

LAUNCH ALTAIR MONARCH COMPLETE

Monarch Complete provides two entry points for working with data:

- **Monarch Data Prep Studio** provides a fast and easy way to clean and prepare your data. It includes more than 80 pre-built functions designed specifically for data preparation. It even allows easy report discovery via automatic parsing and data extraction.
- **Monarch Classic** includes the full range of functionalities found in previous versions of Monarch, such as the capability to define advanced data extraction templates, table summaries, and advanced redaction.

To run Altair Monarch Data Prep Studio, go to **Start > All Programs > Altair Monarch 2024 > Monarch Data Prep Studio 2024**. The application displays the *Start Page*, with the Getting Started video automatically running.

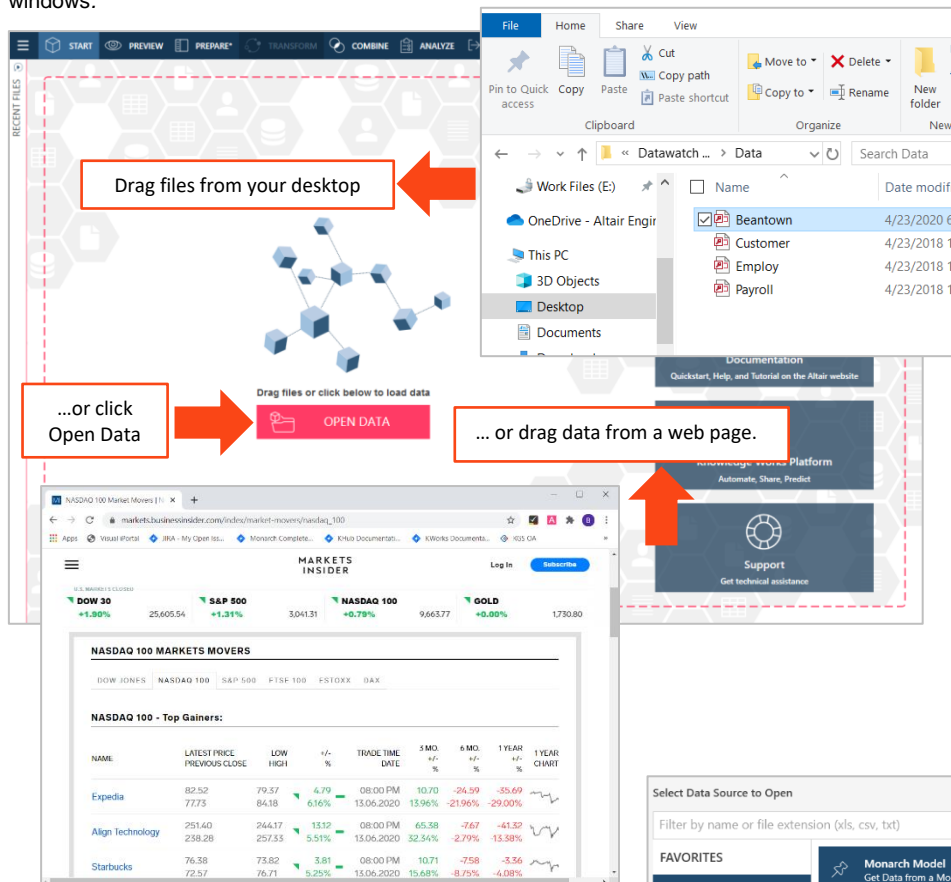
To run Altair Monarch Classic, go to **Start > All Programs > Altair Monarch 2024 > Monarch Classic 2024**.

NOTE: Starting Monarch Complete usually brings you to Data Prep Studio. However, you can switch from one or the other at any time.

WORKING WITH DATA PREP STUDIO

1 ACQUIRE DATA

Click the **Open Data** button to select a file or connect to a data source. You can also load your data directly by dragging and dropping files into the *Start*, *Preview*, *Prepare*, or *Combine* windows.



Altair Monarch Data Prep Studio was designed for ordinary people to do extraordinary things with data. After simply dropping a file onto the prep canvas, your data become instantly available in the form of rows and columns.

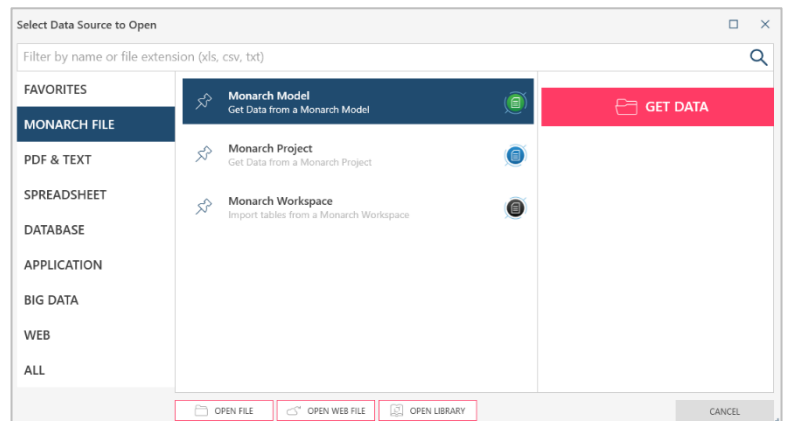
READ MORE

- [Adding Data](#)
- [Working with Data Sources](#)
- [Working with Recent Data Sources](#)

SPECIAL DATA SOURCE? NO PROBLEM.

Altair Data Prep Studio allows you to access almost all types of data, including databases, spreadsheets, and even multi-structured data trapped in existing report files, PDFs, web pages, log files, and much more.

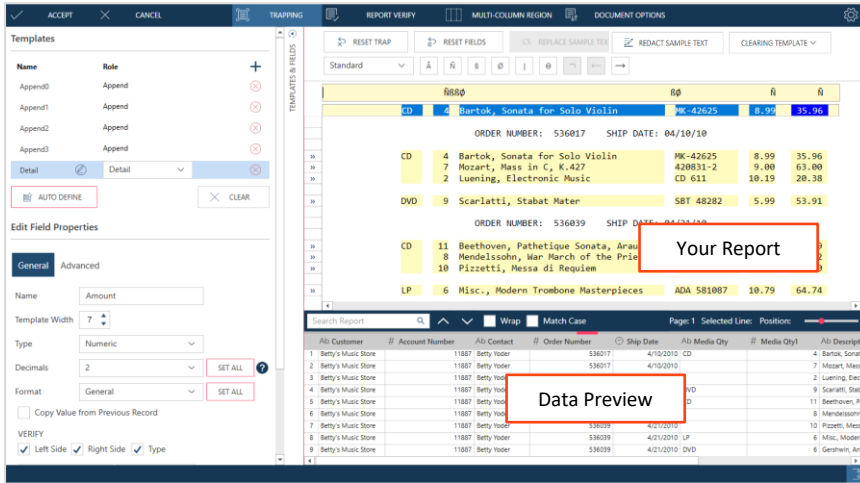
Use any out-of-the-box connectivity tools to connect to all major relational databases, Hadoop, NOSQL, Salesforce, and more.



IS YOUR SOURCE A PDF OR PRN DOCUMENT? CREATE A MODEL FOR IT.

If your source is a document or report (e.g., PDF or PRN), you are brought to the Report Design window. Click the **Auto Define** button to automatically identify the columns and rows of your data source and build a table.

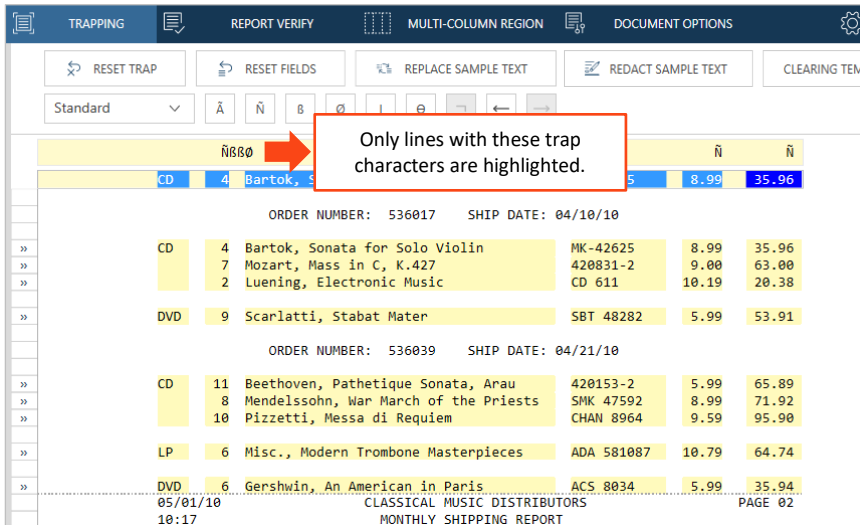
The drag-and-drop feature and powerful Auto Define button of Data Prep Studio make this product different from others. These unique features allow you to automatically identify appropriate rows and columns of data or select only the data you need on screen. With the distinct features of Data Prep Studio, you no longer need scripting skills to prepare your data and access information trapped in PDF reports, log files, JSON, TXT, and more!



READ MORE

- [Working with Report Design](#)
- [Creating Data Extraction Templates](#)
- [Working with PDF Files](#)

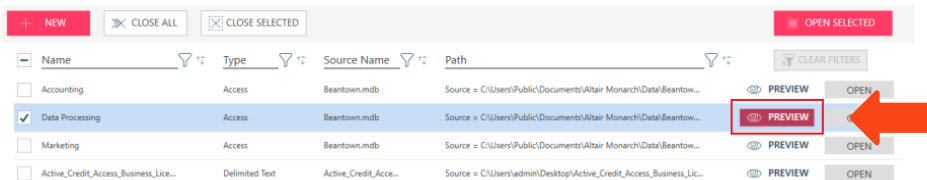
You can also directly trap the fields you want to include on the screen. Preview your table as it gets defined.



This extremely useful functionality is unique to Data Prep Studio. Now you can access the information trapped in reports in various formats, including PDF, JSON, TXT, and more!

2 PREVIEW DATA

After a data source has been selected or a document has been prepared, you are brought to the Preview window.



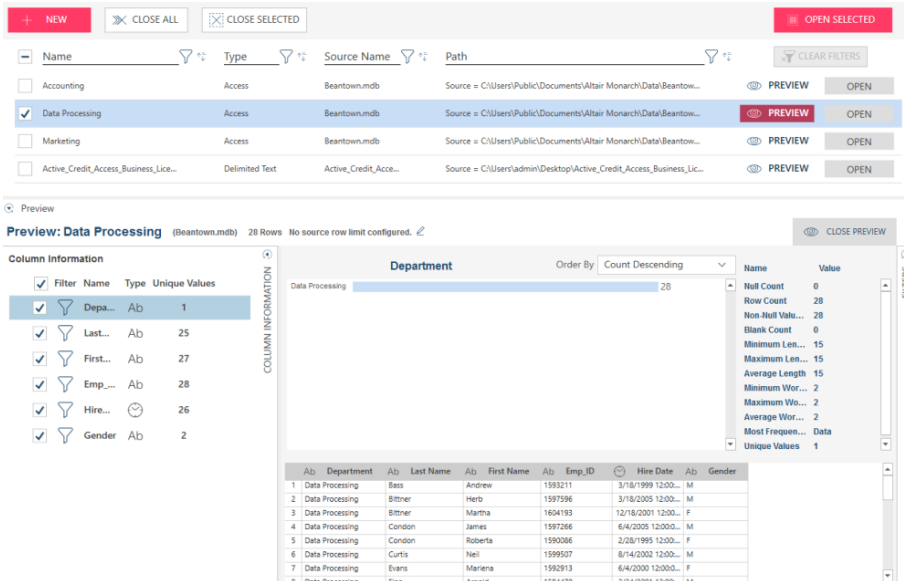
The Preview function allows you to review the information and check the quality of the data before loading these into the Altair Data Prep Studio workspace.

Quickly determine if:

- your table has enough rows for you to work with,
- the column values are meaningful, or
- there are nulls or blanks.

To preview the data found in a table you want to open, click the **PREVIEW** button below the table name.

If your data source is in TXT or PDF format, you can include report metadata when you load your data.



Report metadata refer to information about a report, which includes the following:

- Report File Number
- Report File Name
- Report Page Number
- Report Line Number
- Report Column Number
- PDF Producer
- Report Page Count

Report metadata can help you analyze your data and preserve data lineage.

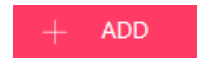
READ MORE

- [Previewing Data](#)

3 LOAD SELECTED TABLES

From the *Preview* window, you can

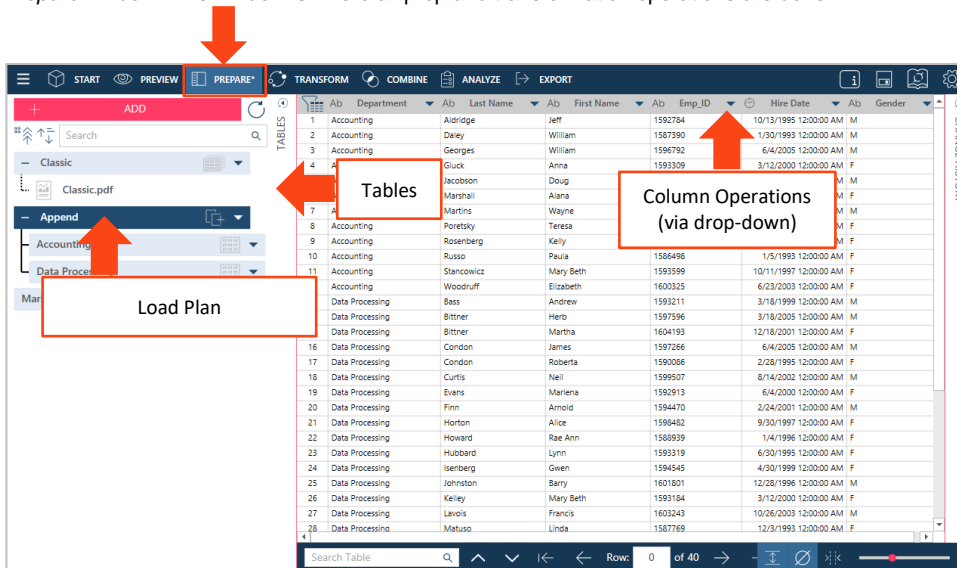
- **Continue adding data to your workspace.** Click on the Add button found in the Preview and Prepare windows.
- **Load your data and perform actual preparation work.** Select the tables you want to work with and then click **Load Selected Tables**.



4 PREP YOUR DATA

START PREPARING DATA

All tables that are loaded, appended, or defined via the Report Design window are made available in the *Prepare* window. This window is where all prep and transformation operations are done.



In the *Preview* window, you can:

- show and review statistics
- edit columns (e.g., change name, format, and data type)
- move, rename, delete, hide, or copy columns
- sort and filter column values
- clean up the data (remove spaces, remove blanks or nulls)
- extract strings
- replace values
- split or combine values

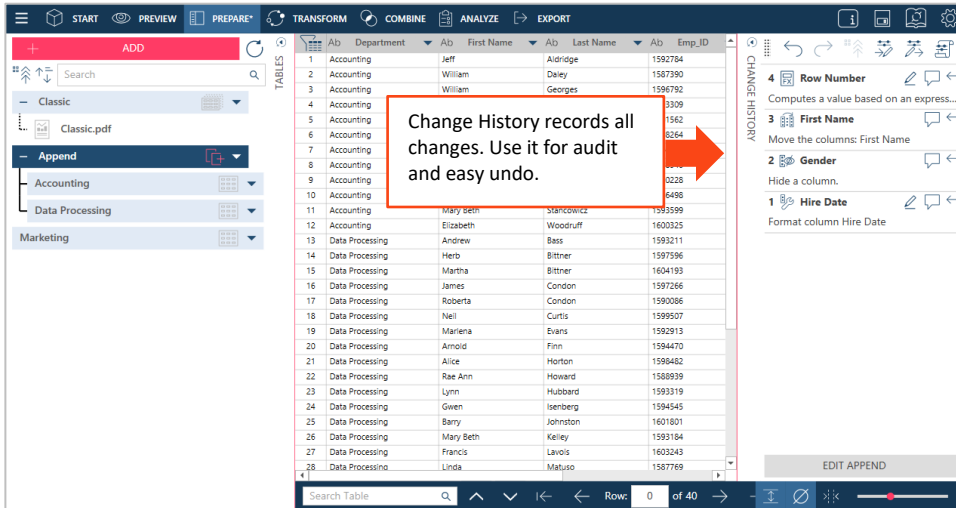
Over 80 pre-built operations and functions are available to transform and manipulate data with mouse clicks. No scripting is needed!

READ MORE

- [Preparing Data](#)
- [Column Operations](#)

From the *Prepare* window, select a table and then work with the columns to prepare them for visualization or analytics.

TRACK CHANGES SO YOU CAN REVERSE THEM OR APPLY TO OTHER TABLES



Monarch Data Prep Studio tracks all prep operations you carry out on a table and records these in a Change History. Use Change History to review and audit all operations. You can also use it to undo any operation(s) you have carried out.

TRANSFORM TO GET A DIFFERENT AND BETTER VIEW.

1. While in the Prepare window, click the  button and select a transform.



2. Do one of the following:

- sort one or more columns
- create summaries by grouping columns
- determine and remove duplicate records
- remove all empty rows
- pivot/unpivot your table to get different summaries
- transpose rows and columns
- flag/remove duplicates

The Transform Data feature allows you to create new tables.

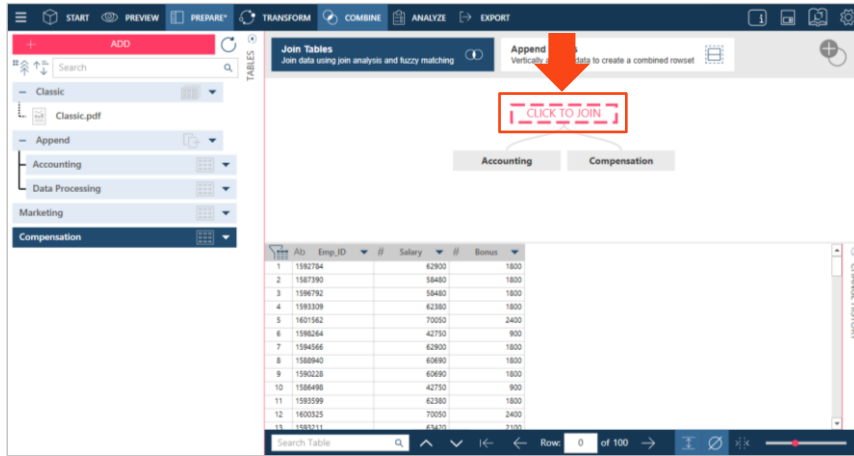
COMBINE AND CONSOLIDATE TO ENRICH YOUR DATA.

1. While in the Prepare window, click on the **COMBINE** button to display the Combine data stage.
2. Do one of the following:
 - Drag a table from the *Table List* panel to the *Drag a Table box*
 - Drop a table from a location on your machine (e.g., from your desktop or local/network drive) to the *Drag a Table box*.
3. Select a second table following the same procedure in Step 2.
4. Select **CLICK TO JOIN** to display the *Join Configuration* dialog.

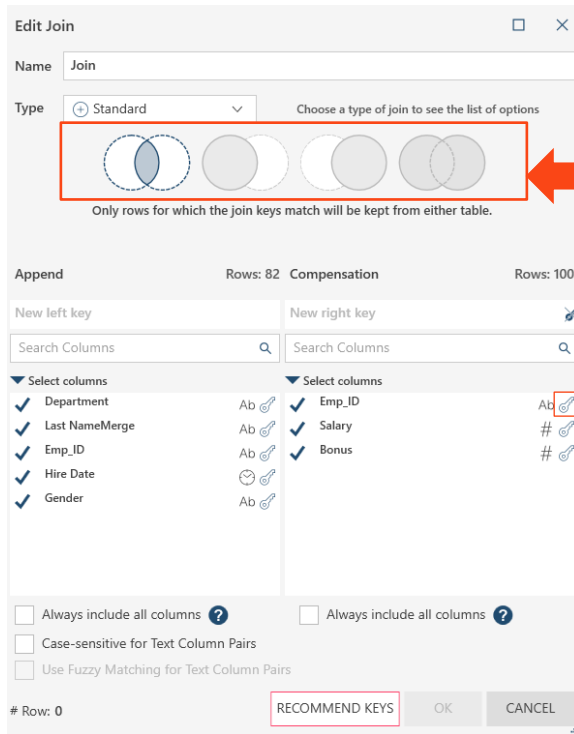
Join disparate data in multiple ways, including left outer, right outer, full outer, and inner joins.

*The **Join Analysis** feature suggests the best way to join data by inspecting the data sets and applying powerful algorithms. You don't need to be a data scientist to do this.*

Monarch Data Prep Studio also supports fuzzy matching, with which you can match key values that are not 100% identical but are similar. For example, you can set fuzzy matching tolerance levels to match Connecticut and Conecticut or Smith and Smyth.



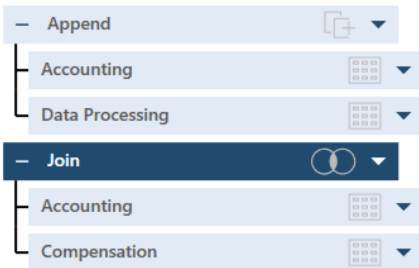
If tables have an identical structure, you can easily append them to consolidate your data. The **Append Helper** is also available to append records even if they are not 100% identical.



Select a join type here

Click on key icons to set columns as join keys.

5. Select a join type and set join fields to complete the definition.
6. Continue to join tables as necessary. You can create multiple join sequences.



Load Plan Visualization provides you with a hierarchical view of all of the operations performed on a table. You can easily view, for instance, the tables that have been used to produce a join result.

READ MORE

- [Joining Tables](#)
- [Using Fuzzy Joins](#)
- [Appending Tables](#)

5 CREATE SUMMARIES FOR DEEPER ANALYSIS

Summaries provide a broader view of your data.

Customer	Media Qty	Description	Amount
1 Betty's Music Store	CD	Bartok, Sonata for Solo Violin	35.96
2 Betty's Music Store	CD	Beethoven, Pathétique Sonata, Arra	65.89
3 Betty's Music Store	CD	Luening, Electronic Music	20.38
4 Betty's Music Store	CD	Mendelssohn, War March of the Priests	71.92
5 Betty's Music Store	CD	Mozart, Mass in C, K.427	63.00
6 Betty's Music Store	CD	Pizzetti, Messa di Requiem	95.90
7 Betty's Music Store	DVD	Gershwin, An American in Paris	35.94
8 Betty's Music Store	DVD	Scarlett, Shabot Matter	53.91
9 Betty's Music Store	LP	Talib, Modern Trombone Masterpieces	64.74
10 Big Shanty Music	CD	Mozart, Symphony No.23 in D	26.97
11 Big Shanty Music	CD	Schoenberg, Ode to Napoleon	57.54
12 Big Shanty Music	CD	Schubert, Sonata in e, D.566	9.00
13 Big Shanty Music	CD	Shostakovich, 24 Preludes for piano.	10.78
14 Big Shanty Music	CD	Shtravinsky, Dumbarton Oaks Concerto	53.94
15 Big Shanty Music	DVD	Hindt, St. Paul's Suite for Orch.	29.99
16 Big Shanty Music	SACD	Blaques-Symphony no. 1	85.31
17 Notas Musicales	BLU	Liszt, Les Preludes	67.13
18 Notas Musicales	BLU	Mozart, Serenata Nottuma	17.95
19 Notas Musicales	CD	Bizet, Carmen	97.02
20 Notas Musicales	CD	Schumann, Sym. Etudes for piano.	71.92
21 Notas Musicales	DVD	Bartok, 4 Origes, piano, Maggipian	10.78
22 Notas Musicales	LP	Greig, Peer Gynt Suites, 1 & 2	62.14
23 Grand Total			1109.09

A summary tabulates information for selected fields and presents the results in a one- or two-dimensional matrix, thereby allowing deeper analysis of your data.

READ MORE

- [Creating Summaries](#)
- [Exporting Summaries](#)

Select the table for which you wish to create a summary and then click **Analyze**.

Edit Summary

Name: Summary | Default style: AaBbCcDd | [EDIT](#) | [PAGE SETUP...](#)

Filter: Default Filter | Title row style: AaBbCcDd | [EDIT](#)

Font: Tahoma | 10

Source Fields: Account..., Amount, Contact, Customer, Descript..., Label/N..., Media, Media... | **Choose fields to add to your summary.**

Rows: [Empty] | **Set styles if you wish.**

Measures: [Empty] | **Choose a measure calculation.** | [ADD COUNT](#)

Columns: [Empty]

Insert total line | Label: Grand Total: | Style: AaBbCcDd | [EDIT](#) | Lines in column title row: 1 | Lines in data rows: 1

Insert: 0 blank lines before total line. | Apply label style to measure columns

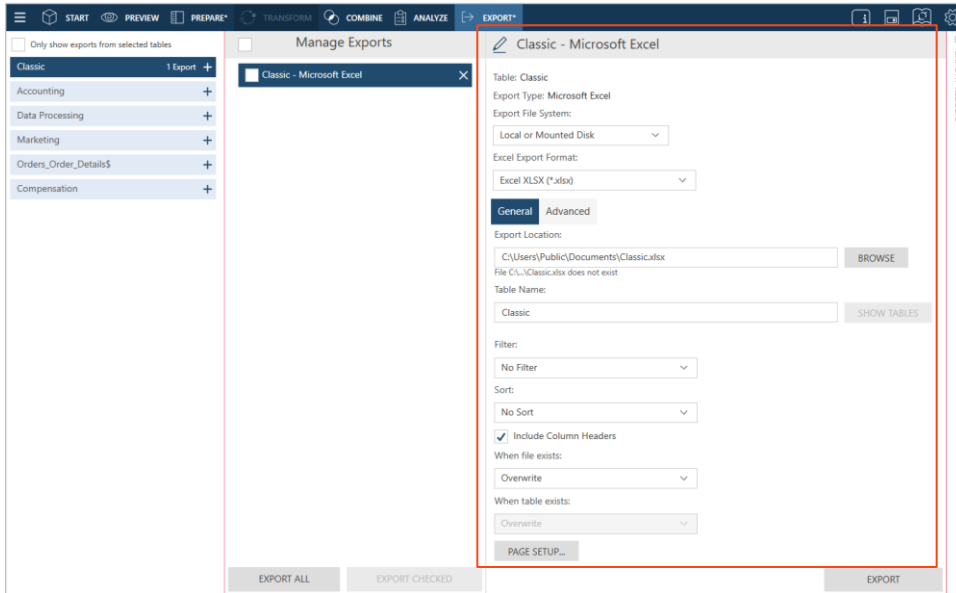
[OK](#) [CANCEL](#)

6 EXPORT

1. Go to the *Prepare* window.
2. Select the table you want to export.
3. Select **Export Data** from the Data Prep Studio toolbar.



4. Select an export format.
5. Specify the path and file names, define export options, and then click Export.



Once you're done preparing your data, you can easily export to many different formats, including Microsoft Power BI and IBM Cognos Analytics, and other Altair products, such as Altair Knowledge Hub, Altair Knowledge Studio, and Altair Panopticon.

READ MORE

- [Exporting Data](#)

Your prepped data are exported, ready to be fed into other applications.

WORKING WITH MONARCH CLASSIC

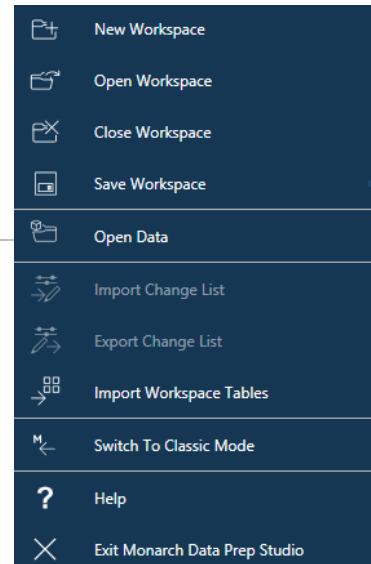
From Data Prep Studio, you can switch to **Monarch Classic** at any time by selecting **Switch to Classic Mode** from the *Data Prep Studio* application menu.

1 OPEN A FILE

Go to **File > Open** to open a file.

Monarch Complete works with both relational and multi-structured data and provides support for a wide range of formats, such as PDF, XML, HTML, text, spool, and ASCII files. Access data from invoices, sales reports, balance sheets, customer lists, inventory, logs, and more.

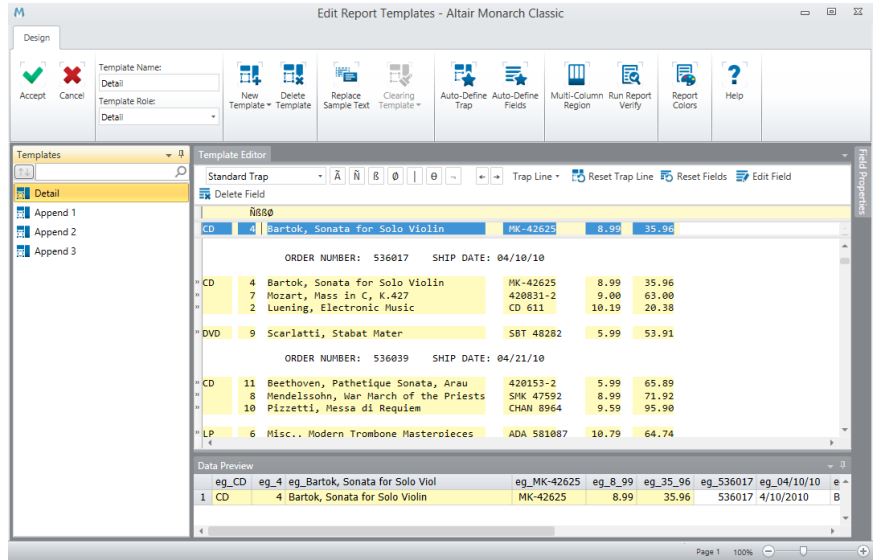
The system is easy to use, allowing you to quickly select any data source and automatically convert it into structured data for analysis.



2 DEFINE DATA EXTRACTION TEMPLATES

After opening a report, Monarch Complete brings you to *Report View*. Switch to *Report Design* view to define *data extraction templates*.

Define traps like you do in *Data Prep Studio Advanced Mode*. When defining traps in *Classic Mode*, you have better control over trapping specific lines because the *Template Editor* allows you to define template levels to match your report hierarchy.



You can also use specialized trapping techniques, including the following:

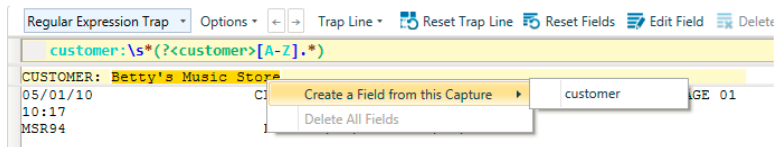
- Floating traps

To trap data that do not have a constant position on the page. For instance, the date and time field in the report below do not have a fixed position.

```
ezvl-30ppp187.epix.net --- [23/Aug/2010:01:13:43--0400] .GET ./images/find.gif :H:
ezvl-30ppp187.epix.net --- [23/Aug/2010:01:13:44--0400] .GET ./images/newdiscuss.
202.112.36.196 --- [23/Aug/2010:01:18:22--0400] .GET ./img/anim_thumbtack.gif :HT:
ezvl-30ppp187.epix.net --- [23/Aug/2010:01:13:45--0400] .GET ./images/spot.gif :H:
ezvl-30ppp187.epix.net --- [23/Aug/2010:01:14:14--0400] .GET ./search/index.html
AC855931.ipt.aol.com --- [23/Aug/2010:01:14:45--0400] .GET ./express/search_1.htm
AC855931.ipt.aol.com --- [23/Aug/2010:01:14:51--0400] .GET ./express/125x30_snpoc
AC855931.ipt.aol.com --- [23/Aug/2010:01:14:49--0400] .GET ./img/anim_thumbtack.g
202.112.36.196 --- [23/Aug/2010:01:18:22--0400] .GET ./img/anim_thumbtack.gif :HT:
202.112.36.196 --- [23/Aug/2010:01:18:22--0400] .GET ./img/anim_thumbtack.gif :HT:
```

- Regular expression traps

To trap data using regular expressions.



You can even use the **Redaction Feature** to replace, or mask out, field values so that only a representation of the field value is displayed and not the actual value.

For example, a credit card number like 1345-8716-4432-7892 in the original report can be displayed as

XXXX-XXXX-XXXX-77892.

Monarch Complete's advanced redaction capabilities allow you to easily and reliably remove or obscure confidential data, such as customer information, medical records, and employee IDs.

```
FACHELBEL, J.
GRIEG, E.
HOLST, G.
ORFF, C.
SCHUMANN, R.
LISZT, F.
BACH, J.S
PAGANINI, N.
HANDEL, G.F
BERLIOZ, H.
SAINT-SAENS, C.
SHOSTAKOVICH, D.
RIMSKY-KORSAKOV, N.
BEETHOVEN, L.v
BERNSTEIN, L.
TCHAIKOVSKY, P.I
WAGNER, R.
BRAHMS, J.

1 MOZART, W.A
2 GERSHWIN, G.
3 CHOPIN, F.
4 MUSSORGSKY, M.
5 RACHMANINOV, S.
6 BRIAN, H.
7 SOR, F.
8 RHEINBERGER, J.G
9 ANGELO, G.
10 ENESCO, G.
11 MOMFOU, F.
12 ISAAC, H.
13 HINDEMITH, P.
14 SOLER, P.A
15 CARULLI, F.
16 SCELZI, G.
17 SESSIONS, R.
18 PENDERECKI, K.

31 WEEBKES, T.
32 GINASTERA, A.
33 BRIDGE, F.
34 BYRD, W.
35 SWEELINCK, J.P
36 MACHAUT, G.d
37 LUZZASCHI, L.
38 DES PREZ, J.
39 BIBER, H.I
40 BRITTEN, B.
41 DAVIES, P.M
42 RAVEL, M.
43 ADAMS, J.
44 JANEQUIN, C.
45 RAMEAU, J.P
46 VERDI, G.
47 BOCCHERINI, L.
48 JOPLIN, S.
```

Easily and reliably remove or obscure confidential data, such as customer information, medical records, and employee IDs, with Monarch Complete's intuitive redaction capabilities. This feature allows you to safely distribute reports to partners and customers, even in heavily regulated industries, such as healthcare and financial services, without compromising customer and employee privacy.

READ MORE

- [Creating Data Extraction Templates](#)
- [Redacting Field Values](#)

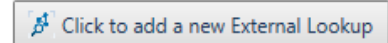
This feature allows you to safely distribute reports to partners and customers, even in heavily regulated industries, such as healthcare and financial services, without compromising customer and employee privacy.

3 TRANSFORM YOUR DATA IN TABLE VIEW

Table View displays fields extracted from a report or imported from a database.

Media	Quantity	Description	Label	Unit Price	Amount	Order No	Ship Date	Contact
1 CD	4	Bartok, Sonata for Solo Violin	MK-42625	8.99	35.96	536017	4/10/2010	Betty Yoder
2 CD	7	Mozart, Mass in C, K.427	420831-2	9.00	63.00	536017	4/10/2010	Betty Yoder
3 CD	2	Lusning, Electronic Music	CD 611	10.19	20.38	536017	4/10/2010	Betty Yoder
4 DVD	9	Scarlatti, Stabat Mater	SBT 4828	5.99	53.91	536017	4/10/2010	Betty Yoder
5 CD	11	Beethoven, Pathetique Sonata, Arau	420153-2	5.99	65.89	536039	4/21/2010	Betty Yoder
6 CD	8	Mendelssohn, War March of the Priests	SMK 4759	8.99	71.92	536039	4/21/2010	Betty Yoder
7 CD	10	Pozzetti, Messa di Requiem	CHAN 896	9.59	95.90	536039	4/21/2010	Betty Yoder
8 LP	6	Misc., Modern Trombone Masterpieces	ADA 5810	10.79	64.74	536039	4/21/2010	Betty Yoder
9 DVD	6	Gershwin, An American in Paris	ACS 8034	5.99	35.94	536039	4/21/2010	Betty Yoder
10 CD	6	Stravinsky, Dumbarton Oaks Concerto	SMCD 512	8.99	53.94	536016	4/5/2010	Marvin Mabry
11 SACD	9	Shubert, Sonata in e, D.566	AD-325	9.00	81.00	536016	4/5/2010	Marvin Mabry
12 CD	3	Mozart, Symphony No.23 in D	CO-77884	8.99	26.97	536016	4/5/2010	Marvin Mabry
13 CD	6	Schoenberg, Ode to Napoleon	CHAN 911	9.59	57.54	536016	4/5/2010	Marvin Mabry
14 CD	2	Shostakovich, 24 Preludes for piano.	CDA 6662	5.39	10.78	536029	4/14/2010	Marvin Mabry
15 SACD	9	Balakov, Symphony no. 1	ENTPO 41	9.59	86.31	536029	4/14/2010	Marvin Mabry
16 DVD	5	Holst, St. Paul's Suite for Orch.	CBT-1020	5.99	29.95	536029	4/14/2010	Marvin Mabry
17 CD	3	Faure, 28 Songs, Stulzmann	RCA 6142	17.98	53.94	536020	4/10/2010	Roberto Gil
18 CD	3	Takemitsu, Music of Takemitsu	SMK 5247	3.60	10.80	536020	4/10/2010	Roberto Gil
19 CD	6	Messiaen, Quatuor pour la fin de temp	CDC 5493	9.60	57.60	536020	4/10/2010	Roberto Gil
20 SACD	8	Strauss, Ein Heldenleben, Op.40	SMSACD-5	8.99	71.92	536020	4/10/2010	Roberto Gil
21 DVD	9	Schumann, Manfred Overture, Bay SO	SBT 4827	5.99	53.91	536020	4/10/2010	Roberto Gil
22 CD	10	Milhaud, 3 Rag Caprices, pn. & orch.	Z-8569	9.60	96.00	536012	4/1/2010	Alain Lebon
23 CD	5	Strauss, Le bourgeois gentilhomme	CDD-448	9.60	48.00	536012	4/1/2010	Alain Lebon
24 CD	5	Scarlatti, Preludes, Op. 8	CY 1123	7.79	38.95	536012	4/1/2010	Alain Lebon

You can go to **Table Design** and select **External Lookups** to combine your data with information from other sources.



Within **Table Design**, you can also select



Functions
User-defined
_WorkingDays_ComputeDaysOffInRange()
_WorkingDays_ComputeNormalWorkingDaysInRange()
_WorkingDays_ComputeWorkingDaysInRange()
_WorkingDays_DatelsWorkingDayInRange()
_WorkingDays_FirstValidDateForWorkingDays()
_WorkingDays_ComputeWorkingDaysInRange()
_WorkingDays_IsValidDateRangeForWorkingDays()
_WorkingDays_IsWorkingDay()
_WorkingDays_LastValidDateForWorkingDays()
Char_XL()
Check_CC()
Check_NHSNumber()

Formula Fields to derive values from existing fields.

Monarch Complete has more than 80 pre-built functions that speed up the transformation of your data into consistent, clean analysis-ready information.

Just select your new data source, set linking columns, and you're all set.

Define as many lookups as you need to consolidate information and enrich your view.

Monarch Classic's **Field List** view allows you to easily keep track of fields. You can set the field alignment, hide fields, or even change the data type.

All changes carried out here are automatically cascaded to all summaries that use the table.

Order	Name	Source	Type	Format	Display Width	Decimals	Size	Alignment	Hidden	Table Verify Results
1	Media	Detail	Character	General	5	0		Left	<input type="checkbox"/>	
2	Quantity	Detail	Numeric	General	8	0		Right	<input type="checkbox"/>	
3	Description	Detail	Character	General	37			Left	<input type="checkbox"/>	
4	Label	Detail	Character	General	11			Left	<input type="checkbox"/>	
5	Unit Price	Detail	Numeric	General	9	2		Right	<input type="checkbox"/>	
6	Amount	Detail	Numeric	General	8	2		Right	<input type="checkbox"/>	
7	Order No	Append 1	Numeric	General	9	0		Right	<input type="checkbox"/>	
8	Ship Date	Append 1	Date/Time	Short Date	11			Left	<input type="checkbox"/>	
9	Contact	Append 2	Character	General	41			Left	<input type="checkbox"/>	
10	Customer	Append 3	Character	General	41			Left	<input type="checkbox"/>	

4 CREATE SUMMARIES

A *summary* tabulates information on selected fields and presents the results in a one- or two-dimensional matrix. Monarch Complete provides options that let you sort the summary, add subtotals, and format your summary report for easier viewing.

In *Summary View*, you can even drill-up or drill-down to focus on specific totals.

	Country	Discount	Amount	
1	France	273.64	2736.08	
2	Germany	171.80	1717.86	
3	Ireland	20.90	209.08	
4	Netherlands			
5	Spain	1	France	
6	UK	2		
7	USA	3		
		4	Subtotal Chez Rudy	
Customer	January-10	February-10	March-10	SUM(Amount)
1 Betty's Music Store	507.64	---	270.93	778.57
2 Big Shanty Music	---	274.49	---	274.49
3 Bluegrass Records	248.17	---	140.84	389.01
4 Canciones	379.14	---	---	379.14
5 Chez Rudy	320.46	470.22	---	790.68
6 Classic Exchange	---	209.08	---	209.08
7 Das Plano	541.14	---	285.91	827.05
8 Die Harmonie	---	164.50	---	164.50
9 Die Melodie	472.83	---	253.48	726.31
10 Fandangos Records	225.88	105.39	74.93	406.20
11 Hope's Sweet Notes	---	661.97	---	661.97
12 Mo Town Tunes	234.99	---	---	234.99
13 Musique du Monde	360.94	472.81	342.82	1176.57

You can create different summaries using the same data to get different views of the information.

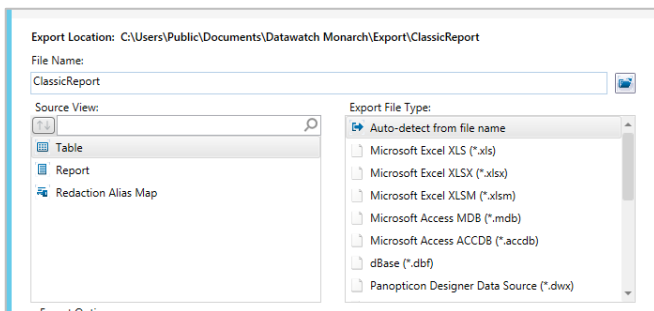
READ MORE

- [Summary View](#)
- [Summary Design](#)

5 EXPORT YOUR DATA

Go to *Export Design* to create and run exports. You can export your report, table, or your summaries (you can export one or all summary levels).

You can export to Excel, Access, DBF, or delimited text.



If you have *Altair Panopticon Designer*, you can export your data to a Panopticon Designer data source for easy visualization.

6 SAVE AND REUSE

Once saved, models and projects can be re-used each time a new version of your report or data become available. Just load the new files and then run your exports again to produce fresh versions of your output.

NEXT STEPS

- Use Monarch Complete's comprehensive documentation to help you prep your data. The Help and Learning Guide files are installed with the product and are available online at <https://help.altair.com/monarch>.
- Explore how self-service data prep and visual discovery can bridge the IT and business gap. Visit the [Altair website](#) or call Altair for more details.