

# **Adabas for Linux, UNIX and Windows**

## **Adabas REST Administration**

Version 6.7.1

October 2019

This document applies to Adabas for Linux, UNIX and Windows Version 6.7.1 and all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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## Preface

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Adabas RESTful administration is a server that provides the REST interface for Adabas monitoring and Adabas administration tasks. Any RESTful client can connect to the server and use standard web techniques to retrieve Adabas information.

The Adabas REST Administration document is organized as follows:

<i>General Information</i>	Describes in short the concepts and components of the Adabas RESTful administration.
<i>Installation and First Steps</i>	Contains information on how to install and configure Adabas RESTful administration.
<i>Authentication</i>	Contains information on the authentication concept and configuration for Adabas RESTful administration.
<i>Adding Support for Multiple Adabas Versions</i>	Contains information on how to enable support for multiple Adabas versions in the Adabas RESTful administration.

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# 1 About this Documentation

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## Document Conventions

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Convention	Description
<b>Bold</b>	Identifies elements on a screen.
Monospace font	Identifies service names and locations in the format <i>folder.subfolder.service</i> , APIs, Java classes, methods, properties.
<i>Italic</i>	Identifies:  Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
Monospace font	Identifies:  Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the   symbol.
[ ]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [ ] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

## Online Information and Support

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- Access articles, code samples, demos, and tutorials.
- Use the online discussion forums, moderated by Software AG professionals, to ask questions, discuss best practices, and learn how other customers are using Software AG technology.
- Link to external websites that discuss open standards and web technology.

## **Data Protection**

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Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

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## 2 General Information

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Adabas RESTful administration consists of three main access parts:

## Adabas Administration and Monitor Handler

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The Adabas administration and monitor handler supports:

Resource	Description
Adabas Database	An Adabas database can be created or deleted on the server.
Adabas Runtime	Adabas can be started or stopped using the possibilities that Adabas provides. User queue and UCB entries can be managed. Provides Adabas Nucleus log.
Monitor	Display Adabas user queue, command queue and hold queue. Adabas high water mark and buffer pool statistics are available. All possible monitor features can be found in the Swagger definition.
Adabas Files	Provide the creation and deletion of new Adabas files (online) .
Adabas Fields	Inside the Adabas file, Adabas fields can be modified in the frame of the Adabas functionality.

## Job Control

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Inside the RESTful server it is possible to start scripts for Adabas utilities. The scripts can be triggered asynchronously. After the job is finished, the corresponding log output can be retrieved using a RESTful access.

Detailed information about the RESTful interface is described in the Swagger definition.

## File Transfer Handler

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The RESTful server provides an interface to upload or download files to or from the server. The server only provides access to restricted, defined directories. The directories have to be configured in the configuration file.

Each configuration entry can be accessed via a given name. All subdirectories under the configured one can be accessed and files can be transferred.

If a job creates output, the created file can be transferred to the HTTP client (browser or RESTful client).

## Technical Insight

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Adabas RESTful administration includes standard RESTful HTTP access methods. It supports two types of response formats:

- JSON is the standard supported response format you can use.
- XML can be used for read requests.

Adabas RESTful administration uses HTTP or SSL-secured HTTPS connections. HTTPS connections are recommended. To validate certificates, you can exchange the SSL certificate to fit to your environment.

The Adabas RESTful administration configuration contains the file reference and password to the key file that contains the certificate. The file is in Java keystore JKS format.

```
<KeyStore file="keys/keystore.jks" />  
<KeyPassword password="test123" />
```

Adabas RESTful administration provides the following HTTP request types:

- GET: Retrieve administration or monitor information
- PUT: Change an administration value or parameter in the Adabas database configuration
- PUSH: Create new objects such as Adabas database files or an Adabas database
- DELETE: Delete a resource inside the Adabas database

The Adabas REST administration server is open to be used by any RESTful client. There are no restriction by Software AG components. The RESTful definition is provided in the Swagger file located in the product installation. You can use the Swagger/OpenAPI infrastructure to use the Swagger file.

## Adabas Batch Administration

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On the Software AG GITHUB page, you can download a batch administration client. The client application can access all flavors of Adabas administration tasks that the Adabas RESTful administration server provides.

The GITHUB page can be found at <https://github.com/SoftwareAG/adabas-admin-restful-client>.

The following example shows the batch command to list all available databases on the remote server:

```
client -url <host>:<port> list
```

The output of this example out would look something like this:

```
2018/10/10 12:40:54 Adabas Administration RESTful client started

2018/10/10 12:40:54 Server: linhost:8390
2018/10/10 12:40:54 User: admin

Enter Password:
Dbid   Name                Active   Version
-----
001 [TestDatabase    ]      false  Adabas v6.6 (20)
015 [SAMPLE_DB       ]      false  Adabas v6.6 (20)
050 [GENERAL_DATABASE]      false  Adabas v6.5 (19)
075 [GENERAL_DATABASE]      false  Adabas v6.7 (21)
102 [GENERAL_DATABASE]      false  Adabas v6.6 (20)
155 [SAMPLE_DB       ]      false  Adabas v6.7 (21)
195 [DEMODB          ]      false  Adabas v6.7 (21)

2018/10/10 12:40:57 Adabas Administration RESTful client took 61.262267ms terminated
```

In batch mode, the `ADABAS_ADMIN_URL` environment points to the Adabas RESTful administration server, and the `ADABAS_ADMIN_PASSWORD` environment can contain the user password.

The Adabas batch client supports the following commands/functionality:

Command	Functionality
env	List Adabas environment version
list	List all Adabas databases
start	Start Adabas database
shutdown	Shutdown Adabas database
cancel	Cancel Adabas database
abort	Abort Adabas database
info	Retrieve Adabas database information
userqueue	Display current user queue
cmdqueue	Display current command queue
holdqueue	Display current hold queue
highwater	Display high water mark
commandstatsv	Display Adabas command statistics
bp	Display Adabas buffer pool statistics
activity	Display Adabas activity
threadtable	Display Adabas thread table
createdatabase	Create new Adabas database
deletedatabase	Delete an Adabas database

Command	Functionality
renamedatabase	Rename an Adabas database
parameter	List database parameter information
parameterinfo	List database parameter information with minimum and maximum ranges
setparameter	Set database parameter
nucleuslog	Display Adabas nucleus log
files	Display Adabas file list
file	Display Adabas file
deletefile	Delete Adabas file
fields	Display Adabas file definition table
information	Display Adabas database information
container	Display Adabas database container
renamefile	Rename Database file
createfile	Create Database file
checkpoints	Display Database checkpoints. Without parameter it shows one day.
joblist	Job control list
jobstart	Start a specific job
deletejob	Delete a specific job and the execution log
deletejobexec	Delete the execution log of a job
createjob	Create a new specific job
joblog	Job entry log
listucb	List Adabas UCB entries
deleteucb	Delete Adabas UCB entry
addfields	Add Adabas fields
status	Adabas database online state
filelocations	List all available file locations
listfiles	List file in file location
downloadfile	Download file from the file location
uploadfile	Upload file to file location

## Merge Adabas RESTful Server

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The Adabas client for Java contains a module to access Adabas database data content. It is possible to enable the data access in the Adabas RESTful administration server. Please contact Software AG support for the steps required to enable this data access.

# 3 Installation and First Steps

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Installation is done using the Software AG Installer. The Adabas REST administration is part of Adabas but does not have to be installed with Adabas. If another Adabas installation is on the installation host, this can be used, if the Adabas version is greater than or equal to Adabas Version 6.5.

Access to Adabas RESTful resources is protected using authentication. There are two possibilities to use passwords. The first possibility is to manage the configuration file *realm.properties*, which contains a list of users and passwords. The second possibility is the configuration of the JAAS infrastructure to provide access to LDAP, for example. The configuration of JAAS is managed in *configuration/security.conf*. It is recommended is to use the LDAP approach, or to use any other plugin alternatives of JAAS.

This chapter is organized as follows:

## Password Management

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### Initial Password Change

After the installation the default user is *admin* and the default password is "manage". To create a new password entry, you may delete the configuration file *realm.properties* in the *configuration* directory. After the deletion, a new file can be created using the service script as follows:

```
./service.bat init
```

### Changing the Password

---

After the installation the default user is *admin* and the default password is "manage". To create a new password entry, you may delete the configuration file *realm.properties* in the *configuration* directory. After the deletion a new file can be created using the service script as follows:

```
./service.bat init
```

## Starting the Server

Inside the installation directory of the Adabas REST administration, a *bin* directory can be found. Inside the *bin* directory all start scripts required to start the Adabas REST administration are located. All scripts will provide reference information about valid parameters in case no argument is entered.

For example, to start the REST server on Windows just start:

```
./service.bat run
```

## Ensuring that the Server is Working

To check if the server works correctly, you can either use your favorite web browser or use curl. By default, the username is *admin* and the password is "manage".

To check please enter the following:

```
http://<host>:<port>/adabas/database
```

where *<host>* and *<port>* correspond to your environment. The following are some example REST calls:

URL	Function	Result
<i>http://localhost:8120/adabas/database</i>	List databases	List all databases known to the REST server
<i>http://localhost:8120/adabas/database/24</i>	Database Info	Returns the database information for database 24
<i>http://localhost:8120/adabas/database/24/file</i>	List database files	List all files defined in the database 24

Using curl, the following line would correspond to the first example:

```
curl -vv --user admin:manage http://localhost:8120/adabas/database
```



## 4 Authentication

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Adabas REST administration uses the JAAS standard for authentication. The JAAS server module requires configuration. To configure the module, simply adapt the configuration file *security.conf* in the *configuration* directory.

There are a number of additional JAAS modules to support LDAP or other authentication methods. The following is a sample configuration using Java:

```
/** Realm Login Configuration **/  
Adabas {  
    com.softwareag.adabas.rest.jaas.RealmPropertyLoginModule required ↵  
    file="configuration/realm.properties";  
};  
  
AdabasLDAP {  
    com.sun.security.auth.module.LdapLoginModule REQUIRED  
    userProvider="ldap://mydomain:389/OU=users,DC=my,DC=domain,DC=com"  
    authIdentity="{USERNAME}"  
    useSSL=false  
    debug=true;  
};
```

In the file *config.xml* in the *configuration* directory the `LoginService` tag handles the corresponding module name. In the following example the default "Adabas" login configuration is used for authentication:

```
<LoginService class="" module="Adabas" reference="configuration/security.conf" ↵  
type="jaas"/>
```

To use the "AdabasLDAP" or any other JAAS configuration, you need to adapt the `module` attribute of the `LoginService` element according to your requirements. For example:

## Authentication

---

```
<LoginService class="" module="AdabasLDAP" reference="configuration/security.conf" ↵  
type="jaas"/>
```

## 5 Adding Support for Multiple Adabas Versions

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This version of Adabas RESTful server supports administration of multiple Adabas version. At the moment Adabas Version 6.5 with internal structure level 19 and Adabas Version 6.6 with internal structure level 20 are supported. To support additional Adabas versions the relevant Adabas version installations need to be registered in the configuration of the RESTful server.

To register the Adabas version installation in *config.xml*, the *service.sh* script (or *service.bat* respectively) has an additional feature.

With the following command you may add the current Adabas installation, if you are in an Adabas command prompt shell:

```
service.bat add_env
```

To register an Adabas version installation outside the current environment, you can add the corresponding directory:

```
service.bat add_env <Adabas version installation directory>
```

where *<Adabas version installation directory>* is the name of the directory where the Adabas version installation is located.

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