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# Milestone Systems

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XProtect® Transact 2020 R2

Administrator manual



# Contents

<b>Copyright, trademarks, and disclaimer</b> .....	<b>4</b>
<b>Overview</b> .....	<b>5</b>
XProtect Transact (explained) .....	5
XProtect Transact system architecture .....	5
<b>Licensing</b> .....	<b>7</b>
Before you start .....	7
XProtect Transact trial license .....	7
<b>Requirements and considerations</b> .....	<b>8</b>
Compatibility .....	8
<b>Configuration</b> .....	<b>9</b>
Connectors (explained) .....	9
Transaction definitions (explained) .....	9
Transaction events (explained) .....	10
Configuring transactions .....	10
Add transaction source (wizard) .....	10
Transaction sources (properties) .....	11
Create and add transaction definitions .....	12
Transaction definitions (properties) .....	13
Configuring transaction events and alarms .....	15
Define transaction events .....	15
Create alarms based on transaction events .....	16
Set up rules on an event .....	17
Enable filtering of transaction events or alarms .....	18
Verify XProtect Transact configuration .....	19
<b>Maintenance</b> .....	<b>20</b>
Working with transaction sources .....	20
Edit transaction source settings .....	20
Disable transaction sources .....	20

Delete transaction sources .....	20
<b>Troubleshooting</b> .....	<b>22</b>
XProtect Transact (troubleshooting) .....	22
Error messages and warnings .....	22

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## Overview

### XProtect Transact (explained)

XProtect Transact is an add-on to Milestone's IP video surveillance solutions that lets you observe ongoing transactions and investigating transactions in the past. The transactions are linked with the digital surveillance video monitoring the transactions, for example to help you prove fraud or provide evidence against a perpetrator. There is a 1-to-1 relationship between the transaction lines and video images.

The transaction data may originate from different types of transaction sources, typically point of sales (PoS) systems or automated teller machines (ATM). When selecting a transaction line, a video still frame from each of the associated cameras is displayed in a video previewer that allows you to review the recordings. Below the video previewer, the transaction associated with the selected line is displayed as a receipt.

### XProtect Transact system architecture

There are several components in the XProtect Transact communication flow. The input data originates from the video surveillance cameras and the transaction sources providing the transaction data, for example cash registers or ATMs. The transaction data is stored on the event server, whereas the video stream is stored on the recording server. From the servers, the data is passed on to XProtect Smart Client.



Depending on your system, there may be several recording servers.

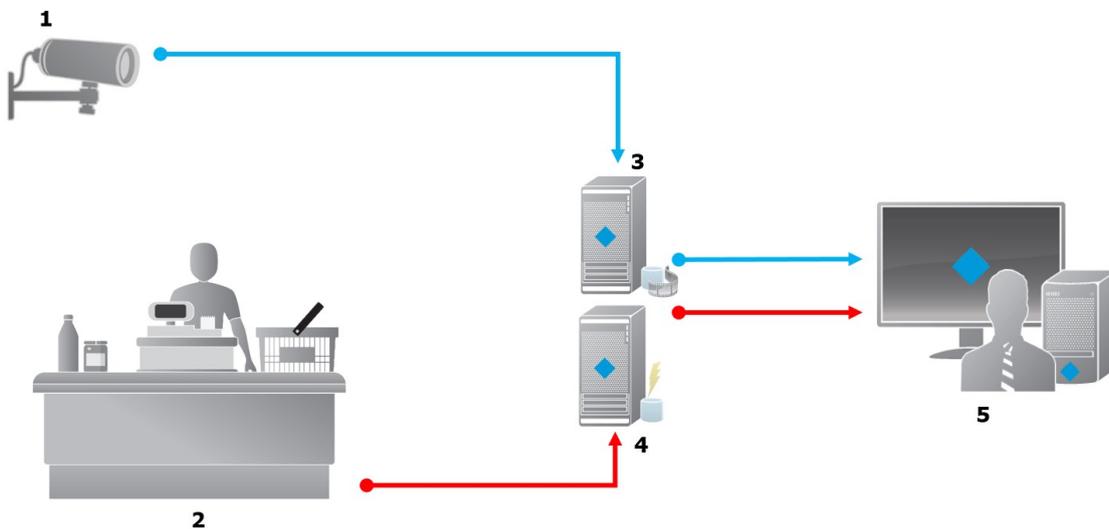


Illustration:

- 1 = Camera
- 2 = Cash register
- 3 = Recording server
- 4 = Event server
- 5 = Smart Client
- The blue arrows outline video recordings from the surveillance system
- The red arrows outline transaction data from the transaction sources

By standard, XProtect Transact supports two types of transaction sources:

- Serial port clients
- TCP server clients

Additional types of transaction sources may be supported through custom connectors developed with the MIP SDK, for example a connector that retrieves transaction data from an enterprise resource planning (ERP) system.

# Licensing

## Before you start

The XProtect Transact functionality is standard in Management Client. When you have activated the base license and transaction source licenses, the features are available immediately.

Before using the XProtect Transact features in XProtect Smart Client, you should verify that:

1. Your base license for XProtect Transact has been activated.
2. You have a transaction source license for each transaction source that you need to monitor. License information is available under the **Basics** node.



If you do not have the sufficient number of transaction source licenses, make sure that you acquire additional licenses before the 30-days grace period expires.

3. Next, configure XProtect Transact. For more information, see [Configuring transactions](#) on page 10.



Even if you have not purchased any XProtect Transact licenses, you can try out XProtect Transact with a trial license. For more information, see [XProtect Transact trial license](#) on page 7.

## XProtect Transact trial license

With an XProtect Transact trial license, you can try out the XProtect Transact functionality up to 30 days. All related features are enabled, and you can add one transaction source, for example a cash register. When the 30 days trial period expires, all XProtect Transact features are deactivated, including the **Transact** workspace and transaction view items. By purchasing and activating an XProtect Transact base license and the transaction source licenses you need, you can use XProtect Transact again, and your settings and data are maintained.

You need to acquire the trial license from Milestone. The system administrator must activate the trial license in the configuration.

For more information about licensing, see [Before you start](#) on page 7.

# Requirements and considerations

## Compatibility

XProtect Transact is compatible with version 2016 R1 or newer of:

- XProtect Corporate
- XProtect Expert

XProtect Transact is compatible with version 2017 R2 or newer of:

- XProtect Professional+
- XProtect Express+

# Configuration

## Connectors (explained)

A connector facilitates import of raw transaction data from the transaction source, for example the ATM, into the event server associated with the VMS.

The built-in connectors available are described in the table:

Name	Description
<b>TCP client connector</b>	Use when the transaction source delivers the transaction data through a TCP server interface. This connector has two settings that you can specify: host name and port number.
<b>Serial port connector</b>	Use when receiving transaction data as input on a serial port on the event server.



Connectors developed through the MIP SDK may also be available.

## Transaction definitions (explained)

A transaction definition is a group of settings that help you control how raw data from the transaction sources are displayed in XProtect Smart Client together with the video recordings. The output is a reader-friendly format that resembles real-life receipts, for example till receipts and receipts from automated teller machines.

More specifically, transaction definitions let you:

- Define when the individual transactions begin and end
- Insert line breaks as required
- Filter out unwanted characters or text strings, for example if the data comes from a printer connection and contains unprintable characters for indicating line breaks, when to cut off a till receipt
- Substitute characters with other characters



You can use the same transaction definition on multiple transaction sources.

## Transaction events (explained)

A transaction event is the occurrence of specific words, numbers, or characters in the stream of transaction data that flows from the transactions sources, for example the cash registers, to the event server. As a system administrator, you need to define what the events are. This allows the operator to track and investigate transaction events in XProtect Smart Client. For each event, a method (match type) must be specified to identify strings in the transaction data: exact match, wildcard, or regular expression.

## Configuring transactions

After activating your XProtect Transact licenses:

1. Add and configure the sources providing the transaction data, for example the cash registers.
2. Specify what defines a transaction, that is, where it begins and ends, including how it should be presented in XProtect Smart Client.



When you are done setting up transaction, you can define transaction events and configure them to trigger rules or alarms. In XProtect Smart Client, operators can investigate transactions based on these events. For more information, see [Configuring transaction events and alarms](#) on page 15.

## Add transaction source (wizard)

To connect data from a transaction source to XProtect Transact, you need to add the sources of the transactions, for example an automated teller machine. In the wizard, you select a connector, and you can connect one or more cameras.



If you do not have a transaction source license for the transaction source you are about to add, the system will work during the 30-days grace period. Make sure that you acquire an additional transaction source license and activate it in due time.

Steps:

1. In the **Site Navigation pane**, expand **Transact**.
2. Go to the Overview pane. Right-click the **Transaction sources** node and select **Add source**. The wizard appears.
3. Follow the steps in the wizard.
4. Depending on the connector you select, different fields appear that you need to fill in. For more information, see [Transaction sources \(properties\)](#) on page 11. You can change these settings after completing the wizard.
5. If the transaction definition you need is not available, click **Add new** to create a new transaction definition.

## Transaction sources (properties)

The settings for transaction sources are described in the table.

Name	Description
<p><b>Enable</b></p>	<p>If you want to disable the transaction source, clear this check box. The stream of transaction data stops, but the data already imported remains on the event server. You can still view transactions from a disabled transaction source in XProtect Smart Client during its retention period.</p> <div data-bbox="354 651 1386 781" style="background-color: #e6f2ff; padding: 10px; border: 1px solid #0070c0;">  <p>Even a disabled transaction source requires a transaction source license.</p> </div>
<p><b>Name</b></p>	<p>If you want to change the name, enter a new name here.</p>
<p><b>Connector</b></p>	<p>You cannot change the connector you selected when you created the transaction source. To select a different connector, you need to create a new transaction source, and during the wizard, select the connector you want.</p>
<p><b>Transaction definition</b></p>	<p>You can select a different transaction definition that defines how to transform the transaction data received into transactions and transaction lines. This includes defining:</p> <ul style="list-style-type: none"> <li>• When a transaction begins and ends</li> <li>• How transactions are displayed in XProtect Smart Client</li> </ul>
<p><b>Retention period</b></p>	<p>Specify, in days, for how long transaction data is maintained on the event server. The default retention period is 30 days. When the retention period expires, automatically the data is deleted. This is to avoid the situation, where the storage capacity of the database is exceeded. The minimum value is 1 day, whereas the maximum value is 1000 days.</p>
<p><b>TCP client connector</b></p>	<p>If you selected <b>TCP client connector</b>, specify these settings:</p> <ul style="list-style-type: none"> <li>• <b>Host name:</b> enter the host name of the TCP server associated with the transaction source</li> <li>• <b>Port:</b> enter the port name on the TCP server associated with the transaction source</li> </ul>
<p><b>Serial port connector</b></p>	<p>If you selected <b>Serial port connector</b>, specify these settings and make sure that they match the settings on the transaction source:</p>

Name	Description
	<ul style="list-style-type: none"> <li>• <b>Serial port:</b> select the COM port</li> <li>• <b>Baud rate:</b> specify the number of bits transmitted per second</li> <li>• <b>Parity:</b> specify the method for detecting errors in the transmissions. By default, <b>None</b> is selected</li> <li>• <b>Data bits:</b> specify the number of bits used to represent one character of data</li> <li>• <b>Stop bits:</b> specify the number of bits to indicate when a byte has been transmitted. Most devices need 1 bit</li> <li>• <b>Handshake:</b> specify the handshaking method determining the communication protocol between the transaction source and event server</li> </ul>

## Create and add transaction definitions

As part of defining a transaction source, you specify a definition for the source. A definition transforms the raw data received into presentable data, so that users can view the data in XProtect Smart Client in a format that matches real-life receipts. This is necessary, because typically the raw data consists of a single string of data, and it can be difficult to see where the individual transactions begin and end.

Steps:

1. In the **Site Navigation pane**, expand **Transact**.
2. Select **Transaction definitions**.
3. Go to the Overview pane. Right-click **Transaction definition** and select **Add new**. A number of settings appear in the **Properties** section.
4. Use the **Start pattern** and **Stop pattern** fields to specify what data defines the start and end of a receipt.
5. Click **Start collecting data** to collect raw data from the connected data source. The more data you collect, the smaller the risk of missing characters, for example control characters, you want to replace or omit.
6. In the **Raw data** section, highlight the characters you want to replace or omit. If you want to enter the characters manually, skip this step and click **Add filter**.
7. Click **Add filter** to define how the selected characters from the transaction source data are displayed in XProtect Smart Client.
8. For each filter, select an action to determine how the characters are transformed. The **Preview** section gives you a preview of how data is presented with the filters defined.



You can also load previously collected data stored locally on your computer. To do this, click



**Load from file.**

## Transaction definitions (properties)

Name	Description
<b>Name</b>	Enter a name.
<b>Encoding</b>	<p>Select the character set used by the transaction source, for example the cash register. This helps XProtect Transact convert the transaction data to understandable text that you can work with when configuring the definition.</p> <p>If you select the wrong encoding, the data may appear as non-sense text.</p>
<b>Start collecting data</b>	<p>Collect transaction data from the connected transaction source. You can use the data to configure a transaction definition.</p> <p>Wait for at least one, but preferably more, transactions to complete.</p>
<b>Stop collecting data</b>	When you have collected sufficient data to configure the definition, click this button.
<b>Load from file</b>	<p>If you want to import data from an already existing file, click this button. Typically this is a file that you have created previously in the file format .capture. It can be other file formats. What is important here is that the encoding of the import file matches the encoding selected for the current definition.</p>
<b>Save to file</b>	If you want to save the collected raw data to a file, click this button. You can reuse it later.
<b>Match type</b>	<p>Select the match type to use to search for the start pattern and the stop pattern in the collected raw data:</p> <ul style="list-style-type: none"> <li>• Use exact match: The search identifies strings that contain exactly what you have entered in the <b>Start pattern</b> and <b>Stop pattern</b> fields</li> </ul>

Name	Description
	<ul style="list-style-type: none"> <li>Use wildcards: The search identifies strings that contain what you have entered in the <b>Start pattern</b> and <b>Stop pattern</b> fields in combination with a wild card symbol (*, #, ?)                      * matches any number of characters. For example, if you have entered "Start tra*tion", the search identifies strings that contain "Start transaction".                      # matches exactly 1 digit. For example, if you have entered "# watermelon", the search identifies strings that contain, for example, "1 watermelon".                      ? matches exactly 1 character. For example, you may use the search expression "Start trans?ction" to identify strings that contain "Start transaction"</li> <li>Use regular expression: Use this match type to identify strings that contain specific notation methods or conventions, for example a date format or credit card number. For more information, see the Microsoft website (<a href="https://docs.microsoft.com/dotnet/standard/base-types/regular-expression-language-quick-reference/">https://docs.microsoft.com/dotnet/standard/base-types/regular-expression-language-quick-reference/</a>)</li> </ul>
<b>Raw data</b>	Transaction data strings from the connected transaction source are displayed in this section.
<b>Start pattern</b>	Specify a start pattern to indicate where a transaction begins. Horizontal lines are inserted in the <b>Preview</b> field to visualize where the transaction starts and ends, and will help to keep individual transactions separated.
<b>Stop pattern</b>	Specify a stop pattern to indicate where a transaction ends. A stop pattern is not mandatory, but is useful if the received data contains irrelevant information, such as information about opening hours or special offers, between actual transactions.  If you do not specify a stop pattern, the end of the receipt is defined in terms of where the next receipt starts. The start is determined by what is entered in the <b>Start pattern</b> field.
<b>Add filter</b>	Use the <b>Add filters</b> button to point out the characters that you want to be omitted in XProtect Smart Client or replaced by other characters or a line break.  Replacing characters is useful when the transaction source string contains control characters for non-printing purposes. Adding line breaks is necessary to make receipts in XProtect Smart Client resemble the original receipts.
<b>Filter text</b>	Displays the characters currently selected in the <b>Raw data</b> section. If you are aware of characters that you want to be omitted or replaced, but they do not occur in the collected

Name	Description
	<p>raw data string, you can enter the characters manually in the <b>Character</b> field.</p> <p>If the character is a control character, you need to enter its hexadecimal byte value. Use this format for the byte value: {XX} and {XX, XX,...} if a characters consists of more bytes.</p>
<b>Action</b>	<p>For each filter you add, you should specify how the characters you have selected are handled:</p> <ul style="list-style-type: none"> <li>• Omit: the characters you select are filtered out</li> <li>• Substitute: the characters you select are replaced with the characters you specify</li> <li>• Add line break: the characters you select are replaced by a line break</li> </ul>
<b>Substitution</b>	<p>Enter the text to replace the characters selected. Only relevant if you have selected the action <b>Substitute</b>.</p>
<b>Remove control characters that are not defined as filter text</b>	<p>Remove non-printing characters that were not already removed after adding filters.</p> <p>In the <b>Raw data</b> pane and the <b>Preview</b> section, see how the transaction data strings change when you enable or disable this setting.</p>
<b>Preview</b>	<p>Use the <b>Preview</b> section to verify that you have identified and filtered out unwanted characters. The output you see here resembles what the real-life receipt looks like in XProtect Smart Client.</p>

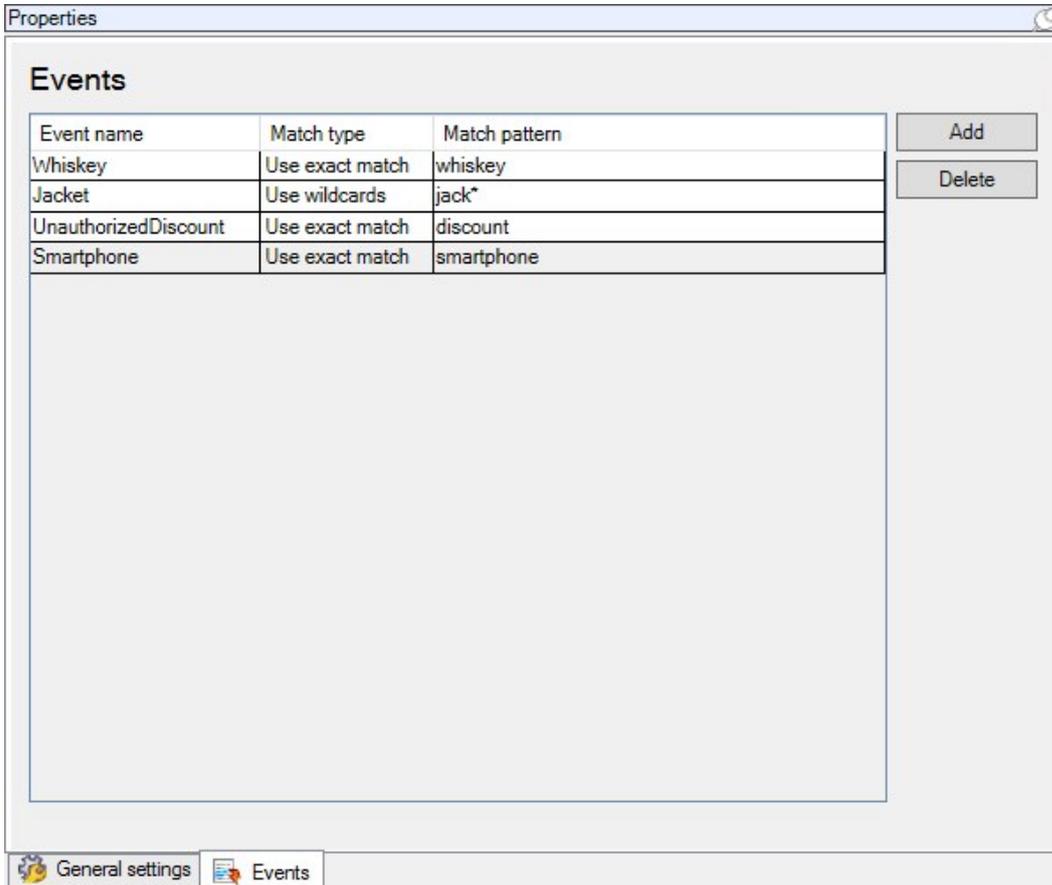
## Configuring transaction events and alarms

### Define transaction events

To track and investigate transaction events in XProtect Smart Client, first you need to define what the events are, for example the acquisition of a smartphone. You define transaction events on a transaction definition, so that the events defined apply to all transaction sources, for example cash registers, that use the transaction definition.

Steps:

1. In the **Site Navigation pane**, expand **Transact**.
2. Go to the Overview pane. Select the transaction definition, where you want to define an event.
3. Click the **Events** tab.



4. In the **Properties** pane, click **Add**. A new line is added.
5. Enter a name for the event.
6. Select the match type to use to identify a specific string in the transaction data as an event. You can choose between exact match, wildcard symbols, and regular expressions. For more information, see the description of match type in Transaction definitions (properties) on page 13.
7. In the **Match pattern** column, specify what you want the system to identify as an event, for example "smartphone".
8. For each event, repeat the steps above.

## Create alarms based on transaction events

To notify the XProtect Smart Client operator whenever a specific transaction event occurs, first you need to create a transaction alarm in Management Client. The alarm will appear on the **Alarm Manager** tab in XProtect Smart Client allowing the operator to investigate the event and, if required, take action.

Steps:

1. In the **Site Navigation pane**, expand **Alarms**.
2. Go to the Overview pane. Right-click the **Alarm Definitions** node and select **Add New**. The settings in the **Properties** pane become active.
3. Enter a name for the alarm and, in the **Description** field, possibly also instructions for XProtect Smart Client operator on what action to take.
4. In the **Triggering event** drop-down menu, select **Transaction events**.
5. In the drop-down menu below **Transaction events**, select the specific event.
6. In the **Sources** field, click the **Select** button. A pop-up window appears.
7. Click the **Servers** tab and select the transaction source.
8. Specify additional settings. For more information, see Alarm Definitions (properties) on page 1.

## Set up rules on an event

To trigger an action when a specific transaction event occurs, you need to configure a rule, where you select an event and specifies what needs to happen, for example that a camera starts recording or an e-mail is sent.

Steps:

1. In the **Site Navigation pane**, expand **Rules and Events**.
2. Go to the Overview pane. Right-click **Rules** and select **Add Rule...** A wizard appears.
3. Follow the steps in the wizard.
4. Make sure that the **Perform an action on <event>** radio button is selected.
5. Select the transaction event under **Transact > Transaction events**.
6. If an action involves recording, and you want to use the cameras associated with the transaction sources, for example the cash registers, select the **Use devices from metadata** radio button in the dialog box that appears during the wizard.

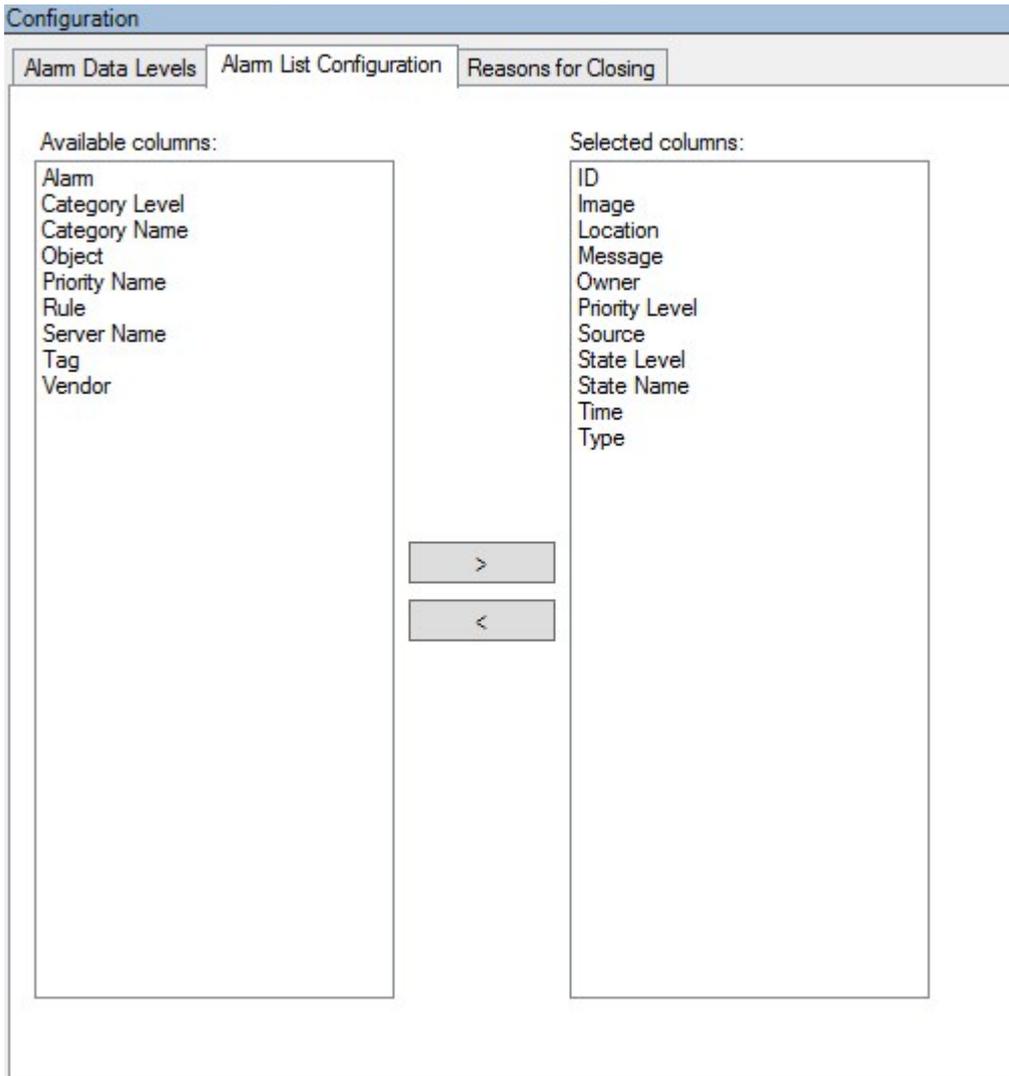


## Enable filtering of transaction events or alarms

If you want the XProtect Smart Client operator to be able to filter events or alarms by transactions, first you need to enable the **Type** field in Management Client. Once enabled, the field is available in the filter section on the **Alarm Manager** tab in XProtect Smart Client.

Steps:

1. In the **Site Navigation pane**, expand **Alarms**
2. Select **AlarmDataSettings** and click the **AlarmListConfiguration** tab.



3. In the **Available columns** section, select the **Type** field.
4. Add the field to **Selected columns**.
5. Save the changes. Now, the field is available in XProtect Smart Client.

## Verify XProtect Transact configuration

When you are done configuring XProtect Transact and its components, you can test that Transact works as expected in XProtect Smart Client.

1. Verify that the all required transaction sources have been added correctly in Management Client:
  1. Open XProtect Smart Client and click the **Transact** tab.
  2. Click the **All sources** drop-down menu and verify that all the transaction sources appear.
2. Verify that the transaction definitions have been configured correctly in Management Client. If configured correctly, there is one receipt per transaction, and the lines break correctly:
  1. Open XProtect Smart Client and click the **Transact** tab.
  2. Select a transaction source that you know is active and click . The transaction lines for today appear.
  3. Click a line to view the associated receipt and video recordings.
3. Verify that transaction events are configured correctly:
  1. Define a transaction test event in Management Client, for example an item that is likely to be purchased and registered on a connected transaction source, for example a cash register.
  2. When the event has occurred, open XProtect Smart Client and click the **Alarm Manager** tab.
  3. Open the alarm list and select **Event**. The most recent events are displayed at the top of the list. The test event you created should appear in the list.

# Maintenance

## Working with transaction sources

### Edit transaction source settings

After adding a transaction source, you can change the name or select a different transaction definition. Depending on the connector selected, there may be additional settings you can modify, for example the host name and port number of a connected TCP server. In addition, you can disable a transaction source. This will interrupt the flow of transaction data from the transaction source to the event server.



Once you have selected a connector, you cannot change it.

Steps:

1. In the **Site Navigation pane**, expand **Transact**.
2. Select **Transaction sources**.
3. Go to the Overview pane. Click the transaction source. The properties are displayed.
4. Make the required changes and save them. For more information, see Transaction sources (properties) on page 11.

### Disable transaction sources

You can disable a transaction source, for example if an ATM is temporarily out of order, or a service on a registered cash register is disabled. The flow of transaction data to the event server is disrupted.

Steps:

1. In the **Site Navigation pane**, expand **Transact**.
2. Select **Transaction sources**.
3. Go to the Overview pane. Click the transaction source. The properties are displayed.
4. Clear the **Enable** check box and save the changes. The transaction source is disabled.

### Delete transaction sources

You can delete the transaction sources you have added. The stored transaction data from that source is deleted from the event server.



As an alternative, you can disable the transaction source to avoid that stored transaction data is deleted. A disabled transaction source also requires a transaction source license.

Steps:

1. In the **Site Navigation pane**, expand **Transact**.
2. Select **Transaction sources**.
3. Go to the Overview pane. Click the **Transaction sources** item. Right-click the source you want to delete.
4. Select **Delete**. A dialog box appears.
5. Click **OK** to confirm that you want to delete the transaction source.

# Troubleshooting

## XProtect Transact (troubleshooting)

### Error messages and warnings

#### **Failed to retrieve transaction data from the event server.**

The event server is not running or not responding, or the connection to the server has been lost.

There is an internal error on the event server or in the associated database. This may include issues with the connection to the database. To resolve this issue, please contact your system administrator.

#### **Your search timed out before completion. Try narrowing your search by shortening the search period.**

There is an internal error on the event server or in the associated database. This may include issues with the connection to the database. To resolve this issue, please contact your system administrator.



[helpfeedback@milestone.dk](mailto:helpfeedback@milestone.dk)

#### About Milestone

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