

Agilent InfinityLab LC Series Column ID Tag Kit G4750A/B and G4751A Instructions

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Introduction

This Technical Note describes the use of the new Column Identification Tags (column ID tags) for the Agilent InfinityLab LC Series Column Compartments:

- 1260 Infinity II Multicolumn Thermostat (G7116A) - (MCT)
- 1290 Infinity II Multicolumn Thermostat (G7116B) - (MCT)
- The Integrated Column Compartment (ICC), which is available as an add-on option for the 1260 Infinity II Vialsampler (G7129A) and the 1290 Infinity II Vialsampler (G7129B).

The column ID tags are recognized automatically and facilitate trackable column management using Agilent OpenLAB CDS ChemStation Edition. The new column ID tags enable quick and easy column switching, with automated recognition of the installed columns.

NOTE

This Technical Note applies to the following software revisions:

- Agilent RC.Net Drivers rev. A.02.14
- Agilent OpenLAB CDS A.02.02 SR2 ChemStation Edition

Workflows using earlier revisions of the software will vary in detail.

If you are using a CDS other than OpenLAB CDS ChemStation, contact Agilent Technologies for details of column ID tag usage.

Correct documentation is an essential element of effective and productive laboratory workflows. With respect to columns, important information such as the number of injections or the performance is not available except by tracking such information in a logbook, either as a paper document or in digital form. This is a time-consuming exercise, prone to error, and dependent on the reliability of the users.

Agilent Technologies provides a convenient solution based on column identification tags that are attached to the columns and connected to a Tag reader assembly mounted in the column compartment and controlled through Agilent instrument drivers (minimum revision A.02.12). Column ID tags can be permanently attached to each column as required; they are not intended to be removed and transferred to another column. This prevents any confusion after a column is changed, and the column history can be tracked with 100% certainty.

The Column ID (upgrade) kit contains one (G7116A or G7129A/B with ICC add-on option) or two (G7116B) column ID tag reader assemblies, which are installed on either side of the Infinity II module to host up to two column ID tags for the G7129A/B with ICC add-on option, up to four column ID tags for the G7116A MCT or up to eight column ID tags for the G7116B MCT (four on each side).

Column ID tags are available as pre-labeled tags for Agilent columns or as custom tags, which can be attached to any column and allow you to enter the column information.

Delivery Checklist

Check the content of the delivery. You should have received the following:

G4750B Column ID Upgrade Kit for Agilent 1290 Infinity II Multicolumn Thermostat (G7116B)

Item	#	p/n	Description
1	1	5067-5915	Column ID Kit Left
2	1	5067-5916	Column ID Kit Right
3	4	5067-5917	Column Identification Tag Assembly

G4750A Column ID Upgrade Kit for Agilent 1260 Infinity II Multicolumn Thermostat (G7116A)

Item	#	p/n	Description
1	1	5067-5915	Column ID Kit Left
2	2	5067-5917	Column Identification Tag Assembly

G4751A Column ID Upgrade Kit for the Integrated Column Compartment

Item	#	p/n	Description
1	1	5067-5964	Column Identification Kit
2	2	5067-5917	Column Identification Tag Assembly

Installing the Column ID Tag Readers

Parts required	p/n	Description
	5067-5915	Column ID Kit Left
	5067-5916	Column ID Kit Right
	5067-5917	Column ID TAG Assembly

Preparations Power off the instrument.

CAUTION

Electronic boards and components are sensitive to electrostatic discharge (ESD).

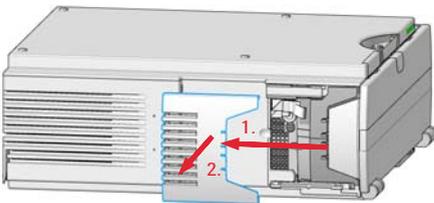
ESD can damage electronic boards and components.

→ Be sure to hold the column ID modules by the plastic parts, and do not touch the electrical components. Do not touch the pins of the flex-board connector.

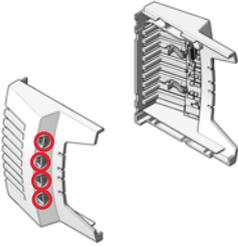
NOTE

In the Agilent 1260 Infinity II Multicolumn Thermostat (G7116A) the Column ID is installed on the left side of the module only.

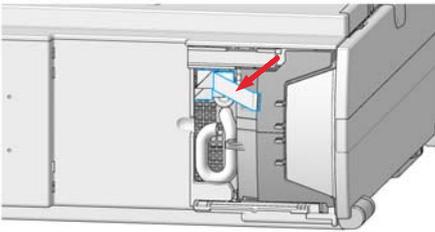
- 1 Remove any tube guides and tube clip holders that may already be installed on the sides of the MCT cover.
- 2 Unlock the left and right (G7116B only) side cover inserts by pushing them to the rear and put them aside.



3 Identify the left and right (G7116B only) column ID module. The ID sockets 1 to 4 are numbered from top to bottom.

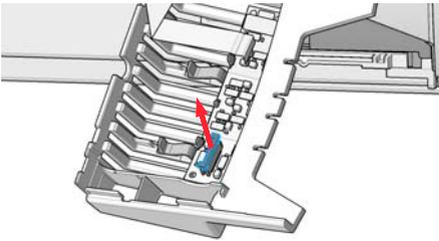


4 Take the end of the pre-installed flex-board connector out of the holder.

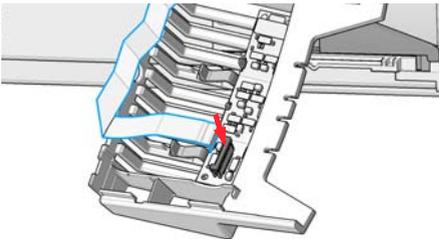


5 Connect the flex cable to the column ID module.

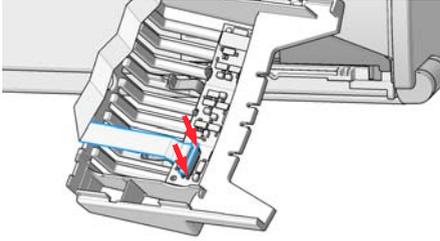
a Open the locking mechanism of the connector by lifting up the frame.



b Push in the cable with the contacts facing to the rear.

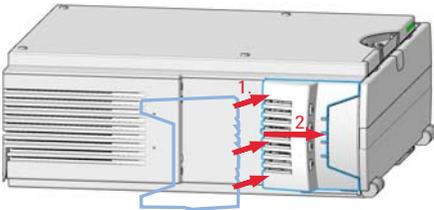


c Close the locking mechanism.



d Verify that the cable is properly attached to the connector without visible offset.

6 Attach the column ID module to the MCT cover.



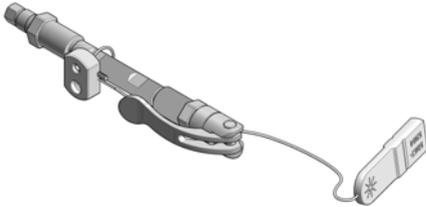
7 Repeat steps 4 to 9 for the column ID module on the other side (for G7116B, on the right).

8 Install the waste tube clip holder (example shows a G7116B).



Connecting the Column ID Tags

- 1 If the column has no Column ID Tag, fit a tag by slipping the loop over one end of the column and pulling it tight through the plastic holder.

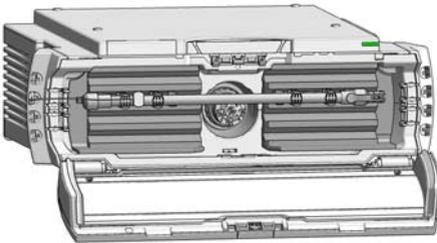


Once the loop has been pulled tight, the tag can no longer be removed from the column.

- 2 Install the column in the module.
- 3 Plug the free end of the Column ID Tag into the adjacent socket in the column tag reader unit.

NOTE

It is essential that the Column ID Tag is plugged into the adjacent socket in a logic order (that is, first column from the top into "1", second column from the top into "2", and so on). Otherwise, the column tag information will not be correctly updated.



NOTE

If you have a full-length column, we recommend that you use the adjacent socket on the left column tag reader.

Using Column ID Tags

Column ID tags are designed to help you to automatically track the usage of the columns in your laboratory. The column ID tag contains an extensive amount of information about the column and its usage. Two types of information are stored:

- *Static* fields contain information on the physical characteristics of the column such as the length, internal diameter and particle size. Typically, this information stays the same for the lifetime of the column.
- *Dynamic* fields contain information on the usage of the column such as the number of injections and maximum measured temperature. Each time you make an injection on the column, the dynamic information is updated automatically.

For full details of all the information available on the column ID tag, see [“Column Tag Information”](#) on page 17.

In *pre-labeled* tags for Agilent columns, all static fields except **Void volume** and **Comment** are set to *read-only* for compliance reasons. Only the dynamic fields are available for update.

Custom tags provide write access to both static and dynamic fields. This allows you to enter information in the static fields for non-Agilent columns. When the information is complete, you can seal the tag permanently; when a tag is sealed, only the dynamic fields are available for update.

The information stored on the pre-labeled column ID tags for Agilent columns is automatically imported into the **Edit Columns** table of ChemStation, which you access from the **Instrument** menu of the **Method and Run Control** view (see [“The ChemStation Columns Table”](#) on page 16) and the **Column Assignment** table of the Column Compartment Dashboard panel (see [“The Column Tag Information Table”](#) on page 16). Pre-labeled column ID tags are sealed; the static fields (except **void Volume** and **Comment**) cannot be edited. The dynamic fields are updated automatically according to usage.

For custom column tags with no stored column information, you must provide the details. Using ChemStation, you can import the data from a database (an existing catalog or inventory, or the Agilent columns guide); for other CDSs, you must enter the information manually. When you have entered all the information, you can seal the tag so that the static fields cannot be changed.

NOTE

It may take several seconds for the column tag to be read and the tables to be updated.

Using Column ID Tags with ChemStation

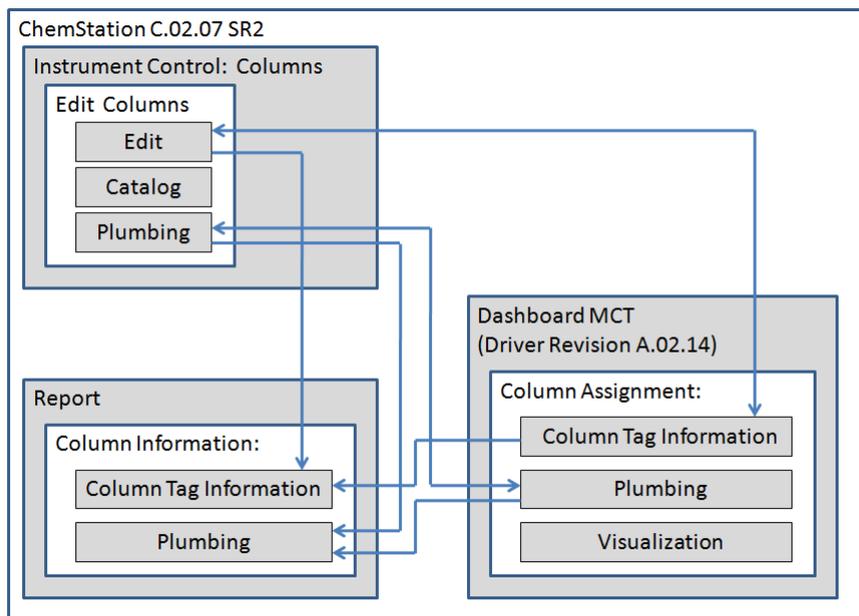


Figure 1 Column ID tag information relationships

Agilent OpenLAB CDS A.02.02 SR2 ChemStation Edition in combination with RC.Net Drivers Revision A.02.14 provides a unique close connection with the Column Tag Information function of the Multicolumn Thermostat through the **Edit Columns** table (see [“The ChemStation Columns Table”](#) on page 16).

Use these instructions to enter and store the column information on the column ID tag.

- 1 In the **Method and Run Control** view of the Agilent OpenLAB CDS ChemStation Edition, select **Columns** from the **Instrument** menu.

The **Edit Columns** dialog box is displayed.

If the **Edit Columns** table is empty, go straight to Step 3.

#	Installed	Location	Tag	Description	Col. Serial#	Batch#	Product#	# Injections	Max. P [bar]	Max. T [°C]	Max. pH	Min. pH
1	YES	Left 1	Sealed	Advanced Bio RP mAb SB C8	autoID-10		785775-906	0	600	90.0	9.0	1.0
2	YES	Left 2	Used	Eclipse XDB-C18	autoID-14		927975-902	0	600	60.0	9.0	2.0
3	YES	Left 3	Used	Poroshell 120 EC-C18	autoID-13		693975-302	3	400	60.0	9.0	0.0
4	YES	Left 4	Used	Zorbax Eclipse Plus C18	autoID-20		959990-902	0	600	90.0	8.0	1.0
5	no			Eclipse XDB-C18	autoID-19		927975-902	0	600	60.0	9.0	2.0
6	no			Eclipse XDB-C18	autoID-11		927975-902	0	600	60.0	9.0	2.0
7	no			AdvancedBio SEC 300A	autoID-18		6277528-20	0	400	80.0	8.5	2.0
8	no			Poroshell HPH-C18	autoID-12		699975-502	45	400	60.0	9.0	2.0
9	no			Zorbax Bonus-RP Solvent Saver	autoID-15		827975-302	0	600	90.0	8.0	1.0
10	no			SB-C18	autoID-16		827975-902	0	600	90.0	8.0	1.0
11	no			Eclipse Plus C18	autoID-3		959996-902	0	400	60.0	9.0	2.0
12	no			Zorbax Rapid Resolution	autoID-17		959941-902	0	600	60.0	9.0	2.0
13	no			Eclipse XDB-C18	autoID-6		927975-902	0	600	60.0	9.0	2.0
14	no			SB-C18	autoID-21		827975-902	0	600	90.0	8.0	1.0

Figure 2 The ChemStation **Edit Columns** table

- 2 Select a line in the table that contains column information as close as possible to the column you are adding. The selected line acts as a template for the new column.

NOTE

Agilent OpenLAB A.02.02 SR2 ChemStation Edition provides a catalog of column types. Click the **Catalog** button to display a dialog box that allows you to choose how to load the catalog into the table.

- 3 Click the **Insert** button to insert a line above the currently selected line, or the **Append** button to add a line to the end of the table.
The new line contains a copy of the information in the template line.
- 4 Click the **Edit** button to display a dialog box that allows you to edit the column-specific information such as **Serial Number**, **Batch Number** and **Description**.
- 5 Add or edit the other column-specific information (for example, maximum pressure, maximum temperature, length, diameter, particle size) in the **Edit Columns** table.
- 6 If the column is installed and will be used in the Multicolumn Thermostat, select **YES** in the **Installed** column.
- 7 Click the **Plumbing** button.
The **Column Assignment** dialog box is displayed.

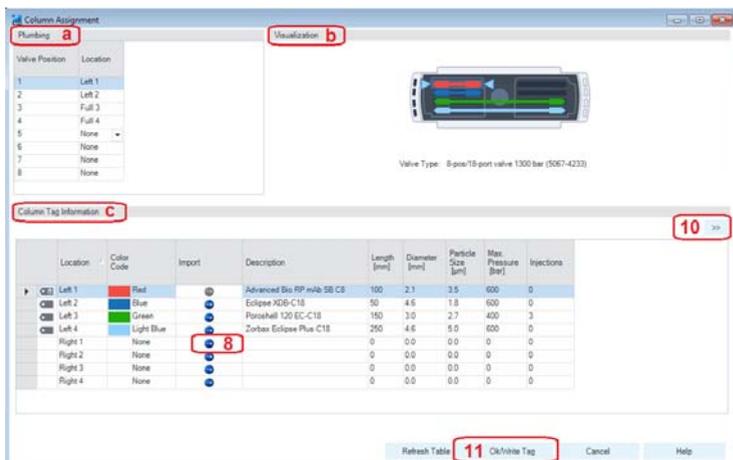


Figure 3 The column compartment driver **Column Assignment** dialog box

The **Column Assignment** dialog box allows you to specify and review detailed information about the columns attached to each position in the column compartment. The information in the **Column Assignment** dialog box is in three sections:

- a The **Plumbing** section contains a table where you can specify the plumbing assignment for each valve position.
 - b The **Visualization** section gives a visual representation of the Multicolumn Thermostat configuration.
 - c The **Column Tag Information** table shows the information stored on the column tag(s) of the installed column(s). For more details, see [“The Column Tag Information Table”](#) on page 16.
- 8** Click  in the **Import** column of an empty line in the **Column Tag Information** table.

The list of columns from the ChemStation's **Edit Columns** table is displayed.

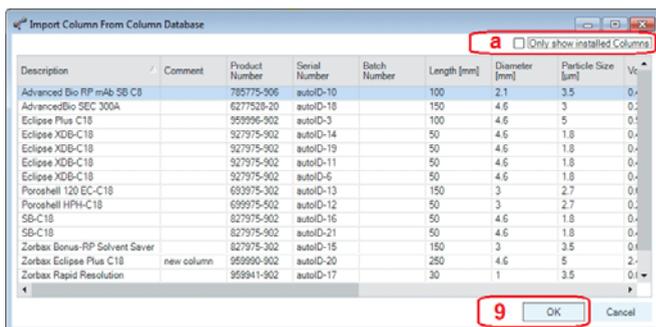


Figure 4 The list of columns from the ChemStation's **Edit Columns** table

To reduce the list to only those columns that are marked as **Installed**, mark the **Only show installed Columns** check box (highlighted as *a* in the figure above).

- 9 Select the column information to import from the list of columns and click **OK**.

The column information is imported into the **Column Tag Information** table.

NOTE

It may take several seconds before the information appears in the **Column Tag Information** table.

NOTE

The characters ; (semicolon), ' (single quote) and " (double quote) are invalid for the **Column Tag Information** table. If these characters are used in any field of the table, an error is displayed and is disabled. You must delete all invalid characters before you can write the data to the tag.

The **Description** field is limited to 32 characters in the **Column Tag Information** table.

NOTE

At this stage, you can assign a color to the column using the drop-down list in the **Color Code** column; this information is displayed in the **Visualization** panel, but is not written to the tag.

- 10** Click the >> button at the top right of the **Column Tag Information** table to show the hidden table columns. Use the horizontal scroll bar to access the columns at the right of the table.
- 11** If all the information for the column is correct, click the **Ok/Write Tag** button to write the information to the column ID tag.
- The information in the ChemStation's **Edit Columns** table is also updated.
- 12** You can edit the information on the column ID tag using the ChemStation **Edit Columns** table. When you have finished editing the information, repeat steps 7 to 9 to update the information in the tag.
- 13** When you are sure that you will not make any more changes to the information in the tag, you can irrevocably seal the tag to set all static fields to read-only. Right-click in the appropriate line in the **Column Tag Information** table and select **Seal Column Tag** from the context menu.

The screenshot shows a table titled "Column Tag Information" with the following columns: Location, Color Code, Import, Description, Length [mm], Diameter [mm], Particle Size [µm], Max Pressure [Bar], and Injection. The table contains four rows of data. A context menu is open over the third row, which is highlighted in blue. The menu items are: Clear Column Tag Information, Seal Column Tag (with a red circle and the number 13 next to it), Copy (Ctrl+C), and Paste (Ctrl+V). At the bottom of the table, there are two buttons: "Refresh Table" and "Ok/Write Tag".

Location	Color Code	Import	Description	Length [mm]	Diameter [mm]	Particle Size [µm]	Max Pressure [Bar]	Injection
Left 1	Red		Advanced Bio RP mAb SB C8	100	2.1	3.5	600	0
Left 2	Blue		Eclipse XDB-C18	50	4.6	1.8	600	0
Left 3	Green		Purosphere 120 EC-C18	150	3.0	2.7	400	3
			Zorbax Eclipse Plus C18	250	4.6	5.0	600	0
				0	0.0	0.0	0	0
				0	0.0	0.0	0	0
				0	0.0	0.0	0	0
				0	0.0	0.0	0	0

Figure 5 The **Column Tag Information** table context menu

NOTE

Once a column ID tag has been sealed, the static fields cannot be edited.

Until the column ID tag has been sealed, you can delete all information on the tag using the **Clear Column Tag Information** command from the context menu.

The sealed column is shown in the **Column Tag Information** table with the  icon at the beginning of the row. In the **Edit Columns** table of the ChemStation, it is shown with **Sealed** in the **Tag** column.

The **Plumbing** button of the ChemStation **Edit Columns** table displays the **Column Assignment** dialog box, which can also be displayed by selecting **Column Assignment** from the context menu of the column compartment Dashboard panel in the ChemStation's **Method and Control** view.

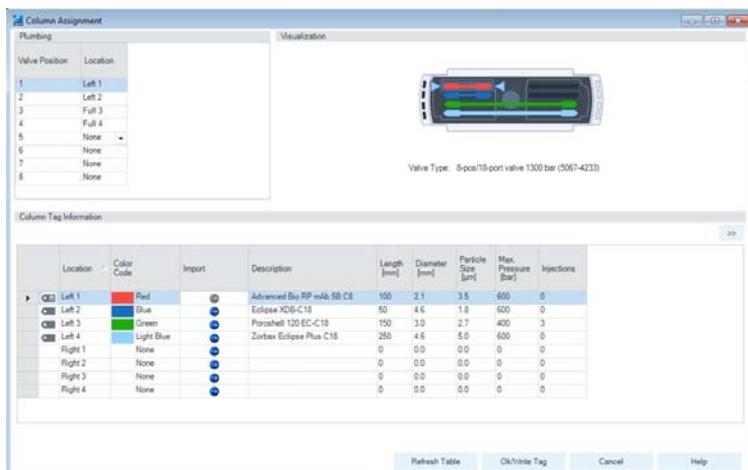


Figure 6 The column compartment driver **Column Assignment** dialog box

The **Column Assignment** dialog box has three sections that give you information about the column:

- The **Plumbing** section shows the valve connections to the positions in the column compartment.

NOTE

Make the connections to give the shortest distances between the valve ports and the columns, and use a logical order (left column 1 to port 1-1', left column 2 to port 2-2' and so on). Avoid leaving unused ports between used ones.

- The **Visualization** section gives a visual representation of the configuration of the columns in the column compartment; the columns are color coded.
 - Place the mouse cursor over a column to display a tooltip of the column information from the column ID tag.
 - Click on a column to highlight the column information in the **Column Tag Information** table.

- The **Column Tag Information** shows the information in the column ID tags for all columns in the configuration, including their location in the column compartment and their color codes.

The column compartment panel of the Dashboard in the ChemStation's **Method and Control** view also allows you a quick view of the column ID tag information.



Figure 7 The Dashboard panel of the column compartment

Place the mouse cursor over the column ID tag icon (); the tooltip shows the information currently stored on the column ID tag.

Note that the column ID tag icon changes according to its state as described in [“The Column Tag Information Table”](#) on page 16.

Availability of Column Information

The ChemStation Columns Table

The **Edit Columns** dialog box, which you access using the **Columns** command of the **Instrument** menu in **Method and Run Control** view, shows the detailed information about the columns attached to each position in the device. The table contains all the column-specific information stored in the column ID tags (see “[Column Tag Information](#)” on page 17) plus the following possible additional columns:

Installed	YES when the column is installed in a device. no when the column is not installed in a device.
Location	Shows the location in the device to which the plumbing of the valve position leads.
Dev. Serial#	Present only for a valve thermostat cluster. Shows the serial number of the device that contains the column.
Tag	Shows if the column has column ID tag (Used), if it sealed (Sealed) or the column has no tag (empty).

The table includes not only the columns that are installed in the column thermostat device(s), but also the inventory of other available columns, for example, columns that have been used in the past. The ChemStation also provides a catalog of column types, which you can load into the **Edit Columns** table to act as templates for other columns.

The Column Tag Information Table

The **Column Assignment** dialog box, which you access using the **Column Assignment** command of the Dashboard context menu, shows the detailed information about the columns attached to each position in the device. The dialog box includes the **Column Tag Information** table which contains all the column-specific information stored on the column ID tags (see “[Column Tag Information](#)” on page 17) plus the following possible additional columns:

Tag Status	<p>shows the status of the column ID tag:</p> <ul style="list-style-type: none"> • Empty: The position is empty or has a column without a column ID tag. • : A column with a column ID tag is installed at this position. • : A column with a sealed column ID tag is installed at this position. • : A column with a pre-labeled column ID tag supplied by Agilent Technologies is installed at this position.
Location	<p>shows the location in the device to which the plumbing of the valve position leads.</p> <p>For a valve thermostat cluster, the Column Host (the device where the column is installed) is also shown.</p>
Color Code	shows the color representing the column currently occupying the valve position.
Import	<p>present only when the CDS is an Agilent OpenLAB CDS ChemStation Edition.</p> <p>Click the  icon to display a dialog box listing all the columns entered in the ChemStation's Edit Columns table, from which you can select appropriate information to import.</p>

By default, only the **Column Tag Information** table columns up to and including the **Injection** column are displayed. Click the >> button at the top right of the table to show the full table.

Column Tag Information

The column ID tag contains the following information:

Field	Description	Type	Pre-labeled	Custom
Description	A description of the column.	Static	Read	Write
Length	The length of the column in mm.	Static	Read	Write
Diameter	The internal diameter of the column in mm.	Static	Read	Write
Particle Size	The particle size of the column packing material in μm .	Static	Read	Write
Maximum Pressure	The maximum pressure supported by the column.	Static	Read	Write

Field	Description	Type	Pre-labeled	Custom
Number of Injections	The number of injections that have been made on the column.	Dynamic	Read	Read
Product Number	The product number of the column.	Static	Read	Write
Maximum Measured Temperature	The highest temperature (in °C) experienced by the column to date.	Dynamic	Read	Read
Maximum Temperature	The safe maximum operating temperature of the column (in °C).	Static	Read	Write
Minimum pH	The minimum pH supported by the column.	Static	Read	Write
Maximum pH	The maximum pH supported by the column.	Static	Read	Write
Void Volume (mL)	The void volume of the column and fittings.	Static	Write	Write
First Injection	The date and time of the first injection onto the column.	Dynamic	Read	Read
Recent Injection	The date and time of the most recent injection onto the column.	Dynamic	Read	Read
Manufacturing Date	The date of manufacture of the column.	Static	Read	Write
Agilent Column	Whether or not the column was supplied by Agilent Technologies.	Static	Read	Write
Serial Number	The serial number of the column.	Static	Read	Write
Batch Number	The batch number of the column.	Static	Read	Write
Tag Sealed	Whether or not all static fields except Comment and Void Volume are set irrevocably to read-only.	Static	Read	Write
Comment	A user-generated comment about the column.	Static	Write	Write



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