

Adabas Transaction Manager

Troubleshooting Guide

Version 8.2.2

April 2020

This document applies to Adabas Transaction Manager Version 8.2.2 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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Document ID: ATM-TS-822-20211207

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Preface

This section provides information that will help administrators troubleshoot issues when Adabas Transaction Manager is used. The following topics are provided:

[Incomplete prepared transactions](#)

[Heuristic completion of prepared transactions](#)

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About this Documentation

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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 (...).

Online Information and Support

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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 Incomplete prepared transactions

A prepared transaction is one where, during the completion stage of a distributed transaction, all participating resource managers have acknowledged a successful prepare phase (phase I) of a two-phase commit process. Once a transaction has reached prepared state it awaits direction from the coordinating transaction manager about what is to be done at phase II.

The time between phase I and phase II is usually very short depending upon how many resource managers must be coordinated together. For an Adabas ^{RM} during this period, all necessary transaction resources are retained and, until transaction completion occurs, such resources are not subject to the normal Adabas timeout rules associated with transactions and non-activity.

For various reasons, prepared transactions may occasionally not complete in a timely manner which may give rise to symptoms such as:

- RSP145s due to ISNs on hold for extended periods;
- Users waiting for ISNs on hold (wait on hold logic is used);
- An increase in Adabas RM high water marks for User queue and Hold queue.

The most important thing in troubleshooting these situations is to give preference to understanding the problem from the perspective of Adabas Transaction Manager, do not use the perspective of one Adabas RM alone. The reason is obvious, Adabas Transaction Manager must coordinate many Adabas RM so it is the transaction manager that has all the information needed, not Adabas.

Use the Adabas Transaction Manager online administration tool to list all active transactions. In this list, prepared transactions have a status of PREPARED. Display the detailed transaction information and note the 28-byte communication ID and the list of changed databases. Check the presence of any response codes alongside these participating databases – a non-zero value may indicate a reason why completion has not taken place yet.

If a RSP145 has been reported it is likely application error routines have already identified the database number, file number and ISN in question, in which case it is a simple determine if the reported database matches any of those in the changed database list. Alternatively if users report

waiting on ISNs then, for each of these changed databases, use Adabas online services command queue display to determine if any commands have a status of 'waiting for ISN', this enables rapid identification of any participating databases against which users are waiting for ISNs.

At this point you have identified one or more prepared transactions whose changed database list includes the database against which reports of RSP145s and waiting users have been made. For each of these transactions extract the TID from the 28-byte communication ID noted down earlier (last 8 bytes) and use Adabas online services hold queue display to identify the individual ISNs held by that TID. Match these file numbers and ISNs with the reported file number and ISN to identify the individual transaction responsible.

If this prepared transaction continues to remain incomplete then it may be necessary to attempt manual intervention to complete it. Refer to the section Stop Transaction in the *Online Services* documentation for information on how to do this.

If manual intervention does not result in the release of Adabas held resources, then the Adabas nucleus hosting these resources may be shut down in one of two ways:

- Issue `ADAEND` and set `TT=1`: This causes Adabas to perform heuristic commits of any prepared transactions. A delay in shutdown of approximately 60 seconds is expected;
- Issue `HALT`: This causes Adabas to perform heuristic backouts of any prepared transactions.

For additional information see [Heuristic completion of prepared transactions](#).



Caution: Either of these actions will heuristically complete the transaction and as a result distributed transaction integrity is likely to be lost.

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Heuristic completion of prepared transactions

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A heuristic completion (or heuristic decision) of a prepared transaction occurs when a resource manager makes a unilateral decision during the completion stage of a distributed transaction to apply or undo. Consequently the results of the distributed transaction are in an indeterminate state, **not guaranteed**.

Adabas RM may need to take a heuristic decision about completing a prepared transaction during:



Note: Adabas identifies all heuristically completed transactions with a series of ADAN89 messages starting:

```
ADAN89 nnnnn 2012-01-09 11:20:46 USER HEURISTICALLY TERMINATED
```

Online Save

When a prepared transaction remains at the end of an online save operation for an Adabas RM the transaction is subject to the Adabas nucleus TT parameter (or save utility TT SYN parameter) plus an additional 60 seconds. If the prepared transaction is not complete at the expiry of this time period Adabas heuristically undoes the transaction which allows the online save to complete.

Adabas shutdown- ADAEND

When a prepared transaction exists at ADAEND the Adabas RM prompts the TM to complete the distributed transaction according to the required outcome (apply or undo). When the distributed transaction is complete the TM notifies the Adabas RM to continue ADAEND processing. However, if this notification is not received the Adabas RM subjects the transaction to the TT parameter plus 60 seconds. If the prepared transaction is not complete at the expiry of this time period Adabas heuristically commits it to allow ADAEND to proceed. This “forced” ADAEND will be accompanied by the following ADAN89 message:

```
ADAN89 nnnnn 2PH-ADAEND : ADAEND IS FORCED ↵
```

Adabas shutdown- HALT

When a prepared transaction exists at HALT time the Adabas RM heuristically undoes prepared transactions to allow the HALT to complete. No communication with the TM is performed.



Caution: Under normal situations, it is strongly recommended not to use the HALT command for an Adabas RM.