

A decorative graphic consisting of a dark blue triangle on the left and a green triangle with a white dot pattern on the right, both pointing towards the center.

# ABBYY® Timeline 5.3

Deployment Guide on Windows Systems

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# About This Document

This deployment guide is intended for system administrators and engineers. It includes instructions for installation and configuration of ABBYY Timeline 5.3 on Windows.

# Introducing ABBYY Timeline

ABBYY Timeline is a process intelligence platform comprising over 25 process analysis tools. More than a mere process tracker, ABBYY Timeline will monitor all events within your company in real time and build a detailed map of each process, all while maintaining the flow of your business.

ABBYY Timeline employs an exciting new patent-pending approach to process intelligence called Timeline Analysis which allows users to load events from a variety of systems and in different formats which it then automatically organizes into its corresponding process instances and allows them to be analyzed with a variety of visualization, discovery and query techniques. ABBYY Timeline accepts event data from any number of systems of record and automatically reconstructs the underlying business process logic behind the data. A variety of pre-built analyses are ready to quantify your process performance, identify your process execution issues and perform root cause analysis. The ABBYY Timeline platform also supports operational monitoring through its continuous assessment of new event data to determine if any adverse conditions occur and can immediately notify you or other business operations personnel so you can act.

The ABBYY Timeline engine consumes data from a variety of sources to detect and present detailed views of your business processes. This is often the same exact data being used today for other simpler analyses. This new insight is delivered via a variety of new process and timeline visualization tools developed to not only make these new insights easier to understand but also to allow users to manipulate the information to gain a deeper understanding of those processes. Users armed with this insight have concrete facts on which to take actions to improve operational efficiency by promoting clearly superior best practices and eliminating costly inefficiencies that previously went undetected.

Using advanced algorithms, ABBYY Timeline extracts and reads the time stamps used to record specific events along your processes. The software then visually models these time stamps in such a way that you can instantly identify deviations from an ideal process flow – to find the root cause of a problem that may be costing your business money.

ABBYY Timeline is aimed for use by anyone involved in business process improvements of any type of scale or nature.

# ABBYY Timeline Components

Whether you use ABBYY Timeline via ABBYY's SAAS instance or installed on-premises the recommended configuration of Timeline requires 3 key components.

1. The core **ABBYY Timeline**

It is either hosted by ABBYY or installed on-premises. There is no difference in functionality whether Timeline is accessed via ABBYY's cloud instance or installed locally.

2. The desktop **ABBYY Recorder**

It is only on-premises and includes Recorder, Recorder Log Viewer, and browser extensions for Google Chrome, Mozilla Firefox and Microsoft Edge.

3. The central **ABBYY Recording Service**

It is only on-premises and includes database and website.

The purpose and functions of platform components are described in the table below.

Component	Functions
ABBYY Recording Service	ABBYY Recording Service collects user interaction logs from multiple users over time and allows to submit obscured data into ABBYY Timeline
ABBYY Recorder	Captures individual users' desktop sessions.
ABBYY Recorder Log Viewer	Allows user to view the logs recorded by the ABBYY Recorder. For detailed information on usage of Log Viewer, see 'Recorder Log Viewer Guide'.
ABBYY Timeline	Analyzes desktop user interaction data and seamlessly links it with process details mined from system event data, so you can see where repetitive and inefficient tasks are slowing your processes and allocate resources in the right places to resolve them.

## Getting Started

Ready to deploy? The instruction below walks you through deploying ABBYY Timeline system, step-by-step.

## Step 1. Make sure your computers are ready for ABBYY Timeline system

Before you begin installing ABBYY Timeline system:

1. Check the [system requirements](#)<sup>[15]</sup>.  
These requirements help you know whether your computers support ABBYY Timeline components.
2. Apply the latest Windows and other programs updates.  
These updates ensure that your computer has the latest security updates.
3. Reboot.  
The reboot ensures that any pending installs or updates don't hinder the ABBYY Timeline components install.
4. Free up space.  
Remove unneeded files and applications from your %SystemDrive%, as well as discs that you intend to use, for example, to store the Timeline or Recording Service databases.
5. If you intend to configure HTTPS, please visit the '[Using HTTPS](#)'<sup>[52]</sup> section.

## Step 2. Install ABBYY Recording Service

If you are not going to use the Task Mining feature, skip this step.

1. Run the **ABBYY.RecordingService.5.3.\*.exe** file and follow the on-screen instructions in the Installation Wizard.  
If you receive a **User Account Control** notice, choose **Yes**.
2. Specify the necessary [network settings](#)<sup>[59]</sup>.
3. Make sure the Recording Service has been installed correctly by performing a [health check on Recording Service](#)<sup>[33]</sup>.

Please refer to the '[Installing Recording Service](#)'<sup>[30]</sup> section for guidelines.



## Step 3. Install ABBYY Timeline

If you are going to use Timeline in the cloud, please, skip this step.

**Important.** Recording Service and Timeline components must be installed on separate computers.

1. Run the **ABBYY-Timeline-5.3.\*-installer.exe** file and follow the on-screen instructions in the Installation Wizard.  
If you receive a **User Account Control** notice, choose **Yes**.
2. Specify the necessary [network settings](#)<sup>[58]</sup>.
3. Make sure the Timeline has been installed correctly by performing a [health check on Timeline](#)<sup>[26]</sup>.

Please refer to the '[Installing ABBYY Timeline](#)<sup>[20]</sup>' section for guidelines.

## Step 4. Establish the trust relationship between ABBYY Recording Service and ABBYY Timeline

If you are not going to use the Task Mining feature, skip this step.

For interaction between Recording Service and Timeline, [OAuth must be configured](#)<sup>[49]</sup>.

1. Register Recording Service as a client on the Timeline website and obtain credentials (**Client ID** and **Client Secret**).

Please refer to the [Registering a New Client on ABBYY Timeline website](#)<sup>49</sup> section for guidelines.

Register OAuth Client

Name

Recording Service

App URL

https://recordingservice.abbyy.com


Redirect URI

https://recordingservice.abbyy.com/api/auth/callback

☒ Confidential client
 

Confidential clients are applications that are able to securely authenticate with the authorization server, for example being able to keep their registered client secret safe. Non-confidential (Public) clients are unable to use registered client secrets, such as native applications. They are expected to authenticate with client ID and PKCE flow

Client logo



Change logo

Scopes

☒ Read projects
 ☒ Write projects
 ☒ Read repositories
 ☒ Write repositories

Close

Register

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2. In the Recording Service website specify the Timeline authentication details using the credentials you obtained in step 1.

Please refer to the '[Configuring connection setting in Recording Service](#)<sup>51</sup>' section for guidelines.

TIMELINE AUTHENTICATION

LANGUAGE

Reset

Save

\* Recording Service public URL

https://recordingservice.abbyy.com

\* Timeline URL

https://mytimeline.com

\* Client ID

f7se35bc4e3h567idegmn042921167f6bec45e

\* Client secret

\*\*\*\*\*

Timeline Authentication Guide

1. **TimelineURL** should be the URI of your installed Timeline instance. If you haven't installed Timeline yet, please do so now.
2. In your running Timeline instance, create an account and after logging in
  - a. Navigate to Account Settings → OAuth → and click on "Register client"
  - b. Fill out the client registration form
    - i. **App name** can be anything
    - ii. **App URL**

https://recordingservice.abbyy.com

Click on the icon to copy this value and paste it to the client registration form in Timeline
    - iii. **Redirect URI**

https://recordingservice.abbyy.com/api/auth/callback

Click on the icon to copy this value and paste it to the client registration form in Timeline
    - iv. You can upload an optional Client Logo
    - v. Make sure to check the **Confidential client** checkbox
    - vi. Make sure to only check the **Read projects** and **Write projects** checkboxes
    - vii. Click "Register client"
  - c. Copy the values of **Client ID** and **Client secret** respectively to this screen
3. Click "Save"

## Step 5. Install ABBYY Recorder on users' computers

If you are not going to use the Task Mining feature, skip this step.

**Important.** The user workstations installing the Recorder, and the server hosting the Recording Service must all be members of the same Active Directory domain.

If you plan to record user activities who work using Windows RemoteApp and Citrix Workspace App, install the Recorder on a terminal server.

ABBYY Recorder can be installed on the terminal server as if it was a workstation. It will log the actions of users connecting to this server via a Citrix client or RDP.

1. Install the Recorder on the users' workstations using the method of your choice.  
Please refer to the ['Installing Recorder'](#)<sup>36</sup> section for guidelines.
2. Turn on Recorder extensions on the workstations.  
Please refer to the ['How to Turn Recorder Chrome Extension on'](#)<sup>42</sup> section for guidelines.

Now you have all the ABBYY Timeline system components installed, and you can start working with it.

## Step 6. Start working with Task Mining

After ABBYY Timeline system installation is complete, it must be configured.

1. Open the Recording Service website and configure settings.
  - a. Go to **Settings > Timeline authentication** and make sure the connection to Timeline is established.  
Please refer to the 'Administering' > 'Using OAuth to Access Timeline' > ['Configuring connection setting in Recording Service'](#)<sup>51</sup> section for guidelines.
  - b. Go to **Templates** and click **Default** in the **Template name** column. Review and modify the options if needed.  
In the template, you can specify what data to register and how to process it. Please refer to the ['How to Configure and Apply Template'](#)<sup>63</sup> section for guidelines.
  - c. Go to **Recorders**.  
You will see the list of connected recorders that were installed in **Server managed** mode. Installed in this mode, recorders are automatically added to the **Recorders** list.
  - d. Select a recorder and click **Start**.  
This starts recording all user's desktop events to log.

e. Go to **Logs**

All recorded events are collected into logs and available in the **Logs** tab.

**Note.** The logs may take some time to process. We recommend you wait a while before starting to work with the logs.

f. Submit logs from Recording Service to Timeline

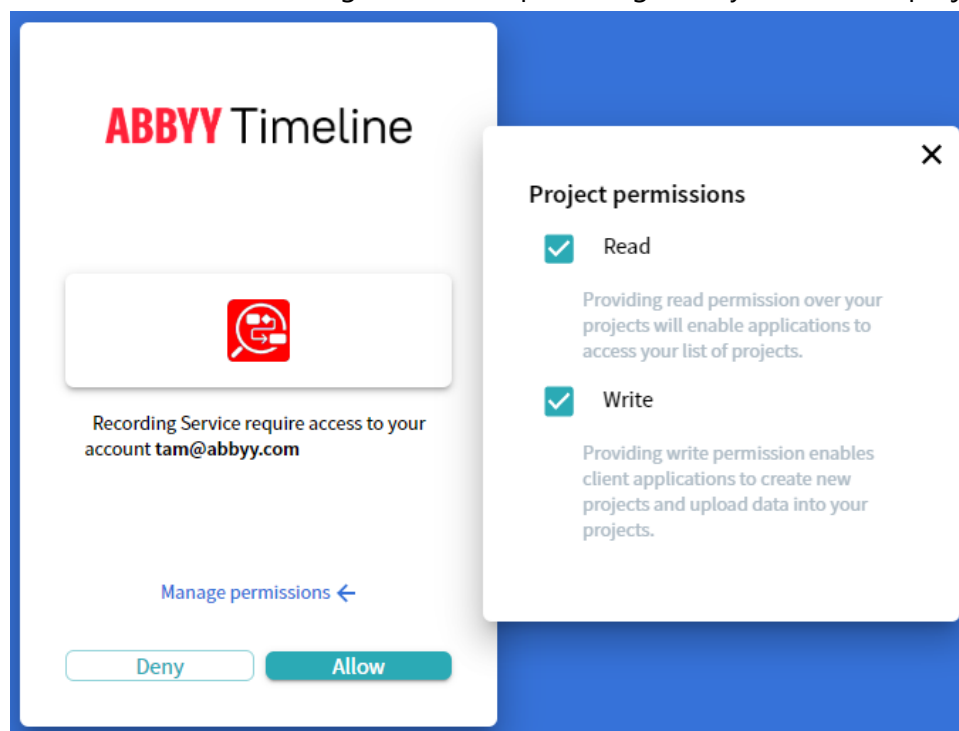
To upload logs to Timeline, perform the following steps:

i. Select logs and click **Load to project**.

Recording Service will redirect you to the Timeline authentication page.

ii. Enter your Timeline credentials (i.e. credentials [specified during the Timeline installation process](#)<sup>23</sup>) and click **Allow** in the access permission window.

This will enable Recording Service to upload logs into your account projects.




iii. In the opened **Project list** windows go to **Create project**, enter the name for your new Task Mining project and click **Create** to upload logs.

iv. All selected logs will be queued for upload.

Information about the upload process is displayed in the message box. You can abort the upload by clicking **Cancel** in the message box.

**Note.** It is impossible to cancel the upload of logs that have already been submitted to Timeline by the moment of cancellation. Such logs will be available for work on the Timeline website.

- v. After successful log import click on  and then on the project name to open this project in Timeline.
2. Uploaded logs are available for cutting and transforming in the opened project.

# System Requirements and Prerequisites

## Important.

- Recording Service and Timeline must be installed on separate computers.
- The user workstations installing the Recorder component, and the server hosting the Recording Service component must all be members of the same Active Directory domain. Please refer to the "[Configuring Active Directory Groups to Connect the Recording Service with Recorders](#)<sup>[28]</sup>" section for details.
- Recording Service performance may vary depending on the hardware configuration. If you intend to use more than 20 Recorder instances, store PostgreSQL databases partially or fully on the SSD for better performance. For details see "[How to move database tables with screenshots to a new hard disk](#)<sup>[35]</sup>".

## Timeline

Operating system	Microsoft® Windows Server® 2019 Version 1809 (OS Build 17763.2565) or later
CPU	4 cores or more
RAM	16 GB or more
HDD	512 GB or more  Depends on the actual amount of data loaded into the application. Production environment may require more disk space, depending on the actual volume of data loaded into the application.
Browser (to access the ABBYY Timeline website)	<ul style="list-style-type: none"> <li>• Google Chrome 100 or later</li> <li>• Microsoft Edge 100 or later</li> </ul>
Additional software	<ul style="list-style-type: none"> <li>• Microsoft Windows Subsystem Linux</li> </ul> <p>If this Windows feature is disabled, the ABBYY Timeline Setup will prompt you to enable it. After that, you will need to restart your computer to apply the changes.</p>

	<ul style="list-style-type: none"> <li>• Redis 5 for Linux            ABBYY Timeline uses Redis for Linux therefore additional software is needed. Please, download the following installation packages into the same folder:           <ul style="list-style-type: none"> <li>○ <a href="#">Linux Ubuntu 20.04</a>                (CanonicalGroupLimited.UbuntuonWindows_2004.2021.825.0.AppxBundle)</li> <li>○ <a href="#">gcc-10-base_10.3.0-1ubuntu1_20.04_amd64</a></li> <li>○ <a href="#">libatomic1_10.3.0-1ubuntu1_20.04_amd64.deb</a></li> </ul> </li> <li>• Microsoft .NET Framework 4.5*<sup>[15]</sup></li> <li>• PostgreSQL 12.*<sup>[15]</sup></li> <li>• NodeJS 14.16.1*<sup>[15]</sup></li> <li>• Python 3.8.10. (64-bit)*<sup>[15]</sup></li> <li>• Microsoft Visual c++ 2015-2019 Redistributables (x64)*<sup>[15]</sup></li> <li>• GraphViz 2.49.0*<sup>[15]</sup></li> <li>• SMTP Server            ABBYY Timeline needs access to a running SMTP server to be able to send verification emails, notifications, invitations, and alerts, etc.</li> </ul>
Other requirements	<p>To install ABBYY Timeline on Windows successfully, make sure a user you are installing under is able to set the <b>PowerShell Execution Policy</b> to <b>RemoteSigned</b>. For details, see <a href="#">Installing Timeline</a><sup>[20]</sup>.</p>

## Scaling guidelines

The exact calculation of necessary hardware requires multiple parameters such as data volume and use patterns. However, the general guidelines could be defined as following:

- If the number of concurrent users is less than 10 and the data update frequency is one per day or less, a single server should be sufficient.



- For more users or more frequent data updates, a separate server for DBMS is recommended.
- For the fault-tolerant environment, use two identical servers and any standard load balancer.

## Recording Service

Operating system	Microsoft® Windows Server® 2019, 2022
Additional software	<ul style="list-style-type: none"> <li>• Microsoft® Internet Information Services (IIS) 8.5<sup>17</sup></li> <li>• ASP.NET Core Hosting Bundle 6.0.4<sup>17</sup></li> <li>• PostgreSQL v. 12 or later<sup>17</sup></li> </ul>
Browsers (to access the Recording Service website)	Google Chrome 100 or later
Hard disk requirements	<p>Recording Service performance may vary depending on the hardware configuration. If you intend to use more than 20 Recorder instances, store PostgreSQL databases partially or fully on the SSD for better performance.</p> <p><b>Important.</b> Only the database table with screenshots is allowed to be moved to the new hard disk.</p> <p>For details see "<a href="#">How to move database tables with screenshots to a new hard disk</a><sup>35</sup>".</p>
Other requirements	<ol style="list-style-type: none"> <li>1. The Recording Service works with Timeline 5.3</li> <li>2. Windows authentication is used to authorize the connection between the Recording Service and the Recorder instances installed on users' workstations. Configure Active Directory Groups you plan to use to connect the Recording Service with Recorders in advance. Please refer to the '<a href="#">Configuring Active Directory Groups to Connect the Recording Service with Recorders</a><sup>28</sup>' section for guidelines.</li> </ol>

\* included with the Recording Service installer.

## Hardware configuration example

If recording is done for 10 employees during 4 weeks (1 person generates approximately 5000 UI events per day):

- Operating system: Windows Server 2019
- CPU: 8 cores or more
- RAM: 16 GB or more
- Hard disk space: 256 GB HDD/SSD
- Logs with screenshots require at least 200 GB

## Recorder

Operating system	<p>Microsoft® Windows 10 (x64), 11 (x64)</p> <p>Microsoft® Windows Server® 2019</p>
Additional software	<p>Microsoft .NET Framework 4.6.2<sup>19</sup></p>
Browser (to record user activities)	<ul style="list-style-type: none"> <li>• Browser Google Chrome 100 or later  <b>Important.</b> The following versions are not supported: <ul style="list-style-type: none"> <li>○ Google Chrome Portable</li> <li>○ Google Chrome Standalone for one user</li> <li>○ Google Chrome Standalone for multiple users</li> </ul> </li> <li>• Microsoft Edge 100 or later</li> <li>• Mozilla Firefox 99 or later (Limited support. See <a href="#">Known Issue</a><sup>79</sup> for details)  <b>Important.</b> Mozilla Firefox ESR is not guaranteed to fully work.</li> </ul>

Other requirements	<ol style="list-style-type: none"> <li>1. Recorder works with Recording Service that comes with Timeline 5.3.</li> <li>2. Windows authentication is used to authorize the connection between the Recording Service and the Recorder instances installed on users' workstations. Configure Active Directory Groups you plan to use to connect the Recording Service with Recorders in advance. Please refer to the '<a href="#">Configuring Active Directory Groups to Connect the Recording Service with Recorders</a><sup>28</sup>' section for guidelines.</li> </ol>
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\* included with the Recorder installer.

# Installation, Removal and Upgrade

This section provides instructions for installing the ABBYY Timeline components, upgrading, and removing them from your computers.

## ABBYY Timeline

This section contains information about installing and removing ABBYY Timeline.

**Important.** The ABBYY Timeline installer does not have a repair mode. Please do not edit/delete anything in the installation folder unless you have received clear instructions on what to do. In case you deleted something from the installation directory by accident, you will have to uninstall, then re-install ABBYY Timeline.

If you are going to use ABBYY Timeline in the cloud, please skip this chapter.

## Installing Timeline

### Before you begin

1. Log in as a Windows administrator or start Timeline Setup with **Run as Administrator**.

To perform all activities below, you must be a system administrator of the computer on which Timeline is being installed.

2. Ensure the **Execution Policy for PowerShell** is set to **RemoteSigned**. To verify the current settings for the execution policy:

- a. Start Windows PowerShell with **Run as Administrator**

- b. Use **Set-ExecutionPolicy RemoteSigned** to set the policy to **RemoteSigned**.

If the command was executed without errors, go to the Timeline installation procedure by starting the Timeline installer with Run as Administrator.

If you get an access is denied error, you do not have the permissions to change the execution policy. Please contact your system administrator to have your permissions changed.

## Interactive installation

Run the **ABBYY-Timeline-<version>-installer.exe** file, select the language to run the Installation Wizard and follow the on-screen instructions.

The Installation Wizard will display a sequence of pages with detailed instructions for each installation step. Use the **Back** and **Next** buttons to navigate the pages. To quit the Installation Wizard at any stage, click **Close**.

### 1. License Agreement

Read and accept the license agreement.

### 2. Check and install prerequisites

Timeline Setup checks third-party applications that are required to configure and operate ABBYY Timeline. Some of the applications you must download and install manually. If your computer meets the system requirements, the steps described in this paragraph will not display.

#### a. Enable Windows Features

If the **Microsoft Windows Subsystem Linux** feature is disabled, the Timeline Setup will prompt you to enable it. After that, your computer will be restarted automatically. Please save your work before continuing the installation. After restarting, the Timeline installation will be auto-resumed. If it doesn't run automatically, please run the **ABBYY-Timeline-<version>-installer.exe** file again.

#### b. Redis installation

##### i. Download the following installation packages into the same folder:

- [Linux Ubuntu 20.04](#)  
(CanonicalGroupLimited.UbuntuonWindows\_2004.2021.825.0.AppxBundle)
- [gcc-10-base\\_10.3.0-1ubuntu1\\_20.04\\_amd64](#)
- [libatomic1\\_10.3.0-1ubuntu1\\_20.04\\_amd64.deb](#)

##### ii. Source Folder

Specify a folder where you renamed packages specified above.

##### iii. Ubuntu Installation Folder

Specify a folder where Ubuntu will be extracted to. The default folder is:  
C:\Program Files (x86)\Ubuntu

### 3. Installation Folder

Select a destination folder where Timeline will be installed.

The default folder is: C:\Program Files\ABBYY Timeline

### 4. Select Database

Timeline needs access to PostgreSQL. You can install PostgreSQL on a computer along with Timeline or a separate one.

If you already installed PostgreSQL on another computer, select **Connect to existing database**. This option is useful if you install the program in a production environment where the host machine is accessible from outside the corporate network. If you prefer to keep Timeline and the database on the same machine, select **Install local database**. This option is useful if you install the program for testing purposes. Go to the next step to specify database connection settings.

### 5. Database Connection

Specify connection parameters to Timeline databases located on a local or remote PostgreSQL.

- a. If you selected **Install local database**, configure access to a local PostgreSQL instance. To set up access to an existing PostgreSQL instance, go to step [5b below](#) <sup>23</sup>.

Using the options specified in this clause, Timeline Setup creates the following databases during the installation process:

**timeline** - the Admin database. It contains all information about users, their activity, and projects.

**timeline-log** - the Log database. It contains detailed records of Timeline events such as security, errors, and notifications.

**timeline-000** - the User database. It contains information about user repositories.

- i. **PostgreSQL user and PostgreSQL password**

Provide PostgreSQL superuser credentials. These will be used by the installation program to create a database user for Timeline.

- ii. **PostgreSQL port**

Specify TCP/IP port for PostgreSQL. By default, TCP/IP port **5432** is used. Make sure that it is not being used by any other application. For more information, see the [Check TCP/IP port availability](#) <sup>57</sup> section.

- iii. **Data directory**

Enter the path where the database needs to be installed.

The default path is: C:\Program Files\PostgreSQL\12

b. Configure access to an existing PostgreSQL instance

If you selected **Connect to existing database** in step 4, this means PostgreSQL is already installed on a remote or local server. To create and configure access to the Timeline databases, specify connection parameters for the Admin, Log, and User databases.

**Note.** If the Timeline databases already exist on the specified PostgreSQL server and the PostgreSQL version is supported, the **Review Database Configuration** step will open. Select **Connect to the existing Timeline database** if you want ABBYY Timeline to connect to the detected database. Otherwise, select **Reinstall Timeline database tables and user**. In this case, the installer will delete the detected databases and install new ones.

i. **PostgreSQL user and PostgreSQL password**

Provide the credentials of PostgreSQL user who will own the Timeline databases. For example, **TimelineUser**.

ii. **PostgreSQL host**

Specify the server name where PostgreSQL is installed. By default, **localhost** is used.

iii. **PostgreSQL port**

Specify TCP/IP port for PostgreSQL. By default, TCP/IP port 5432 is used.

iv. **Database name**

A name must be given for each database:

**timeline** is the only valid name for the Admin database.

**timeline-log** or **timeline\_log** is the only valid name for the Log database.

**timeline-000** or **timeline\_000** is the only valid name for the User database.

v. If your PostgreSQL is configured with SSL support, select **Use SSL for the database connection**.

If your PostgreSQL is configured with SSL support and a CA Root certificate file is used, provide the full path to the CA Root certificate file.

## 6. Admin User Account

Create a first admin user account for ABBYY Timeline. Enter a valid email address using an existing domain name that is configured to receive emails, for example, [user@domain.com](mailto:user@domain.com), and a password. This will be the first user and the one that will have access to the ABBYY Timeline website, where other users can be administered.

The password you specified must contain only English letters and digits from 0 to 9. It

must be at least eight characters long, contain at least one uppercase letter, one lowercase letter, and one number.

## 7. Mail Server Configuration

Configure the SMTP server access to allow Timeline sending out emails in several features such as Alerting, User invitation, Email verification, etc. For example, during a user registration process, a verification email message is sent to the user. The user won't be able to use Timeline until he completes the instructions contained in the message.

Provide general information to configure SMTP mail server and specify its security options. To decide which options you have to select, please refer to the documentation of your mail server. The server basic settings are set during installation. You can change the SMTP Mail Server configuration after installation.

### a. Mail server host

Enter server name where the SMTP mail server is installed.

### b. Mail server port

Enter the SMTP mail server port number.

### c. Mail server username and Mail server password

Enter the SMTP mail server access credentials. Keep these fields empty if your mail server requires no authentication.

### d. Email sender

Enter the e-mail sender address is used to fill the 'From' header field of e-mails.

### e. Mail server security

Specify mail server security options. To decide which option you have to select, refer to the documentation of your mail server. Mail server basic settings are set during installation. You can change the SMTP Mail Server configuration after installation. For more information, see ['Change SMTP Mail Server Configuration'](#)<sup>60</sup>.

- i. Select **Non secure** in case your SMTP server does not use TLS. This is a typical use case for mock, local mail services, for example, mailcatcher.
- ii. Select **Require TLS after connection** if the initial connection should happen over an unencrypted connection and then the STARTTLS command should be used to upgrade to a secure connection. For example, Microsoft Exchange.
- iii. Select **Secure from the start of the connection** then the app will use TLS to connect to the SMTP server from the start. It is the most secure option, however not all mail servers support this option.



- iv. Select **Allow self-signed certificate** if your mail server uses an unauthorized, e.g., self-signed, SSL certificate.

## 8. Timeline Base URL and Ports Configuration

- a. Enter the **Base URL** that hosts Timeline and via which users will be able to access the Timeline website.

Base URL must be a fully qualified URL. The lowercase pattern is recommended.

Do not use extra spaces and forward slash '/' at the end of the base URL. It should match the computer name on which you are installing Timeline and must be accessible both from the computer on which the Recording Service is installed and from the administrator browser. It also is used for links inside email messages sent by the Timeline.

The Base URL must have the following syntax: `http[s]://hostname:port`

If you are using the default port (80 or 443), you do not need to add them to the base URL

Examples:

The base URL of the HTTP endpoint, if a custom port is specified:

`http://mytimeline.com:8080`

The base URL of the HTTPS endpoint, if a custom port is specified:

<https://mytimeline.com:30443>

- b. Specify TCP/IP port for the Timeline website.

By default, TCP/IP port 80 is used for the Timeline website. Make sure that it is not being used by any other website. For more information, see the '[Check TCP/IP port availability](#)<sup>[57]</sup>' section. You can also [set a different port number later](#)<sup>[59]</sup>.

Select **Use HTTPS** if you want to secure data transferred. For setting up HTTPS you will be asking for the SSL certificate and the private key. Currently, Timeline does not accept .pfx files. In case you have a .pfx file, you should convert it to .key and .cert files. The key and certificate files must be named **server.key** and **server.cert** since Timeline accepts only files with these names.

**Important.** If you install the program in a production environment, it is strongly recommended to use HTTPS and highly discouraged HTTP.

## 9. Service Setup

Current user account is used to run the **timelinepi** service. If the computer is a member of an Active Directory domain, the current domain user account will be set to

run the service. If the computer is part of a workgroup, the local computer account will be set. For the service to work properly, specify the valid password for the user account used to install Timeline.

**Important.** It is prohibited to change the specified user account after the installation is completed.

#### 10. Create firewall exceptions after installation is complete

Installer does not create any software or hardware firewall exceptions. You must set up exception settings to allow interactions between components to take place inside a network. For example, you create inbound and outbound rules in Windows Firewall. For detailed information, see [Network connection settings](#)<sup>58</sup>.

## Performing health check

Check that Timeline is working properly by doing the following:

1. Open a browser and enter **{timelineURL}:{port}** in the address bar, where:  
**{TimelineUrl}** is the Base URL you specified during the Timeline installation or the public IP address or the full name of the computer on which Timeline is installed.  
**{port}** is a custom port assigned to Timeline website during the installation process. If you are using the default port (80 or 443), you do not need to add them to the **{timelineURL}**. By default, TCP/IP port 80 or 443 is used.

Example: <http://mytimeline:8080> or <https://mytimeline:30443>


2. If the installation was carried out correctly, the Timeline website will open.
3. Login using the Timeline admin credentials you specified in [step 4 "Admin User Account" during the Timeline installation process](#)<sup>23</sup>.

## Upgrading Timeline

If you own ABBYY Timeline 5.1 or later, you can upgrade to ABBYY Timeline 5.3. This means that you can install a new version of ABBYY Timeline and your databases will be maintained.

### Before you begin


We recommend you backup the Timeline database. To do this, use PostgreSQL utilities. It includes utilities that allow you to make backups. These are **pg\_dump/pg\_dumpall** and

**pg\_basebackup.** For detailed information, refer to <https://www.postgresql.org/docs/12/backup.html> or [PostgreSQL Databases Backup and Restore](#)  section.

## Basic steps

1. Run the **ABBYY-Timeline-5.3.\*-installer.exe** file to start the Installation Wizard.
  2. In the program dialog box, select **Update** and follow the instructions of the Installation Wizard.
- Important.** Upgrading within the same version is not supported.

If you can't upgrade ABBYY Timeline using the Setup, perform the following steps:

1. Uninstall your ABBYY Timeline
  - If you uninstall ABBYY Timeline 4.8, your databases are maintained while uninstalling, but the previous settings are removed.
  - If you uninstall ABBYY Timeline 4.11 or later, you will be asked whether you want to uninstall the product completely or maintain the databases.
2. Run the **ABBYY-Timeline-5.3.\*-installer.exe** file and follow the on-screen instructions in the Installation Wizard.
3. [Perform a health check](#) .

## Uninstalling Timeline

1. Run the **ABBYY-Timeline-5.3.\*-installer.exe** file to start the Installation Wizard.
2. In the program dialog box, click **Uninstall ABBYY Timeline**.
3. In the next dialog box specify whether you want to uninstall the product completely or maintain the databases for future use (e.g., if you choose to install a newer version).
  - If you want to remove the Timeline product completely, including the databases, select **Delete ABBYY Timeline database and data folder** and provide PostgreSQL superuser credentials.

- If you want to uninstall the Timeline product while keeping the databases, proceed to the next step.
- 4. Click **Uninstall** to start the removal process.  
While product removal is still in progress, you have the option of canceling it by clicking **Cancel**.
- 5. Once the product is removed from your system, click **Finish** to close the Installation Wizard.

## Configuring Active Directory Groups to Connect the Recording Service with Recorders

Windows authentication is used to authorize the connection between the Recording Service and the Recorder instances installed on users' workstations.

Make sure the computers on which Recording Service and Recorder will be installed meet the following requirements:

- All workstations on which Recorder is to be installed and the server on which the Recording Service will be installed must be members of the same Active Directory domain.
- The user accounts that will be used for working with the applications have been added into the corresponding Active Directory groups. You can use an existing security group or create the following security groups in Active Directory:
  - Recording Service admin group (e.g. **Recorder-admin**)  
Assign this group full control to the Recording Service web application. Then add user accounts to the group to grant them admin access to the Recording Service web application.
  - Recorder writers (e.g. **Recorder-writer**)  
Assign this group write access to Recording Service. Then add user accounts to the group to grant their Recorder instances write access to the Recording Service web application. This will allow Recorder instances to send logs to Recording Service.

When installing Recording Service, in the **Active Directory Security** step, specify the names of the configured groups.

### 1. **Admin AD Security group**

Members of this group obtain admin access to the Recording Service website.

### 2. **Recorder AD Security group**

Members of this group obtain write access to the Recording Service component. Both local and Active Directory groups and accounts can be used.

If you install the program in a production environment, it is recommended to specify existing Active Directory security groups or groups you created before the installation, e.g., **Recorder-admin** and **Recorder-writer**.

For testing purposes or in case you do not have Active Directory, you may specify for:

- **Admin AD Security group** - Recording Service local admins' user account(s)

- Domain user

Format: **Domain\UserName**

- Local group or user

Format: **ComputerName\GroupName** or **ComputerName\UserName**

To display the computer name, open the **Command Prompt (Start > Run > cmd)** and type **hostname**.

**Note.** You may create a local group, add domain users or groups to it, and specify this group to the **Admin AD Security group** field.

- **Recorder AD Security group** - Everyone

In this case, access to the Recording Service website will be unrestricted.

Format depends on your Windows locale, for example, in English: **Everyone**

How to find out which Active Directory groups in different languages you are a member of:

1. Open the **Command Prompt (Start > Run > cmd)**

2. Use **whoami /groups**

This command will list distribution groups and nesting.

You can change AD Security Groups configuration after the Recording Server and Recorder installation. For more information, see the "[How to Change AD Security Groups that Have Access to the Recording Service Resources](#)<sup>62</sup>" section.

# ABBYY Recording Service

This section contains information about installing and removing Recording Service.

## Installing Recording Service

### Interactive installation

Run the **ABBYY.RecordingService.<version>.exe** file, select the language to run the Installation Wizard and follow the on-screen instructions in the Installation Wizard:

1. **License Agreement**

Read and accept the license agreement.

2. **Destination Folder and Port Configuration**

Specify installation folder and TCP/IP port to be used the Recording Service website:

- a. **Folder path**

Specify a folder where Recording Service should be installed. The default installation folder is:

C:\inetpub\ABBYY Recording Service

- b. **Web site port**

Specify TCP/IP port to be used by the Recording Service website or keep the default value.


By default, the following TCP/IP ports are used:

- 443 (if use HTTPS)

For setting up HTTPS you will be asking for the SSL certificate and the private key.

- 80 (if use HTTP)

The Default Web Site is running on port 80. If you plan to use port 80 for the Recording Service website, you may need to modify this port from 80 to a different one in the Internet Information Services (IIS) Manager.

Make sure that specified port is not being used by any other application. In the event of port conflict, an alert will be displayed. Change the port number to continue. For more information, see the '[Check TCP/IP port availability](#)' 

section. You can also set a different port number for the Recording Service website later. To do this, change the port number in the Internet Information Services (IIS) Manager.

**Note:** If you install the program in a production environment, it is strongly recommended to use HTTPS and highly discouraged HTTP.

### 3. **Active Directory Security**

Windows authentication is used to authorize the connection between the Recording Service and the Recorder instances installed on users' workstations. In the **Active Directory Security** step, specify the names of the groups you configured before installing Recording Service. Please refer to the '[Configuring Active Directory Groups to Connect the Recording Service with Recorders](#)'<sup>28</sup> section for guidelines.

You can change AD Security Groups configuration later. For more information, see the '[How to Change AD Security Groups that Have Access to the Recording Service Resources](#)'<sup>62</sup> section.

### 4. **PostgreSQL Database Options**

Recording Service needs access to the PostgreSQL database. You can install PostgreSQL on a computer along with Recording Service or a separate computer.

If you already installed PostgreSQL on another computer, select the **Connect to remote / another preinstalled version of PostgreSQL database**. Otherwise, select **Install PostgreSQL on this machine**.

**Note.** If PostgreSQL 12 is already installed on the current computer, instead of the **PostgreSQL Database Options** step, the **Database Connection** step will open. In this step, you need to specify the settings for connecting to the database.

#### a. **Install PostgreSQL 12 on this machine**

Allows you to install PostgreSQL and database on the local machine.

Go to the next step to specify PostgreSQL accounts and port to install PostgreSQL locally.

##### i. **Super user account**

1. Enter the PostgreSQL superuser credentials and the PostgreSQL port number. These credentials will be used by the installation program to create a database user for Recording Service.

**Important.** The PostgreSQL superuser name may contain only English letters

and digits from 0 to 9 and may not include any of the following characters: - \/: \*? "<> |

2. Specify TCP/IP port for PostgreSQL. By default, TCP/IP port **5432** is used. Make sure that it is not being used by any other application. For more information, see the '[Check TCP/IP port availability](#)<sup>57</sup>' section.

## ii. **Service account**

By default, the PostgreSQL services operate under the **superuser** account. To change the default user, select **Specify service user credentials** option and set new credentials for running PostgreSQL service.

**Important.** The Service account name may contain only English letters and digits from 0 to 9 and may not include any of the following characters: - \/: \*? "<> |

## iii. **Port**

Specify CP/IP port for PostgreSQL. By default, TCP/IP port **5432** is used. Make sure that it is not being used by any other application. For more information, see the [Check TCP/IP port availability](#)<sup>57</sup> section.

- iv. Go to the next step to specify PostgreSQL destination folders:

### 1. **Installation Directory**

PostgreSQL will be installed into the specified folder. The default installation folder is:

C:\Program Files\PostgreSQL\12

**Important.** The Installation directory must be empty.

### 2. **Data Directory**

Enter the path where the database needs to be installed.

The default path is: C:\Program Files\PostgreSQL\12\data

3. Go to the next step of the Installation Wizard to specify PostgreSQL database name and user that will work with Recording Service and database.

## b. **Connect to remote / another preinstalled version of PostgreSQL database**

Allows you to specify connection settings to the existing database.

Go to the next step to specify database connection configuration.

During the installation of Recording Service, a shortcut to the Recording Service website is added to the Start menu.



**Important.** If you are using a software or hardware firewall, make sure that the configured ports are open in your firewall. For default network connection settings see '[Network connection settings](#)<sup>[58]</sup>' section.

Recording Service performance may vary depending on the hardware configuration. If you intend to use more than 20 Recorder instances, store PostgreSQL databases partially or fully on the SSD for better performance. For details see "[How to move database tables with screenshots to a new hard disk](#)<sup>[35]</sup>".

## Performing health check

To perform a health check on Recording Service:

1. Go to **Start** menu > **ABBYY Recording Service**  
Recording Service website will open in your browser.
2. If Recording Service has been installed correctly, you will see the Recording Service Site with the default template.

## Upgrading Recording Service

If you own Recording Service that comes along with ABBYY Timeline 5.2 or later, you can upgrade to Recording Service comes along with ABBYY Timeline 5.3. This means that you can install a new version of Recording Service, and your databases and logs will be maintained.

### Before you begin

It is recommended that you backup your Recording Service database before you perform the upgrade. To do this, use PostgreSQL. It includes utilities that allow you to make backups. These are **pg\_dump/pg\_dumpall** and **pg\_basebackup**. For detailed information, refer to <https://www.postgresql.org/docs/12/backup.html> or see '[PostgreSQL Databases Backup and Restore](#)<sup>[45]</sup>'.

### Basic steps

1. Run the **ABBYY.RecordingService.<version>.exe** file to start the Installation Wizard.
2. Follow the instructions of the Installation Wizard.

If you can't upgrade Recording Service using the setup, perform the following steps:

1. Uninstall your Recording Service.  
Your database is maintained while uninstalling.
2. Run the **ABBYY.RecordingService.<version>.exe** file to start the Installation Wizard.
3. Follow the instructions of the Installation Wizard.
4. To connect to the existing database, you must provide existing values in the **Database Connection** step.
  - a. **User login** and **User password**  
Specify PostgreSQL superuser credentials.
  - b. **Server name**  
Specify the server name where PostgreSQL is installed.
  - c. **Port**  
Specify TCP/IP port for PostgreSQL.
5. In the **Create Database** step specify:
  - a. **User to create**  
It is a username that will be used for interaction between Recording Service and the PostgreSQL database.  
**Important.** During every new installation, you must specify a new username.
  - b. **Database name**  
Specify a database name. Installer will assign the database to the specified user.  
**Note.** If you enter the name of a non-existent database, the installer will create a new database with the specified name.

## Uninstalling Recording Service

1. Open **Control Panel -> Programs -> Programs and Features** and select **ABBYY Recording Service**.
2. Click **Uninstall**.
3. In the Installation Wizard select **Uninstall** and follow the instructions of the Wizard.  
**Note.** Your database and recorded logs are maintained while uninstalling.

# How to Move Database Table with Screenshots to a New Hard Disk

Recording Service performance may vary depending on the hardware configuration. If you intend to use more than 20 Recorder instances, store PostgreSQL databases partially or fully on the SSD for better performance.

**Important.** Only the database table with screenshots is allowed to be moved to a new hard disk.

To do it, when the Recording Service installation or upgrade is complete, perform the following steps:

1. Create a folder on HDD, e.g., *D:\PostgresData*
2. Provide full access to this folder to account is used to run PostgreSQL service.  
The default account is: *NT AUTHORITY\NetworkService*
3. Perform as superuser the following actions on your PostgreSQL instance:
  - a. Register a new tablespace to define an alternative location on the file system where the data files containing database tables and indexes will reside.  
To do this, run the command:  
*CREATE TABLESPACE tablespace\_name LOCATION 'directory';*  
Example:  
*CREATE TABLESPACE slow\_large\_disk LOCATION 'D:\PostgresData';*
  - b. Change the Screenshot table's tablespace to the specified tablespace and move the data file(s) associated with the table to the new tablespace.  
*ALTER TABLE "Screenshot" SET TABLESPACE new\_tablespace;*  
Example:  
*ALTER TABLE "Screenshot" SET TABLESPACE slow\_large\_disk;*  
**Note.** Do not move the other tables' data files.

## ABBYY Recorder

This section contains information about installing and removing Recorder.

# Installing Recorder

## Before you begin

Before you begin installing Recorder, pay attention to the following:

1. If you plan to record user activities who work using Windows RemoteApp and Citrix Workspace App, install Recorder on a terminal server.  
ABBYY Recorder can be installed on the terminal server as if it was a workstation. It will log the actions of users connecting to this server via a Citrix client or RDP.
2. The user workstations installing the Recorder component, and the server hosting Recording Service must all be members of the same Active Directory domain.
3. Add the accounts of users on whose computers you intend to install Recorder to the Recorder writers Active Directory security group [you configured before the installation](#)<sup>[28]</sup>.
4. If the appropriate browser extensions are not installed, user activities will not be recorded in Google Chrome, Microsoft Edge, and Mozilla Firefox.
5. The Firefox extension for Recorder has several limitations. For detailed information, please refer to the "Known issues" > "[Recorder Firefox extension limitation](#)"<sup>[79]</sup> section.
6. A system reboot might be needed during the Recorder installation. Please save your work first, otherwise you may lose unsaved changes.

To install ABBYY Recorder, use one of the following methods:

- [Interactive installation](#)<sup>[36]</sup>
- [Command line installation](#)<sup>[39]</sup>

## Interactive installation

Run the **Abbyy.Recorder.<version>.exe** file, select the language to run the Installation Wizard and follow the on-screen instructions in the Installation Wizard.

**Note.** ABBYY Recorder has two interface languages: English and Japanese. The Japanese interface is only available on operating systems with the Japanese locale enabled.

## 1. License Agreement

Read and accept the license agreement.

## 2. Application Folders

### a. Installation folder

Recorder will be installed into this folder. The default installation folder is:

C:\Program Files\ABBYY Recorder

### b. Data folder

Specify a local or network folder where the program will store its data. To keep data in **%appdata%\ABBYY\Recorder\** folder, select **Use AppData folder**.

Depending on the operating mode, which is set in the next installation step, different data are stored in the specified folder:

- i. When installed in **Standalone** mode, application logs and logs with recorded user activity are stored there.
- ii. When installed in **Server managed** mode, only application logs are stored there.

## 3. Installation Details

### a. Tag

You may specify a tag. Tag is simply some text string that describes the current workstation with your Recorder instance. When installing in **Server managed** mode, tag is passed to Recording Service and helps the administrator identify a workstation in the Recording Service website. Username is not recommended as a tag because several users could occupy the same workstation.

For example, you can specify the same tag when installing Recorder on several workstations, e.g., the 'accounting department' tag. Then you can easily find these workstations in the **Recorders** list on the Recording Service website by the 'accounting department' tag.

### b. Operation mode

Select the Recorder operation mode:

#### i. Standalone

Standalone mode is useful for trial purposes. It has the following limitations:

- Forms is unavailable

In the 5.3 version, Task Mining obtained a fundamentally new approach to

recording and analyzing user actions - Forms. A Form is a set of subsequent user actions in one application, window, or a web page. They are detected automatically by the Recording Service and Timeline if Recorder installed in the **Server managed** mode. In the **Standalone** mode forms are don't detected.

- The feature **Obfuscate user data** does not apply to screenshots. This means records in text logs are encrypted, but data in screenshots aren't blurred.
- Logs are not processed and not sent to Recording Service. Thus, it is impossible to use Recording Service to review recorded data and upload logs to ABBYY Timeline. You'll need to upload collected logs directly to ABBYY Timeline manually. For detailed information see '[How to Upload Logs to Timeline from a Recorder Installed in Standalone Mode](#)<sup>76</sup>' section.

**Important.** Logs recorded in **Standalone** mode can only be uploaded to the Task Mining 2.5 project. Since the logs recorded in this mode do not contain information about the forms, they are not compatible with Task Mining 5.3 project and it is impossible to upload them to the 5.3 project.

When this mode is on:

- Recording control (start/stop) remains with the local computer.
- The logs with the recorded data are saved on the local computer.
- Setup installs the Recorder Log Viewer utility. The utility allows opening the logs recorded by the Recorder installed in Standalone mode.  
For detailed information on usage of Recorder Log Viewer, see 'Recorder Log Viewer Guide'.

#### i. **Server managed**

When this mode is on, the recording control (start/stop) can be performed from Recording Service. User activity logs are automatically saved to the server. Specify the URL on which Recording Service is installed and accessible over Network.

### 4. **Installation Option**

Select browser extensions you want to install. Extensions allow Recorder to capture user actions in the Google Chrome, Microsoft Edge and Mozilla Firefox browsers.

**Note.** The Recorder Firefox extension has several features. Please refer to the 'Known issues' > '[Recorder Firefox extension limitation](#)<sup>79</sup>' section for detailed information.

After Recorder is installed on users' computers, each user must enable extensions in browser. Below you will find instructions on how to enable the extension in [Google Chrome](#)<sup>42</sup>, [Microsoft Edge](#)<sup>43</sup>, and [Mozilla Firefox](#)<sup>43</sup>.

**Note.** If a user has just been added to the [Recorder-writer](#)<sup>17</sup> Active Directory group, you may need to restart the computer. This allows Recorder installed in the **Server managed** mode to connect to Recording Service.

## Command line installation

Run the **Abbyy.Recorder.<version>.exe** file using the command line parameters described below.

### Silent installation

To install Recorder in silent mode, use the following command line:

```
Abbyy.Recorder.<version>.exe /silent
```

For the command-line installation, use the following command-line options:

Option	Default Value	Description
/silent		Runs the installation in silent mode.  In the case of silent installation, no setup dialog boxes are displayed, and the program is installed in default configuration.
/passive		Runs the installation with the progress bar only to be displayed. No other dialog boxes will be displayed.
installDir=<path>	C:\Program Files\ABBYY Recorder	The path to the folder where Recorder will be installed.
DataPath=<path>	%appdata%\ABBYY\Recorder	Folder where the program will store its data.  Depending on the operating mode,

Option	Default Value	Description
		<p>different data are stored in the specified folder:</p> <ul style="list-style-type: none"> <li>If you specify <a href="#">ServerUrl</a><sup>40</sup> value to install Recorder in <b>Server managed</b> mode, only application logs are stored there.</li> <li>If you install Recorder in <b>Standalone</b> mode, application logs and logs with recorded user activity are stored there.</li> </ul>
Tag= <tag>		Tag describing a current workstation. No tag is added by default.
ServerUrl= <server URL>		<p>Turns the <b>Server managed</b> on. Specify the URL where Recording Service is installed and accessible over Network.</p> <p>If this option is not specified, the default installation is in <b>Standalone</b> mode.</p>
ChromeExt= <true false>	true	Installs Recorder Chrome extension.
EdgeExt= <true false>	true	Installs Recorder Edge extension.
FirefoxExt= <true false>	true	<p>Installs Recorder Firefox extension.</p> <p><b>Important.</b></p> <ul style="list-style-type: none"> <li>The Recorder setup can install the Recorder Firefox extension only under a current user account. How to solve this issue see 'Known Issues' &gt; <a href="#">Recorder Firefox extension limitation</a><sup>79</sup> section.</li> <li>The Recorder setup cannot remove the Recorder Firefox extension. Each user must remove the Recorder</li> </ul>



Option	Default Value	Description
		Firefox extension from Mozilla Firefox manually. For more information, see the ' <a href="#">How to Uninstall Recorder Firefox Extension</a> ' <sup>45</sup> section.
ControlButtonsVisible = <true false>	true	<p>Specifies the mode where most of the standard UI is turned off.</p> <p>Recorder offers a custom UI option as an alternative to the classic UI. It removes the <b>Enable/Disable</b> buttons from the Recorder UI when it is installed in <b>Server managed</b> mode.</p> <p><b>Important.</b> It is highly discouraged to install Recorder with custom UI in production environment.</p> <p>For detailed instructions on installing Recorder with custom UI, see below.</p>

## Installing Recorder with custom UI

Recorder offers a powerful security feature that allows users to disable when Recorder is recording their desktop activity. There are however some cases when the recording process needs to be managed only by the administrator through Recording Service thereby preventing the end user from turning Recorder on or off. For such cases, Recorder offers a custom UI option as an alternative to the classic UI. It removes the **Enable/Disable** buttons from the Recorder UI when it is installed in **Server Managed** mode. To use this option, all Recorders need to be installed in silent mode using the command line installation using the parameter **controlButtonVisible = false**. The **controlButtonVisible** parameter specifies the mode where most of the standard Recorder UI is turned off, preventing the user from controlling when Recorder is on or off.

**Example:** `Abbyy.Recorder.<version>.exe /silent installDir="C:\Recorder" DataPath="C:\Data" Tag="RecorderWorkstation1" ServerUrl="https://myrecordingservice.com/" FirefoxExt=false ControlButtonsVisible=false`

This command installs Recorder to the **C:\Recorder** folder in **Server managed** mode with the following settings:

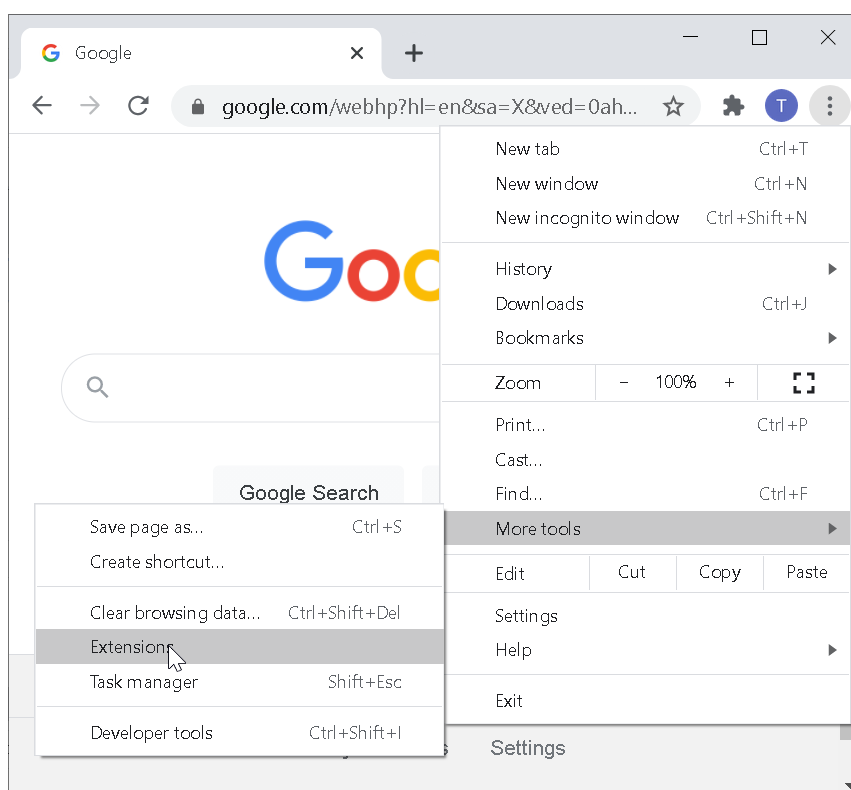
- The **Enable/Disable** buttons are removed from the Recorder UI. Only the administrator has privileges to control the recording process through the Recording Service website.
- The Recorder Chrome and Edge extensions will be installed. The Firefox extension will not be installed.
- Program logs will be stored in the **C:\Data** folder.
- Logs of user activity will be sent to Recording Service hosted at **<https://myrecordingservice.com/>**.

## How to Enable Chrome Extension

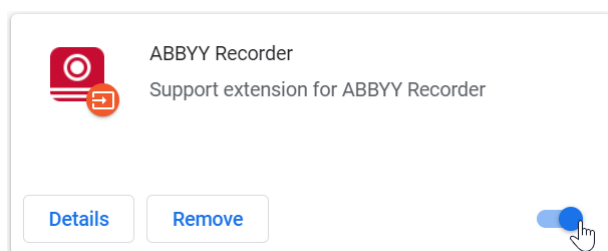
To turn on the ABBYY Recorder Chrome extension, carry out the steps listed below on the workstations.

**Important.** An internet connection is required on workstations.

1. Open or restart **Chrome**.
2. Click the menu button, click **More tools**, and then click **Extensions**.  
The **Extensions** page appears.



- Find the **ABBYY Recorder** extension in the list and select the **Enable** check box.



- The Recorder extension is now enabled.

## How to Enable Edge Extension

To turn on the ABBYY Recorder Edge extension, carry out the steps listed below on the workstations.

**Important.** An internet connection is required on workstations.

- Open Microsoft Edge.
- Click the menu button, and then click **Extensions**.  
The **Extensions** page appears.
- Locate the **ABBYY Recorder** extension in the list and move the slider to On.
- The Recorder extension is now enabled.

## How to Enable Firefox Extension

To turn on the ABBYY Recorder Firefox extension, carry out the steps listed below on the workstations.

- Open Mozilla Firefox.
- Click the menu button and select **Add-ons and Themes**.
- Click **Extensions**.  
The **Extensions** screen appears.
- Locate the **ABBYY Recorder** extension in the list and click **Enable**.  
If the extension is not listed, it may not have been installed. How to install the extension manually, see the '[How to install the Firefox extension in browser manually](#)'<sup>44</sup> section.

5. The Recorder extension is now enabled.

**Important.** In order for the Recorder extension to work properly, the Firefox browser and ABBYY Recorder must be run under the same account.

## How to Install the Firefox Extension in Browser Manually

1. Open Mozilla Firefox.
2. Click the menu button and select **Add-ons and Themes**.
3. Click **Extensions**.  
The **Extensions** screen appears.
4. Press **Settings** (gear icon) next to the add-on search bar and select **Install Add-on From File**.
5. Select **%ABBY Recorder folder%\FirefoxExtension\abbyy\_recorder-\*.xpi** and click **Open**.
6. Your Firefox browser will ask you to install the ABBYY Recorder extension right now.
7. Click **Add** to allow the installation.

## Performing health check

Check that Recorder has been installed properly by doing the following:

- Recorder icon appeared in the system tray.
- Open your browser and make sure the **ABBY Recorder** extension appeared in the extensions list.

## Upgrading Recorder

If you own ABBYY Recorder that comes along with ABBYY Timeline 5.2 or later, you can upgrade to ABBYY Recorder comes along with ABBYY Timeline 5.3.

To upgrade ABBYY Recorder run the **Abbyy.Recorder.<version>.exe** file and follow the instructions of the Installation Wizard.

During the upgrade process, the installer maintains all your previous settings.

## Uninstalling Recorder

This section contains information about removing Recorder.

### Uninstalling ABBYY Recorder via the Command Line

To uninstall ABBYY Recorder in silent mode via the command line, run:

```
Abbyy.Recorder.<version>.exe /uninstall /silent
```

**Important.** The ABBYY Recorder setup cannot remove the ABBYY Recorder Firefox extension from the Mozilla Firefox browser. If you have the ABBYY Recorder Firefox extension installed on workstations, users must uninstall this extension from their Firefox browser manually. For detailed information see '[How to Uninstall ABBYY Recorder Firefox Extension](#)<sup>45</sup>' section.

### How to Uninstall ABBYY Recorder Firefox Extension

After the ABBYY Recorder uninstallation is complete, each user must remove the ABBYY Recorder Firefox extension from Mozilla Firefox manually:

1. Open Mozilla Firefox.
2. Click the menu button and select **Add-ons and Themes**.
3. Click **Extensions**.  
The **Extensions** screen appears.
4. Locate the **ABBYY Recorder** extension in the list.
5. On the right side, click the ellipsis (3-dot) icon and select **Remove** from the drop-down menu.

## PostgreSQL Databases Backup and Restore

The Recording Service and Timeline databases contain valuable data. These PostgreSQL databases should be backed up regularly. It is highly important to backup databases before upgrading the Recording Service and Timeline applications.

We suggest you take one of the approaches to backing up your PostgreSQL database:

- File system level backup
- SQL dump

The following is an example of backing up and restoring Recording Service databases

## File System Level Backup

This backup strategy is to directly copy the files that PostgreSQL uses to store the data in the database. We highly recommend backup your Recording Service and Timeline databases using this method before the upgrade. You can use whatever method you prefer for doing file system backups, but first you have to stop the Recording Service website in IIS and shut down a database server in order to get a usable backup.

### Basic Steps

1. Open Internet Information Services (IIS) Manager and stop the **RecordingService** website.
2. Shut down a PostgreSQL database server
3. Copy **Data** Directory  
The default path is: C:\Program Files\PostgreSQL\12\data  
**Note.** If you are using SSD and HDD to store databases, copy all your PostgreSQL data directories
4. Start PostgreSQL database server.
5. Start **RecordingService** website.

### Restoring Files

To restore your database, you can use whatever method you prefer for doing file system restore, but first you have to stop the Recording Service website in IIS and shut down a database server in order to get a usable backup. For example, repeat the backup steps, but in steps 3 and 3.a delete the current folders and replace them with the folders from the backup.

## SQL dump

The idea behind this dump method is to generate a file with SQL commands that, when fed back to the server, will recreate the database in the same state as it was at the time of the dump. PostgreSQL provides the utility program **pg\_dump** for this purpose. It extracts a PostgreSQL database into a script file or other archive file.

The approach is recommended for daily and weekly backing up.

You don't need to shut down a database server to get a usable backup. You can perform a backup procedure from any remote host that has access to the database. But the **pg\_dump** utility does not operate with special permissions. In particular, it must have read access to all tables that you want to back up, so in order to back up the entire database, you almost always have to run it as a database superuser. If you do not have sufficient privileges to back up the entire database, you can still back up portions of the database to which you do have access.

An important advantage of **pg\_dump** over the previous backup method is that **pg\_dump**'s output can generally be re-loaded into newer versions of PostgreSQL, whereas file-level backups and continuous archiving are both extremely server-version-specific.

For detailed information, see <https://www.postgresql.org/docs/12/app-pgdump.html>.

Example of command line to run on the same computer where the Recording Service database is installed:

```
"C:\Program Files\PostgreSQL\12\bin\pg_dump.exe" -F d -Z 1 -U su -j 2 -f \\\fileshare\\backups\\august_backup RFStorage
```

where:

- *RFStorage* - the name of the database used by the Recording Service.
- *su* - user with sufficient rights.

## Restoring the Dump

Dumps are restored using the **pg\_restore** utility. It restores a PostgreSQL database from an archive file created by **pg\_dump**.

For detailed information, see <https://www.postgresql.org/docs/12/app-pgrestore.html>

Example of command line to restore a dump is:

```
pg_restore -d RFStorage \\\fileshare\\backups\\august_backup
```

# About Timeline Licenses

When installing ABBYY Timeline, the license copies to the computer on which Timeline is being installed. Your license determines the Timeline subscription plan. You need to purchase a license update in order to add support for new features, extend the license period, the maximum number of users you can add to your Timeline account, or change other license parameters.

To get more information about subscription plans or purchase a license, contact your local ABBYY sales representative or ABBYY Timeline support at [support@abbyy.com](mailto:support@abbyy.com).

## Updating a License

1. Go to the computer on which Timeline is installed.  
**Note.** To perform all activities below, you must be a system administrator of the computer.
2. Stop the **timelinepi** service using Services snap-in or open Command Prompt as administrator and use:  

```
sc stop timelinepi
```
3. Go to the Timeline installation folder and open the **license** folder  
 The default is C:\Program Files\ABBYY Timeline\license
4. Back up existing **timelinepi.lic** file.
5. Replace the **timelinepi.lic** file with the new one.
6. Start the **timelinepi** service using Services snap-in or run Command Prompt as administrator and use:  

```
sc start timelinepi
```



# Administering

This section provides instructions for configuring the ABBYY Timeline components.

## Using OAuth to Access Timeline

OAuth is an authorization protocol that allows granting one service (application) the right to access user resources on another service. The protocol eliminates the need to pass the application a username and password and allows a third-party application to gain limited access to an application or service, on behalf of a resource owner.

For interaction between Recording Service and Timeline components, it is recommended to register Recording Service as a client on the Timeline website.

### Before you begin

Role required: admin

### Basic steps

1. Register Recording Service as a client on the Timeline website and obtain credentials (**Client ID** and **Client Secret**).

For more information, see the '[Registering a New Client on Timeline website](#)'<sup>49</sup> section below.

2. In the Recording Service website specify the authentication details to Timeline using the credentials you obtained in step 1.

For more information, see the '[Configuring connection setting in Recording Service](#)'<sup>51</sup> section below.

### Registering a New OAuth Client on the Timeline website

1. Open the Timeline website and login using credentials specified during the [Timeline installation](#)<sup>23</sup>.
2. Go to **Account Settings** > **OAuth** tab and click **Register client**.

3. In the registration form, fill in the following fields:

a. **Name**

Enter a unique name that identifies the application that you require OAuth access for. For example, RecordingService.

**Note.** The specified name is then presented to a user in the consent screen on the Recording Service website, make it clear to your users.

b. **App URL**

Enter the URL that hosts Recording Service. For example,

<https://recorder.myCompany.com>

**Note.** To get the correct **App URL** and **Redirect URI** for the Recording Service, open the Recording Service website in your browser and go to the **Settings** tab. There you will find the "Timeline Authentication Guide". Find the value you need, copy, and paste it into the appropriate field on the Register OAuth Client form on the Timeline website.

c. **Redirect URI**

Enter the callback URL that the authorization server redirects to. Enter the full URL of the clients requesting access to the resource, appended by **/api/auth/callback**. For example, <https://recorder.myCompany.com/api/auth/callback>

d. **Confidential client**

Select **Confidential clients** as Recording Service is able to securely authenticate with the authorization server, for example being able to keep their registered client secret safe.

e. **Client logo**

This is optional. You may upload an image to use as the application logo. The logo appears on the approval page when you receive a request to grant a client application access to a restricted resource on the instance.

f. **Scopes**

Select **Read projects** and **Write projects** scope values to request access to submit data from Recording Service to Timeline. An application can request one or more scopes, this information is then presented to a user in the consent screen, and the access token issued to the application will be limited to the scopes granted.

4. Click **Register** and you will be able to see **Client ID** the auto-generated unique ID of the application. Copy **Client ID** and **Client Secret** fields for use on Recording Service.

## Configuring authentication setting in Recording Service

1. Open Recording Service website you installed in the "[Recording Service installation](#)"<sup>30</sup> step and login.
2. Go to the **Settings > Timeline authentication** and fill the fields in:
  - a. **Timeline URL**  
Enter the URI of the Timeline website.
  - b. **Client ID** and **Client Secret**  
Enter the **Client ID** and **Client Secret** you obtain after registering the client in [step 4 'Registering a New Client on the Timeline website'](#)<sup>50</sup> section.
3. Click **Save connection**.  
Please wait for notification. If the connection is successful, it displays **Save**. Otherwise, an error appears: 'The server is unreachable, please notify the administrators and try again later'.  
If connection fails:
  - a. Check the connection settings you specified above.
  - b. Make sure the Timeline website is available.
  - c. Check the firewall settings. For more information, see the '[Network Connection Settings](#)'<sup>49</sup>.
  - d. Make sure the ports specified during the Recording Service installation are not being used by other applications. For more information, see the "[Check TCP/IP port availability](#)"<sup>57</sup>.

# Using HTTPS

You can use HTTPS to secure data transferred between the application components and the client's browser.

To configure HTTPS, you need SSL certificates for Timeline and Recording Service. You can choose one of the following options:

1. Use SSL certificate issued by the Certification Authority (CA).  
This is the recommended approach for the application installation that is intended for a production environment. The connection to the server will be secure and users will not get any warnings from the browser.
2. Use a self-signed SSL certificate.  
If you do not have a signed certificate or if you only require a certificate for testing purposes, use a self-signed SSL certificate. However, in this case users will get warnings from the web browser about the use of a self-signed certificate as the server will not be considered secure.  
**Note.** If you install the program in a production environment, it is highly discouraged to use a self-signed SSL certificate.

**Important.** If you install the program in a production environment, it is strongly recommended to use HTTPS and highly discouraged HTTP.

## How to Set up HTTPS for Timeline

Below is a general sequence of steps necessary for setting up HTTPS for Timeline.

### Basic steps

1. Obtain an SSL certificate.
2. Extract the certificate and keys from a .pfx file.  
Currently, Timeline does not accept .pfx files. You must extract the **.cert** and **.key** files from the .pfx file, so that the certificate and the key files are available separately.  
For more information see "[How to extract .cert and .key files from the .pfx](#)".
3. Set up HTTPS.  
You can enable SSL and configure HTTPS on one of the following stages:

- During the Timeline installation process

For more information see "[How to set up HTTPS during the Timeline installation](#)"<sup>54</sup>.

- After the Timeline installation is completed.

For more information see "[How to set up HTTPS without reinstalling Timeline](#)"<sup>55</sup>.

## How to extract .cert and .key files from .pfx

**Prerequisites.** Ensure OpenSSL is installed in the server that contains the SSL certificate.

**Important.** Name your private key and certificate files as **server.key** and **server.cert** respectively. The key and certificate files must be named **server.key** and **server.cert** since Timeline accepts only files with these names.

1. Start OpenSSL from the **OpenSSL\bin** folder.
2. Open the command prompt and go to the folder that contains your .pfx file.
3. Run the following command to extract the private key:

```
openssl pkcs12 -in [yourfile.pfx] -nocerts -out [keyfile-encrypted.key]
```

You will be prompted to type the import password. Type the password that you used to protect your keypair when you created the .pfx file. You will be prompted again to provide a new password to protect the .key file that you are creating. Store the password to your key file in a secure place to avoid misuse.

4. Run the following command to extract the certificate:
- ```
openssl pkcs12 -in [yourfile.pfx] -clcerts -nokeys -out [certificate.cert]
```
5. Run the following command to decrypt the private key:
- ```
openssl rsa -in [keyfile-encrypted.key] -out [keyfile-decrypted.key]
```
6. Type the password that you created to protect the private key file in the previous step.
  7. The .cert file and the decrypted and encrypted .key files are available in the path, where you started OpenSSL.
  8. Rename your **.cert** and **.key** files to **server.cert** and **server.key** as Timeline only accepts files with these names.

## How to set up HTTPS during Timeline installation

1. Run the **ABBYY-Timeline-5.3.\*-installer.exe** file and follow the on-screen instructions in the Installation Wizard. For more information see '[Installing Timeline](#)'<sup>20</sup>.
2. Enable SSL between the remote PostgreSQL instance and application in the **Database Connection** step.  
If your remote PostgreSQL is configured with SSL support:
  - a. Choose **Use SSL for the database connection**.
  - b. Provide a path to your database SSL certificate.  
If your PostgreSQL is configured with SSL support and a CA root certificate file is used, choose **Use CA Root certificate file** and provide the full path to your root certificate.
3. Enable SSL between application and client in the **Timeline Base URL and Ports Configuration** step:
  - a. Specify TCP/IP port for the Timeline website. For example, 443.
  - b. Choose **Use HTTPS**.
  - c. Provide paths to **server.cert**, **server.key**, and the password (if presented) files.
4. Setup a network connection for Timeline. For more information see '[Network Connection Settings](#)'<sup>58</sup>.
  - a. In Windows Firewall, open the rules for inbound Timeline connections.
  - b. Add a TCP/IP port specified during the installation process to the exception list. For example, 443 port.
5. Check whether HTTPS is functioning properly  
Open a browser on any computer and enter **{TimelineUrl}:{port}** in the address bar, where:
  - **{TimelineUrl}** is the [Base URL you specified during the Timeline installation](#)<sup>25</sup> or the public IP address or the full name of the computer where Timeline is installed.
  - **{port}** is the custom port assigned to the Timeline website during the installation process. If you are using the default port (80 or 443), you do not need to add them to the **{timelineURL}**. By default, TCP/IP port 80 or 443 is used.

Example: `https://mytimeline:30443`

## How to switch from HTTP to HTTPS without reinstalling Timeline

If you did not configure HTTPS when installing Timeline, you can do it later without reinstalling Timeline. To do this:

1. Go to the computer on which Timeline is installed.  
**Note:** To perform all activities below, you must be a system administrator of the computer.
2. Stop the **timelinepi** service using **Services** snap-in or open **Command Prompt** as administrator and use:  

```
sc stop timelinepi
```
3. Open the Timeline installation folder and copy the **server.cert** and **server.key** to **ssl** subfolder.
4. By default, the Timeline website uses 443 TCP/IP port when using HTTPS.  
 You can reassign port numbers. For more information see "[Set a Different Website Base URL and Port Number for Timeline](#)"<sup>59</sup>  
 Then you need to make changes to the appropriate Windows Firewall rules or to the settings of any other firewall that you are using.
5. Make sure the HTTPS protocol is specified in the `BASE_URL` variable in the **TimelinePI.xml** configuration file. Update `base_url` with a port number in case of the custom port.  
 Example: `BASE_URL=https://mytimeline.com:30443`
6. Start the **timelinepi** service using **Services** snap-in or run **Command Prompt** as administrator and use:  

```
sc start timelinepi
```
7. [Perform a health check](#)<sup>26</sup>

# How to Set up HTTPS for Recording Service

Below is a general sequence of steps necessary for setting up HTTPS for Recording Service during the installation process.

1. Obtain an SSL certificate.

The SSL certificate should be installed in Microsoft IIS on the server you plan to install Recording Service.

2. Run the **ABBYY.RecordingService.<version>.exe** file and follow the on-screen instructions in the Installation Wizard. For more information see '[Installing Recording Service](#)'.

During the **Destination Folder** step:

- a. Choose **Use HTTPS**.

- b. Select the SSL certificate from the list.

You can find the thumbprint of your certificate in the **Internet Information Services (IIS) Manager**:

- i. In **Connections**, select the server name (host).

- ii. Open **Server Certificates**.

- iii. Open your certificate details and find **Thumbprint**.

3. Setup a network connection for Recording Service. For more information see '[Network Connection Settings](#)'.

- a. In Windows Firewall, open the rules for inbound Recording Service connections.

- b. Add a TCP/IP port specified during the installation process to the exception list.  
For example, 443 port.

4. Check whether HTTPS is functioning properly

To make sure that HTTPS is functioning properly, open a browser on any computer and enter the following into the navigation bar:

https://{url}:{port}

where:

{url} is the name of the Recording Service website.

{port} is the port assigned to the Recording Service website during the installation process. For example, 443.



## How to switch from HTTP to HTTPS without reinstalling Recording Service

If you did not configure HTTPS when installing **Recording Service**, you can do it later using IIS Manager:

1. Select **RecordingService** site in the **Connections** panel.
2. Click **Bindings...** in the **Action** panel.
3. In the **Site Bindings** windows click **Add**.  
The **Add Site Binding** windows will open.
4. Select HTTPS type and provide an SSL certificate issued to the site URL.
5. Restart the site.

## Check TCP/IP port availability

If the Recording Service or Timeline website does not open after the installation is complete, the problem may occur due to the busy TCP/IP port specified during installation.

To find open ports on a computer and to check what is using specified port, use **netstat** command line:

1. Open the **Command Prompt (Start > Run > cmd)** and use **netstat -ano | find /i "<port\_number>"**.

It will show you all processes that use specified port. Notice the PID (process id) in the right column.

- **-a**

Displays all active connections and the TCP and UDP ports on which the computer is listening on.

- **-n**

Displays active TCP connections and port numbers in numerical form.

If you want to free the port, go to **Task Manager**, sort by PID and close those processes.

- **-o**

Displays active TCP connections and includes the process ID (PID) for each connection.

# Network Connection Settings

The table below lists the ports that are used by default to access Timeline components or for interaction between components. If you are using a software or hardware firewall, make sure that the exception settings for Timeline and Recording Service have been set up accordingly on the computer where they installed.

If you reassign port numbers, you will need to make changes to the appropriate Windows Firewall rules or to the settings of any other firewall that you are using.

## Timeline

Timeline setup does not create any software or hardware firewall exceptions. You must set up exception settings to allow interactions between components to take place inside a network. For example, you create inbound and outbound rules in Windows Firewall. The table below contains information about the ports that Timeline listens on.

Component name	Protocol type	Port	Traffic direction	Use
Timeline	TCP/IP	80 or the port used during the installation (if use HTTP)  443 or the port used during the installation (if use HTTPS)	Inbound	HTTP or HTTPS connections to the Timeline website.
PostgreSQL	TCP/IP	5432	Inbound	Connections to the PostgreSQL database server from the remote computer where the Timeline is hosted.

## Recording Service

Component name	Protocol type	Port	Traffic direction	Use
Recording Service	TCP/IP	80 (if use HTTP)  443 (if use HTTPS)	Inbound	HTTP or HTTPS connections to the Recording Service website.
Recording Service	TCP/IP	80 (if use HTTP)  443 (if use HTTPS)	Outbound	<ul style="list-style-type: none"> <li>• Connections to the PostgreSQL database server.</li> <li>• Connections to Timeline.</li> </ul>
PostgreSQL	TCP/IP	5432	Inbound	Connections to the PostgreSQL database server from the remote computer where Recording Service is hosted.

## Set a Different Website Base URL and Port Number for Timeline

The port number used by the Timeline website is specified during the Timeline installation. By default, TCP/IP port 80 or 443 is used for the Timeline website. You can change the port number later using **TimelinePl.xml** configuration file:

1. Go to the computer on which Timeline is installed.  
**Note:** To perform all activities below, you must be a system administrator of the computer on which Timeline is installed.
2. Stop the **timelinepi** service using **Services** snap-in or open **Command Prompt** as administrator and use:  

```
sc stop timelinepi
```

 To ensure the correct operation of Timeline, you need to stop **timelinepi** service prior to changing the Timeline configuration file.
3. Open **Command Line** and use **netstat -a** to get a list of ports and choose an available port.

4. Go to the Timeline installation folder and open **TimelinePI.xml** file using text editor.  
By default, the program is installed into C:\Program Files\ABBYY Timeline
5. In the **TimelinePI.xml** configuration file:
  - a. Find the line contains **PROXY\_PORT** and change the value.  
e.g.: `<env name="PROXY_PORT" value="8080"/>`  
If you use a HTTPS port, change the value for the **PROXY\_SSL\_PORT** option.  
e.g.: `<env name="PROXY_SSL_PORT" value="30443"/>`
  - b. Find the line contains **BASE\_URL** and add or change the port in the value.  
e.g.:  
`<env name="BASE_URL" value="https://mytimeline.com:8080"/>`  
or  
`<env name="BASE_URL" value="http://mytimeline.com:30443"/>`  
If you are using the default port (80 or 443), you do not need to add them to the URL. By default, TCP/IP port 80 or 443 is used.
6. Save the **TimelinePI.xml** file.
7. Start the **timelinepi** service using **Services** snap-in or run **Command Prompt** as administrator and use:  

```
sc start timelinepi
```

**Important.** If you reassign port numbers, you will need to make changes to the appropriate Windows Firewall rules or to the settings of any other firewall that you are using. Also, you will need to make changes to **BASE\_URL**

## How to Change SMTP Mail Server Configuration for Timeline

SMTP mail server is configured during the [ABBYY Timeline installation](#)<sup>24</sup>. You can change your mail server settings later using **TimelinePI.xml** configuration file.

To change mail server configuration, perform the following actions:

1. Go to the computer on which Timeline is installed.  
**Note.** To perform all activities below, you must be a system administrator of the computer.
2. Stop the **timelinepi** service using **Services** snap-in or open **Command Prompt** as administrator and use:  

```
sc stop timelinepi
```

To ensure the correct operation of Timeline, you need to stop **timelinepi** service prior to changing the Timeline configuration file.

3. Go to the folder where Timeline is installed and open **TimelinePI.xml** using any text editor.

By default, Timeline is installed into C:\Program Files\ABBYY Timeline

4. In the **TimelinePI.xml** configuration file find the following lines and change their values:

- a. `<env name="MAIL_SERVER_HOST" value="" />`

This line contains the host of the SMTP mail server, enter the address in the value.

e.g.: `<env name="MAIL_SERVER_HOST" value="example.smtp.com" />`

- b. `<env name="MAIL_SERVER_PORT" value="" />`

This line contains the port of the SMTP mail server, enter the port in the value.

e.g.: `<env name="MAIL_SERVER_PORT" value="465" />`

- c. This line contains the user that will be used to authenticate with the SMTP mail server, enter the username in the value. Keep this value empty if your mail server requires no authentication.

`<env name="MAIL_SERVER_USERNAME" value="" />`

e.g.: `<env name="MAIL_SERVER_USERNAME" value="example_user" />`

- d. `<env name="MAIL_SERVER_PASSWORD" value="" />`

This line contains the password of the user that will be used to authenticate with the mail server, enter the username in the value. Keep this value empty if your mail server requires no authentication.

e.g.: `<env name="MAIL_SERVER_PASSWORD" value="example_password" />`

- e. `<env name="MAIL_SERVER_SECURE" value="FALSE" />`

This line contains the option whether to use TLS from the start of the connection. If you want TLS from the start it should be **TRUE** otherwise it should be **FALSE**.

**Note.** It is recommended Timeline and the Exchange server use the same TLS settings

- f. `<env name="MAIL_SERVER_REQUIRE_TLS" value="FALSE" />`

This line contains the option specifies whether the connection should be established on an unencrypted channel, then upgrade to a secure connection with a STARTTLS command. If so, specify **TRUE** otherwise **FALSE**.

- g. `<env name="MAIL_SERVER_REJECT_UNAUTHORIZED" value="TRUE"/>`

This line contains the option to reject unauthorized certificates, for example, self-signed certificates. In that case, it should be **TRUE**. If you want to use a self-signed certificate specify **FALSE**.

- h. `<env name="EMAIL_SENDER" value="noreply@example.com"/>`

This line contains the email sender address is used to fill the 'From' header field of e-mails.

5. Save the **TimelinePI.xml** file.

6. Start the **timelinepi** service using **Services** snap-in or run **Command Prompt** as administrator and use:

```
sc start timelinepi
```

## How to Change AD Security Groups that Have Access to the Recording Service Resources

Active Directory security groups are configured when [installing the Recording Service](#)<sup>31</sup>. You can change groups that have full control and/or write access to Recording Service later using the **Appdata.production.json** configuration file.

To change the configuration of Active Directory security groups, perform the following actions:

1. Select the computer on which Recording Service is installed.

**Important Note:** To perform any of the steps below, you must be a system administrator of the computer.

2. Select the folder where Recording Service is installed and open

**Appdata.production.json** using any text editor.

By default, the component is installed into C:\inetpub\ABBY Recording Service.

3. In the **Appdata.production.json** file, find the **ADGroupAccess** section and change the values for the **UiAdmin** and **Recorder** parameters:

```
"ADGroupAccess": {
  "UiAdmin": "Domain\\UserName",
  "Recorder": "ADGroupName"
}
```

**Important Note:** Backslashes used in values must be escaped with a backslash.

4. Save the **Appdata.production.json** file.

5. Restart the Recording Service website in the Internet Information Services (IIS) Manager.

# Configuring Recording Service

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## Configuring and Applying Templates

Configure the template to specify what data needs to be logged and how it is to be processed. To do this, open the Recording Service website and go to the **Template** tab. Here you can add, change, or remove a template. A **Default** template is created during the Recording Service installation process. You can add and customize new templates.

Go to the **Templates** tab on the Recording Service website to see basic information on templates, review the Default template setting or add a custom template. For detailed information on the **Default** template and available settings, see below. All options available in the Default template you can set in your custom template.

### Before you begin

Role required: admin

**Note.** If your account is not added to the **Admin AD Security group** [specified during the Recording Service installation](#) <sup>31</sup>, you will not have access to the site.

### Basic steps

1. Open the Recording Service website and go to **Templates**.
2. Click **Default** in the **Template name** column. Review and modify the options if needed.

**Note.** The **Default** template cannot be renamed or deleted.

#### a. **Start recording when assigned to recorder**

If you need to start to record user actions after you assigned a template to a

recorder, turn this toggle switch on.

By default, the automatic start record is disabled.

**b. Record screenshots**

By default, user activity and screenshots of the applications the user uses are recorded in logs.

Screenshots will help you better understand the scenarios in which these events occurred when analyzing the recorded events. Disable this option if you do not need to save screenshots.

**c. Record extended application info**

Enable this option if you plan to export processes from Timeline for further import and refinement in Blue Prism applications. This option allows to log additional information required to generate a Blue Prism JSON file.

**d. Obfuscate user data**

This option allows to protect sensitive information and ensure data security. By default, this option is turned on. This means records in text logs are encrypted, and data in screenshots is blurred. If the option is disabled, you can easily read all the texts and see data in the screenshots. To do this just go to the **Logs** tab and click **LogID**.

**e. Scheduled recording**

Turn on this option to schedule recording sessions of user activity for the Recorder instance.

**f. Merge data from multiple hosts**

This option allows to log a user activities in one log, if user works on multiple computers. For example, they works on their PC, and then switches to RDP and works there.

**Note.** If different tags were added during the installation to each Recorder instances, all tags will be listed separated by commas for the resulting log. During the logging process, the list of tags may not appear immediately, but with some delay.

Before using this option, make sure the following conditions are met:

- i. Recorder is installed on every computer a user works on and all recorder instances display on the **Recorders** tab. In the **Host** column you can see a computer name visible on the network within the Active Directory domain
- ii. Each of the Recorder instance must be set the same template.



#### g. **Application list**

The use **Included** and **Excluded** lists can significantly reduce the amount of unwanted data in the project and make analyzing tasks and processes easier. This becomes very important when dealing with large datasets that include important events which can be made harder to understand and analyze when there are a lot of case and path variants and deviations which are further complicated by unnecessary data.

The default template contains a [predefined excluded list](#)<sup>[69]</sup>. It includes the most popular messengers. Correspondence in them may not be related to the tasks that a user performs. To exclude the logging in the desired messenger, turn the **EXCLUDED LIST** on and mark an item.

For details on setting up **Excluded** and **Included lists**, see the '[Excluding and Including Applications](#)'<sup>[66]</sup> and '[Examples](#)'<sup>[67]</sup> sections.

#### h. **Transformations**

Transformations allow finding and replacing text in logs in order to redact sensitive information, such as email addresses or IDs. This option complements the **Obfuscate user data** feature. For example, transformations allow you to replace an URL or some text in logs that should remain confidential, while obfuscation allows you only to mask text data or blurs information in pictures.

By default, there are no transforms specified. To add transformations to the template, add them on the **Transformations** tab in advance. During adding a transformation, you must specify:

##### i. **Regular expression**

It will be used to search for the text in the recorded logs.

##### ii. **Replacement**

A string to replace the found text.

**Important.** Transformations added to a template are applied during the log recording the template is assigned to. It is impossible to undo transformations.

For detailed instructions on using transformation see '[Transformations](#)'<sup>[71]</sup>.

#### 3. Go to **Recorders** to assign the template to a recorder instance.

You will see the list of connected recorders.

- a. Check the recorder instance, you want to configure with a template and start recording.

The **Host** column displays computer names that are visible on the network in the Active Directory domain. The **Tag** column displays tags added during the installation of recorder instances.

- b. Click **Set Template**.

In the opened list chose the template, and then click **Select**.

- c. The recording runs automatically when the **Start recording when assigned to recorder** is enabled in the template. Otherwise, click **Start** to run the recording.

## Excluding and Including Applications

Before logs recording, application lists can be configured using the template on the Recording Service website:

1. Open the Recording Service website and go to **Templates**.

2. Select a template by clicking its name.

3. In the **Application list** add a new item to the excluded and/or included list.

By default, user activities are recorded across all websites and desktop applications that users interact with on their computers.

Using **EXCLUDED LIST** and **INCLUDED LIST** allows you to specify a list of websites or applications that should be excluded and included in your logs respectively. Using both **INCLUDE** and **EXCLUDE** lists can define a site that should be included and a subset of that to be excluded. If the same item appears in both lists, user activities will not be recorded across the specified application or website. The item will be excluded from your logs.

**Important.** To operate correctly, the Recorder browser extension must be installed on the user's computer.

- a. To prevent the recording of user activity for a particular website or desktop application, turn on the **EXCLUDED LIST** toggle switch.
- b. To track and record user activity for a particular website or desktop application, turn on the **INCLUDED LIST** toggle switch.

4. Click **Add item**.

5. Use the **Add item** form that will open to specify particular websites and/or desktop applications. You can either enter a file path or URL or combine valid literal paths and

\* (asterisk) wildcard characters.

Examples:

a. Full path to the application:

C:\Program Files\ABBYY Recorder\Abbyy.Recorder.App.exe

b. Using \* (asterisk) characters in the file path:

\*\Abbyy.Recorder.App.exe

C:\Program Files\ABBYY\*.exe

c. Using \* (asterisk) characters in the URL:

https://recordingervice.abbyy.com/\*

The sample URL above will prevent/allow user activities to be recorded for the specified web pages.

https://\*.abbyy.com/\*

The sample URL above will prevent/allow user activities to be recorded across all the URL's sub-domains.

6. Click **Save**.

## Examples

The examples in the table below require the Recorder browser extensions to be installed. Otherwise, user activities will not be recorded in Google Chrome, Microsoft Edge, and Mozilla Firefox.

**Important.** If the same item appears in both lists, user activities will not be recorded across the specified application or website. The item will be excluded from your logs.

EXCLUDED LIST	INCLUDED LIST	Description
-	https://*.abbyy.com/*	Records user activities in all applications, browsers, and sites that match the https://*.abbyy.com/* template.
https://*.abbyy.com/*	-	Records user activities in all applications and browsers with the exception that recording is disabled for sites that match the https://*.abbyy.com/* template.
*\firefox.exe	-	Records user activities in all applications and browsers except the Firefox browser.
-	*\Chrome.exe	Records user activities only in the Google Chrome browser. Recording is disabled for other browsers and applications.

EXCLUDED LIST	INCLUDED LIST	Description
-	*\Chrome.exe, https://*.abbyy.com/*	Records user activities only in the Google Chrome browser and sites that match the specified template. For example, the following sites will be recorded: https://help.abbyy.com/ , https://www.abbyy.com/solutions/business-process/  Recording is disabled for other browsers and applications.
*\firefox.exe	https://*.abbyy.com/*	Records user activities in all applications and browsers except the Firefox browser. Recording in browsers will be carried out only for sites that match the https://*.abbyy.com/* template.
-	*\chrome.exe, *\firefox.exe, *\excel.exe	Records user activities in the Google Chrome and Firefox browsers, as well as Microsoft Excel. Recording is disabled for the Microsoft Edge browser and other applications.
*\teams.exe	-	Records user activities in all browsers. Recording is disabled for Microsoft Teams.
https://procurement.abbyy.ru/*	https://*.abbyy.ru/*, https://abbyy.ru/*	Records user activities in all applications and browsers.  Recording in browsers will be carried out only for sites that match the https://*.abbyy.ru/*, https://abbyy.ru/* templates. Recording is disabled for the https://procurement.abbyy.ru/* website.
-	http*, *\firefox.exe, *\chrome.exe, *\edge.exe	Records user activities in Google Chrome, Microsoft Edge, and Mozilla Firefox browsers. Recording is disabled for all desktop applications.

**Important.** We recommend not to record messenger information, as it often contains messages with sensitive information. Doing so can negatively affect machine performance as well.

We recommend adding the following messengers to the **Excluded** list:

- Adium
- Atlassian HipChat
- Blackberry Messenger
- Brosix
- Cisco Jabber

- Cisco Webex
- Discord
- Facebook Messenger
- Google Hangouts
- IBM Lotus Sametime
- Lync
- Microsoft Teams
- Signal
- Skype
- Skype for Business
- Slack
- Telegram
- Viber
- WeChat
- WhatsApp

## Predefined Excluded List

The **Default** template contains a predefined **Excluded List** of ignored messengers and their websites. Enable the **EXCLUDED LIST** to prevent all user activities from being recorded on specified applications and websites. By default, **Excluded List** is disabled. The table below lists the applications and corresponding items in the **Excluded List**.

**Important.** The new **Default** template is available in Recording Service 5.2 or later installed for the first time. When the Recording Service upgrades from earlier versions to 5.3, user settings are maintained. This prevents unexpected impacts on processing logs. You can add listed items to the **Excluded List** manually.

Applications	Item in the Excluded List
Blackberry Messenger	*\BBM Enterprise.exe

Applications	Item in the Excluded List
Brosix	https://web.brosix.com/* *\Brosix.exe
Cisco Webex	https://web.webex.com/ *\CiscoJabber.exe
Discord	https://discord.com/channels/* *\Discord.exe
Facebook Messenger	https://facebook.com/messages/* *\Messenger.exe
Google Hangouts	https://mail.google.com/chat/* https://hangouts.google.com/*
Lync	*\lync.exe
Sametime	*\stcommunity.exe
Signal	*\Signal.exe
Skype	https://web.skype.com/* *\Skype.exe
Slack	https://app.slack.com/* *\slack.exe
Teams	https://teams.microsoft.com/* *\Teams.exe
Telegram	https://web.telegram.org/* *\Telegram.exe
Viber	*\Viber.exe

Applications	Item in the Excluded List
WeChat	https://web.wechat.com/* *\\WeChat.exe
WhatsApp	https://web.whatsapp.com/* *\\WhatsApp.exe

## Transformations

Transformations should be used in Recording Service to do the following:

1. Remove sensitive data that has been captured by Recorder as event names.  
For example, if it is recorded in the log that a user has opened a document called **PO-BankOfAmerica.pdf** or **BillGatesSalary.xls**, it is best to replace these with redacted strings like opening **PO-XXX.pdf** and opening **XXXsalary.xls** respectively. To do so, you will need to configure transformations as regular expressions and apply them to selected logs.
2. Cast the names of several similar events to a common name.  
If you notice similar unique strings like **opening PO-BankOfAmerica** and **opening PO-CitiBank**, you can use transformations to convert these events to a common type, e.g. **opening new PO**. This new event can then be marked as either a start event or end event in **Task Definition Editor**.

For more information about creating and applying transformations, see [Adding and Applying Transformations](#)<sup>71</sup>.

## Adding and Applying Transformations

**Transformations** complement the **Obfuscate user data** function and allow you to edit and anonymize information in the recorded data in order to protect sensitive information.

For example, during the logging process, potentially sensitive information may appear in URLs or event names. This data can be viewed in the **Task Definition Editor** after uploading the logs to ABBYY Timeline. To hide this text from users, you can use transformations.

**Important.** Be careful when using transformations.

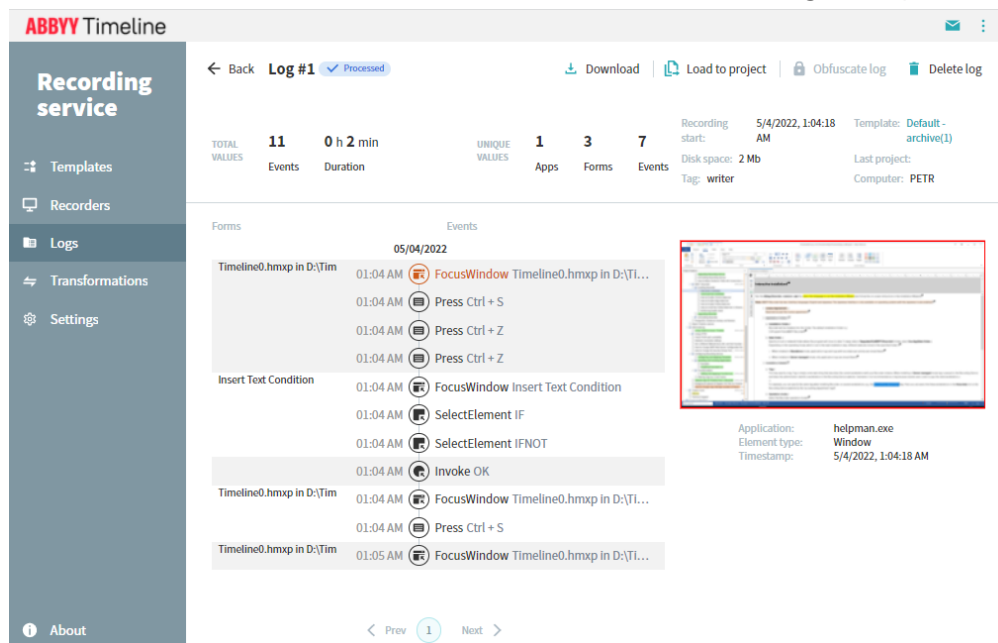
- Transformations can greatly affect the results of automatic task definition in ABBYY Timeline.
- Transformations cannot be undone.

**Before applying transformations in production environment, complete the following steps:**

1. Record a representative sample of logs for creating and testing regular expressions. For recording, use the Recorder instance that is installed on a user computer whose workflow you plan to analyze using Timeline tools for further optimization. For test purposes, it is enough to run the recording for an hour.  
To do this:
  - a. Go to the **Recorders** tab.
  - b. Select a Recorder instance.
  - c. Make sure the correct template is assigned to this instance.
  - d. Click **Start**.
2. Examine the data that may appear in logs and select texts that should remain confidential. To do this:
  - a. Go to the **Logs** tab.
  - b. Select log and click its **LogID**.



- c. As a result, a window with information about the selected log will open.



This window displays all events recorded in the current log. The selected event is highlighted in color, and a screenshot is displayed for it, in case you have enabled screenshot recording. The path to the application name or URL is displayed below the screenshot.

Inspect all event names and URL text. Sometimes titles, names, addresses, and other fragments of texts that should remain confidential may appear. In the following step you can prepare regular expressions that will be used to find and replace all such occurrences in the detected text and URL's.

3. Prepare regular expressions and replacement strings.

Examples:

What to look for	Regular expression to replace	Replacement string
John	(Jl)ohn	FIRST_NAME
john.smith@abbyy.com ivan.ivanov@abbyy.ru	\w+.\w+@abbyy\.(com ru)	first.last@abbyy.com
Customer: John Doe	Customer:[\s+\w+]+	Customer: Customer's Name

4. Add transformations and test them out by applying them to one or two logs.  
For details, see '[How to add a new transformation](#)'<sup>74</sup> and '[Post-recording transformation](#)'<sup>75</sup> below.
5. If you are satisfied with the changes, apply the transformations to all recorded logs or add them to the template to transform data on the fly.

## How to add a new transformation

1. Go to the **Transformations** tab.
2. Click **Add Transformation**.
3. In the opened windows, specify the following transformation parameters:
  - a. **Regular expression**  
To search for a text string, enter a regular expression using Regex syntax.
  - b. **Replacement**  
To replace instances of the text string in logs with another string, enter the replacement string.
  - c. **Case insensitive**  
By default, the search is case-sensitive. If this option is selected, the search will not be case-sensitive.

**Important.** If you edit or delete a transformation, the changes will propagate to all the templates that include this transformation.

## How to apply transformations

### On-the-fly transformation

To apply transformations to logs while recording data, add transformations to a template and assign it to a recorder instance.

1. Go to the **Templates** tab.
2. Click a template name or create a new one.
3. Click **Transformations** and then **Add item**.

4. In the window that will open, select transformations and click **Add**.
5. Assign transformations to a recorder instance.  
To do this:
  - a. Go to **Recorders**.
  - b. Check the recorder instance you want to configure with a template with a new transformation
    - a. Click **Set Template**.  
In the list that will open, click the template, and then click **Select**.
    - b. The recording runs automatically when the **Start recording when assigned to recorder** is enabled in the template. Otherwise, click **Start** to run the recording.

## Post-recording transformation

You can apply transformations to logs that have already been recorded. To do this, complete the following steps:

1. Go to the **Logs** tab.
2. Select logs.
3. Click **Apply transformation**.
4. In the opened form, select transformation and click **Apply to selected logs**.

**Important.** If you cancel a running transformation, the transformed portion will not be undone.

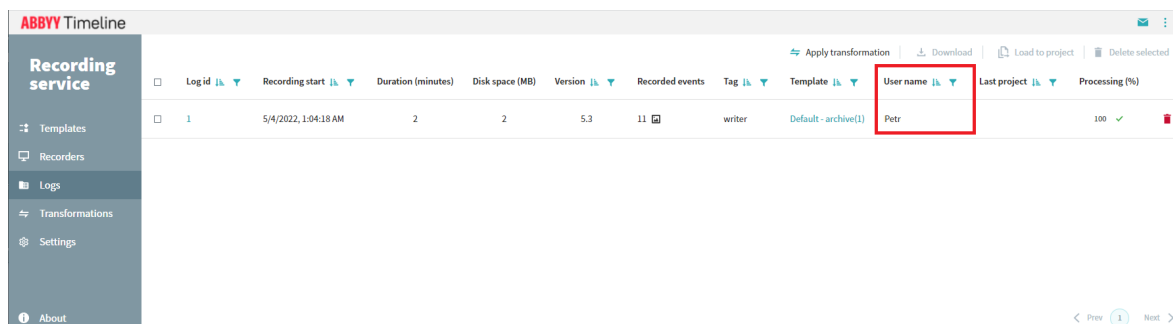
## Filtering Logs by a User Name

All logs are located in the **Logs** tab of the Recording Service website. You can find general information for each log there. The only thing that does not display by default is the name of the user accounts under which logs were recorded.

If you log user activity on a terminal server, all logs are recorded with the same computer name. The same happens if several users work on the same computer. It is recommended to enable the display of the **User Name** column to identify the logs for each user. This name is useful for filtering logs by user. Further, you can load logs of different users to different Timeline projects.

To display usernames, perform the following actions:

1. Go to the Recording Service installation folder and open **appsettings.Production.json** using any text editor.  
By default, it is installed into *C:\inetpub\ABBY Recording Service*.  
**Important.** Requires administrator privileges to edit **appsettings.Production.json**.
2. In the file add the following line:  
`"DiscloseOperators": "true",`
3. Save the file.
4. Restart the Recording Service website in the Internet Information Services (IIS) Manager.
5. Open the Recording Service website and go to the **Logs** tab.  
The **User Name** column will be displayed there only if there are recorded logs. This column displays the name of the user accounts under which logs were recorded.



Log id	Recording start	Duration (minutes)	Disk space (MB)	Version	Recorded events	Tag	Template	User name	Last project	Processing (%)
1	5/4/2022, 1:04:18 AM	2	2	5.3	11	writer	Default - archive(1)	Petr		100 ✓

## Upload Logs to Timeline from a Recorder

If Recorder is installed in **Standalone** mode, logs are not processed or sent to Recording Service, making it impossible to use the Recording Service's tools to upload logs to ABBYY Timeline.

**Important.** Logs recorded in **Standalone** mode can only be uploaded to the Task Mining 5.2 project. Since the logs recorded in this mode do not contain information about the forms, they are not compatible with the Task Mining 5.3 project and it is impossible to upload them there.

To upload logs to ABBYY Timeline:

1. Open the logs folder.  
By default, logs are saved to the **%appdata%\ABBY\Recorder\Recorded** folder.
2. Select the folder that contains the **Commands** and **Screenshots** subfolders and create a ZIP file. Do the same for all other folders in the logs folder.

3. Open the ABBYY Timeline website.
4. Create a new project or open an existing one with the **Task Mining – Recording Service 5.2 and later** data source enabled  
(click **Project** > **Details** > **Data sources** and select **Task Mining – Recording Service 5.2 and later**).
5. Select **Project** > **Upload data**.  
The **Upload** form will be displayed.
6. Click **Browse File** and select the ZIP file you created earlier.  
**Important!** The total size of all selected ZIP files must not exceed 10 GB.
7. Click **Upload**.

After the upload is complete, go to the **Home** view (select **View** > **Home**) and define **Tasks**.

## Background Upload of Zipped CSV Files to Timeline

The Timeline background-upload feature involves a folder that is monitored for files copied there. Whenever a new zip file is detected in that folder, the application grabs it and interprets it as an uploaded archive. The folder is defined as STORAGE\sftp, where STORAGE variable in the **TimelinePl.xml** configuration file.

The upload file can be copied to the specified folder by any means. It can be the target of an SFTP upload, or it can be an otherwise shared folder.

**Important.** Use **Deflate** compression method when zipping CSV files. Otherwise, ZIP files upload will fail. Please use archiving software that supports this method of compression. For example, you can use 7Zip or PeaZip instead of the standard Windows archiver.

For details on configuring background upload, see the 'Timeline User's Guide' > [Automated File Upload Via SFTP](#).

# Known Issues

Use this section to see if an issue affecting you is already known.

## Recorder

### User is using Internet Explorer 11. Is his activity recorded?

It is not recommended to record users' activity in the Internet Explorer browser. Event recording in Internet Explorer is not fully supported, therefore events and/or screenshots may be lost during recording.

In order to record users' activity in a web browser, use supported browsers with the Recorder browser extensions installed.

### Recorder instance installed in Server Managed mode does not display in Recording Service

If Recorder failed to connect to Recording Service using the URL specified during the Recorder installation, it does not display in the Recording Service web application.

To solve this issue:

1. Make sure a user account has been added to the Active Directory group [you created before the Recording Service installation](#) <sup>17</sup>.

Add a user account to the Active Directory group if you have not done it before.

2. Check the Recorder instance status on the user's computer.

If status is **'Failed to register recorder at: <SomeRecordingServiceUrl>. No such host is known'**, make sure the Recording Service URL is correct. To check and/or change URL:

- a. Open **settings.json**

You can find it on the user's computer in the Recorder installation folder.

By default, it is installed into C:\Program Files\ABBYY Recorder.

**Important!** Requires administrator privileges to edit **settings.json**.

- b. Find the **ServerManagedMode** section and check the value specified in **Url** parameter.

If needs, change the value and restart the **ABBYY.Recorder.AutoLauncher** service using **Services** snap-in (**Start > Settings > Control Panel > Administrative Tools > Services**).

**Important.** Requires administrator privileges to restart service.

## Recorder Firefox extension limitation

### Firefox extension install

The Recorder setup can install the Firefox extension feature only under a current user account.

If you install this feature, the Firefox browser will launch after the Recorder setup is complete. The Firefox browser is launched under the same account as Recorder has just installed. It asks a user to add the Firefox extension right now. User should allow the installation of the extension. However, the Firefox extension will be unavailable for other users.

**Issue.** Users did not detect any new extensions in the Firefox browser as a result of your administrative setup.

**Workaround.** Use one of the following methods to solve the issue:

- Add the Firefox extension manually in a user browser.
- Use the Firefox Group Policy to install the Firefox extension, for the Firefox extension feature to be available to all users.

When installing via Group Policy, specify the path to the Firefox extension:

`%ABBYY Recorder folder%\FirefoxExtension\abbyy_recorder*.xpi`

Contact the vendor for more info at <https://github.com/mozilla/policy-templates/blob/master/README.md#extensionsettings>

**Important.** In case of the Recorder upgrade, the Firefox extension needs to be updated manually.

### Firefox extension uninstall

The Recorder setup cannot remove the Recorder Firefox extension.

Each user must remove the Recorder Firefox extension from Firefox manually. See [How to Uninstall Recorder Firefox Extension](#)<sup>[45]</sup> for details.

## **After a successful Recorder installation, users did not detect the Recorder extension in a browser, though this feature has been selected to install**

1. Make sure that the user has the Recorder extension installed in a [supported browser](#)<sup>[18]</sup>, and it is enabled. See [Installing Recorder](#)<sup>[45]</sup> for details.
2. If a user removed the Recorder extension from a supported browser manually, then the Recorder installer will fail to install the Recorder extension later. Contact ABBYY to solve the issue.

# **Recording Service**

## **Common Issues**

1. Recording Service performance is lower if using HDD only or SSD and HDD for storing the PostgreSQL database.
2. We do not recommend storing logs on the Recording Service server for more than a week. After you submit logs to Timeline, you can backup logs to another server (if necessary) and remove them from the Recording Service server.
3. After the Recording Service upgrade is complete, the list of logs on the Recording Service website will be empty. It may take some time to display all existing logs. Please wait a couple of minutes, and the logs will gradually come into view.

## **Unable to open Recording Service website using its shortcut in the Start menu. The shortcut opens the Default Web Site.**

If the Recording Service website is running on port 80, to solve this issue:

1. Open Internet Information Services (IIS) Manager
2. Find the Default Web Site and stop it.



3. Start the **RecordingService** website.

## **Recording Service installed successfully, but an error occurred while starting the Recording Service website: NET :: ERR\_CERT\_AUTHORITY\_INVALID.**

If the error NET :: ERR\_CERT\_AUTHORITY\_INVALID is displayed when you try to start the Recording Service website, make sure you specified the correct SSL certificate when installing Recording Service. Use Internet Information Services (IIS) Manager to do this:

1. Open Internet Information Services (IIS) Manager and select the **RecordingService** website.
2. Right-click on a website, and then click **Edit Bindings...**
3. In the **Site Bindings** window, click **Edit...**  
The **Edit Site Binding** window will open.
4. In the **SSL certificate** drop-down list, check the selected SSL certificate. Select another one if necessary, and then click **OK**.
5. Restart the **RecordingService** website for the changes to take effect.
6. Verify the changes by opening the website in a web browser.

## **An error occurred while starting the Recording Service website: HTTP Error 500.30 - ASP.NET Core app failed to start**

If the error 'app failed to start' is displayed when you try to start the Recording Service website, make sure the connection to PostgreSQL is established. Then reload the **RecordingService** site in IIS Manager.

## **I'm trying to start a recording, but the recorder does not change the status to "record".**

A user may forbid action recording by clicking **Disable** in his/her Recorder menu in the system tray. This will stop a record and block recording control on this instance via the Recording Service UI. The recorder continues to display on the Recording Service website in the recorders

list. Its status is **online**, but the status does not change to **recording** after you click **Start** and then **Refresh List**.

To start or resume recording using the Recording Service interface, the user must enable recording by clicking the **Enable** button in his/her Recorder menu in the system tray.

## **Recording on the selected Recorder has started, but logs are not reflected in the UI.**

After you click the **Start** button, make sure the recording has launched. To do this click the **Refresh list** button and check the recorder status changed to the **recording**.

Recorded events are saved to logs and sent to the server for processing. When processing is complete, the logs are displayed on the **Logs** tab. New log may take some time to display in the **Recordings** tab.

## **Logs are partially uploaded, or upload fails.**

There are some limitations to upload logs:

1. Unable to upload logs, if the total number of unique events in logs exceeds 10000. If the limit exceeds, an attempt to upload logs fails with an error: **The selected logs have more unique events than the allowed limit.**

To solve this issue, reduce the number of logs being uploaded and try again.

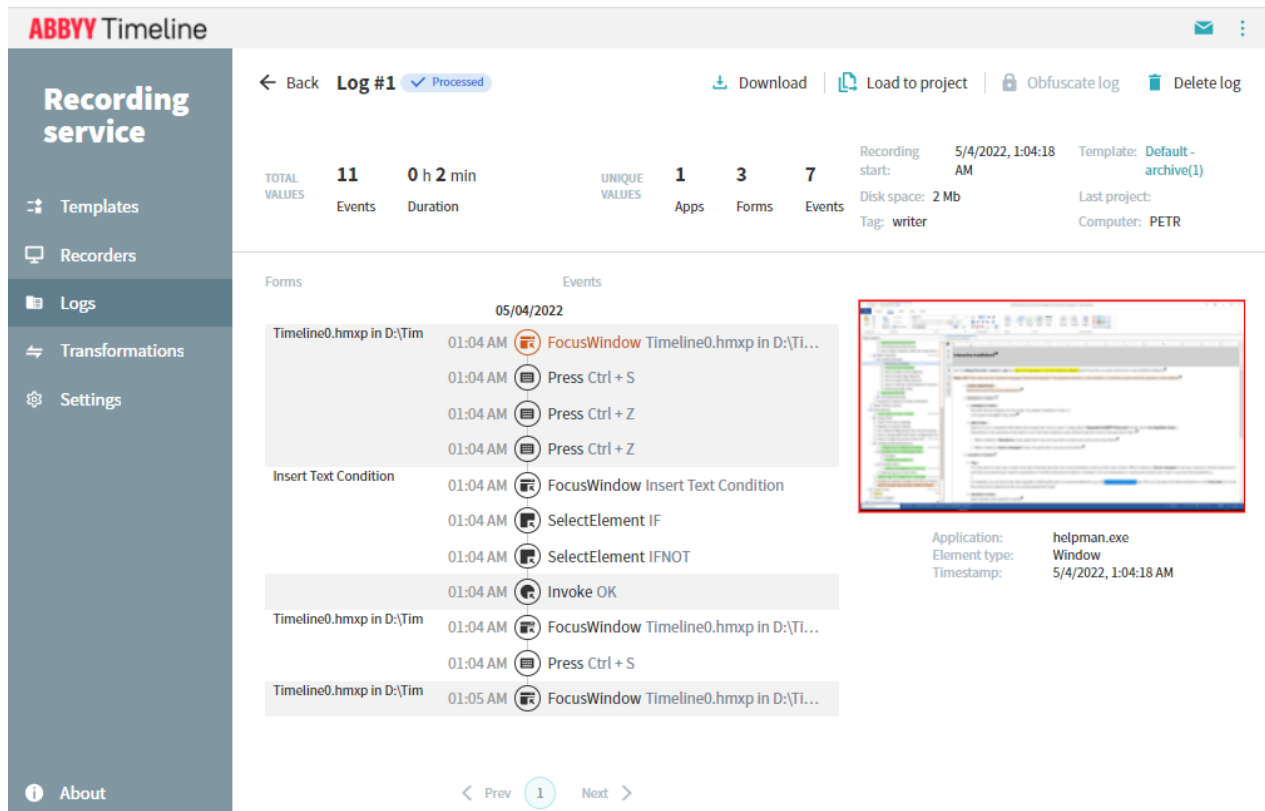
To check the number of unique events in one log:

- a. Go to **Logs**
  - b. Click logs ID and check the **UNIQUE EVENTS** field.
2. Logs are not fully uploaded if the size of the uploaded screenshots exceeds 25GB. If the limit exceeds, a message appears: **The size of the screenshots exceeded the maximum limit for the selected logs. Some screenshots will not be uploaded.** This means that the text logs were uploaded completely to the ABBYY Timeline project and image logs were partially uploaded. Screenshots outside 25GB were not uploaded.

To solve this issue, reduce the number of logs being uploaded and try again.

## Why are there no forms in the log?

In some cases, you may open a log and the list of forms in is empty



There might be a recording session in progress or forms are being detected. This process may take some time. Forms will display when the following conditions are met:

- Form processing completed.
- There are screenshots in the log.
- The log is created using Recording Service 5.3 and later.

**Note.** You can upload logs to Timeline if the log status has changed to **processed**, the forms for the processed part of the log will be calculated in Timeline.

# Timeline

## Timeline process causes high CPU utilization after installation

You can experience a CPU load increase after Timeline installation.

The root cause of this issue is that Redis is not installed properly, and Timeline is not able to connect to Redis. Continuous connection attempts are causing high CPU utilization.

**Important.** To prevent this issue, you have to be an Administrator on the target machine and have enough permissions to install Ubuntu on Windows Subsystem for Linux. For proper Ubuntu installation please run the installation file as Administrator.

To solve this issue:

1. Stop the **timelinedpi** service from **services.msc** or open the command prompt as Administrator and execute the following command:  

```
sc stop timelinedpi
```
2. Open PowerShell as Administrator and list all the WSL installations in your Windows system executing the following command:  

```
wslconfig /l
```

Find **Ubuntu** (or **Ubuntu-20.04**) in the list and unregister the distribution executing one of the commands below, depending on the name in the list:

```
wslconfig /u Ubuntu
```

```
wslconfig /u Ubuntu-20.04
```
3. Open Windows Explorer, then navigate to the [Ubuntu Installation Folder](#)<sup>20</sup> which you have selected for Ubuntu during the Timeline installation. The default folder is **C:\Program Files (x86)\Ubuntu**
4. Run the run **ubuntu.exe** (or **ubuntu2004.exe**) file as administrator and follow the instructions on the screen to install.
5. Once the installation is done, run **ubuntu.exe** (or **ubuntu2004.exe**) to open Ubuntu and login as sudo user by executing the command:  

```
sudo su
```
6. In Ubuntu Terminal navigate to the **Source Folder** where you originally downloaded the distribution and which you have specified when installing Timeline.
7. Execute the commands below to install and start Redis:

a. `dpkg -i redis-tools_6.2.4-1r11~focal1_amd64.deb`

b. `dpkg -i redis-server_6.2.4-1r11~focal1_amd64.deb`

c. `service redis-server start`

You can test that your Redis server is running by connecting to the Redis CLI:

```
redis-cli
```

```
127.0.0.1:6379> ping
```

8. Start the Timeline service either from **services.msc** or executing the following command in the command prompt:

```
sc start timelinepi
```

# Technical Support

Should you have any questions regarding the use of ABBYY Timeline, please e-mail the ABBYY technical support service at [support@abbyy.com](mailto:support@abbyy.com). Please provide the following information when contacting technical support:

- your first and last name.
- the name of your organization.
- your phone number (or fax, or e-mail).
- your ABBYY Timeline version and the build number.
- a description of the problem and the full text of the error message (if there was any).