 Patch Release

2.5.1 is minor bug fix release. For most sites, it is recommended to upgrade from 2.4.x to 2.5.1. For sites already on 2.5.x, it is not urgent to upgrade.

## **Bug Fixes**

- Avoid issues when using a non-standard Date Event for the Resident concept
- Close the cache miss warning in the Residency Dashboard
- Fix links on the Saved Searches page
- Better handling when a report is re-saved into a folder
- Dozens of algorithm improvements to the Critical Results in Montage QC
- PowerScribe 360 crawler refactored to better performance. Additionally, capture the NPI for radiologists, if available.
- Improved sorting of tables
- Updated RVU values
- Adjusted headers for the Current Statistics header on the Practice Overview

## **New Features**

- New QC algorithms for Cardiac Tamponade, Depressed Skull Fracture, Epiglottitis, Necrotizing Fasciitis, Ruptured/Leaking Aortic Aneurysm, Unstable Spine Fracture, and Uterine Rupture
- Additional crawlers and HL7 profiles
- Allow Provider Role & Location capture via HL7

### **2.5.2 Patch Release**

2.5.2 is minor bug fix release. For most sites, it is recommended to upgrade from 2.4.x to 2.5.2. For sites already on 2.5.x, it is not urgent to upgrade.

#### **Bug Fixes**

- Fix deselect issue in the Tag dialog for older version of IE.
- Improve performance of the IDX crawler.

### **2.5.3 Patch Release**

2.5.3 is bug fix release. For most sites, it is recommended to upgrade from 2.4.x to 2.5.3. For sites already on 2.5.x, it is not urgent to upgrade, unless experiencing an issue that 2.5.3 resolves.

#### **Bug Fixes**

- Provider Tags were previously not automatically created for new providers. Now they are generated automatically as new providers are crawled. The upgrade will also ensure any un-tagged providers are alphabetically tagged.
- Corrected Tag deletion process in the Montage Admin.
- Prevent searching the Patient Record when the patient has no prior records in Montage.

- Re-added autofocus on the search box
- Improved performance of Custom Graph in Montage Analytics for large sites
- Better support for Addendums in GE IDX crawler
- Improved precision for several Montage QC algorithms based upon customer feedback
- Improve documentation when a user goes to My Dashboard, but lacks a provider linked to the user's Montage account

### New Features

- Allow retroactive computation of RVUs when uploading a new chargemaster in the Montage Admin
- Laterality Missing algorithm promoted out of beta. It will flag reports that lack an explicit statement of the correct laterality in the report text (e.g. left report but “left” never mentioned). The existing algorithm, Laterality Mismatch, is similar but tries to find discrepancies between the assigned laterality and the report text (e.g. left report but “right” mentioned). Both the missing and mismatch versions are provided, please look at the one that appropriate for your institutions dictation style.

## 3.3 Montage 2.4 release notes

### 3.3.1 Overview

Montage 2.4 features a powerful enhancements, especially to Montage QC and Montage Analytics. Additionally, this release features a number of requested additions and improvements.

As of our 2.4 release, we highly recommend that a *chargemaster* is provided, which links procedures to CPTs, allowing for increased accuracy. Contact Montage Support for assistance, if needed.

### 3.3.2 Montage QC

Montage QC features a new suite for Physician Quality and Reporting System (PQRS), which will allow practices to track the relevant radiology metrics, including Bone Scintigraphy, Fluoro Time, Probably Benign Mammo, and Stenosis Measurement.

The release also includes improvements to the existing Montage QC system:

- Improved precision of algorithms after customer feedback and improved negation checking.
- New Critical Result algorithms (`/generated/qc_algorithms`).
- Left & Right issues have been combined into the Laterality category. Likewise, Male and Female have been combined into the Sex category.
- Increased performance when scrolling through large lists of QC events.
- Added the ability to export raw reports as Excel when drilling down into lists of QC events.
- Improved the user interface for older Internet Explorer users

Please note, that all the PQRS require a *CPT mapping*, while many other QC algorithms now have improved performance if provided with a CPT mapping in algorithm precision and usability.

For a full list activated QC Algorithms, see `/generated/qc_algorithms`.



### 3.3.3 Montage Analytics

Montage Analytics features a number of improvements based upon customer feedback.

#### My Dashboard

Users now have the capability to only see their own Analytics dashboard, without the ability to see other users' dashboards.

To configure, an administrator must link Provider accounts to User accounts (e.g. so Montage knows user “jsmith” can see the dashboard for “Jane Smith”). This configuration is done under *Admin > Providers > Edit*. Additionally, if a user does not have the permission “Can use Analytics”, the special “Can view own analytics” permission must be granted to the user (or group of users). The user will then see a “My Dashboard” link appear in the Montage Analytics.

#### Simple Geoanalytics

Montage 2.4 features the first part of a new geoanalytics feature, which currently allows analysis of patient zip code. To use, go to Montage Analytics, build a Custom Graph using “Patient Zip” as the Concept.

---

**Note:** This feature can be disabled by contacting Montage Support.

If no data is populated, it is possible the crawler is not able to obtain zip code information, contact Montage Support to see.

---

#### Median Turnaround Time

Previously, outliers could drastically skew the mean turnaround time. As of Montage 2.4 the Median Turnaround Time is now computed. The mean is still available, but median is selected as default in the user interface.

#### Analyzing & Filtering CPTs

Users are now able to filter by CPT codes in the custom graphs, similar to how Exam Types are filtered. Additionally, CPT Code is a new Concept available to in the Custom Graph.

---

**Note:** If CPTs are not available, they can be disabled in the user interface. Contact Montage Support. However, providing and using a chargemaster is highly recommended.

---

#### Selecting Date Event for Filtering

Previously, using the Start Date and End Date filters in Montage Analytics, the event being filtered was set to a meaningful time-point for the graph, but was not transparent to the user. As of this release, the user can now see and edit the “Date Event”, a separate box below the Start Date and End Date filters.

For instance, if you wish to have the date filters correspond to the Ordered event instead of Exam Completed event, you can now do so.

One benefit now is that Residents can now be analyzed in the Reporting Provider Custom Graphs by using the “Preliminary Report” Date Event.

### Day of Week and Hour of Day Filtering

Montage Analytics now supports the ability to filter by specific days of the week and hours of the day, allowing for example, comparison of Weekday vs Weekend Volume by Radiologist or comparison of business hours to to Weekend analysis

### Export Summary to Excel

Users can now export to Excel the summary information displayed in the Custom Graphs via “Export Graph Summary” button next to the existing “Export Report Data” button at top. “Export Graph Summary” will provide the same information that you see in the Table graph type, but in Excel format.

### Additional UI Improvements

Montage Analytics in the 2.4 release brings the Custom Graph to the Analytics landing page and pre-populates with a common choice, to avoid extra clicks.

The Practice Overview, Reporting Provider Dashboard, & Ordering Provider Dashboard now feature additional graphs.

## 3.3.4 Administration

### Chargemaster Import

Montage now includes the ability for a site administrator to manage the Exam mapping to CPTs and Modality. Under *Admin > Chargemaster > Import*, you have the ability to download the current mapping as XLS, edit the mapping, and re-upload it.

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**Note:** Modifying the Modality mapping potentially requires disabling the mapping in the crawler (to prevent manually mappings from being overridden). Contact Montage Support to ensure the crawler is correctly configured.

---

### User - Provider Linking

As described in the new *My Dashboard* feature, the site administrator, under *Admin > Providers > Edit*, can map User accounts to Provider instances (e.g. so the user “jsmith” can see “Jane Smith’s” dashboard).

## 3.3.5 Additional Improvements

Montage 2.4 includes a number of additional usability improvements and backend bugfixes, including:

- CPT & RVUs are now included in the Excel export
- Improved Addendum support for PowerScribe 360
- Patient age is visible in the search results
- An improved layout for multiple select boxes in the Advanced Search page
- Additional UI improvements for older Internet Explorer versions
- Export to Excel buttons are now hidden if a user lacks the “Can export to Excel” permission
- Avoid odd file extensions for search export when no query phrase is present

- Improved page rendering performance, especially on Windows-based servers
- Easier navigation back when encountering a permission denied error

**Warning:** Microsoft is ending extended support for Windows XP as of April 14, 2014. If your organization has no plans to migrate from Windows XP by that date (or will still be using Internet Explorer 6, Internet Explorer 7, or Internet Explorer 8), please contact Montage Support, so that we are aware for future Montage releases.

## 3.3.6 Patch Releases

### 2.4.1 Patch Release

2.4.1 is minor bug fix release, resolving several UI items. All sites are recommended to use 2.4.1 instead of 2.4.0

#### Bug Fixes

- Resolve issue in password reset link when email resets are not enabled.
- Display the QC review comment on the review page.
- On the Exam Type Dashboard, show the exam description in addition to the exam code.
- Resolve several small typos in the UI.

### 2.4.2 Patch Release

2.4.2 is minor bug fix release, addressing several customer-specific crawler requests and resolving several minor UI items. For most sites, it is recommended to upgrade from 2.3.x to 2.4.2. For sites already on 2.4.1, it is not urgent to upgrade.

#### Bug Fixes

- Fix bug that prevents Firefox from going directly to a report anchor in the patient jacket.
- Don't display the cache missed warning when navigating back in the browser.
- Improve capture of very late signs / addendums in syngo.
- Enforce integer provider IDs from IDX.
- Spell-suggestion dictionary creation now available on Windows
- Removed change\_password backport from the server admin, since it is not fixed upstream.
- Remove blank CPT code from system from a odd line in the RVU import.
- Allow ordering of Exam Type popup by Description (requires server settings change).
- Sort Providers by last name, then first name.

### 2.4.3 Patch Release

2.4.3 is minor bug fix release. For most sites, it is recommended to upgrade from 2.3.x to 2.4.3. For sites already on 2.4.1, it is not urgent to upgrade.

### Bug Fixes

- Remove bug that restricted analytics to the “rad” index.
- Correct link in Admin back to the Exam Code page.
- Apply filter to reports when exporting to Excel in analytics.
- A number of tweaks to the negation algorithm to improve the accuracy of Montage QC.
- Improved accuracy of notification detection when using “reviewed”

### 2.4.4 Patch Release

2.4.4 is minor bug fix release. For most sites, it is recommended to upgrade from 2.3.x to 2.4.4. For sites already on 2.4.x, it is not urgent to upgrade.

### Bug Fixes

- Improved accuracy of notification detection when using “reviewed”, when in presence of resident / attending statement.
- Improve Syngo mapping (ordered timestamp, smarter text merging).
- Adjust ClearCanvas to pull from ReportText, falling back to ReportContent.

### 2.4.5 Patch Release

2.4.5 is minor bug fix release. For most sites, it is recommended to upgrade from 2.3.x to 2.4.5. For sites already on 2.4.x, it is not urgent to upgrade.

### Bug Fixes

- Accuracy improvements for several QC algorithms based upon feedback and review.
- Ability to handle duplicated exam codes.
- Only show “click to expand” hover message when appropriate.
- Improve resiliency of chagemaster upload when copy and pasting into chagemaster template.
- Improve performance of Analytics page loading and when performing complex queries.

### 2.4.6 Patch Release

2.4.6 is minor bug fix release. For most sites, it is recommended to upgrade from 2.3.x to 2.4.6. For sites already on 2.4.x, it is not urgent to upgrade.

### Bug Fixes

- Allow empty exam descriptions in the crawler.

- Forcefully clear the prior user's session when auto-launching from PowerScribe 360. This was only an issue when a second user does not have a linked account in Montage.

Note that if a user had previously been using PowerScribe 360 to launch Montage, but her username was not the same between the two systems (and was thus manually logging into Montage once per session), she will now be prompted to manually log in on every new search or patient jacket. In this case, we recommend that the usernames be made consistent between PowerScribe 360 and Montage.

## New Features

- Support overlapping Accession Numbers from different Organizations.
- Support overlapping Medical Record Numbers from different Organizations (requires setting change).
- Back-ported 2.5 feature to display the age in months when the patient is under 3 months old.

## 3.4 Montage 2.3 release notes

### 3.4.1 Overview

Montage 2.3 features *Montage QC* as well as a number of usability and performance improvements and to the *Search* and *Analytics*:

- New search capabilities include full-text stemming and section-restrictions
- Precomputation of common analytics

### 3.4.2 Montage QC

Montage QC is an automated tool for detecting common reporting issues using Montage's powerful natural language processing. As Montage crawls reports, it will run its suite of NLP algorithms to detect common issues and display these issues in a dashboard.

As part of the beta, the laterality and gender checks are enabled, as well as a number of critical result checks. There are a number of additional algorithms in development and validation that will be part of future Montage releases. These algorithms use complex natural language processing that has been validated at multiple systems, however, it is expected that there will be some misidentifications. If there are common failures of Montage QC, you can contact Montage Support to discuss the cases to work to improve the detections

### 3.4.3 Montage Search

#### Full-Text Stemming

Prior to Montage 2.3, searching for *fracture* may not find cases where *fractures* (plural) was used. As of 2.3, Montage turns on word stemming, so which will index the morphological root of each word and allow searching by any form of the word.

Montage 2.3 also introduces the new *Exact Form* operator to disable stemming while searching, e.g. to ignore "tumor" (singular):

```
=tumors
```

### Limit Search to Specific Report Sections

While the *Impression & Indication Searching* was present as an experimental feature in version 2.2, it is now a fully supported features in version 2.3 via the @indication and @impression field operators.

An improvement since 2.2, the @indication and @impression are now supported in the Maximize Positive Findings filter.

### Search End Date now Inclusive

The Montage Search End Date filter is now inclusive of the date, matching how end date filter in Montage Analytics has worked. For example, selecting *2013-01-31* will now returns studies that occurred at anytime during the 31st (essentially anything before *2013-02-01 00:00:00*), whereas prior to version 2.3, the cutoff was *2013-01-31 00:00:00*.

## 3.4.4 Montage Analytics

### Precomputation of Common Analytics

Building upon the revamped Montage Analytics from *version 2.2*, Montage 2.3 automatically learns what analytics matter at your site and automatically precomputes them to make the analytics amazingly fast.

The new precomputation system tracks what graphs and filters are commonly requested. After crawling report data, Montage will automatically compute these common graphs and filters, caching the results, so when an user logs into Montage, many of the graphs will be already be built and can be delivered to the browser in less than a second.

### Smart Date Filtering

In the Start Date and End Date filters, instead of picking an exact date like Jan 1st, 2013, the improved date selector allows you to pick a **Smart Date**, like “today”, “7 days ago”, “30 days ago”, “6 months ago”, or “1 year ago”.

Smart Dates allow you to define the *intent* of your filter, so that the *Analytics Cache* can be pre-built with relevant data. For example, are you interested in the last 30 days or always looking at an exact date range (e.g. Jan 15th to Feb 15th).

Smart Dates also improve the ability to create Permalinks that will update to the relevant data.

### Interface Improvements

Montage 2.3 features a number of user interface improvements:

- Progress “spinners” when waiting on graphs to load.
- Tabs for historical & daily analytics in dashboards (only enabled at sites with real-time data feed)
- Turnaround Times included in Excel export
- Exam Descriptions used in Analytics tables
- Reporting provider graph in Search Analytics
- Date Interval custom graph shows better formatting of dates when using alternative intervals

### 3.4.5 Crawlers

- Added support for Siemens Syngo RIS
- Updated PowerScribe 360 & RadWhere crawlers to obtain Residents who generate a preliminary report
- Extract modifiers from exam descriptions for eRIS. Automatically crawl Modality.
- Store HL7 for easier re-processing
- GE IDX Crawler
- Includes the Scheduled, Ordered, and Exam Started timestamps. Fixes issues with Ordering Provider Dashboard.
- Improved performance by removing unnecessary database join.
- Pull resident, since no longer inserted into Transcriber field

### 3.4.6 Purpose of Use

For sites using the “Purpose for Use” feature, users can now be required to select a purpose upon every login.

Sites can now also configuring the message that is displayed on the purpose selection page.

Additionally, sites can configure purposes to “expire”, thus allowing a purpose to become unusable after a certain date (e.g. and IRB expires on Jan 31st).

### 3.4.7 Radimetrics

- Use Montage-specific response type from Radimetrics API
- Store additional dose metrics

### 3.4.8 Bug & Other Fixes

Montage 2.3 features a number of additional bug fixes and improvements, including:

- Resolved issues resetting password when specific conditions met
- Preserve the Age filters when conducting subsequent searches
- Updated to the new Yottalook Image API
- Renamed “Saved Cases” to “Saved Reports” to improve consistency
- Improved security (upgrade of libraries and resistance to server fingerprinting)
- Improved section highlighting & highlighting of BI-RADS in the report text
- Resolved slow Ordering / Reporting Provider filters in Advanced Search caused when huge number of providers exist and using an older version of Internet Explorer (8 and earlier).
- Fix “duplicate” years of RVU and Volume in Dashboards (correctly filter the current year).
- Automatically run database maintenance tasks weekly.
- Browser performance optimization for Provider filters (older IE versions).

## 3.4.9 Experimental Features

- Cumulative TAT analytics report
- Montage QC

## 3.4.10 Patch Releases

### 2.3.1 Patch Release

2.3.1 is minor bug fix release for a limited set of customers. Unless affected by a patched issue below, 2.3.0 is sufficient.

#### Bug Fixes

- Case insensitive laterality parsing from the exam description for sites that lack a proper exam modifier. 2.3.0's parsing was not case insensitive.
- Support for RHEL Workstation in addition to RHEL Server.
- Use Windows 1252 encoding for ynhh crawler.

### 2.3.2 Patch Release

2.3.2 is a security and bug fix release. It includes 2 medium-priority security patches, several backend fixes, and a resolution to a high-priority Javascript issue for users of Internet Explorer 10.

All customers running using HTTPS on their Montage server or actively using IE 10 are highly suggested to upgrade. For other customers, an upgrade is recommended, but not mandatory unless experiencing one of the patched issues.

#### Security Fixes

As a preventative step, Montage has proactively sought to mitigate two issues which were announced recently and affect many web applications, not just Montage. There are no known active attacks against this issues.

- Protect against BREACH attack by disabling GZip compression both in the application and in the webserver. All customers running with HTTPS enabled are recommended to upgrade.
- Upgraded to latest release of an external dependency. Prevents possible unsafe redirects via a `javascript: URL`.

#### Bug Fixes

- Resolve a Javascript exception in Internet Explorer 10. The exception effectively reduces the ability to interact with dynamic content on the pages. Caused by an external sparklines library not being compatible with IE10.
- Allow unicode queries to Yottalook.
- More robust clearing of expired Graph Cache. For huge caches, it was possible that the cache would not be cleared.
- Run check to ensure database has been upgraded per server instructions from 2.3.0 release.
- Handle truncated AEHN pathology HL7.
- Disable automatic re-indexing during RPM upgrade.



## 3.5 Montage 2.2 release notes

### 3.5.1 Overview

Montage 2.2 features a completely revamped Analytics as well as numerous performance and usability improvements:

- Powerful new *Analytics* dashboards and drill-downs
- Faster *Search* with new filter capabilities
- Improved integrations for mutual *Radimetrics* and *PowerScribe 360* customers

Montage 2.2 builds upon the *2.1.5 Patch Release*.

### 3.5.2 Analytics

The major new feature in Montage 2.2 is the completely redesigned Analytics. Montage Analytics exposes a number of new dashboards, graphs, and filters, while laying the groundwork for future improvements. These features allow the user to quickly view the practice's measures, while being able to drill down on specific details.

The core of the redesigned Montage Analytics is the “Custom Graph Builder”, from which all dashboards are built.

The Graph Builder allows a wide range of new Concepts (X-axis) and Measurements (Y-axis). Concepts include:

- Organization
- Modality
- Exam Type
- Reporting Provider
- Ordering Provider
- Patient Gender
- Stat / Non-stat
- Inpatient / Outpatient / ED
- Date Interval
- Date Groups (e.g Volume by “Day of Week” or “Hour of Day”)

Measurements include:

- Report Volume
- Turn around time (using user-defined endpoints)
- Relative Value Units (where configured)

Filters include:

- Start Date / End Date
- Organization
- Modality
- Exam Type
- Reporting Provider
- Ordering Provider

- Patient Gender
- Stat / Non-stat
- Inpatient / Outpatient / ED

Using the Graph Builder, several dashboards are part of Montage 2.2:

- Practice Overview
- Organization Dashboard
- Modality Dashboard
- Reporting Provider Dashboard
- Ordering Provider Dashboard
- Exam Type Dashboard

The Montage 2.2 Analytics greatly improves the user's ability to drill into the data. However, if Montage does not provide the exact breakdown a user needs, the user now has the ability to export the raw reports and their meta-data to Excel (within limits).

Montage 2.2 also introduces the ability to directly save or print graphs (due to browser-based limitations, some file formats require a modern browser, such as Firefox, Chrome, or IE 9, to convert the browser-based graph into a raster image).

In addition to the user-facing improvements, the backend computation of TAT and RVU has been dramatically improved by pre-computing these values for each report during the crawling, instead of at time of analysis.

### 3.5.3 Search

Search within Montage 2.2 includes the ability to search and filter by additional fields, including:

- Stat/Non-stat
- Patient Status (i.e. Inpatient/Outpatient/ED)
- CPT code
- Effective Radiation Dose (part of the new *Radimetrics* integration).

A number of user-facing performance improvements are also included in Montage 2.2:

- 10-20x speed improvement in display and export of search results. The default export limit has therefore been increased from 5k to 10k rows.
- Increased efficiency when displaying RadLex Related Terms about the current search
- Massive speedup in the Advanced Search when selecting Ordering and Reporting providers

The search engine indexer also received several performance improvements that will allow for faster indexing.

### 3.5.4 Radimetrics

For Montage customers who also use *Radimetrics* eXposure™, Montage can provide search-driven analysis of radiation exposure. The integration includes:

- A unified view from within Montage of the per-exam and cumulative dose
- Search-driven analytics of population-level dose over time, as well as dose by age, procedure, and organ system
- Filtering of Montage search results by the effective dose

- Links out to the eXposure application for more advanced per-study dose analysis

### 3.5.5 PowerScribe 360

For customers using Montage integrated in Nuance's PowerScribe 360, there are two main usability improvements:

- The autologin feature now performs a case-insensitive username check (useful for sites utilizing ActiveDirectory).
- Friendlier page when a patient's jacket lacks reports (no longer states that "page is not found").

### 3.5.6 Crawlers

In addition to numerous client-specific crawler improvements, Montage 2.2 introduces a backport of the PowerScribe 360 crawler for Nuance RadWhere customers.

### 3.5.7 Additional Improvements

Montage 2.2 also includes a number of improvements to page layout and service robustness.

## 3.6 Montage 2.1 release notes

### 3.6.1 What's New

- Group by Patient. Instead of searching at the level of individual reports, you can find the number of patients matching the search query.
- Quick filter by Modality on the search results page.
- Allow filtering by all the providers who prelim, finalize, or provide an addendum and by all the providers who are part of the order. Previously only the first finalizing provider and first ordering provider were filter-able.
- Allow search filtering by age
- Compression & minification of static assets for faster page loading.
- When grouping by patient age, bin ages depending on the median of ages. If median is less than 20 years, single year bins are used. Otherwise, 10 year bins are used.
- Use the Modality, if available, in the patient timeline instead of the exam code
- Display the modality, if available, for each report.
- Allow Boolean terms (AND, OR, and NOT) in addition to Boolean operators (&, |, -).
- *OpenSearch* descriptor provides browser search plugin.
- Custom user groups and ability to define permissions at the user or group level. Ability to limit access to analytics.
- Links to external sites open in new window/tab by default.
- Allow uploading of a custom image to be displayed on the login page.
- Gather and report site statistics
- Automatically clean out-dated data, such as deleted notifications and expired Recent Searches

- Improved access control system allows assigning permissions to individual users or groups of users
- Modality & Provider dashboards
- Age graph on search analytics page
- Introduce new account creation & password reset workflow that eliminates the need for an SMTP server to generate reset link emails. Reset link emails are still preferred over the new workflow, but the new workflow eliminates provides support when in environments where Montage server was unable to send emails.
- Crawler support for eRIS, HL7, CSV, XML, PowerScribe 360, RadWhere
- Updated the *Montage End-User License Agreement*
- New resources in REST API for performing searches
- Ability to create site-specific pages
- Ability to customize “snippets” inside application and add customer footer links
- Ability for site to require that users accept a customer-specific license.
- Ability for site to require users to identify the “Purpose” or reason why the user is using Montage.
- Support for Windows Server 2008 R2.
- Improved support for using ActiveDirectory / LDAP as primary source for authentication.
- Simplified user account creation process.
- Use Chrome Frame when available. Can be disabled at the site-level.
- Improved accuracy of Maximize Positive Findings Filter.
- Improved report syntax highlighting
- “Did you mean” preserves Boolean syntax
- Fixed import of datetimes when the datetime occurs during Daylight Savings Time. Re-import is suggested to adjust any timestamps that are one-hour off.
- Better indication of search syntax errors, instead of showing generic error page.
- When appropriate, ignore the task queue results to improve processing performance
- Allow unicode characters to be exported into CSV

### 3.6.2 Patch Releases

#### 2.1.1 Patch Release

##### Bug Fixes

- Fix crawler caching bug when first record has error. #353
- Support MRNs with non-standard characters. #354

#### 2.1.2 Patch Release

##### Bug Fixes

- Explicitly prevent crawler obtaining a database lock when crawling PowerScribe 360. #364

- Ignore rows lacking a Procedure in PowerScribe 360. #369
- Protect against null names in PowerScribe. #420
- Prevent duplicate usernames with alternative cases. #402
- For PowerScribe 360 credential-passing, perform case-insensitive username match. #403
- Allow PowerScribe specific crawler configuration options (e.g. `use_site_location_as_organization` flag, and `is_stat` & `patient_status` maps)
- Map additional PowerScribe fields (modality, ordering info, a few new timestamps, is stat, patient status). #368
- Upgrade to latest web framework release.
- Improvements to database inspector.

It is recommended that PowerScribe 360 installations perform a full recrawl to include the newly mapped fields in the index.

### 2.1.3 Patch Release

#### Bug Fixes

- Avoid provider ID collisions in PowerScribe 360 by namespacing the IDs. #433

For any sites running 2.1.2, it is recommended to perform a full recrawl so that the correct provider IDs can be used.

### 2.1.4 Patch Release

#### Bug Fixes

- Allow null MRNs when crawling PowerScribe 360. #443

### 2.1.5 Patch Release

#### Bug Fixes

- Advanced Search
  - Performance improvement of Ordering / Reporting selection on Advanced Search page. #70
  - Handle large lists of organizations gracefully in Advanced Search. #401
  - Improve spacing on advanced search checkboxes. #385
- Patient Record
  - Display date picker and autocomplete on Patient Record. #457
  - Correct drill down links in the patient timeline. #459
  - Friendlier page when Montage lacks prior reports for a patient. No longer display a 404 Not Found error. #444.
- Analytics
  - Prevent “stuck” dates in the analytics form. #492
  - Remove unnecessary “Series 3” from Modality Volume. #506.

- General Crawling / Indexing
  - Improve memory consumption during indexing. #510
  - Reflect changes to procedure & provider mappings when re-crawling. #441
- PowerScribe 360 / RadWhere
  - Modify modality crawl to obtain data from Nuance’s charge master. #512
  - Improve crawler performance by remove null check in database. #471
  - Fix timezone-related auto-login issue from PS360 into Montage. #431
  - Backport of PowerScribe 360 crawler features into RadWhere crawler. #221, #222, #490

## 3.7 Montage 2.0 release notes

### 3.7.1 What’s New

- Pathology & PathRad searching now has the same features as Radiology searching, including Maximize Positives and Analytics.
- Export results to Excel XLS
- Improved search analytics. Removed 2000 report limit, can now analyze searches with millions of matching reports.
- LDAP support (Active Directory, Novel eDirectory, etc.)
- Improved security. User input is sanitized, eliminating Cross Site Scripting and SQL inject attacks.
- Improved performance with caching
- Web-based administration for local Montage administrators to control how Montage works
- RadLex Tree view shows parent and child terms to the current search term
- Site-specific integration into web-based PACs viewers or similar pathology image viewers
- Patient-Record view shows all the reports for a given patient
- Search within a single patient’s records
- Export all Saved Cases or a specific folder
- Clean URLs. No file extensions display. Only display relevant querystring parameters.

# ABOUT MONTAGE

Montage provides enterprise search and performance analytics for radiology. Visit [montagehealthcare.com](http://montagehealthcare.com) for more information.

## 4.1 Montage End-User License Agreement

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# MONTAGE GLOSSARY

**metadata** Structured elements associated with a report, such as the reporting provider's name, the time the exam is completed, the organization where the study was performed.



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