SENTINEL
USER GUIDE
Version 2026

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About this manual

Documents supplied

Complete documentation is provided to help you make optimum use of the full range of resources offered by your software.

The *online help* provides instant access to context-sensitive help.

The *Administrator's Guide* covers the basic concepts to ensure you to get the very most from the software. It is designed to provide effective help for administrators, both first-time and experienced users.

The *User Guide* provides an introduction to using the application. It is designed to get you off to a quick start with the software by familiarizing you with the basic concepts before looking at some of the more advanced functions.

The documentation is designed for use in conjunction with the integrated online help.

User guide

The purpose of this guide is to get you off to a quick start with the software by familiarizing youself with the basic concepts before looking at some of the more advanced features.

The *User Guide* contains six sections covering:

- Module description
- Discovering the **Mapper** module
- Map file definition
- Map file creation

- The **Query Manager**
- **XML** Tutorial

This guide also provides you with workshops allowing you to walk-through several detailed examples designed to help you learn and practice mapfile creation.

This manual provides you with the best way to perform specific tasks. For more detailed information on functionality, step-by-step procedures and reference information, please use the online help.

Typographical conventions

This manual distinguishes between different types of information using the following conventions:

- Terms taken from the interface itself, such as commands, appear in **bold**.
- Keys appear in small caps, for example: ”Press the SHIFT key.”
- Numbered lists mean there is a procedure to follow.
- When the conjunction -or- appears next to a paragraph, it means there is the choice of another procedure for carrying out a given task.

When a menu command contains submenus, the menu name followed by the command to select appear in bold. Thus, ”Go to **File > Open**” means choose the **File** menu then the **Open** command.

This symbol highlights important information on how a particular command or procedure works.

Following this symbol you will find hints and tips for optimizing tasks, speeding up commands, and so on.

CHAPTER 1

Module Description

This chapter covers the following topics:

- The Application Modules
  - Web Manager
  - User Manager
  - The Kernel
  - Sentinel Manager
  - Mapper
  - Query Manager
  - Plug-ins

Some features may be deactivated or unusable depending on the range of the product you're running

The application modules can be classified into three categories depending on their usage in the software.

The first category comprises the kernel module, Sentinel Manager, the user manager and the Web Manager application. All of them are used to create, configure and run sentinels processes. They all come with the application's server installation.

The second category comes included with the workstation installation. It comprises of two applications: The Mapper and the Query Manager. Both are used to preset the configuration files for the defined sentinels by the server.

The third category is the Plug-in modules. Plug-ins are thin application modules dedicated to accomplish one unique task. They perform all the actions a sentinel is configured to do. They are installed by the both the server and designer installations.

The application modules

Web Manager

The Web Manager acts as an interface to the SENTINEL Server over the Internet/intranet. It allows the user to interact with any SENTINEL Server, regardless of its location, via their Internet browser by typing in the web application's address in the browser's address line.

User Manager

The User Manager secures the internet connections to the SENTINEL server, by allowing an administrator to set permissions for application users.

Kernel

Kernel is the core application that manages all other tasks, including launching sentinels and monitoring sentinel activity. If Kernel is closed, all sentinels will be disabled.

Kernel operates as a background task and can be configured to launch automatically when your workstation is started. It is therefore not necessary to open a Windows work session for the application to run.

Once launched from the application program group, the Kernel module appears as an icon on the Windows taskbar.

You can access Sentinel Manager via the Kernel menu.

Step 1 Right-click on the Kernel icon.

Step 2 Choose Sentinel Manager module in the menu.

Sentinel Manager

Sentinel Manager is launched via the Kernel menu and allows you to create, configure, view status, activate and deactivate, view the error log and manage the sentinels that will analyze your datafiles.

Mapper

Mapper allows you to create and configure the mapfiles which will analyze your datafiles. A mapfile describes the structure of the datafiles for analysis and assigns the mapped data to the corresponding variables in the initial document. Mapper is accessed via the application program group or **Sentinel Manager.**

Mapper features an integrated wizard to guide you through the process of creating and configuring mapfiles. See the *User Guide* for a full description of the module and examples of how to create mapfiles.

Query Manager

This application module lets you define queries over different database systems and lets you group them into tasks that can later be invoked by a sentinel through the use of the database process plug-in.

Plug-ins

Plug-ins are independant modules dedicated to perform a very specialized task for a sentinel. Plug-ins are controlled and activated by the kernel module. Four types of plug-ins are available:

- Input plug-ins
- Process plug-ins
- Report plug-ins
- Output plug-ins

CHAPTER 2

Discovering the Mapper

This chapter covers the following topics:

- How Mapper Works
- Launching the Mapper
- Description of the main window
  - Menu bar
  - The toolbar
  - The Tree
  - The workspace
  - The wizard
  - The Status bar
  - Online help
  - Keyboard Shortcuts
  - Changing Display Options
- Changing the work environment
  - Customizing the control variables
  - Defining the test set
  - Converting the workfile

This feature may be deactivated or unusable depending on the range of the product you're running.

How the Mapper works

Before creating sentinels with Sentinel Manager, you must first define the structure of the datafiles to be analyzed by the sentinels. This is done using the Mapper.

Mapper features an integrated wizard to guide you through the process of creating and configuring mapfiles.

Launching the Mapper

You can launch the Mapper by going to:

Start >All apps > TEKLYNX SENTINEL 2022 > Mapper or enter **Mapper** in the Windows Search bar.

Or by clicking on the Mapper icon in your Sentinel Manager.

Figure 1. Mapper icon

Description of the main window

This section presents a general overview of the interface elements as they appear in the main window at the beginning of a worksession. The main window is divided into three areas:

- The tree
- The workspace
- The map creation wizard

Menu Bar

The menu bar comprises six drop-down menus: **File**, **Structure**, **Block**, **Zone**, **Options** and **Help**. Select the function by clicking on the appropriate menu and sub-menu item. Alternatively, you can use the keyboard shortcuts by pressing ALT and the key corresponding to the letter undelined in the menu (or sub-menu) item.

Example:

To access the Save function using the keyboard shortcuts, you would press ALT+F, followed by ALT+S.

The Toolbar

These tools allow you to execute routine tasks more quickly than using the menus. To select a tool, click on the button corresponding to the tool.

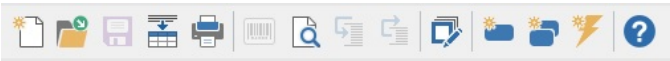


Figure 2 The Mapper toolbar

The Tree

The tree describes the structure of the file as you define it and includes additional information such as the target process used to ease the linkage between the Mapped data and the variables published by the process plug-ins.

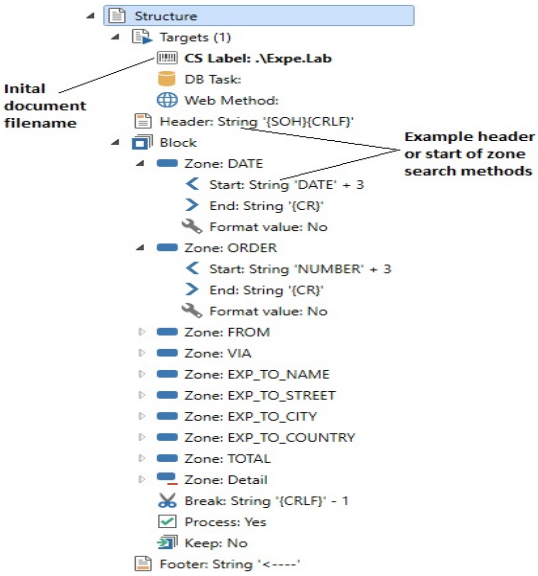


Figure 3 The Tree

The Workspace

The workspace is used to display the workfile and to define its structure. This involves selecting the data zones that you want to retrieve from the datafiles constructed using the displayed datafile as a model. The color coding enables you to distinguish clearly between the different types of elements.

The Wizard

The wizard panel, located in the lower part of the window, is a step-by-step guide to help you through the process of creating mapfiles.

The wizard launches automatically when you create a new map and overrides the application menu commands to ensure you follow the instructions in the correct order.

The wizard panel is made up of two sections: the left pane describes the procedure and the actions to be taken, providing you with detailed information and examples along the way; the right pane is the input area. Use the right pane to enter the different settings necessary to create your mapfile. Once the map is completed, you can close the wizard panel by going to **Options > Show help panel**. Leaving it open, on the other hand, will give you instant access to the information you need.

The Status bar

Located along the lower edge of the window, the Status bar displays the cursor position within the block, the character code selected with the cursor, and the number of characters selected.

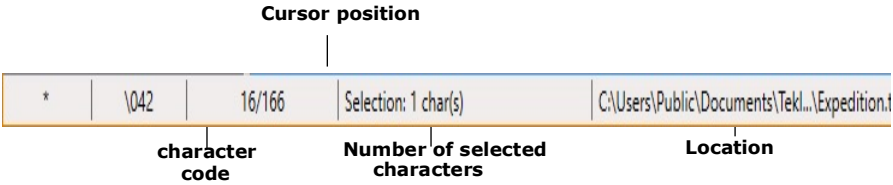


Figure 4 The status bar

Online Help

The online help provides reference information and explanations on procedures. To access the online help, go to **Help > Contents.**

Keyboard Shortcuts

Keyboard shortcuts are a quicker way to carry out routine keystrokes. For a full list of keyboard shortcuts, please see the diagram at the end of this manual.

Changing Display Options

You can customize your interface by changing the language and modifying the color settings, font attributes and wordwrap settings used for displaying you workfile by selecting **Options** from the menu bar.

You can change the color settings used for each type of element in the workfile (header, footer, blocks, zones, etc.), to enable you to distinguish them with greater ease.

Example:

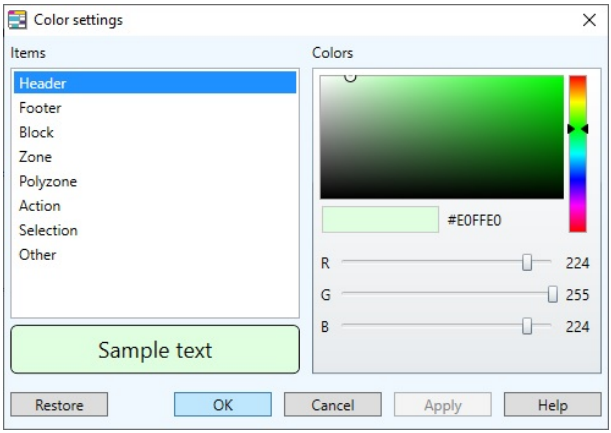


Figure 5 The Color settings dialog box

Step 1 Choose **Options > Display Colors.**

Step 2 Assign a new color to each element as required.

A preview of the selected color can be seen in the **Sample** text box, just below the color palette.

Step 3 Click **OK**.

Changing the work environment

You can assign a number of different names to each control variable. You can also define a test set to validate the map.

Customizing the control variables

Control variables allow you to define how a process plug-in is going to act in regards to the data found in each datafile block. Control variables of the label printing plug-in let you define, for example, the label to be printed, the printer on which to print it, and the quantity to print. The database plug-in only has one control variable (@TASK) which lets you specify the task to be executed. Only one control variable is also given to the web service process plug-in which can dynamically select the function of the web service to call through the @WEBMETHOD control variable.

You can use control variable names to assign control variables to data. In certain cases, particularly when working with polyzones, you must use an alias.

Step 1 Choose **File > Customize control variables**. The *Customization dialog* box appears.

Step 2 Enter the names to be added to the control variables in the **Other names** column.

Step 3 Click **OK**.

For more information on control variables, refer to the help topic entitled The *Control variable customization dialog box*

in the Mapper online help.

Note

Depending on the product version you have installed, some control variables may not be available.

Defining the test set

A test set allows you to run a compliance test on a series of datafiles to ensure the mapfile structure is correct. The test results are displayed in a grid.

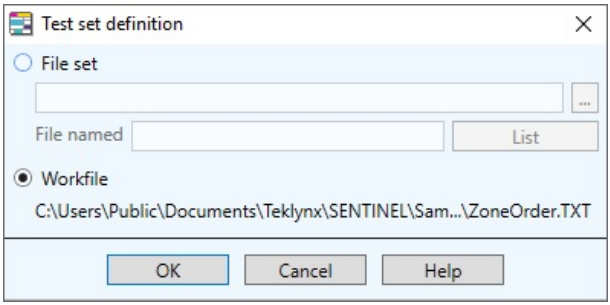


Figure 6 The Test set definition dialog box

Step 1 Choose **File > Define test set.** The *Test set definition dialog box* appears.

Step 2 Check the **File set** option if you want to run tests on files other than the workfile.

Step 3 Enter the access path to the folder containing the files on which you want to run the test.

- or –

Click the browse button and select the folder.

Step 4 Enter all or part of the filename in the **Files named** box. If you want to run the test on a number of files or want to refine your search, use an asterisk ***** to replace the name, a question mark **?** to replace a character, or simply enter the file extension of the files to be tested (e.g. *.TXT).

Step 5 Click **List** to display the list of files to be tested.

Step 6 Click **OK**.

Step 7 Go to **File > Test** to run the test and display the results.

Converting the workfile

The Mapper allows you to convert tabs into spaces, and convert the OEM (ASCII) character set into ANSI to make the workfile easier to read.

You can also use the **Decode file** option to convert a datafile coded in UTF-7, UTF-8, Unicode or Reversed Unicode into a standard Windows text file or the XSF to text file option to convert an XSF file generated using SAP, which is difficult to read, into a simple text file

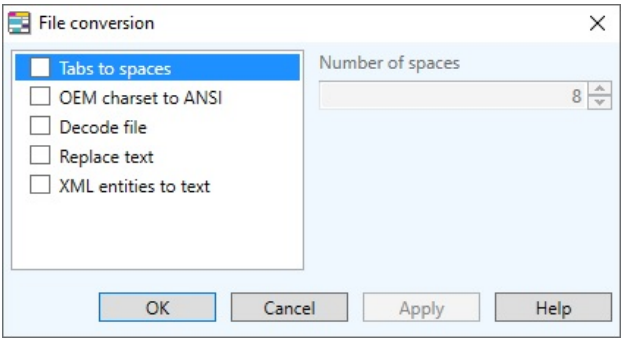
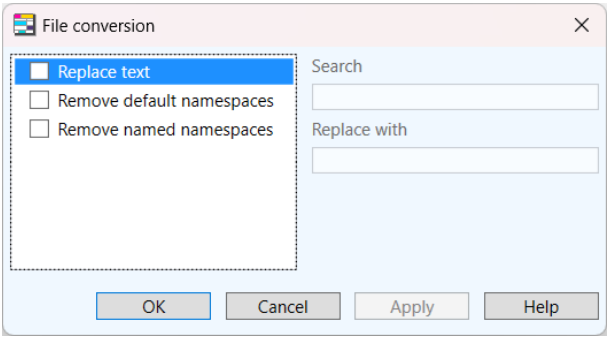


Figure 7 The File conversions dialog box

Step 1 Go to **File > Convert.**

Step 2 Check the required option and insert the correct number of spaces where applicable.

If the workfile is an XML format, File conversion options are different:



Remove default namespaces: removes any default namespace from the XML file by regular expression. The option is especially useful in the case of rich xml documents that use a lot of default namespaces, because the Mapper cannot handle more than one, and as a result any XPath request will be problematic to build.

Remove named namespaces: removes any named namespace from the XML file by regular expression. The option is preferable for the case of an xml document that uses a lot of named namespaces.

Step 3 Click **Apply** to display the result on your workspace then click **OK**.

CHAPTER 3

Discovering Mapfiles

This chapter covers the following topics:

- What is a mapfile
  - Header
  - Block
  - Zone
  - Footer

- Workfile types
  - ASCII Tables
  - Form-type structures
  - Unformatted/Raw data structures
  - Assignment & Table-type Structures
    - Direct assignment
    - Table assignment

What is a mapfile ?

Mapfiles are created using the Mapper. They are used to define datafile structures so that the information in the datafile can be interpreted and processed by the sentinels.

Once created, the map is assigned to one or more sentinels in Sentinel Manager, which uses it as a template for analyzing similar files generated by your system.

Regardless of the type of datafile to be analyzed, Mapper provides a straightforward means of organizing the data you want to retrieve into a hierarchical structure.

Your datafile structure may include a header, footer and any number of blocks. Blocks may be composed of zones, which, in turn, may be substructures of the main structure. The mapfile allows you to define each of these elements with its respective break and search method.

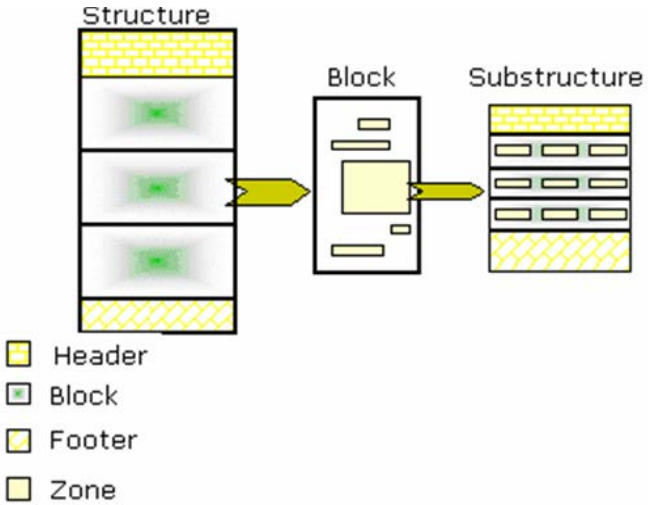


Figure 1 Example datafile structure

Header (optional)

The header is an information zone located at the beginning of the structure. It is excluded from datafile analysis simply by specifying where it ends.

Blocks

Blocks are structured in the same way as the data they

contain. Each block contains a number of data zones used for label printing.

Blocks are used to describe the repetitive sections of the datafile, such as table rows or form pages.

Zones

Each zone contains a data item to be extracted and has a corresponding search method defining its start and end. Mapper will help you locate these zones in each of the blocks at the same level in the hierarchy.

Footer (optional)

The file footer is an information zone located at the end of the structure. It is excluded from data analysis. It is defined simply by indicating where it starts.

File footers are searched from the bottom up of the structure.

The first step in defining the structure involves choosing the template for organizing the data that will be used. The definitions and examples of each type of structure listed below will help you choose the right template.

Workfile types

ASCII table

ASCII table files contain data organized in table format. Each row in the table represents a record.

The wizard will automatically suggest settings for this type of file.

The application supports two ASCII table formats:

- Character-delimited. Data items are separated by commas, semi-colons, or other characters.

- Aligned in columns. The separator is a non-printable character such as a space or tabulation.

```
3684,Aberdeen, Dave,¬"1, Discovery Lane", Aurora,IN,97603⏎
5510,Anderson, Warren,¬"2938, 42nd Street", Aurora,CO,94123⏎
5719,Alland,   John,¬"Pier 43", San Francisco,TX,97603⏎
1913,McFougal, Emerson,¬"1, Discovery Lane", Chicago,IL,81002⏎
2001,Samuelson,Doris,¬"15, State Street", Birmingham,MI,98105⏎
4175,Alland,   Dave,¬"5" Wheels, South Plazza", Berkeley,MI,60542⏎
1909,Aberdeen, John,¬"Time Square", Aurora,CO,94704⏎
2001,Thompson, Dave,¬17 Norfolk Way, Birmingham,CA,81002⏎
1969,O'Hare,   Craig,¬2938 42nd Street, New York,OR,94123⏎
```

Figure 2 Example of a character-delimited ASCII table

M	NGC	Con	RA	Dec	Mag	Size (min)	Typ	Distance	Common Name
1	1952	Tau	05°34.5	22°01	9.0	6 x 4	SNR	6.3	Crab Nebula
2	7089	Aqr	21°33.5	-00°49	7.5	12.9	GCl	36	
3	5272	CVn	13°42.2	28°23	7.0	16.2	GCl	31	
4	6121	Sco	16°23.6	-26°32	7.5	26.3	GCl	7	
5	5904	Ser	15°18.6	02°05	7.0	17.4	GCl	23	
6	6405	Sco	17°40.1	-32°13	4.5	15.0	OCl	2	Butterfly Cluster
7	6475	Sco	17°53.9	-34°49	3.5	80.0	OCl	1	Ptolemy's Cluster
8	6523	Sgr	18°03.8	-24°23	5.0	60 x 35	C/N	6.5	Lagoon Nebula
9	6333	Oph	17°19.2	-18°31	9.0	9.3	GCl	26	
10	6254	Oph	16°57.1	-04°06	7.5	15.1	GCl	13	
11	6705	Sct	18°51.1	-06°16	7.0	14.0	OCl	6	Wild Duck Cluster
12	6218	Oph	16°47.2	-01°57	8.0	14.5	GCl	18	
13	6205	Her	16°41.7	36°28	7.0	16.6	GCl	22	Hercules Cluster
14	6402	Oph	17°37.6	-03°15	9.5	11.7	GCl	27	

Figure 3 Example of an ASCII table aligned in columns

Form-type structure

Form-type structures are composed of data organized into multiple rows. In other words, each record contains a number of rows.

With this type of file, you must select the different data zones you want to retrieve from the datafile one by one.

```
$$
DATE : DEC 22 1999$$
ORDER NUMBER : 45-TVX/862$$
$$
        ITEM                            REF          PIECES WEIGHT  NET(Kg) SHIPPING COST$$
        ---------------------------------------------------------------------------------$$
        MB SocketA AK74-EC VIA KT133    HJ-11442-CD8  1150  375 g    431         539.00 $$
        MB Socket423 6339 850 Pro P4    LP-78512-ER2   850  285 g    242         302.80 $$
        MB Socket370 CA63 EN VIA ATA100 KL-78542-QS2  4220  295 g   1244        1556.10 $$
        $$
        CPU Socket370 800 Mhz           MC-78541-CX1   280   50 g     14          17.50 $$
        CPU Socket370 1 Ghz             MR-45621        50   50 g      2           3.10 $$
        CPU Socket370 733 Mhz           LU-78455-RE4   140   50 g      7           8.70 $$
        ---------------------------------------------------------------------------------$$
                                                         INSURANCE                234.00 $$
                                                         SHIPPING TOTAL          8303.85 $$
$$
FROM :       Colorado Springs Depot$$
FREIGHTER :  US POSTAL SERVICE$$
TO :         Iroshi Group$$
             Chemin de Nareoux$$
             34000 Montpellier$$
             FRANCE$$
```

Figure 4 Example of a form-type file

Unformatted/ raw data structure

Unformatted files contain characters that are not organized into any type of page setup. They are difficult to read and are generally used for automated data processing only.

With this type of file, you must select the different data zones you want to retrieve from the datafile one by one.

```
^XA^MCY^XZ
^XA^LRN^FWN^CFD,24^LH0,0^CI0^PRA^LL639^PON^PMN
^XZ^XA^A0N,36,36^F010,220^CI0^FDSSCC :^FS
^A0N,36,36^F0444,280^CI0^FDEAN N0:^FS
^A0N,36,36^F08,171^CI0^FDCDR 650/74M : 4562H3^FS
^A0N,36,36^F0120,220^CI0^FD331245645645646578^FS
^A0N,41,38^F0581,276^CI0^FD03123456789012^FS
^BY3^F0239,339^BCN,112,Y,N,N^FD>;010312345678901 2^FS
^BY3^F0206,492^BCN,112,Y,N,N^FD>;003312456456456465 78^FS
^PQ1,0,1,Y
^XZ
```

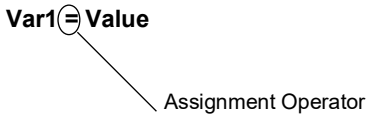
Figure 5 Example of an unformatted/raw data file

Assignment and table-type structure

Assignment and table-type files contain data organized by direct assignment and/or table assignment. With this type of file, only the syntax of the assignments appearing in the file needs to be defined in the Mapper.

• Direct assignment syntax

Each line describing a variable for analysis must begin with a start of assignment delimiter, followed by the variable name, the assignment operator, then the variable value. It must end with an end of assignment delimiter.



• Table assignment syntax

A table assignment datafile groups variables into a table containing two elements:

- A header specifying the variable associated with each column in the table. The header must be enclosed by a start of table header delimiter and an end of table header delimiter.
- A set of values associated with the header variables, enclosed by a start of table delimiter and an end of table delimiter.

Data processing will take place for each row of the table.

The variables listed will either be control variables of a process plug-in or variables involved for data processing.

The advantage to this type of structure is that it can provide dynamic analysis for a sentinel. For example, with such a configuration, the same sentinel is able to analyze files that can be have differences between them as they could define labels with a different number of variables and with different names.

Mapper features map and zone creation wizards to guide you through the entire structure definition process.

The map creation wizard launches automatically when you select **File > New** to create a new map. It will take you step-by-step through the process of creating your mapfile, displaying instructions and hints to help you during each step.

The zone creation wizard will guide you through the process of creating zones and automatically suggests the best method for locating the zones containing the data to be extracted.

XML

XML is a specification of the World Wide Web Consortium for creating web documents. It provides a flexible way to exchange information between applications and systems as it allows the simultaneous transfer of data and information structure. It is now widespread in very different situations from Electronic Data Interchange (EDI) to web service method calls over the internet/intranet.

XML documents are text documents but they are displayed in the Mapper as a hierarchical structure organized into nodes and sub-nodes with attributes. Blocks of data must be defined by simply indicating the node on which processing should occur. Zones to be set up for the block must then be defined one by one.

CHAPTER 4

Creating a Mapfile

This chapter covers the following topics:

- Creating a mapfile: Basic Techniques
  - The initial document
  - Creating a mapfile
    - Modifying a block
    - Creating zones
      - Creating a simple or structured zone
      - Duplicating a zone
      - Renaming a zone
      - Renaming a structure
      - Creating a polyzone
      - Creating an action
    - Search methods
    - Printing the settings
    - Modifying the settings
    - Creating and modifying an target document

- Creating a mapfile: Advanced Techniques
  - Factors specific to assignment and table files
    - Defining the settings
  - Creating a substructure
    - Creating a zone containing a substructure
      - Zone sorting

Creating a mapfile – Basic Techniques

Creating a mapfile is easy if you follow the mapping wizard's instructions! First, you must locate the datafile you will be using (this will be called your workfile). Then, you must define your file's structure type and categorize the file into blocks and zones. To finish, you must link the zone in your workfile to the variables published by the process plug-ins.

For examples on how to create maps, please see **Appendix B**, at the end of this manual.

Target Processes

Target Process configuration helps you link mapped data with the variables retrieved by the process plug-ins available with your product.

This information does not apply once the sentinels are running as configuration
priority is first given to coded variables in the file (@TASK or @PRINTER) then to the plug-in setting in the Sentinel Manager, and lastly, to the setting in the Mapper's target processes.

Label: The label that will be used to print the mapfile's data. To select a label, double-click on a label entry and browse for the appropriate *.lab* file. If you own a designer version of this software, you can also create a new label or modify an existing label by launching your labeling software from Mapper: Click on label entry (to make it bold), go to **Structure > Create** (or) **Modify initial document**.

Depending on your version of the product, this feature may not be available. Launch the designer apart from the Mapper to create your label if this is the case.

DB task: The task which will be performed by the sentinel on the workfile. To select, double-click on the db task entry and select the check box corresponding to the chosen task.

(Tasks are created, modified or deleted using the Query Manager. See Chapter 5 for more information).

Web Method: The web service function which will call the mapfile's data. To select, double-click on the Web Method entry and choose the desired function. If the listbox is empty click **Add** to browse for a web service and select the method to be used by the Web Service plug-in (see the Administrator's Guide for more details about configuring the Web Service plug-in) .

To preview the data with the label, task or web method applied to it, ensure that the initial document of choice has been selected (it will appear bolded) and go to **Structure > Preview** or click on the **Preview** icon.

Creating a mapfile

Step 1 Launch Mapper from:

Start >All apps > TEKLYNX SENTINEL 2022 > Mapper or enter **Mapper** in the Windows Search bar.

Step 2 Go to **File > New** or click on to create a new mapfile.

The creation wizard launches automatically.

While using the creation wizard, most of the menu commands will be disabled. Only those linked to interface options will remain active.

Step 3 Enter the name and access path of the workfile you will be using or click on the browse button to search for it.

Step 4 Select a conversion or formatting type according to your workfile:

- File conversions
- Wordwrap
- Display font

Step 5 Click on to configure the settings.

Step 6 Enter a mapfile name and its location. By default, the file is saved in the application Maps folder.

Step 7 Select a **Structure** type.

Step 8 Your next steps will depend on the structure type you have selected.

Step 9 If necessary, define a header and footer and configure the appropriate settings by clicking on .

> When defining your block, the **Process** option is checked by default as it is the block break which launches data processing. The **Keep Data** allows you to specify whether the variable values will be in the next block the next label if the corresponding zones are missing.

Step 10 Select the initial document.

Step 11 Click on **Done** and **Finish.**

- **Modifying a block**

Defining a block simply involves specifying where it ends. In principle, the first block begins immediately after the file header and ends at the break you set. If the workfile contains more than one block, this break marks the beginning of the next block. If the workfile contains only one block, it marks the end of the file.

Step 1 Select the block in the tree then right-click to display the context menu.

Step 2 Click **Define.**

The **Block definition** dialog box appears and suggests various search methods.

Step 3 Select the most appropriate search method for locating the break.

Step 4 Once the search method is selected, enter the data that characterizes the break then click **OK**.

You can modify virtually all elements in the structure including the file header, footer and zones.

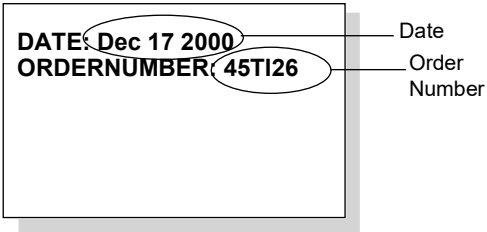
You have now defined the main structure for your workfile. The tree displays the different elements that make up the structure and their associated search methods. You must now define the zones containing the data to be extracted.

- **Creating Zones**

There are three types of zones:

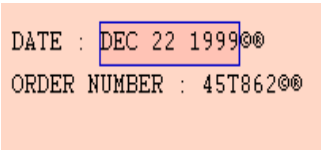
- zone
- polyzone
- action

A zone defines the position of the data to be extracted.



Creating a simple or structured zone

Step 1 Select the data in the workfile using the cursor.



Step 2 Go to **Zone > New zone**.
- or -
Right-click and choose **New zone** in the context menu.
- or -
Click on

The zone creation wizard appears in the lower part of the window.

Step 3 Enter a name for the zone or select the name of the variable in the initial document to which it will be assigned.

Step 4 The wizard will suggest a search method for the zone which you can modify if it does not correspond to the zone you want to create.

The next steps allow you to format the data.

Step 5 Under Zone content, select **Simple data** or **Structured data**.

Step 6 Click on **Finish**.

Simple Data refers to a single piece of data. Ex: a date, a name, etc. **Structured Data** refers to an area that can be sub-divided into simple data zones.

The new zone appears in the tree with its name, start and end of zone search methods, and formatting. The corresponding data is underlined in the workfile.

Duplicating a zone

Step 1 Select the zone in the tree.

Step 2 Choose **Duplicate** in the context menu.
The new zone appears in the tree followed by “copy no. x”.

When the name of the zone you want to duplicate ends with a number, the new zone will end with the same number plus one. For example, Address1 becomes Address2, Row017

becomes Row018, and so on.

When the zone you want to duplicate uses the **String occurrences** search method, the new zone will use the same search method with the number of occurrences plus one. For example, 3 x {CRLF} becomes 4 x {CRLF}, and so on.

When you duplicate a zone containing a substructure, the entire substructure is also duplicated.

Renaming a zone

Step 1 Select the zone in the tree.

Step 2 Choose **Rename** in the context menu.

Step 3 Enter a new name in the box.

Renaming a structure

Step 1 Go to **Structure > Rename**

- or-

Choose **Rename** in the context menu.

Step 2 Enter a new name in the box.

Creating a Polyzone

A polyzone is a zone that may appear a number of times within the same data block. While a zone is associated with a variable defined once, in a datafile, during map creation, a polyzone contains information specifying the name of the variable and the corresponding data which are not specified until file analysis begins.

A polyzone is defined by the following elements:

- A start of assignment delimiter
- An assignment operator
- An end of assignment delimiter.

```
LET FIRSTNAME = "Dave"
LET NAME = "Aberdeen"
LET ADDRESS = "1 Palace Street"
LET CITY = "Portland"
```

Label Variable Data

An action is a zone that launches a process such as selecting a new document or printer or assigning a value to the variable selected.

```
CALL RESET( )
CALL FEED( )
```

Step 1 Select the data in the workfile using the cursor.

Step 2 Go to **Zone > New polyzone**.

- or -

Right-click and choose **New polyzone** in the context menu.

- or-

Click on

The zone creation wizard appears in the lower part of the window.

Step 3 Enter a name for the polyzone.

Step 4 The wizard will suggest a search method and assignment symbol for the zone.

Step 5 Apply any necessary formatting.

The new polyzone appears in the tree with its name, start and end of zone search methods, assignment symbol, and formatting. All sections of the block corresponding to these criteria are underlined.

Creating an action

Step 1 Select the data in the workfile using the cursor.

Step 2 Go to **Zone > New action**.

- or -

Right-click and choose **New action** in the context menu.

- or -

Click on

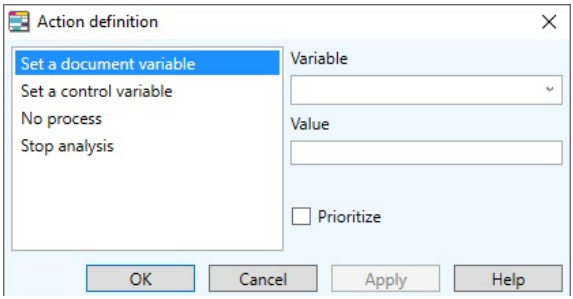


Figure 1 The Action definition dialog box

Step 3 Select an action from the list.

Step 4 Complete the action settings.

Step 5 If necessary, check the **Prioritize*** option then click on OK.

The new action appears in the tree with its name, start of zone, type of action, and settings.

If the same result is obtained by another zone, the **Prioritize** option specifies which one will be applied.

Using a non-prioritized action to assign an existing value may produce a default value if the zone is not found.

- **Search Methods**

Search methods are used to delimit the start and end of a file, block, or zone.

The table below lists the different search methods and their functions.

Search method	How to use
No search	To disable the search for a given element.
Fixed position	The element starts or finishes after n characters.
Character string	The element is located after a fixed text string.
String occurrences	The element is located after the nth occurrence of a fixed text string.
Character from set	The element starts or finishes with the first occurrence of one of the characters from the set.
Character not from set	The element starts or finishes with the first occurrence of a character not from the set.
The zone follows immediately after another one.	The element is located immediately after another zone.
Cascading strings	The element is located immediately after a fixed text string, which is itself located immediately after another fixed text string.

- **Printing the settings**

You can print the settings made. The printout will list all settings in the structure you have just defined.

Go to **File > Print the map settings.**

- **Modifying the settings**

You can modify elements in the structure you have defined directly from the tree.

Creating and modifying a target document

You can launch your labeling software directly from **Mapper** to create or update your initial document. **Mapper** then initializes the list of variables, their lengths and current values. All that remains is to place these variables in your label as text, barcodes or graphics. For more information on creating labels, refer to the documentation that came with your labeling software.

Remember to save the initial document in your labeling software before returning to **Mapper.**

The **Create a document** command is only available if no initial document (.lab) was selected during the map creation process.

The **Create a document** and **Update the document** commands in the **Structure** menu are only visible if a Designer version of your labeling software is installed on your workstation.

To preview the label to be printed ex: the initial document:

Go to **Structure > Preview**

-or–

click on

Creating a mapfile: Advanced Techniques

Factors specific to assignment and table files

Creating a map using an assignment and table file involves defining a number of specific ASCII sentinel settings from the previous version of the application.

- **Defining the settings**

Step 1 Create the structure using the wizard.

A message will appear, informing you that you must define settings in a separate dialog box.

Step 2 Go to **Structure > Specific properties.**

The **Assignment & table** properties dialog box appears.

Step 3 Complete the boxes according to the characteristics of your datafiles.

Creating a substructure

A substructure is simply a structure contained within the main structure and includes data organized in table form or as a list. This data, while included in the same datafile, is used for printing another document. Substructures are treated in exactly the same way as main structures. They are used chiefly in form-type files.

- **Creating a zone containing a substructure**

Step 1 Select the part of the zone that will make up the substructure.

Step 2 Repeat the above procedure for creating a zone until the selection of zone content step.

Step 3 Check **Substructure** as zone content.

This will take you back to the map creation process. You must now define the header, footer, initial document, and so on, of the substructure.

The new substructure appears in the tree and has the default name Structure. To return to the main structure, choose **Structure Up one level** or click on .

Zone sorting

Zone sorting is particularly important for files containing

substructures as the different elements are searched for and/or processed in the order they appear in the tree:

- Analysis of the first zone in the main structure, including its substructures
- Full analysis and substructure(s) data processing
- Analysis of next zone(s) in the main structure
- Processing of the main structure.

If you need to reuse values from a main zone in a substructure it contains, the main zone must appear before the substructures in the tree. If, on the other hand, you want to use zones to define printing settings (printer name, document name, etc.), you must place them after the substructure so that it will not modify their content.

Step 1 Go to **Block > Zone sorting.**

Step 2 Select the zone to be moved.

Step 3 Use the buttons to move it up and down in the list.

Step 4 Repeat the above operation until all zones are in the correct order.

Step 5 Click **OK**.

You can also use the **CTRL** ↑ (up arrow) and **CTRL** ↓ (down arrow) keyboard shortcuts to move zones within the tree.

CHAPTER 5

Query Manager

This chapter covers the following topics:

- Using the Query Manager
- About the tables
  - Creating new table
  - Searching for a record
  - Applying the filter
- About the queries
  - Creating a new query
- About the tasks
  - Creating a new task
- About the Stored Procedures
- Setting an alias
  - Defining an alias
- Setting a fixed value
  - Defining a fixed value

This feature may be deactivated or unusable depending on the range of the product you're running.

The Query Manager is an add-on feature of the SENTINEL Server that lets you define queries and tasks, create new tables, and view stored procedures over your database system. These can be grouped together into tasks that can be executed via the **Database process plug-in**.

Note

You require an additional license for the Database plug-in in order to use it in conjunction with this module. Please contact your reseller to activate this functionality and ensure your database system is supported.

Using the Query Manager

The possibilities on what can be achieved with the Query Manager are endless. The following steps will take you through one example of what can be done:

Step 1 Launch Query Manager by going to:

Start >All apps > TEKLYNX SENTINEL 2022 > Query Manager or enter **Query Manager** in the Windows Search bar.

You can also launch it by clicking on the **Query Manager** icon from **Sentinel Manager**

Step 2 Define a **Datasource**. Go to **File > New Data source**. A list of possible database system providers is shown. Select the one that best corresponds to your database.

Step 3 Depending on the provider chosen, at this step, you will be selecting a **Server Name** from the drop-down menu and/or a **Database Name.** Click **Refresh**.

Step 4 Test the connection and click **OK**

Depending on the provider selected, a different configuration may be required from that which is listed above.

Step 5 Enter a name for the new datasource.

Expanding the datasource will show any Tables, Queries and Stored Procedures belonging to the database. New tables and queries can be created using the Query Manager; however, Stored Procedures cannot.

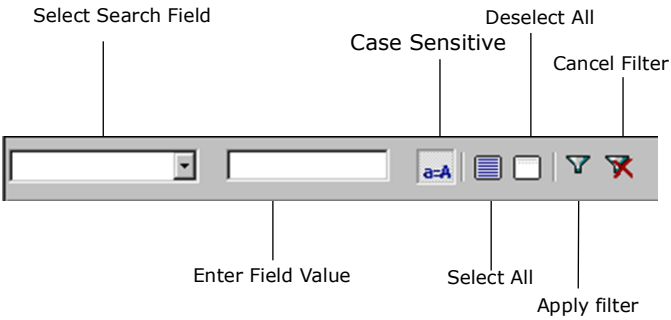
Once a datasource has been created, tables and queries must be defined in order to retrieve information and populate the defined table and database.

About the tables

Once you have defined a datasource from the list available and a database, any tables already present in the database will be displayed. If they are not, expand the list of tables by double-clicking on **Tables** or on the x to the left of the list.

Double-clicking on a chosen table will display its contents in the right-hand window. Click on to view the structure of the table detailing each field, the type of parameter, the paramenter length.

The structure can be changed by the user. Click on to view the data in the table.



The toolbar displayed above the table data can be used to search a specific record in a table or to define a filter so that only information matching the filter is displayed.

Creating a new table

Step 1 Create a table by right-clicking on **Tables** and selecting New...

Step 2 Click on to show the table structure.

Step 3 Enter all the fields you would like to add, their character type, length, and other details. Scale refers to the number of placeholders following a decimal (entering 2 = 1.00).

Example:

Table: test_table example

Name	Type	Length	Scale	Allow Nul	Unique
Nom	VarChar	200		Yes	No
Prénom	VarChar	200		Yes	No
Adresse	VarChar	200		Yes	No
Ville	VarChar	200		Yes	No

You can populate your fields manually by clicking on and entering the data corresponding to each field.

Remember to click **Apply** to save any changes you have made.

Searching for a record

Step 1 Select a field from the **Select Search Field** drop-down menu.

Step 2 Enter the information you want to find in the **Enter Field Value** field.

Step 3 To make the search case sensitive, leave the button un-clicked. Having the a=A button in the clicked-down position will make the search NOT case sensitive (the button will have a lighter color appearance).

The first matching record will be highlighted in the list. View the next matching records, one-by-one, by pressing the ENTER key on your keyboard.

Applying a filter

Step 1 Click on to apply a filter

A dialog window will pop up.

Step 2 Field tab: Select the fields you want to see and click on the right-arrow to move it to the right-hand side of the window (Ordered fields). Use the up/down arrows to move a field up or down the list.

Step 3 Filter tab: Set a condition on your filter by chosing one or more fields, selecting an operator, searching by specific values and setting a logical operator to narrow down a search using as many search criteria as you'd like.

Step 4 SQL Query tab: Use this option to manually write the filter's SQL statement by clicking the **Modify the query in SQL Language** check box.

About the queries

Queries allow the automatic inserting, updating or deletion of records or data received by the sentinel's input plug-in into a pre-defined table.

Creating a new query

Step 1 Right-click on **Query** and select **New.**

There are 3 types of query: **Insert** - to insert data into a predefined table, **Update -** to update or modify data into a pre-defined table, and **Delete -** to delete data into a pre-defined table.

Step 2 Go to **Query type** and select **Insert** and select the table you want the information to go into from the **into table** drop-down list.

A query table is displayed showing:

Name: field name as in the associated table
Type: field's character type
Variable: any name entered here will serve as an alias to the field name
Value: any data entered here will populate this field in all instances

Step 3 Select the fields that will be used at the query level.

All non-selected fields will be set to **NULL** value.

At the bottom, the edit textbox lets you see the SQL query you are building.

Step 4 Click on **Edit** to manually make any modifications.

If you choose to work with **Update** and **Delete** queries, you will have to define a WHERE statement in order to identify which records to work on. For this, you must:

Step 1 Select a field name.

Step 2 Define a condition by choosing one of the available operators. The condition can be done by pro-

viding either a fixed value or a variable. Once executed, the variable will receive a value from the incoming data stream, either through the use of a direct assignment or through a mapped zone.

Like with the Stored Procedures, parameters in Queries can be given an alias by inserting an alternate name in the **Alias** field of the query table. An alias given at the query level will affect all tasks linked to the query.

About the tasks

A task associates queries and/or stored procedures to each other in order to perform a set function. At execution, when data processing is requested, the database plug-in calls the specified task to add/update/delete records and/or execute stored procedures onto your database systems. A task can be specified via the control variables (@TASK), the Database Process plug-in settings or using the mapfile's target process. If all three options have been defined, priority is given to the control variables first, to the plug-in configuration second, and to the mapfile last.

Creating a task

Step 1 Right-click on **Tasks** and select **New.**

Step 2 Select a **datasource** and **query** or **stored procedure** from the drop-down lists in the fields and click **Apply**.

Add as many datasources, queries or stored procedures as necessary to a task in order to perform the desired function.

The query or stored procedure chosen will be displayed on the lower half of the screen. Here, an alias can be created, for example, to match the query or stored procedure field names to the field names in the label by entering a new name under **Alias.** Remember to select the field, first, by clicking in the checkbox and clicking **Apply**, once finished, to save your changes.

An **SQL Statement** can be seen at the bottom of the window

detailing the query as stated. To change the query settings manually, click **Edit**. This will block the structure screen and allow manual modifications to the SQL Statement.

Once the task has been created, the list of variables associated with it are shown beside the task name. All the variables will be able addressed during data processing in order to execute the task. These variables will be displayed in the Mapper if the target process for the task is defined.

About the stored procedures

Double-clicking on **Stored Procedures** will expand the list of stored procedures predefined in the database. New stored procedures cannot be created by using the Query Manager.

Setting an alias

Query Manager allows the user to define an alias to replace a database field. This feature is useful on sentinels with multiple process plug-ins. This makes it possible to rename a query (or stored procedure) parameter so that it matches the name of an existing label bariable. Therefore, allowing a zone (from the mapper) to be connected.

Defining an alias

Step 1 Double-click on the chosen **Query** or **Stored Procedure**

Step 2 Insert an alias in the **Alias** column.

Adding aliases at the task level affects the selected task only. Assigning aliases at the query or stored procedure level affects all the tasks connected to that query or stored procedures.

Setting a fixed value

A fixed value can be defined for a specified parameter in a query or stored procedure in order to populate that field with a fixed value.

For instance, a variable called **city** with a fixed value **New York** will populate every **city** field in the label (and/or the

database) with the value **New York**.

Defining a fixed value

Step 1 Double-click on the chosen **Query** or **Stored Procedure.**

Step 2 Insert a value in the **Fixed Value** column.

As with aliases, a fixed value defined at the task level affects the selected task only. Fixed Values assigned at the query or stored procedure level will affect all tasks linked to that query or stored procedure.

APPENDIX A

XML Tutorial

What is XML?

XML (e**X**tensible **M**arkup **L**anguage) is a general purpose markup language much like HTML. XML was designed to describe many different types of data and to facilitate the sharing of structured text and information across the internet. XML supports Unicode, making it possible to communicate in almost every human language. It has the ability to represent various data structures such as records, lists and trees. Most importantly, XML is platform independent, allowing it to be unaffected by technological changes.

How is it used?

XML is used to describe data. It provides a software- and hardware- independent way of sharing data since it is stored in plain text format which makes it easy to use with different applications, to expand or upgrade a system, servers, applications and new browsers. XML can be used to share and exchange data as it allows data to be exchanged between incompatible systems. All sorts of information can be exchanged, using XML, including financial information – even over the Internet.

The XML Structure

XML structure

```
<ROOT_TAG attribute-name= "attribute-value">
   <PARENT_TAG>
      <CHILD_TAG>
         <TAG>
          A start tag and an end tag define an element
            <!-- A COMMENT CAN BE PLACED ANYWHERE-->
         </TAG>
      </CHILD_TAG>
   </PARENT_TAG>
</ROOT_TAG>
```

The Structure

The XML structure and syntax is similar to HTML but stricter in its usage. All documents must contain at least one single tag pair in order to define a root element. A tag pair opens with **< >** and closes with **</ >**. Omitting the closing tag will cause the document to function erroneously or not at all. Tags are case-sensitive and must be nested properly for the XML to work properly. An XML document is made up of **Elements**, **Attributes**, **Text,** and **Comments**.

Data can be stored in child elements or in attributes.

Elements

An element is defined by a start and end tag. The first element of a document is the **root** element. A document can only have one root element; all other elements are descendants of the root element. Elements are related to each other as parents and children. Elements can have different content types (element content, mixed content, simple content, empty content or attributes). When an element is empty, it can be noted as **<tag/>**. In this case, the element ends as soon as it started. It can have an attribute such as **<tag attribute="value"/>**

Attributes

An element can have one or more attributes. They are used to provide additional information about elements and appear in the start tag with the form: **name = "value"**. Attributes cannot contain multiple values nor describe structures. They are more difficult to manipulate by program code and

are not easily expandable for future changes. If you are using **DTD** (**D**ocument **T**ype **D**efinition) to define the legal elements of your XML document, it is important to note that attributes will not be easily tested.

Text

The free text appearing between a start and end tag, but outside of any tag, is the value of the element.

Comment

Text appearing between **<!--** and **-->** is a comment. It is not viewable outside its source code view and is used for reference or other non-critical functions.

What is XPath?

XPath (XML Path Language) is a concise non-XML syntax for addressing portions of an XML document. It is used much like a small query language and provides basic facilities for the manipulation of strings, numbers and Booleans. In addition to its use for addressing, XPath can be used for matching, for example, an element to a pattern. **Sentinel Mapper** uses the XPath syntax to map XML data sources.

XPath:

- Is a syntax for finding information in an XML document.
- Is used to navigate through elements and attributes in an XML document through path expressions and contains a library of standard functions.
- Is a W3C Standard.

The basic XPath syntax is similar to file system addressing with a few small differences:

- Path uses slashes (/), also called forward slash, instead of backslashes (\).
- The result of a query using XPath returns a set of matching items instead of one single item.
- Regarding the **Sentinel Mapper**, depending on its context, a map item localized by an XPath will designate the first match (for zones and Actions), or designate a set of matches (for Blocs and Polyzones).

The Syntax

Expression	Description
element	Selects all child elements of the element
/	Selects from the root element
//	Selects elements in the document from the current element that matches the selection no matter where they are
.	Selects the current element
..	Selects the parent of the current element
@	Selects attributes
*	Matches any element
@ *	Matches any attribute
@ name	Selects the name attribute of the context element
text()	Selects all text element children of the context element
contains(*x*, *x*)	Function returns true if the first argument string contains the second argument string
starts-with(*x*, *x*)	Function returns true if the first argument string starts with the second argument string
(query) [n]	The condition in the square brackets is applied to the result of the query set by the round brackets as opposed to the elements of the document
Last()	Selects the last element in the selection
name()	Returns the name of the element
[n]	Selects the nth element only
[condition]	Selects only the elements that match the condition
Count()	Evaluates the number of elements found by the expression
Id()	Selects elements by their ID
string-length()	Evaluates the number of characters of the evaluated argument
Position()	Evaluates the rank of the evaluated argument
Normalize-space()	Strips start and end whitespaces
Comment()	Designates the list of comments found at that level
(+) (-) (*) (div) (mod)	Numerical operations are supported (add, subtract, multiply, divide, modulus)
(=) and (!=)	To perform equality tests

Sample XML Document

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<LIBRARY>
  <SECTION category="Adult Fiction">
    <BOOK>
      <TITLE lang="fr">Et si c'était vrai, Marc Levy</TITLE>
      <PRICE>29.99</PRICE>
    </BOOK>
    <BOOK>
      <TITLE lang="eng">The DaVince Code, Dan Brown</TITLE>
      <PRICE>19.99</PRICE>
        <!—This BOOK is on the bestseller list -->
    </BOOK>
    <BOOK>
      <TITLE lang="eng">Deception Point, Dan Brown</TITLE>
      <PRICE>19.99</PRICE>
    </BOOK>
  </SECTION>
  <SECTION category="Children's Fiction">
    <BOOK>
      <TITLE lang="eng">Harry Potter and the order of the phoenix, J.K Rowlings</TITLE>
      <PRICE>24.99</PRICE>
    </BOOK>
    <BOOK>
      <TITLE lang="eng">Harry Potter and the half-blood prince, J.K Rowlings</TITLE>
      <PRICE>24.99</PRICE>
    </BOOK>
    <BOOK>
      <TITLE lang="eng">Harry Potter and the Sorcerer's stone, J.K Rowlings</TITLE>
      <PRICE>24.99</PRICE>
    </BOOK>
    <BOOK>
      <TITLE lang="eng">The New Harry Potter box set, J.K Rowlings</TITLE>
      <PRICE>111.99</PRICE>
        <!--Includes BOOK 6-->
    </BOOK>
    <BOOK>
      <TITLE lang="fr">Les Fables de Lafontaine</TITLE>
      <PRICE>9.99</PRICE>
    </BOOK>
  </SECTION>
</LIBRARY>
```

Examples

Path Expression
- Explanation
 -*Result*

LIBRARY
- Select all the child elements of the LIBRARY element
-*SECTION, BOOK, PRICE, TITLE, PRICE*

/LIBRARY
- Selects the root element 'LIBRARY'
-*LIBRARY*

/LIBRARY/*
- Selects all the child elements of the LIBRARY element
-*SECTION, BOOK, PRICE, TITLE, PRICE*

LIBRARY/SECTION
- Selects all SECTION elements that are children of LIBRARY
-*2 SECTION elements (Adult and Children's fiction)*

//BOOK
- Selects all BOOK elements no matter where they are
-*8 BOOK elements*

LIBRARY//BOOK
- Selects all BOOK elements that are children of LIBRARY no matter where they are
-*8 BOOK elements*

//@category
-Selects all attributes that are named category
-*2 CATEGORY elements (Adult and Children's Fiction)*

//TITLE[@*]
Selects all TITLE elements that have an attribute
-*8 TITLE elements*

//BOOK/TITLE | //BOOK/TITLE/PRICE
 -Selects all TITLE and PRICE elements of all BOOK elements
-*16 entries (8 TITLE elements and 8 PRICE elements)*

//TITLE | //PRICE
Selects all the TITLE and PRICE elements in the document
-16 entries (8 TITLE elements and 8 PRICE elements)

/LIBRARY/SECTION/BOOK/TITLE | //PRICE
Selects all the TITLES elements of the LIBRARY/ SECTION/BOOK branch
-16 entries (8 TITLE elements and 8 PRICE elements)

//*
-Selects all elements in the document
-LIBRARY, SECTION, BOOK, TITLE, PRICE

/SECTION[1]
-Selects the first SECTION element
-"Adult Fiction" SECTION

/LIBRARY/SECTION[last()]
-Select the last SECTION that is the child of LIBRARY
-"Children's Fiction SECTION

/SECTION[@category="Children's Fiction"]/ BOOK[4]
-Select the 4th BOOK in the Children's Fiction SECTION
-The New Harry Potter Boxed set

//BOOK[@lang]
-Selects all the BOOK elements that have an attribute named lang
-8 of them

//BOOK [@lang= 'eng']
-Selects all the BOOK elements that have an attribute named lang with a value of 'eng'
-6 of them

/SECTION [PRICE>25.00]/BOOK
-Selects all the BOOK elements of SECTION that have a PRICE with a value greater than 25.00
-2 BOOK elements = "Et si c'etait vrai" &"Harry Potter Boxed Set"

/SECTION[@category="Adult Fiction"]/ BOOK[PRICE>25.00]
-Selects all the BOOK elements of SECTION with a category attribute matching Adult Fiction who's PRICE has a value greater than 25.00
-1 BOOK = "Et si c'etait vrai"

/SECTION/BOOK[4]
-Selects the 4rth BOOK of SECTION
-The New Harry Potter Box Set

(/LIBRARY/SECTION/BOOK)[4]
-Selects the 4th BOOK found by the bracketed query; the whole of the document
-Harry Potter and the Order of the Phoenix

/LIBRARY/SECTION[count(BOOK)=3]
-All SECTION elements of LIBRARY having exactly 3 child elements named book
-"Adult Fiction" SECTION

//*[starts-with (name(), "P")]
-Any element at any level that starts with uppercase'P'
-PRICE

//*[contains (name(), "L")]
-Any element at any level as long as the name contains the letter Uppercase 'L'
-9 elements ... LIBRARY and TITLE

//*[string-length (name())=4]
-Any element at any level as long as the name is 4 characters long
-8 BOOK

//*[position()=2]
-Any element at any level as long as it is in 2nd rank PRICES (8)
-2 comments

/LIBRARY/SECTION/BOOK/comments
-Any comment appearing inside a BOOK element (child of SECTION which is child of LIBRARY)
-1 SECTION, 2 BOOK elements and all

// BOOK [PRICE<10.00]/../@category
-Finds the value of the SECTION that is parent to the BOOK element with a BOOK whose PRICE is less than 10.00
-Children's Fiction

XPATH and the Mapper

Value, Name, Position

When a set of items (elements, attributes or comments) have been selected by a query, you can choose, if you want, to use the **value** of the items (text of elements or value of attributes), the **name** of the items (mostly useful for polyzones) or the **position** of the items.

Example:

The XPath //SECTION[2]/@*[1] selects the first attributes of the second SECTION element found in the document.

- When "Value" is chosen: result is "Children's Fiction"
- When "Name" is chosen: result is "category"
- When "Rank" is chosen: result is "1"

Since variable names starting with a digit are not supported by all Process plug-ins, when the rank is used to locate the variable name of a polyzone, the polyzone name will be used as a prefix. i.e. a polyzone named Items will generate variables named Items1, Items2, etc.

Mapping with XPath

When an XPath defines a map item, the search is applied to the item's container. The XPath to locate blocs is based on its structure and the XPath to locate a zone is based on its bloc.

Using the Library sample in the Mapper, the LIBRARY element automatically becomes the ROOT OF ALL XPath.

If the processing is to be applied to each BOOK element, the XPath syntax to locate blocs can be:

-//BOOK
-/SECTION/BOOK
-SECTION/BOOK
-/*/*
-*/*

It CANNOT be:

-LIBRARY/SECTION/BOOK
-/LIBRARY/SECTION/BOOK

If a zone has to locate the lang attribute of the TITLE element, the XPath syntax can be:

-TITLE/@lang
-TITLE/@* (assuming the lang attribute is always the first attribute)

If a zone has to locate the category attribute of the parent element SECTION, the syntax can be:

-../@category

APPENDIX B

Workshops

The application includes several folders containing sample data and maps designed to help you understand the Mapper and create a mapfile. Each example illustrates a different type of structure.

Non-printable ASCII characters

The workfile may contain characters which do not have a visual representation. Mapper includes a specific font enabling you to display the ASCII CR (\010) and LF (\013) characters as CL RF

Non-printable ASCII characters can be introduced during the wizard process by entering their names between brackets { }. For example: {CR}, {CR ESC LF}.

The non-printable ASCII characters are:

NUL	SOH	STX	ETX	EOT
ENQ	ACK	BEL	BS	HT
LF	VT	FF	CR	SO
SI	DLE	DC1	DC2	DC3
DC4	NAK	SYN	ETB	CAN
EM	SUB	ESC	FS	GS
RD	US	DEL	NULL	

Workshop 1: ASCII table-type structure

This structure is used for extracting data for label printing from ASCII files.

```
 Qty→  Code→    Ref→→HF→  Date→ Weight→  Size (min)→Typ→  Lot→→Product Name$↓
-------------------------------------------------------------------------------------------------------------------$↓
 121→ WD-19H52  TAU-365-FG→05:34→ 22/01/01  9.0→  6 x 4→→SNR→3MHI9245 →Screw 6→4$↓
 254→ PF-70M89  AQR-458-NH   21:33→ 12/02/01  7.5→  12.9→→GC1→3JIP9223→Water pump NIJ78$↓
1542→ RT-52L72  CVN-125-VI→13:42    28/03/01  7.0    16.2→→GC1→8EDF9295→Gazoline Tank S18          $↓
 256→ GT-61N21  SCO-985-CJ→16:23→ 26/01/01  7.5→  26.3          GC1→2ZSC9225→Water Tank D23$↓
 875→ ZE-59G04  SER-121-XK→15:18→  2/05/01  7.0→  17.4          GC1→4SXC9212→Fuel Tank BK45        $↓
2232→ BV-64R05  SCO-782-WL→17:40→ 15/11/01  4.5→  15.0          OC1→6ERT9247→Suspension spring T18X$↓
 412→ VB-64T75  SCO-635-QM→17:53→ 16/11/01  3.5→  80.0→→OC1→2QBK9223→Hydraulic suspension valve R45$↓
 445→ AQ-65D23  SGR-424-SN→18:03→ 24/10/01  5.0→  60 x 35→C/N→8LJI9298→Valve-PLT 90-GAL$↓
 123→ BG-63H33  OPH-385-DO→17:19→ 30/07/01  9.0→   9.3→→GC1→5MLD9275→Tank TLC 456$↓
 789→ CV-62L54  OPH-265-FP→16:57→ 11/06/01  7.5→  15.1→→GC1→2QXJ9274→Tank YUC 236$↓
 225→ ER-67J05  SCT-147-GQ→18:51→  6/12/01  7.0→  14.0→→OC1→3ZMD9273→Valve-TGH 60-GAL$↓
 454→ JN-62D18  OPH-941-HR→16:47→  4/05/01  8.0→  14.5→→GC1→5MDO9272→Suspension Valve T12$↓
 125→ DL-62K05  HER-257-JS→16:41→  7/03/01  7.0→  16.6→→GC1→2CKO9271→Hydractive Compressor RHJ74$↓
 135→ AS-64F02  OPH-365-KT→17:37→ 15/03/01  9.5→  11.7→→GC1→3AMO9270→Air Conditionner AIX24$↓
 785→ GF-70S78  PEG-312-LU→21:30→  4/09/01  7.5→  12.3→→GC1→6SKO9269→Air Conditionner ER456$↓
 212→ KD-66X11  SER-015-MV→18:18→ 10/10/01  6.5→   7.0→→C/N→6QPR9260→Fuel Valve XPD562$↓
 456→ ZC-66G18  SGR-058-PW→18:20→  6/02/01  7.0→  11.0→→C/N→8KDR9263→Fuel pump TJ245$↓
 456→ OL-66S13  SGR-396-OX→18:19→ 12/11/01  8.0→   9.0→→OC1→2WCE9264→Injector XPM-185$↓
 234→ MJ-62W73  OPH-278-IY→17:02→ 23/01/01  8.5→  13.5→→GC1→2QXJ9265→Sparking plug 18/06$↓
 845→ NO-65C14  SGR-274-UZ→18:02→ 23/02/01  5.0→  28.0→→C/N→3SPO9266→Water pump NIJ79$↓
 122→ ME-65K31  SGR-250-YA→18:04→  7/08/01  7.0→  13.0→→OC1→2AMK9267→Gazoline Tank S19$↓
  22→ NU-66J56  SGR-258-TB→18:36→ 22/09/01  6.5→  24.0→→GC1→9SD29268→Water Tank D28$↓
  23→ LS-64K94  SGR-263-RC→17:56→  4/09/01  6.0→  27.0→→OC1→2QXJ9269→Valve-TGH 60-GAL$↓
  24→ MZ-66D03  SGR-825-ED→18:16→ 19/09/01 11.5→   5.0→→→3MHI9270→Tank YUC 236$↓
 852→ IK-14M725 SGR-846-ZE→18:31→ 18/12/01  4.9→  40.0→→OC1→6ERT9271→Suspension Valve T18$↓
8234→ KD-66K94  SCT-879-AF→18:45→ 26/03/01  9.5→  15.0→→OC1→2QXJ9272→Air Conditionner AIX23$↓
```

Figure 1 ASCII table-type datafile

The SILENCO.TXT file is an ASCII table-type file and will serve as our workfile. It represents one of the possible types of files generated for label printing.

Step 1 Launch **Mapper.**

The main **Mapper** window appears.

Step 2 Go to **File > New.**

The map creation wizard will take you step-by-step through the process of creating your mapfile.

Step 3 In the wizard window, enter or select the SILENCO.TXT workfile located in the **Sample Maps > 01 Silenco** folder.

The workfile appears in the workspace.

The → characters displayed in the workspace are the visual representation of the tab character (ASCII 09). The next

step allows you to convert these tabs into spaces.

Step 4 In **Conversions and formatting**, select **File conversions** then click the **Settings** button. Select **Tabs to spaces** then enter 8 as the number of spaces. Click **Apply** to display the result then click **OK**.

Qty	Code	Ref	HF	Date	Weight	Size (min)	Typ	Lot	Product Name$♭
121	WD-19H52	TAU-365-FG	05:34	22/01/01	9.0	6 x 4	SNR	3MHI9245	Screw 6*4$♭
254	PF-70M89	AQR-458-NH	21:33	12/02/01	7.5	12.9	GC1	3JIP9223	Water pump NIJ70$♭
1542	RT-52L72	CVN-125-VI	13:42	28/03/01	7.0	16.2	GC1	8EDF9295	Gazoline Tank S18 $♭
256	GT-61N21	SCO-985-CJ	16:23	26/01/01	7.5	26.3	GC1	2ZSC9225	Water Tank D23$♭
875	ZE-59G04	SER-121-XK	15:18	2/05/01	7.0	17.4	GC1	4SXC9212	Fuel Tank BK45 $♭
2232	BV-64R05	SCO-782-WL	17:40	15/11/01	4.5	15.0	OC1	6ERT9247	Suspension spring T18X$♭
412	VB-64T75	SCO-635-QM	17:53	16/11/01	3.5	80.0	OC1	2QBK9223	Hydraulic suspension valve R45$♭
445	AQ-65023	SGR-424-SN	18:03	24/10/01	5.0	60 x 35	C/N	8LJI9298	Valve-PLT 90-GAL$♭
123	BG-63H33	OPH-305-DO	17:19	30/07/01	9.0	9.3	GC1	5MLD9275	Tank TLC 456$♭
789	CV-62L54	OPH-265-FP	16:57	11/06/01	7.5	15.1	GC1	2QXJ9274	Tank YUC 236$♭
225	ER-67J05	SCT-147-GQ	18:51	6/12/01	7.0	14.0	OC1	3ZMD9273	Valve-TGH 60-GAL$♭
454	JN-62D18	OPH-941-HR	16:47	4/05/01	8.0	14.5	GC1	5MDO9272	Suspension Valve T12$♭
125	DL-62K05	HER-257-JS	16:41	7/03/01	7.0	16.6	GC1	2CKO9271	Hydractive Compressor RHJ74$♭
135	AS-64F02	OPH-365-KT	17:37	15/03/01	9.5	11.7	GC1	3AMO9270	Air Conditionner AIX24$♭
785	GF-70S78	PEG-312-LU	21:30	4/09/01	7.5	12.3	GC1	6SKO9269	Air Conditionner ER456$♭
212	KD-66X11	SER-015-MV	18:18	10/10/01	6.5	7.0	C/N	6QPR9260	Fuel Valve XPD562$♭
456	ZC-66G18	SGR-050-PV	18:20	6/02/01	7.0	11.0	C/N	8KDR9263	Fuel pump TJ245$♭

Figure 3 The file appears as shown above.

Step 5 Enter a map filename. If you do not enter a filename, Mapper will automatically name it for you.

Step 6 Choose the **Table: ASCII delimited or aligned** structure.

Your workfile may contain a header and/or footer. These contain no data relative to label printing or value table headers. The wizard allows you to delimit the header and/or footer to exclude them from data searches.

The following search method used in this example represents only one of several. Others would serve equally as well.

In our example, the header corresponds to the first three rows.

Qty	Code	Ref	HF	Date	Weight	Size (min)	Typ	Lot	Product Name
121	WD-19H52	TAU-365-FG	05:34	22/01/01	9.0	6 x 4	SNR	3MHI9245	Screw 6*4

Figure 4 Header to exclude from data searches

Step 7 Select the **Header** option then click the **Settings** button.

Step 8 To specify that the header ends at the third row, choose **String occurrences**. In **String**, enter {CRLF} then select 3 in **Occurrences**.

The file contains no footer to be excluded.

Step 9 In the **Table format** step, the wizard suggests the **Aligned in columns** format, which it determined automatically.

Step 10 Position and Sizing: the Mapper automatically determines the position and size of the columns. However, you can manually change the sized by clicking in the column and dragging the edge to the left or right to include all data listed in the column.

Step 11 Select the SILENCO.LAB label as your initial document. The initial document is the label you created using your labeling software.

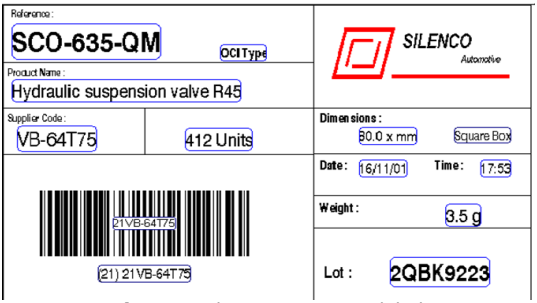


Figure 5 The SILENCO.LAB label

The tree describes the file structure exactly as you have just defined it. You will now need to link the SILENCO.LAB label variables with the zones defined

in the tree.

Step 10 Right-click on each zone and choose **Link to a document variable.**

In our example, zones with the same name as the document variables are linked automatically. Others must be linked manually. These include:

• The HF zone corresponding to the HOUR VARIABLE
• The REF zone corresponding to the REFERENCE variable
• The WEIGHT zone corresponding to the WEIGHT VARIABLE
• The TYP zone corresponding to the TYPE VARIABLE
• The SIZE_MIN_ zone corresponding to the SIZE variables
• The PRODUCT_NAME zone corresponding to the PRODUCT NAME variable.

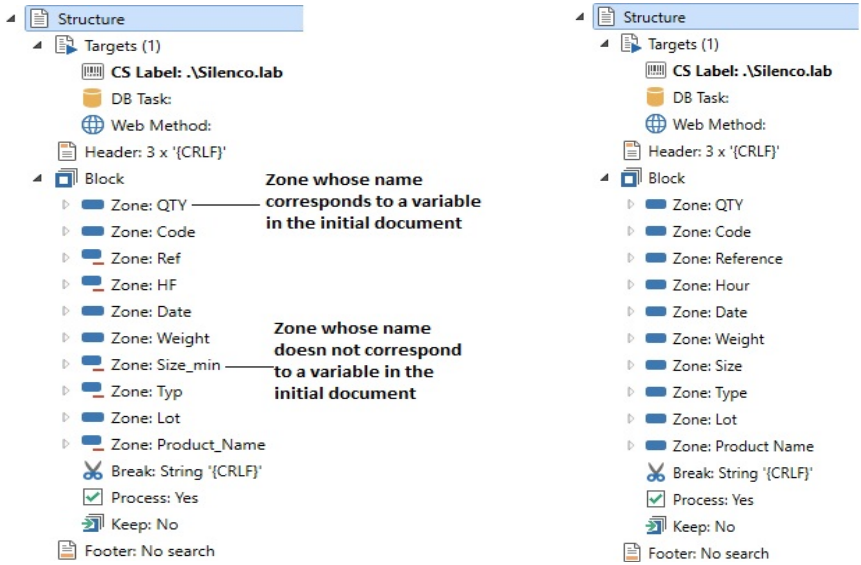


Figure 5 & 6 The tree as originally defined and the tree linked to document variables

Step 11 Click the button to display the result in a label.

Step 12 You can also run a compliance test on your mapfile by going to **File > Test.** The results of the test will be displayed in a spreadsheet.

The map is now complete and is linked to the sentinels you created in the **Sentinel Manager** to analyze files of this type.

Workshop 2: Form-type structures

Let us suppose you want to retrieve datafiles generated by an ERP system to print two labels: EXPE.LAB and EXPESUB.LAB.

Figure 7 The EXPE.LAB label

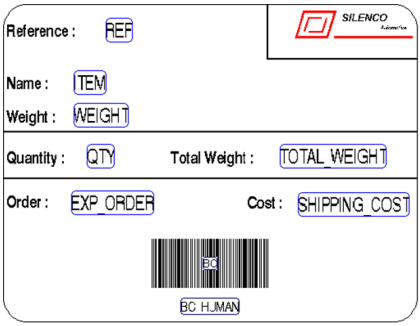


Figure 8 The EXPESUB.LAB label

The EXPEDITION.TXT form-type file will serve as our workfile.

Step 1 Launch **Mapper**.

Step 2 Go to **File > New.**

The map creation wizard will take you step-by-step through the process of creating your mapfile.

Step 3 In the wizard window, enter or select the EXPEDITION.TXT workfile located in the **Sample Maps > 12 Expedition** folder.

```
< PRINTOUT$♦
< Two Samples have been defined for this test file that produce the same result but used$♦
< different methods to define the header , the footer and the limits of the blocs.$♦
< Look at Expedition1.map and Expedition2.map to see the differences.$♦
< EXPEDITION SHEETS$♦
< Salesman : Dave Bowman$♦
<-----------------------------------------------------------------------------------------$♦
****************************** EXPEDITION SHEET ************************************$♦
$♦
DATE : DEC 22 1999$♦
ORDER NUMBER : 45-TVX/862$♦
$♦
→→ITEM→→→→→→    REF→→→ PIECES→WEIGHT  NET(Kg) SHIPPING COST$♦
→→-----------------------------------------------------------------------------$♦
→→MB SocketA AK74-EC VIA KT133→HJ-11442-CD8  1150  375 g    431→     539.00 $$♦
→→MB Socket423 6339 850 Pro P4→LP-78512-ER2   850  285 g    242→     302.80 $$♦
→→MB Socket370 CA63 EN VIA ATA100→KL-78542-QS2  4220  295 g   1244→    1556.10 $$♦
→→$♦
→→CPU Socket370 800 Mhz→→→MC-78541-CX1   280   50 g     14→      17.50 $$♦
→→CPU Socket370 1 Ghz→→→→MR-45621→    50   50 g      2→       3.10 $$♦
→→CPU Socket370 733 Mhz→→→LU-78455-RE4   140   50 g      7→       8.70 $$♦
→→-----------------------------------------------------------------------------$♦
→→→→→→→→→→→→→INSURANCE→→         234.00 $$♦
→→→→→→→→→→→→→SHIPPING TOTAL→        8303.85 $$♦
$♦
FROM :→→Colorado Springs Depot$♦
FREIGHTER :→US POSTAL SERVICE$♦
TO :→→Iroshi Group$♦
→→→Chemin de Nareoux$♦
→→→34000 Montpellier$♦
→→→FRANCE$♦
$♦
$♦
$♦
****************************** EXPEDITION SHEET ************************************$♦
```

Figure 9 The workfile appears in the workspace

The → characters displayed in the workspace are the visual representation of the tab character (ASCII 09). The next step allows you to convert these tabs into spaces.

Step 4 In **Conversion and formatting**, select **File conversions** then click the **Settings** button. Check **Tabs to spaces** then enter 4 as the number of spaces. Click **Apply** to display the result then click **OK**.

```
< Two Samples have been defined for this test file that produce the same result but used$↵
< different methods to define the header , the footer and the limits of the blocs.$↵
< Look at Expedition1.map and Expedition2.map to see the differences.$↵
< EXPEDITION SHEETS$↵
< Salesman : Dave Bowman$↵
<-----------------------------------------------------------------------------------$↵
****************************** EXPEDITION SHEET ***************************************$↵
$↵
DATE : DEC 22 1999$↵
ORDER NUMBER : 45-TVX/862$↵
$↵
        ITEM                            REF          PIECES WEIGHT  NET(Kg) SHIPPING COST$↵
        -----------------------------------------------------------------------------------$↵
        MB SocketA AK74-EC VIA KT133    HJ-11442-CD8  1150  375 g    431         539.00 $$↵
        MB Socket423 6339 850 Pro P4    LP-78512-ER2   850  285 g    242         302.80 $$↵
        MB Socket370 CA63 EN VIA ATA100 KL-78542-QS2  4220  295 g   1244        1556.10 $$↵
        $↵
        CPU Socket370 800 Mhz           MC-78541-CX1   280   50 g     14          17.50 $$↵
        CPU Socket370 1 Ghz             MR-45621        50   50 g      2           3.10 $$↵
        CPU Socket370 733 Mhz           LU-78455-RE4   140   50 g      7           8.70 $$↵
        -----------------------------------------------------------------------------------$↵
                                                                INSURANCE                234.00 $$↵
                                                                SHIPPING TOTAL          8303.05 $$↵
```

Figure 10 The file appears as shown above

Step 5 Enter a map filename. Mapper will automatically assign a mapfile name if you skip this step.

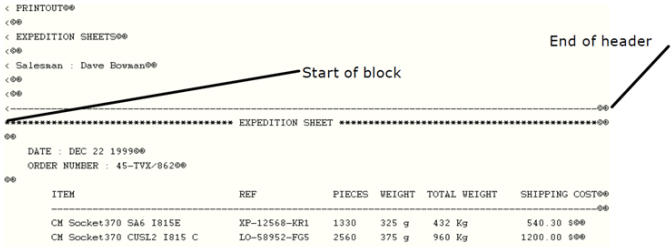
Step 6 Choose the **Form** structure.

Creating the header and footer

Your workfile may contain a header and/or footer. These contain no data relative to label printing or value table headers. The wizard allows you to delimit the header and/or footer in order to exclude them from data searches.

The following search method used in this example represents only one of several. Others would serve equally as well.

In our example, the header corresponds to the first three rows up to the row containing the text EXPEDITION SHEET, which is repeated several times in the file.




```
< PRINTOUT@@
<@@
< EXPEDITION SHEETS@@
<@@
< Salesman : Dave Bowman@@
<@@
<@@
<-----------------------------------------------------------------------------------------@@
************************************** EXPEDITION SHEET ***************************************@@
@@
    DATE : DEC 22 1999@@
    ORDER NUMBER : 45-TVX/862@@
@@
        ITEM                          REF            PIECES  WEIGHT  TOTAL WEIGHT    SHIPPING COST@@
        ---------------------------------------------------------------------------------------@@
        CM Socket370 SA6 I815E        XP-12568-KR1   1330    325 g    432 Kg          540.30 $@@
        CM Socket370 CUSL2 I815 C     LO-58952-FG5   2560    375 g    960 Kg         1200.00 $@@
```

Figure 11 Header to exclude from data searches

There are a number of search methods allowing you to define the file header and footer. In our example, we have chosen to delimit them using a character string.

Step 1 Check the **Header** option then click the **Settings** button.

Step 2 Choose **Character string**. In **String**, enter --- {CRLF} then select 0 in **Offset**.

Step 3 Click **Apply** to display the result.

You must now define the file footer.

```
@@
    FROM : SILENCO International@@
    FREIGHTER : UPS@@
    TO :    Computer Data@@
            4 Rue Victor Hugo@@
            32000 Auch@@
            FRANCE@@
@@
@@
@@
<-----------------------------------------------------------------------------------------@@
< END OF PRINTOUT@@
< PRINTED 3@@
@@
@@
@@
@@
@@
@@
```

Figure 12 File footer

Step 4 Check the **Footer** option then click the **Settings** button.

Step 5 Choose **Character string**. In **String**, enter <----- then select 0 in **Offset**. The search method in a footer counts from the bottom up.

Step 6 Click **Apply** to display the result.

Block definition

In the **Composition** step, the wizard will ask you whether your structure contains more than one block. Browsing through the workfile, you will notice that certain sections contain data for label printing and that these sections are repeated several times. In our example, the blocks are delimited by a row containing the text EXPEDITION SHEET.

Step 1 Check the **The structure contains several blocks** option then click the **Settings** button.

You must now define an end of block. Given the blocks are delimited by the string EXPEDITION SHEET, the simplest way to define the end of block is to search for this character string.

Step 2 Choose **Character string**. In **String**, enter EXPEDITION SHEET then click **Apply**.

You will notice that **Mapper** has selected part of the line containing the text EXPEDITION SHEET as a block. What has happened is that **Mapper** stopped at the first occurrence of EXPEDITION SHEET it found. You thus need to specify that the block ends at the second occurrence of EXPEDITION SHEET.

Step 3 Choose **String occurrences**. In **String**, enter EXPEDITION SHEET then select 2 in **Occurrences**.

Step 4 In order for the end of block to start at the beginning of the row, enter -49 in **Offset** then click on **Apply** to display the result.

```
$♦
FROM :       Colorado Springs Depot$♦
FREIGHTER :  US POSTAL SERVICE$♦
TO :         Iroshi Group$♦
             Chemin de Nareoux$♦
             34000 Montpellier$♦
             FRANCE$♦
$♦
$♦
$♦
****************************** EXPEDITION SHEET ************************************$♦
```

Figure 13 End of Block

Step 5 In the Initial document step, select the EXPE.LAB label as the initial document.

You have now completed the first stage in the process of defining the structure of your mapfile.

The tree describes the file structure exactly as you have just defined it. You must now define the zones containing the data to be extracted.

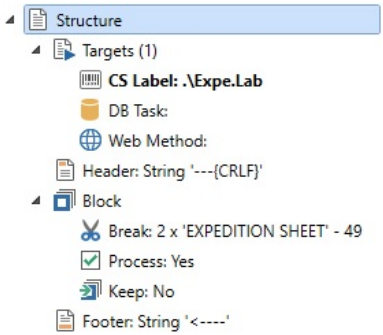


Figure 14 The tree displays the structure

Creating zones

Creating the DATE ZONE

In our example, the first zone to be defined is the one containing the date.

```
DATE : DEC 22 1999©®
```

Step 1 Select the data in the workfile using the cursor.

DATE : DEC 22 1999@@

Step 2 Click on to create a new zone.

The zone creation wizard appears in the lower part of the window.

Step 3 Enter DATE as the zone name or select it in the list of variables.

During the following steps, the wizard will automatically suggest the search method for this zone and allow you to format the data.

Step 4 In the **Zone content** step, check the **Simple data** option then click **Next** to finish the zone creation procedure.

Creating the ORDER NUMBER ZONE

The second zone to be defined is the one containing the order number.

ORDER NUMBER : 45-TVX/862@@

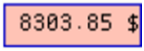
Step 5 Repeat the above procedure for the ORDER NUMBER zone and enter ORDER as the zone name or select it from the list of variables.

A number of other zones corresponding to label variables also need to be defined:

- The SHIPPING TOTAL zone corresponding to the TOTAL VARIABLE
- The FROM zone corresponding to the FROM VARIABLE
- The FREIGHTER zone corresponding to the VIA variable
- The TO zone corresponding to the EXP_TO_NAME, EXP_TO_STREET, EXP_TO_CITY and EXP_TO_COUNTRY VARIABLES.

Creating the SHIPPING TOTAL ZONE

Step 1 Select the data in the workfile using the cursor.



Step 2 Click on to create a new zone.

Step 3 In the **Name** step, select TOTAL from the list of variables.

In the following steps, the wizard will automatically suggest the search method for this zone and allow you to format the data.

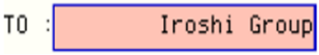
Step 4 In the **Zone content** step, check **Simple data** then click on **Next** to finish the zone creation procedure.

• Repeat the above operation for the FROM and FREIGHTER zones.

Creating multiple zones for the TO field

In your Expe.lab label, the TO field includes the EXP_TO_NAME and EXP_TO_STREET variables. For the TO field, you must create a number of zones.

Step 1 Select the data in the workfile using the cursor.



Step 2 Click on to create a new zone.

Step 3 In the **Name** step, select EXP_TO_NAME from the list of variables.

In the following steps, the wizard will automatically suggest the search method for this zone and allow you to format the data.

In this case, we have selected a zone rather than simply an item of data. It is thus recommended that you delete any spaces before and after the data.

Step 4 In the Data formatting step, select **Delete start/ end spaces** then click on .

Step 5 In the **Zone content** step, check the **Simple data** option then click **Next** to finish the zone creation procedure.

• Repeat the above operations for the EXP_TO_STREET, EXP_TO_CITY and EXP_TO_COUNTRY zones.

Creating a substructure

All that remains is to define a zone which we will call DETAILS. This zone is composed of data organized in a table format that will be extracted to print the EXPESUB.LAB label. The table is a substructure of the main structure and we will treat it in the same way.

	REF	PIECES	WEIGHT	NET(Kg)	SHIPPING COST
ketA AK74-EC VIA KT133	HJ-11442-CD8	1150	375 g	431	539.00 $
ket423 6339 850 Pro P4	LP-78512-ER2	850	285 g	242	302.80 $
ket370 CA63 EN VIA ATA100	KL-78542-QS2	4220	295 g	1244	1556.10 $
cket370 800 Mhz	MC-78541-CX1	280	50 g	14	17.50 $
cket370 1 Ghz	MR-45621	50	50 g	2	3.10 $
cket370 733 Mhz	LU-78455-RE4	140	50 g	7	8.70 $

Figure 14 Details Zone

Step 1 Select the entire zone in the workfile using the cursor.

Step 2 Click on to create a new zone.

Step 3 Enter DETAILS as the zone name then check the **Substructure** option in the **Zone content** step.

Step 4 Next select **Table: ASCII delimited or aligned** as the structure type.

As for the main structure, you must define a header which, in our example, corresponds to the table header.

Creating the header and footer

Step 1 Check the **Header** option then click the **Settings** button.

Step 2 Choose **String occurrences**. In **String**, enter {CRLF} then select 2 in **Occurrences**.

Step 3 Check the **Footer** option then click the **Settings** button.

Step 4 Choose **String occurrences**. In **String**, enter {CRLF} then select 2 in **Occurrences**. To ensure perfect symmetry between the blocks, apply an offset of 2.

Defining the table format

Step 1 In the **Table format** step, the wizard suggests the **Aligned in columns** format, which it determines automatically.

The next step allows you to adjust the columns.

Figure 15 Aligned in columns

Step 2 Select the first empty column, and then click on to delete it.

Step 3 Delete the column containing “g” then widen the WEIGHT column to cover the “g”.

	PIECES	WEIGHT	NET(Kg)	SHIPPING COST
42-CD8	1150	375 g	431	539.00 $
12-ER2	850	285 g	242	302.80 $
42-QS2	4220	295 g	1244	1556.10 $
41-CX1	280	50 g	14	17.50 $

Step 4 Reduce the width of the NET column to the break (kg) then widen the SHIPPING COST column to cover the “$” symbol and the beginning of the title.

Step 5 Select the EXPESUB.LAB label as the initial document.

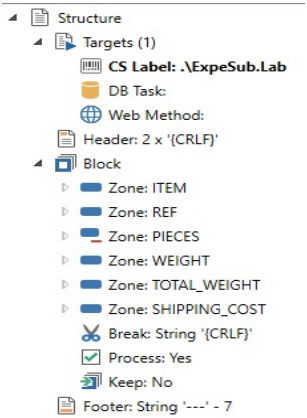


Figure 16 The tree tree displays the structure

The tree describes the file structure exactly as you have just defined it. You now need to link the EXPESUB.LAB label variables with the zones defined in the tree.

Linking document variables

Step 1 Right-click on each zone and choose **Link to a document variable.**

In our example, zones with the same name as the document variables are linked automatically. Others must be linked manually. These include:

- The PIECES zone corresponding to the QTY variable

• The NET zone corresponding to the TOTAL_-WEIGHT VARIABLE.

Step 2 Click on the to display the result.

Step 3 To return to the main structure, choose **Structure > Up one level** or click on .

Step 4 Click on the button to display the result.

The map is now complete and is linked to the sentinels you created in **Sentinel Manager** to analyze files of this type.

Workshop 3: Assignment and table-type structures

DYNAMIC1.TXT is an assignment and table-type file and will serve as our workfile. This is a type of file generated for label printing.

Step 1 Launch **Mapper**.

Step 2 Choose **File > New.**

The map creation wizard will take you step by step through the process of creating your mapfile.

Step 3 In the wizard window, enter or select the DYNAMIC1.TXT workfile located in the **Sample Maps > 21 Dynamic** folder.

```
SENTINEL
-----------------------------------------------------
Label = identity.lab
Printer = Printer1
Quantity = 1

Code = 45456
Name = Cole
FirstName = Warren
Address = 3564 Rockson Avenue
City = Adelaïde
State = ET
Zip = 78977
END

Code = 1564
Name = Dorris
FirstName = Samuelson
Address = 1254 Emile
City = Adelaïde
State = ET
Zip = 78977
```

Figure 15 The file appears as shown above below

Step 4 No formatting conversions are necessary.

Step 5 Enter a map file name.

Step 6 Choose the **Assignment and table (S2 compatible) structure.**

Your workfile may contain a header and/or footer. These contain no data relative to label printing or value table headers. The wizard allows you to delimit them in order to exclude them from data searches.

The following search method used in this example represents only one of several. Others would serve equally as well

In our example, the header ends after the word SENTINEL

```
SENTINEL
--------------------------------------------------------------------------
Label = identity.lab
Printer = Printer1
Quantity = 1
```

Figure 16 Header to exclude from data searches

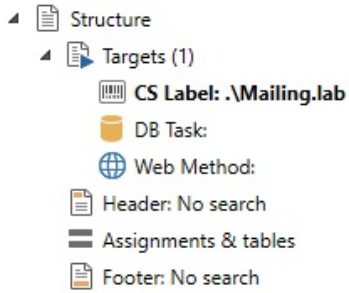
Step 7 Check the **Header** option then click on the **Settings** button.

Step 8 Choose **Character string**. In **String**, enter SENTINEL then click on **Apply** to check the result.

The file contains no footer to be excluded.

The advantage of this type of structure is that it uses the same sentinel to analyze datafiles generated for printing different labels.

Step 9 Click **Next,** then click **Finish**.



Locating the data

The tree displays the file structure exactly as you have just defined it. You must now specify the Delimiters used in the datafile to locate the data to be extracted.

Step 1 Double-click on **Assignment and table** in the tree.

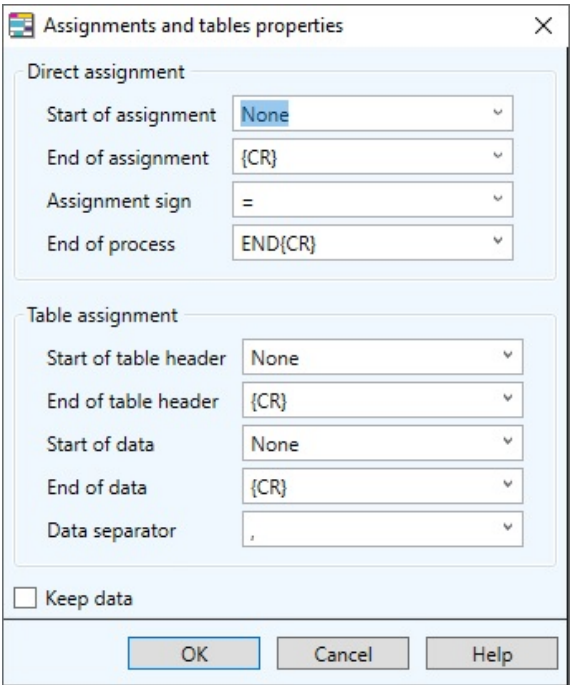


Figure 18 The Assignment and table properties dialog box

Step 2 Complete the dialog box as shown above then click **OK**.

The map is now complete and is linked to the sentinels you created in **Sentinel Manager** to analyze files of this type.

The SAMPLE MAPS folder contains further mapfile examples.

Workshop 4: XML structure

A hospital distribute medication to its patients 3 times a day. The IT system generates an XML file describing each patient's prescription. The pharmacist who controls the distribution must prepare the dosages for each patient to be distributed by a nurse. Each drug must be labeled for tracking purposes.

This structure is set for extracting data for label printing from XML files.

Step 1 Launch Mapper.

The main Mapper window appears

Step 2 Go to **File** > **New.**

The Map Creation Wizard will take you through the a step-by-step process for creating you mapfile.

Step 3 In the wizard window, enter or select the PRE-SCRIPT.XML workfile located in the **Sample Maps > xml Hospital** folder

The workfile appears in the workspace.

Since the structure type has not yet been determined, the Mapper displays the XML file as a text file.

Step 4 Click **Next** to skip the **Conversions and Formats** wizard window as the XML document has been encoded in UTF-8 standard (as shown in the XML workfile header.)

Step 5 Name the mapfile and assign it a location. If you do not name the file or location, a default name and location will be given to your mapfile.

Step 6 Under **Table Structures**, select **XML** and click **Next**.

Once you have selected XML as the structure type, you will notice that the way the workfile is displayed changes. It now resembles a hierarchy. You will notice that the nodes are displayed in black lettering, the node attributes are red and the node text in bolded (black). You can expand the nodes to view the available information.

Step 7 In the **Composition** Wizard window, select the option **The structure contains several blocks**

Step 8 Click **Patient** in your workfile to expand it, then click **Part** and click the settings button in the wizard to set the block.

Step 9 In the XPATH Query field, type **Patient/Part** to set **Part** as the block.

An orange dot will appear next to the assigned block.

Step 10 Click **Next** and **Finish**.

Creating Zones

Creating zones on a workfile allows you to extract data from the workfile and send it to a label or database. Before creating zones, you must select your label.

Step 1 In the tree view, double click on **Label** to open the browse window. Select the **Prescript.lab** file in **Sample Maps > xml Hospital** folder.

Once you've clicked **OK**, you should see the path to your label displayed in the tree view.

Step 2 To create a zone, a data node must be activated in the workfile

Step 3 Double-click **Part** to expand it and view the data.

Step 4 Click **Product** to activate the data.

Step 5 Click the **New Zone** button in your toolbar.

The Zone Wizard opens

Step 6 Select a name for the new zone by clicking on the drop-down menu and selecting it from the list.

Step 7 In the following step, the wizard takes you to the XPATH Query displayed as '@Product'. This means that the Product attribute is in the current node (the Part Block)

The first zone has been created. A green dot appears next to it to show that it is a Zone. Continue setting the zones for this workfile until they have all been created (Name, Room, Form, Posology, Text, ID, Date, Shift, Control).

You will notice, when setting the **Name** zone that **Name** is not available in the drop down list. This is because although the workfile attribute is called **Name**, the associated field in the chosen label is called **Patient**.

When creating zones, notice how the system sets the XPATH query for zones that placed **before the block**. (**...** means that the search must go up one level to find the data or **..\..** to go up two levels). For the zone Text, the suggested query is **Text( )** to indicate that the text must be extracted from the current Part node.

Once all the zones have been created, you can click on the **View Label** button to verify that the zones have been properly created for the selected label.

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