

Adabas for Linux, UNIX and Windows

Adabas Remote Database Access

Version 6.7

October 2018

This document applies to Adabas for Linux, UNIX and Windows Version 6.7 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

This document provides an overview of the methods to gain remote access to Adabas.

The Adabas Remote Database Access document is organized as follows:

<i>Entire Net-Work and Entire Net-Work Client</i>	Describes in short the role of Entire Net-Work and Entire Net-Work Client in a remote database access scenario.
<i>Adabas TCP/IP</i>	New access method that provides point-to-point connections between a client application and the Adabas server.

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Document Conventions

Convention	Description
Bold	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 (...).

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Data Protection

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.

2 Entire Net-Work and Entire Net-Work Client

Entire Net-Work (WCP) provides the benefit of distributed processing by allowing you to communicate with Adabas on a network-wide scope. It consists of two parts, the Entire Net-Work Client (WCL) which is a stub linked into the application interface, and the Entire Net-Work Server which is a server process running on the same computer as the database.

An Entire Net-Work Server uses the Entire Net-Work 7 e-business message protocol to access Adabas databases. Using Entire Net-Work Server, you can set up multiple Kernels that can be used to access Adabas databases.

For more information, refer to the *Entire Net-Work* documentation.

3 Adabas TCP/IP

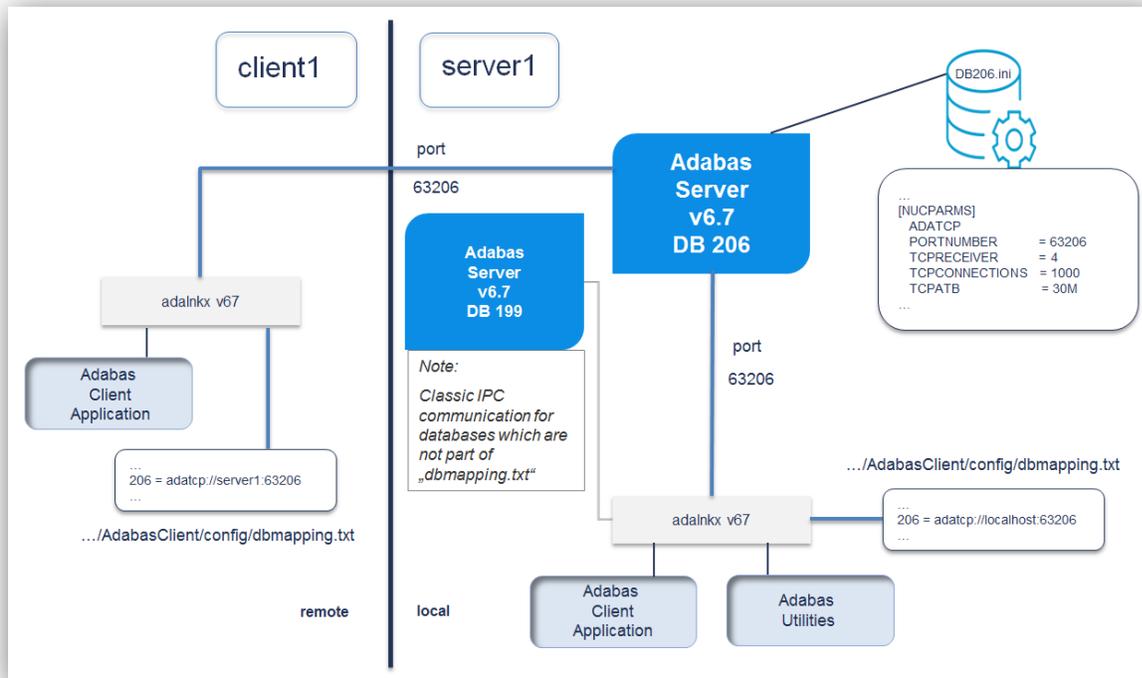
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This section contains information about Adabas TCP/IP (ADATCP) and how it can be used as an access method that provides point-to-point connections between the client application and the Adabas Server.

Concepts

ADATCP is the new access method that provides point-to-point connections between the client application and the Adabas Server. It is covered by the Adabas Client Interface and the Adabas Server and it is intended for remote database access, although local access via ADATCP is also possible. The currently used access method based on IPC (local or remote via WCP) is still the default method for client applications. The TCP/IP access method can be chosen by using a configuration file on the client side and by configuring the Adabas server via new nucleus parameters. The usage of the new method is transparent for the client application.

The following picture gives an overview of typical setup:



To enable ADATCP for an Adabas database, additional nucleus parameter settings are required, like the ADATCP switch and PORTNUMBER. Classic IPC communication is still possible.

To enable ADATCP for a client application, add a connection string for the database ID to the Adabas Client (ACL) configuration file (*dbmapping.txt*).

In the example above, database 206 is configured to use ADATCP and database 199 to use classic IPC communication.

Adabas Server

With the release of Adabas Version 6.7, a new TCP/IP-based access method is provided. This new method supports the following scenarios:

- Support Adabas running in a Docker container where TCP/IP is the standard communication method between containers.
- Point-to-Point communication.
- Easy configuration.
- Reduced topology.

Therefore, the Adabas server as well as the Adabas client have been extended. The IPC based communication is still available.

The following table provides an overview of the new Adabas nucleus parameters available for ADATCP:

Parameter	Description
[NO]ADATCP	Enable the TCP/IP receiver (NOADATCP to disable it)
PORTNUMBER	The TCP/IP port the database listens on.
TCPRECEIVER	Number of receiver threads.
TCPCONNECTIONS	Maximum number of parallel connections per receiver thread.
TCPATB	Attached buffer size for each TCP/IP receiver (similar to LAB/LABX). These buffers are exclusively used by the TCP/IP receiver and are not IPC based.

The ADATCP option needs to be licensed. If this license (the Entire Net-Work license) is missing, ADATCP cannot be enabled. Please read section [Licensing](#) for a complete overview of licensing options.

To run the Community Edition of Adabas a license is not required, neither the Adabas license nor the Entire Net-Work license. However, the Community Edition restricts the ADATCP parameters to the following values:

Parameter	Value
TCPRECEIVER	1
TCPCONNECTIONS	4
TCPATB	10 MB

Examples and default values can be found in the corresponding *ADANUC* documentation.

Note:

Please ensure that the database was started using the required ADATCP parameter settings. The following initialization message is written to the Adabas nucleus logfile during a successful startup:

```
ADANUC-I-ADATCPENAB, Adatcp enabled, listening on port: ...
```

Then you may continue to change the local Adabas Client configuration file.

Adabas Client

To enable TCP/IP access for existing client applications without any change of the application, a configuration file needs to be updated with the according TCP/IP settings of the database. Please keep in mind that all Adabas utilities are also a kind of client application for the Adabas nucleus.

For each TCP/IP enabled database an entry needs to be added to the configuration file *dbmapping.txt*:

```
<dbid> = adatcp://<fqdn>:<port>
```

where *fqdn* means "fully qualified domain name". Example for database 200 which runs on host *srvada01* and listens on port 61200:

```
200 = adatcp://srvada01.softwareag.com:61200
```

For UNIX/Linux the default path and file name of the configuration file is *\${ACLDIR}/config/dbmapping.txt*.

For Windows the default path and file name of the configuration file is *%ACLDIR%\..\config\dbmapping.txt*.

These entries describe the mapping of Adabas DBIDs to a connect string with the appropriate TCP/IP parameters needed on the client side. If a different mapping file should be used, the path name can be specified by the environment variable *ADA_DB_MAPPING*.



Important: The database definition in the configuration file decides whether a database will be accessed via TCP or via IPC. If a database was added to the mapping file, only TCP/IP communication will be used. No other communication method (neither local IPC communication nor Entire Net-Work) is used. See also [Troubleshooting](#).

Licensing

The point-to-point communication with Adabas on Linux, UNIX and Windows based on TCP/IP is part of the Entire Net-Work solution regardless whether the client using this communication method is local or remote to the database. It is still possible and recommended to use the IPC communication for local interaction with the database.

The following table provides an overview of the different licensing possibilities regarding ADATCP:

License Available	ADATCP Activation
ADA + WCP	full
ADA	disabled
WCP	Community Edition with restrictions
None	Community Edition with restrictions

Appropriate messages are provided in the nucleus log file.

› Activating the Entire Net-Work License on Linux/Unix

- 1 Copy the license key to a temporary location on your machine.
- 2 Change your directory to the *Adabas/INSTALL* directory of your main installation directory.
- 3 Execute the following *adalic* command to activate the license file:

```
adalic activate license_file ←
```

Where *license_file* is the fully qualified path to your license file.

› Activating the Entire Net-Work License on Windows

- 1 Copy the license key to a temporary location on your machine.
- 2 Start a Command Prompt to activate the license via the **Start** menu under: **All Programs > Start Menu group name > Administration > Adabas 6.7 > Activate License**.
- 3 In the Command Prompt execute the following *adalic* command to activate the license file:

```
adalic activate license_file ←
```

Where *license_file* is the fully qualified path to your license file.

Troubleshooting

New keywords are available or output has been changed for the following utility commands:

- ADAOPR ... DISPLAY=TCPCONNECTIONS
- ADAOPR ... TCPDISCONNECT=<ID>
- ADAOPR ... DISPLAY=STATIC_PARAMETERS

The Adabas Client program `getdbinfo` has been extended to print not only Adabas version and operating system information, but also an Adabas subcode in case of problems as well as the established communication type.

Output in case of problems:

```
adabas@server1> getdbinfo 199
    get platform and version info of database 199
Database 199 .. ** Response code 148 (subcode=1034) from ADABAS for Open call

adabas@server1> getdbinfo 206
    get platform and version info of database 206
Database 206 .. ** Response code 148 (subcode=1038) from ADABAS for Open call, ←
adatcp access to 'server1.aan.xy.sag:63206'
```

Output in case of success:

```
adabas@server1> getdbinfo 199
    get platform and version info of database 199
Database 199 is active, V6.7.0.0, Platform = 20, opsys=UNIX/Windows, classic local ←
access

adabas@server1> getdbinfo 206
    get platform and version info of database 206
```

```
Database 206 is active, V6.7.0.0, Platform = 20, opsys=UNIX/Windows, adatcp access ↵
to 'server1.aan.xy.sag:63206'
```

Performance

Interaction of NT and TCPRECEIVER parameter:

After analyzing our heavy load test results, we recommend to maximum increase/decrease the value for "number of receiver threads" (TCPRECEIVER) by a factor of 2 in comparison to the "number of threads be established for the Adabas session" (NT).

```
NT/2 <= TCPRECEIVER <= 2*NT
```

Use Cases - FAQ

- **Q:** Is it possible to get information about the client communication type without checking the configuration file?

A: Yes, the Adabas Client program `getdbinfo` has been extended to provide such information.

- **Q:** Different applications on one node need to be able to access the same database by either TCP or IPC. How can this been achieved?

A: Set the required TCP parameters like `ADATCP` and `PORTNUMBER` in the `DBINI` file of your database and start it. Use an Adabas Client environment for the first application without changing the configuration file to use classic IPC communication. Use an additional Adabas Client environment for the application which should use TCP and add the necessary connection information in the configuration file or use the `ADA_DB_MAPPING` environment variable with a prepared configuration file before starting this application.

- **Q:** Customer has hundreds of clients and wants to migrate to TCP step by step. Do you have any recommendations?

A: To avoid copying a prepared configuration file or adapt the existing `dbmapping.txt` file in the Adabas Client (ACL) `config` folder, we recommend to set the environment variable `ADA_DB_MAPPING` and use a prepared configuration file on a shared folder for all clients.

- **Q:** After trying out `ADATCP`, how can I switch back to the classic IPC communication method?

A: Delete the database entry from the `dbmapping.txt` file. The database might still be `ADATCP` enabled, but all clients are using the classic IPC access method from now on.

Known Restrictions

- ADATCP nucleus parameter values can neither be added nor updated while the database is up.
- ADAOPR display=tcpconnections returns incomplete data on HP-UX and SUN.
- Currently we do not provide any SSL support.