

KNOWLEDGE BASE ARTICLE

Filtering Large Lists: Indexed Columns and the 5,000-Item Threshold



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Introduction

SharePoint Online limits the number of items a single query may touch to 5,000 — the list view threshold. The limit is not about how many items a list holds or how many rows a page shows: a list with 50,000 items works fine as long as every query can use an index to pick its rows. A filter by a column without an index, however, forces SharePoint to scan the whole list, and once the list has more than 5,000 items SharePoint refuses the query instead of running it. For users of [List Filter Online](#) this appears as an error or an empty result the moment a particular filter is applied.

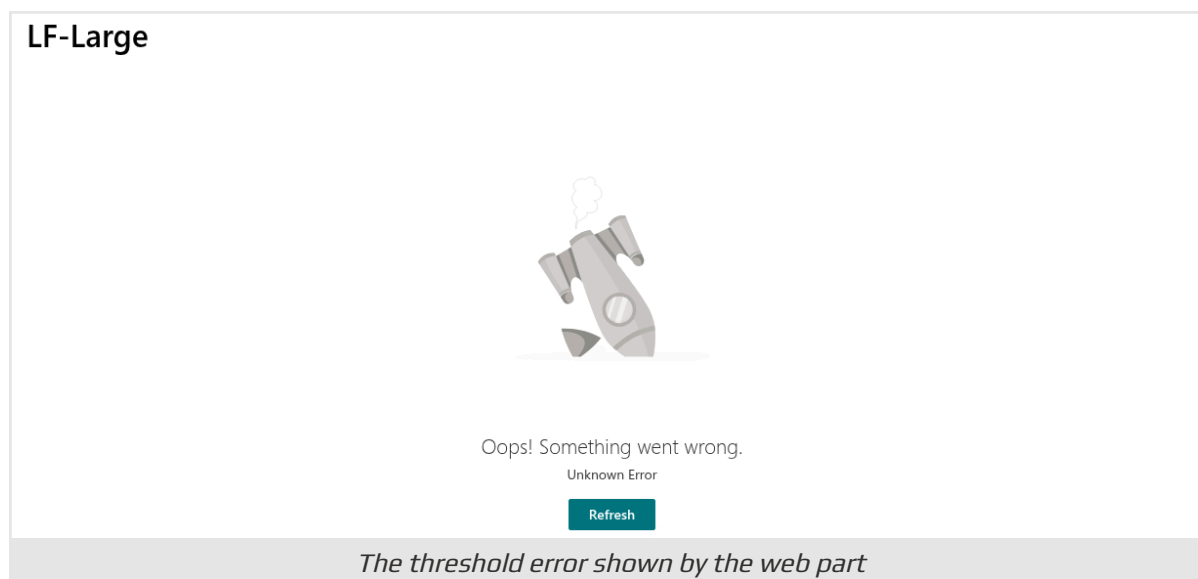
This article explains how the threshold affects the filter pane, the column header filters and the predefined filter of the web part, how the web part points out filter columns that need an index and creates it for you, how to add an index in the list settings instead, and which rules keep filters, sorting and grouping within the limit. The filter pane itself is described in [KB10255. Filter Pane Controls and Supported Column Types in List Filter Online](#).

How the threshold affects filtering

List Filter Online reads items through the native SharePoint **REST API** with a **CAML** query that combines the predefined filter of the administrator, the conditions of the filter pane and the column header filters, plus the sorting and grouping configured in the property pane. SharePoint checks every such query against the threshold:

- a condition on an **indexed** column lets SharePoint select the matching rows directly, and the query succeeds whatever the size of the list;
- a condition on a **non-indexed** column requires a scan of all items; on a list over 5,000 items SharePoint returns an error, and the web part shows **Oops! Something went wrong.** with the message that SharePoint returned;
- sorting or grouping by a non-indexed column has the same effect, because the rows must be ordered before the first page can be returned;
- the value lists of the **Dropdown** controls and of the column header filter are also queries; when SharePoint refuses them, the control simply shows no values.

The **Row Limit** of the web part (1 to 1,000 rows per page) does not help here. It limits the rows that are returned, not the rows that SharePoint has to examine to find them.



Note

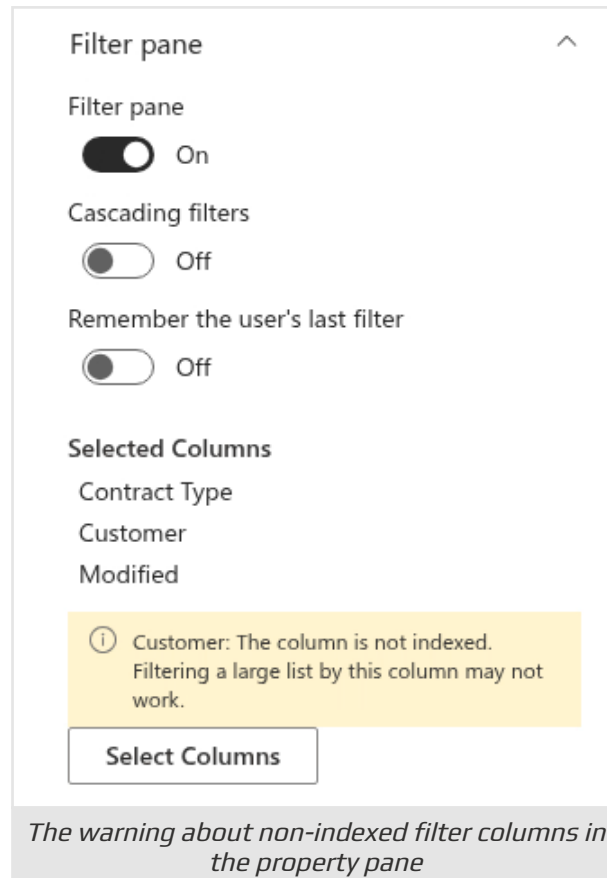
SharePoint applies the threshold to every query, including the ones that a native list view runs. A column that cannot be used in the filter pane of List Filter Online cannot be filtered in the list itself either; adding an index fixes both.

How List Filter Online helps

When the list selected in the **Data Source** group has more than 5,000 items, the filter pane configurator checks every column you select for the pane. A column that is **not indexed**, and whose type can be indexed, is flagged in two places:

- in the **Filter pane** group of the property pane, under **Selected Columns**, a warning bar lists the affected columns: "Contract Type, Customer: The column is not indexed. Filtering a large list by this column may not work.";
- in the **Columns** panel opened with **Select Columns**, a yellow warning icon appears next to the name of each affected column. Its tooltip repeats the warning and ends with **Create Index**.

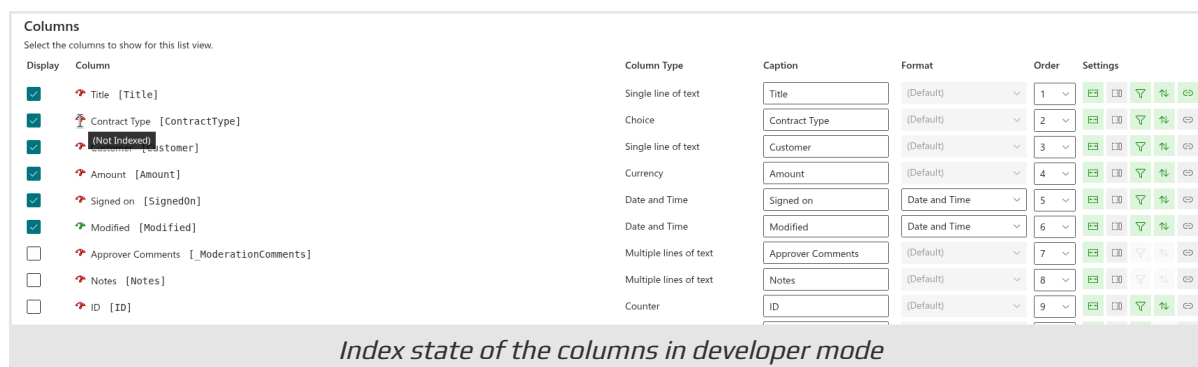
Clicking the warning icon creates the index: the web part sets the **Indexed** property of the column through the REST API, the icon disappears once SharePoint confirms, and the column leaves the warning bar. If SharePoint rejects the change, the property pane shows **An unexpected error occurred.**; the usual reasons are listed in the table at the end of this article.



The check follows these rules:

- the warning appears only for lists whose item count, as reported by SharePoint when the property pane loads, exceeds 5,000; on smaller lists nothing is shown, even for non-indexed columns;
- only columns checked in the **Display** column of the configurator are examined;
- columns whose type SharePoint cannot index — multiple lines of text, calculated, choice with multiple selection and the **Attachments** column — are never flagged;
- the index is created in the list on the other site when the web part shows data from another site.

Besides the filter pane, the column configurator of the **Data Source** group (**Select Columns**) shows the index state of every column when **Enable developer mode** is switched on in the **Developer tools** group: a speedometer icon in front of the column name is green with the tooltip **(Indexed)** or red with the tooltip **(Not Indexed)**. Use it to review the columns you plan to sort or group by, which the filter pane check does not cover.

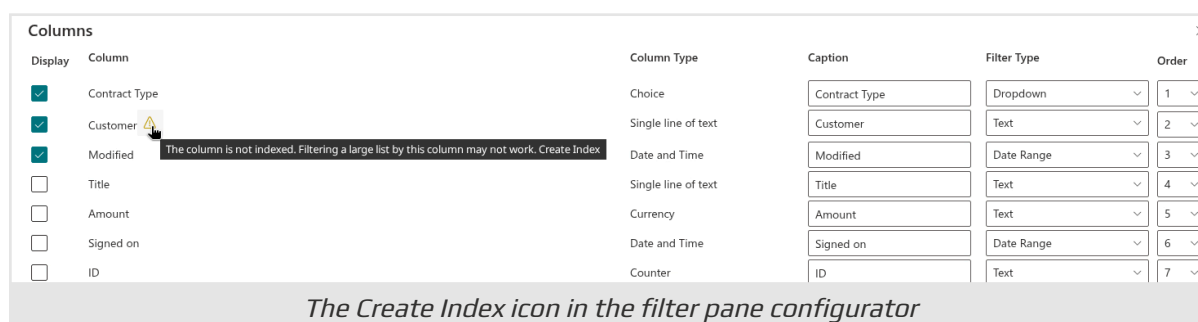


Warning

Creating an index changes the list, not the web part. The user who clicks **Create Index** needs permission to manage the list — the **Edit, Design** or **Full Control** permission level on the list — otherwise SharePoint rejects the request. A list can hold at most 20 indexed columns. The web part does not check these conditions in advance; it reports the result SharePoint returns.

Creating the indexes from the configurator

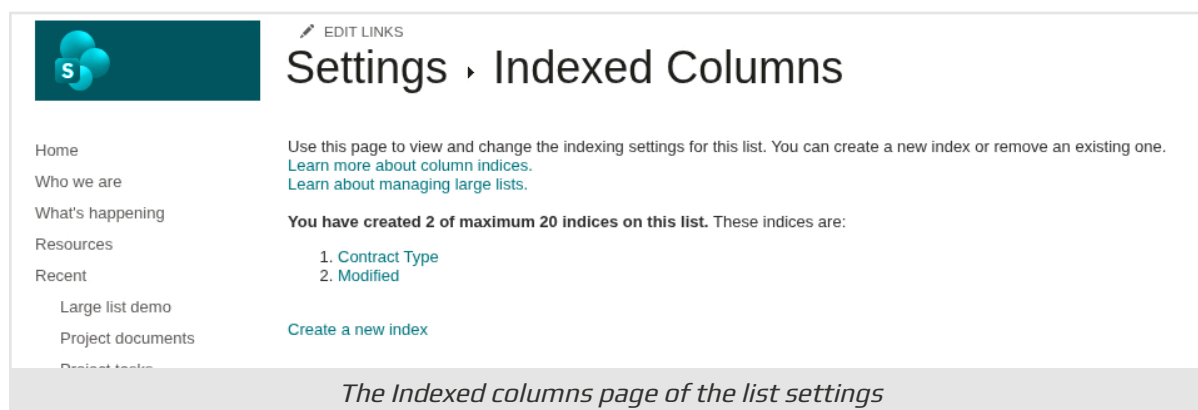
- 1 Open the page in edit mode and open the property pane of the List Filter web part.
- 2 Expand the **Filter pane** group. If the list is over 5,000 items and some of the selected columns are not indexed, the warning bar under **Selected Columns** names them.
- 3 Click **Select Columns**. In the **Columns** panel, find the columns with the yellow warning icon.
- 4 Click the icon of the first column. The icon is disabled while the request runs and disappears when the index has been created.
- 5 Repeat for the other flagged columns, then click **Save** (or **Cancel** if you changed nothing else — the indexes are already created).
- 6 Check that the warning bar under **Selected Columns** is gone, republish the page and apply the filters that failed before.



Alternative: creating the index in list settings

The same index can be created in SharePoint itself, which is the only way for columns used in sorting, grouping or the predefined filter, since the configurator checks the filter pane columns only.

- 1 Open the list or library and choose **Settings** → **List settings** (or **Library settings**) from the gear menu.
- 2 In the **Columns** section, click **Indexed columns**.
- 3 Click **Create a new index**.
- 4 Select the column as the **Primary column for this index** and click **Create**.
- 5 Repeat for every column that is used in filters, sorting or grouping, up to the limit of 20 indexes per list.



SharePoint Online can index these column types: single line of text, choice (single selection), number, currency, date and time, yes/no, lookup (single value), person or group (single value) and managed metadata (single value). It cannot index multiple lines of text, choice with multiple selection, multi-value lookup, person or group with multiple selection, multi-value managed metadata, calculated and hyperlink or picture columns. For a list that already has 5,000 items, SharePoint creates the index in the background and may take a while before the filter starts working.

Designing filters for large lists

An index makes a single condition fast; the design of the whole query decides whether the list stays usable as it grows.

Start the predefined filter with an indexed column. In the Query Builder of the **Filter** group, make the first condition of the top-level group a comparison on an indexed column that alone leaves fewer than 5,000 items — a status, a year, a department. SharePoint uses the first indexed condition to narrow the set before evaluating the rest; conditions on non-indexed columns are acceptable after it. Inside an OR group every column must be indexed.

Choose controls that produce index-friendly comparisons. **Eq**, **Neq**, **In**, **Geq**, **Leq**, **Gt**, **Lt** and **BeginsWith** can use an index; **Contains** cannot. In the filter

pane this means **Dropdown**, **Dropdown (Multiple Values)**, **Person or Group**, **Date picker**, **Date Range**, **Relative Date**, **Numeric range** and **Yes/No** instead of **Text**, and **Equals** or **Begins with** instead of **Contains** in **Text (with options)**. The **Term** control also uses **Contains** and should be replaced by **Dropdown** on large lists.

Mind the automatic defaults. The **Date picker** applies **Contains data** and the **Relative Date** applies **Today** as soon as the page opens, so these controls run a query against the column before the user touches anything. Put them only on indexed columns.

Sort and group by indexed columns. The **Sort** and **Group By** groups accept any column; on a large list choose indexed ones, and prefer a single grouping level. Remember that the user can also sort from the column header menu of every column marked **Can be sorted** — clear the option for non-indexed columns of a large list.

Keep the column header filters on indexed columns. The **Filterable** option of a column loads the distinct values of the column for its header menu; on a large list leave it on only for indexed columns.

Use folders and the row limit for what they are. Showing items inside folders (the default in the **Folders** group) queries one folder at a time, which often keeps each query under the limit even without indexes. A small **Row Limit** with pagination keeps the page light but does not replace an index.

Tip

Switch on **Enable developer mode** while you design the filters: the **CAML Query** command in the toolbar shows the exact query the web part sends, so you can see which comparisons and columns are involved and compare them with the indexed columns of the list.

Symptoms and fixes

Symptom	Cause	Fix
Oops! Something went wrong. with a SharePoint message about the list view threshold as soon as a filter is applied	The filter condition uses a non-indexed column, or the first condition does not narrow the list below 5,000 items	Create an index on the column; move an indexed condition to the beginning of the predefined filter
The same error appears	The predefined filter, the	Index the columns used

Symptom	Cause	Fix
without any user filter, right after the page opens	sorting or the grouping uses a non-indexed column, or a Date picker / Relative Date control runs its default condition	in Filter, Sort and Group By ; replace the control or index its column
A Dropdown or a column header filter shows no values, only (All) , Contains data and Does not contain data	SharePoint refused the query that loads the distinct values of the column	Create an index on the column
The filter works for some values and fails for others	A value that matches more than 5,000 items leaves the rest of the query without an index	Add an indexed condition to the predefined filter or to the pane that narrows the result further
Clicking the warning icon ends with An unexpected error occurred.	The user cannot manage the list, the list already has 20 indexes, or the column type cannot be indexed	Ask an owner of the list to create the index; remove unused indexes in Indexed columns ; choose another column or control
A column that is not indexed shows no warning	The list has 5,000 items or fewer, or the column type cannot be indexed	No action is required until the list grows; for non-indexable types, choose an indexable column for the filter
The index has been created, but the filter still fails	SharePoint is still building the index on a large list	Wait and try again later

Related articles

The threshold is a property of SharePoint Online, and the rules above apply to any view of a large list. List Filter Online adds the early warning and the one-click index so that the problem is solved while the page is configured rather than discovered by the users.

Tip

The controls of the filter pane and the comparisons they produce are listed in [KB10255. Filter Pane Controls and Supported Column Types in List Filter Online](#). Building the predefined filter is described in [KB50025. How to Build a Complex Query with the List Filter Online Query Builder](#), and the remaining settings of the property pane in [KB10201. Configuring the List Filter Online Web Part](#).

Terms

CAML

Collaborative Application Markup Language (CAML) is a case-sensitive, XML-based language used in SharePoint to define data definition objects such as lists, document libraries, views, content types, fields, and data rendering elements. For example, CAML can be used to build a query that filters and retrieves data from lists or libraries.

REST API

REST API (Representational State Transfer Application Programming Interface) is a standardized way for software applications to communicate over the internet. It enables clients to request and manipulate data on a server using standard HTTP methods such as GET, POST, PUT, and DELETE. REST APIs are widely used for building web services that are scalable, flexible, and can be accessed by various client applications.

SharePoint Online

The cloud version of SharePoint, a web-based collaboration platform within Microsoft 365 that provides an extensive range of capabilities to store, share, and manage the digital information, content, and knowledge of an organization.