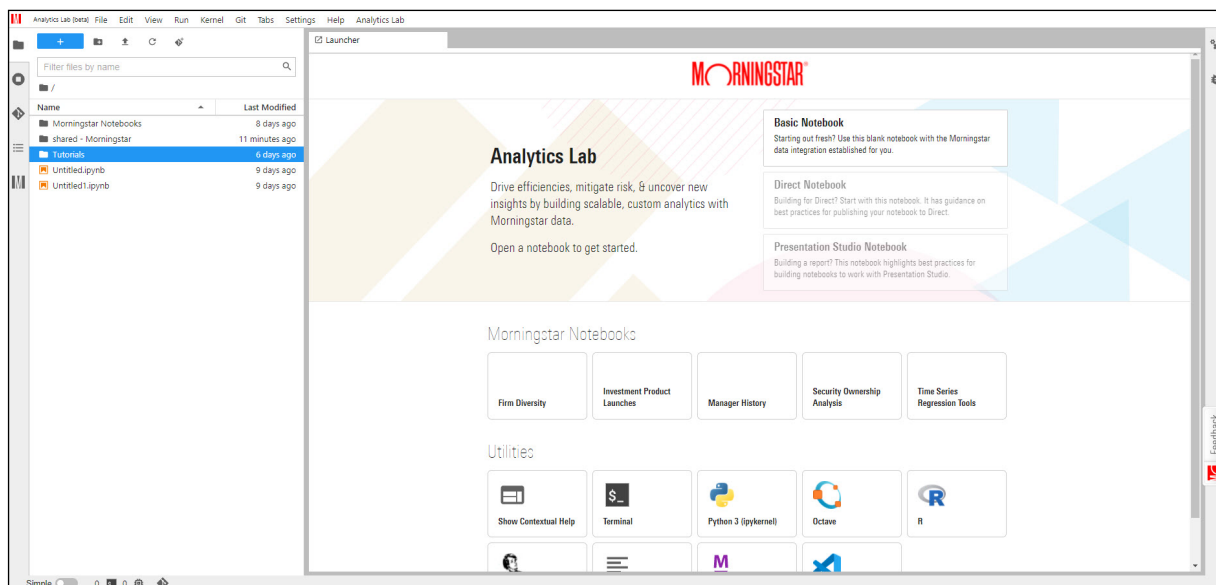


Frequently Asked Questions about Analytics Lab for Morningstar Direct

This document offers answers to the following questions about using Analytics Lab for Morningstar Direct:

Overview

- ▶ [The Benefits of Using Analytics Lab \(page 2\)](#)
- ▶ [Technical Details for Using Analytics Lab \(page 4\)](#)
- ▶ [Exploring the Data in Analytics Lab \(page 6\)](#)
- ▶ [Client Service with Analytics Lab \(page 8\)](#)



The Benefits of Using Analytics Lab

This section covers the following questions related to the benefits of using Analytics Lab as a platform:

- ▶ [How can Analytics Lab help me scale my data analysis and research? on page 2](#)
- ▶ [Why not use Microsoft® Excel® to do this work, instead of Analytics Lab? on page 2, and](#)
- ▶ [How will Data Scientists, Quantitative Analysts, and Quantitative Researchers use Analytics Lab? on page 3](#)

Analytics Lab provides a hosted, scalable Python development environment with seamless access to Morningstar data. The platform allows you to leverage Morningstar data and your knowledge of Python to automate investment analysis using the popular open-source tool, Jupyter Notebooks. Using Analytics Lab, you can quickly mine large data sets, and build predictive models (or other advanced analytics) to drive efficiencies, mitigate risk, and ultimately improve your investment decision making.

Microsoft® Excel® is a pervasive tool within an enterprise, but trying to use spreadsheets for advanced, responsive analytics over a large volume of data is using the wrong tool for the job. Power Microsoft® Excel® clients face the following problems:

- ▶ Errors propagate easily
- ▶ Limited scalability
- ▶ Slow calculation performance
- ▶ Barriers to testing the correctness of a spreadsheet
- ▶ Cumbersome debugging, and
- ▶ Constrained collaboration making version control challenging.

While spreadsheets are helpful for small and quick-fix calculations, when they turn into permanent enterprise-grade solutions, the integrity of financial, operational, and regulatory processes can be threatened. In addition, in many cases the volume of data involved in these analysis simply cannot be handled efficiently in Microsoft® Excel®.

Overview

How can Analytics Lab help me scale my data analysis and research?

Why not use Microsoft® Excel® to do this work, instead of Analytics Lab?

Within the Asset Management and Wealth Management industries, applying advanced analytics to specific business problems now offers value compared to the recent past, by increasing the ability to sift through vast amounts of data to draw insights and identify trends. A broad set of firms are embracing new analytics methods at multiple points across the asset-management value chain—from increased sophistication in distribution of research and analytics, to driving efficiencies in middle-and back-office productivity.

Teams doing this work, however, often face challenges. Gaining access to the right data sets and provisioning an appropriate amount of computing resources to process large amounts of data can be time consuming and costly. This prevents quick experimentation and can delay responses to market events or regulations.

Analytics Lab solves these problems by allowing data science and quantitative research teams to easily access Morningstar data in an environment with scalable infrastructure. This means experimentation is easy and answering timely questions related to market events isn't held up by data integration or infrastructure issues. Further, through the use of Jupyter Notebooks, the outcome of an analysis can be easily communicated through embedded visuals and commentary – facilitating a more efficient pathway from analysis to decision making.

**How will Data Scientists,
Quantitative Analysts,
and Quantitative
Researchers use
Analytics Lab?**

Technical Details for Using Analytics Lab

This section covers the following questions related to the technical details of using Analytics Lab:

- ▶ [What browsers are supported for Analytics Lab? on page 4](#)
- ▶ [What python and charting packages are available in Analytics Lab? on page 4](#)
- ▶ [Where can I find documentation for the Morningstar Data python package? on page 5](#)
- ▶ [Can I download the morningstar_data Python package to my local machine? on page 5](#)
- ▶ [Do you support MATLAB/Octave? on page 5](#)
- ▶ [Is R supported with Analytics Lab? on page 5, and](#)
- ▶ [Can I view the code for Interactive Research notebooks available in Morningstar Direct? on page 5.](#)

Overview

The latest versions of the following browsers are all supported:

- ▶ Chrome
- ▶ Firefox
- ▶ Safari, and
- ▶ Edge.

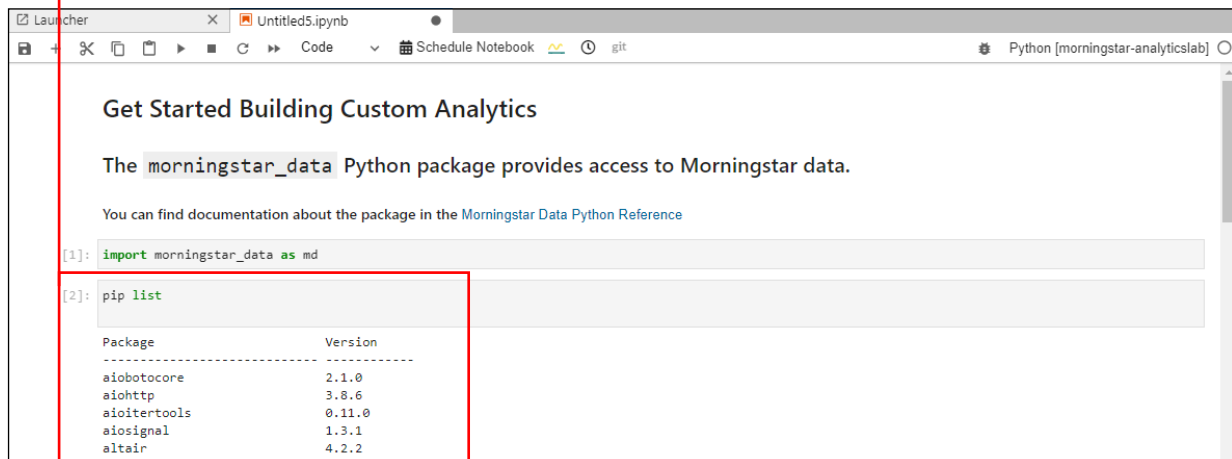
Note: Internet Explorer and Edge versions 78 and below are not supported.

What browsers are supported for Analytics Lab?

You can see the list of installed and available packages in the morningstar-AnalyticsLab kernel by opening a notebook and using the **pip list** command. You also can create your own kernel and install additional Python and charting packages by using the Conda Store Package Manager.

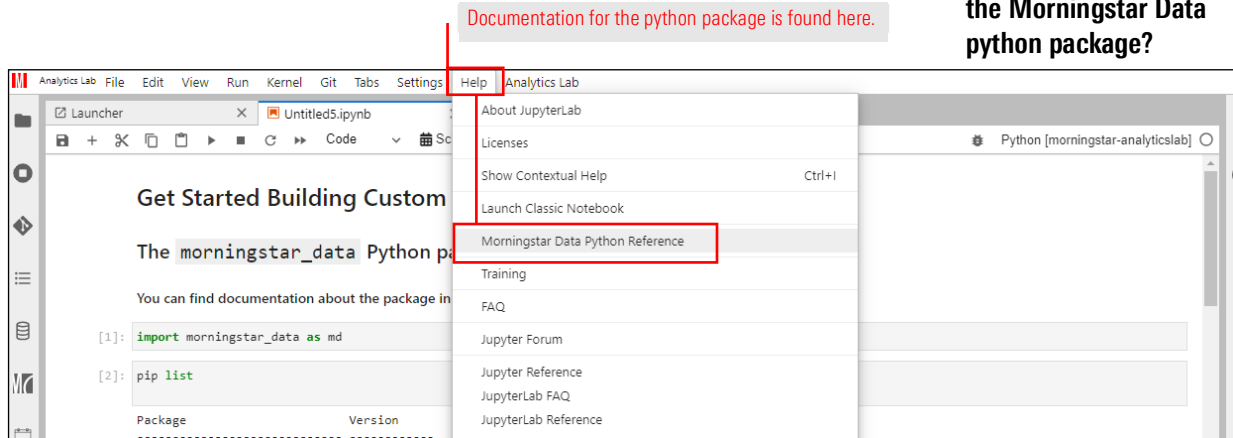
What python and charting packages are available in Analytics Lab?

Use the **pip list** command in a notebook to see the full list of available packages.



On the toolbar, select **Help > Morningstar Data Python Reference**.

Where can I find documentation for the Morningstar Data python package?



Yes, you can! For installation instructions, please visit:

<https://pypi.org/project/morningstar-data/>

Note: Even if used externally, the package is subject to the same data limitations as Analytics Lab.

Can I download the morningstar_data Python package to my local machine?

Not at this time. If that is something you are interested in, please see [How can I send feedback about Analytics Lab? on page 8](#).

Do you support MATLAB/Octave?

An R kernel is available within Analytics Lab. However, the library to access Morningstar data and Direct user objects is available only as a Python package.

Is R supported with Analytics Lab?

The Interactive Research currently available in Morningstar Direct will be released gradually into the Analytics Lab platform as tutorial notebooks in late April 2024. Use these notebooks to better understand the methodology behind our analysis and as a starting point for your own analysis.

Can I view the code for Interactive Research notebooks available in Morningstar Direct?

Exploring the Data in Analytics Lab

This section covers the following questions about the data points clients will find in Analytics Lab:

- ▶ [What data is available in Analytics Lab? on page 6](#)
- ▶ [Are model portfolios and custom benchmarks available in Analytics Lab? on page 6](#)
- ▶ [How fast can I expect data to return in Analytics Lab? on page 6](#)
- ▶ [How many layers of holdings are available for fund-of-funds in Analytics Lab? on page 6](#)
- ▶ [What is the best way to find a specific data point in Analytics Lab on page 7](#), and
- ▶ [Why can't I view ISINs or CUSIPs in Analytics Lab? on page 7](#).

Any investment data you can retrieve from Morningstar Direct is available in Analytics Lab. You can even use investment lists and data sets you've created in Morningstar Direct by referencing them in a notebook. For instructions on how to do that, see the tutorial notebook on the launcher page.

Custom portfolio data is available in the Morningstar Data Python Package. For more details, please refer to **Help > Morningstar Data Python Reference**.

You can expect data retrieval in Analytics Lab to match about the same speed as it would take to open the full, equivalent data set in the Workspace module of Morningstar Direct. Naturally, larger data sets will take longer to load.

Note that larger data sets (such as those for asset flows with many time periods for a market) and large performance reports will take longer to load.

The **analyticslab.direct.get_holdings** service can be used to retrieve single-level holdings for funds-of-funds. Drilling down further is not currently available. If this is something you are interested in, please see [How can I send feedback about Analytics Lab? on page 8](#).

Overview

What data is available in Analytics Lab?

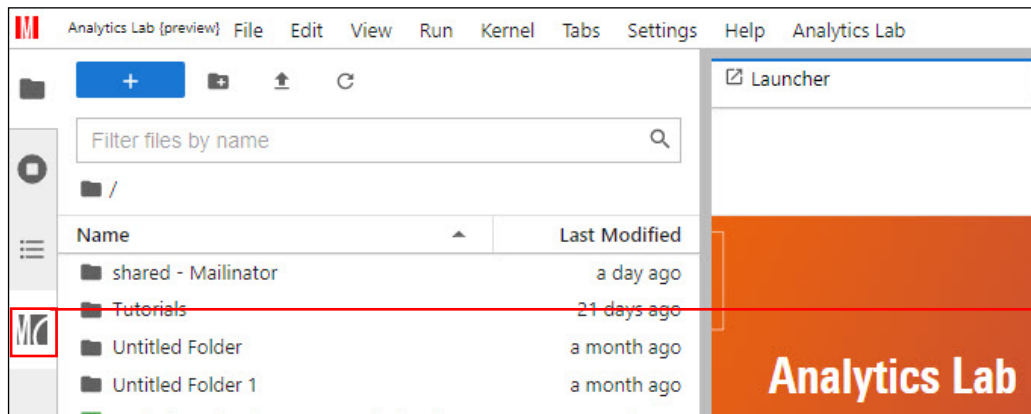
Are model portfolios and custom benchmarks available in Analytics Lab?

How fast can I expect data to return in Analytics Lab?

How many layers of holdings are available for fund-of-funds in Analytics Lab?

The Morningstar Direct Extension was recently added to Analytics Lab, this tool supports users in easily searching, browsing, and filtering data points by universe and data set.

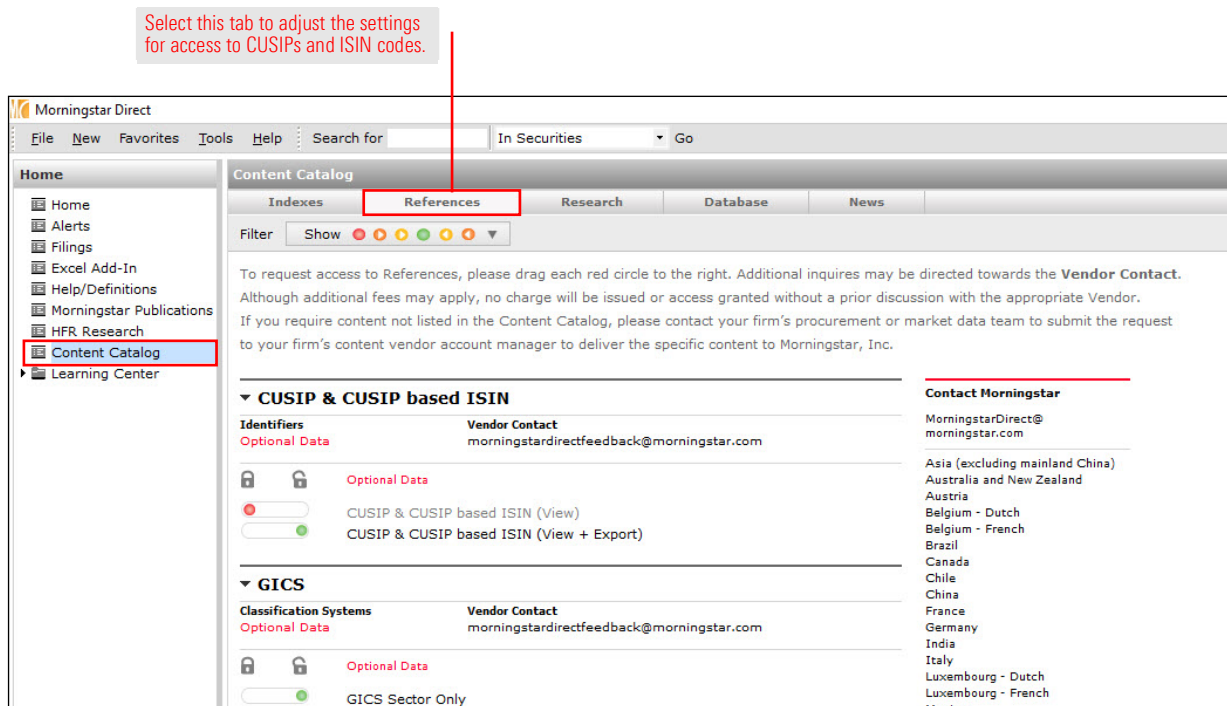
What is the best way to find a specific data point in Analytics Lab



Click this icon to easily be able to find data points from existing data views in Morningstar Direct.

If you are not fully licensed to export ISIN codes and CUSIPs, then you cannot access this data in Analytics Lab. To register your license, in Morningstar Direct, go to the **Content Catalog** page under the Home module and select the **References** tab. Your Customer Success Manager (CSM) can also help with this request.

Why can't I view ISINs or CUSIPs in Analytics Lab?

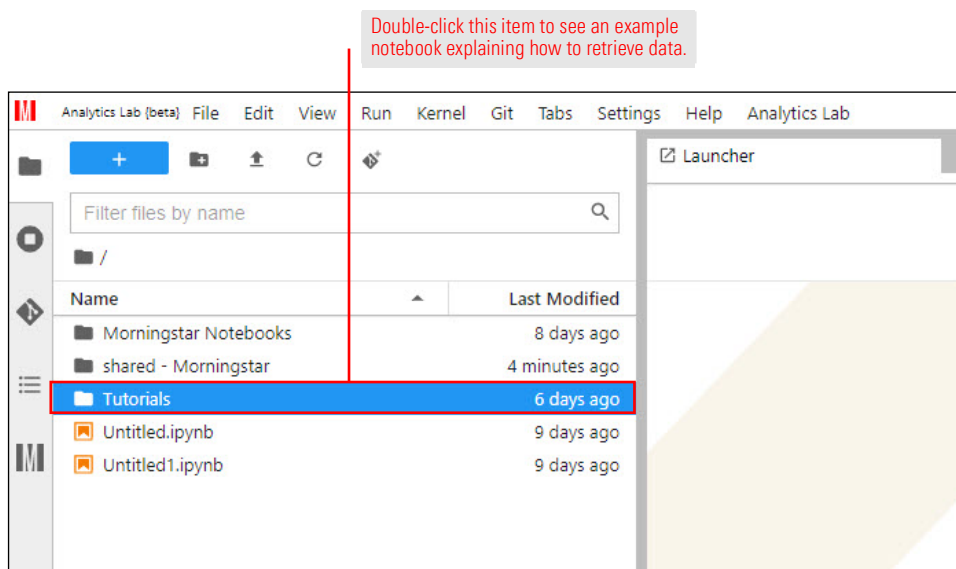


Client Service with Analytics Lab

This section covers the following questions related to client service concerns with Analytics Lab:

- ▶ [Do you have example notebooks I can use as a starting point? on page 8](#)
- ▶ [How can I send feedback about Analytics Lab? on page 8, and](#)
- ▶ [Where do I go for questions not answered in this document? on page 8.](#)

See the **Tutorials** section on the launcher to view an example notebook explaining how to retrieve data.



Morningstar plans to expand the Tutorials section in the future, so if you have an idea for something valuable to add here, please see [How can I send feedback about Analytics Lab? on page 8.](#)

To send feedback about Analytics Lab, please contact your Customer Success Manager (CSM).

Please contact your CSM.

Overview

Do you have example notebooks I can use as a starting point?

How can I send feedback about Analytics Lab?

Where do I go for questions not answered in this document?