



## Replication Log

---

Cisco Prime Access Registrar's replication feature allows you to maintain identical configurations on multiple machines simultaneously. For more information on replication, see the "Using Replication" chapter of the *Cisco Prime Access Registrar 9.2 User Guide*.

This chapter provides information about replication log messages in Prime Access Registrar and certain frequently asked questions on replication.

This chapter contains the following sections:

- [Frequently Asked Questions](#)
- [Replication Log Messages](#)

## Frequently Asked Questions

**Question:** When I do a **save** in **aregcmd** and the validation fails, is anything replicated?

**Answer:** No; replication does not occur until **aregcmd** successfully saves the changes.

**Question:** Can I specify multiple masters with the same members?

**Answer:** No; the replication feature was designed to be used with a single-master. Also, it is not possible to specify more than one master in a member's configuration.

**Question:** Do I have to configure the master as a client on the member servers?

**Answer:** No. In-fact, it would be erroneous to do so. With the exception of Administrators, Interfaces, Replication, and Advanced machine-specific settings, the configuration between master and member must be identical. The replication feature's purpose is to maintain that relationship. Altering configuration settings on the member which are managed by the master will likely result in an unstable and possibly non-operational server.

**Question:** What configuration elements are replicated and what are not?

**Answer:** With the exception of Administrators, Interfaces, Replication, and Advanced machine-specific settings, all other settings are replicated.

**Question:** What configuration elements are hot-configured and what are not?

**Answer:** Session Managers, Resource Managers and Remote servers are not hot-configured because they maintain state, such as an active session, and cannot be manipulated dynamically.

**Question:** What is an appropriate TransactionSyncInterval setting?

**Answer:** This depends upon how long you want to allow an out-of-sync condition to persist. The shorter the interval, the more often an out-of-sync condition is checked. However, this results in added network traffic, additional processing by Prime Access Registrar and, if the interval is too small, frequent unnecessary resynchronization requests. The default value of 60,000 milliseconds (1 minute) is usually sufficient; however, values of as little as 10,000 milliseconds (10 seconds) have been tested and have worked well.

**Question:** What is an appropriate TransactionArchiveLimit setting?

**Answer:** This depends upon two things:

1. How much hard disk space you are willing to devote to transaction archive storage
2. How often your configuration is changed (a save is issued through Aregcmd).

If you have limited hard disk space, then perhaps smaller values (less than 1000) are appropriate; however if you have sufficient hard disk space, values of 10,000 or greater are better. The primary reason for this preference is to limit the possibility of a full-resynchronization being required. A full-resynchronization is required when the member has missed so many transactions that the master no longer contains all the transaction necessary to resynchronize the member. The greater the limit, the longer the member can be down without requiring a full-resynchronization.

**Question:** Can I specify a member in the member configuration?

**Answer:** Yes, and this is recommended. In the member's replication configuration Rep Members list, specify another server, perhaps one which can be used in-case of critical failure of the master. If the master suffers a catastrophic failure (a hard disk crash, for example) the member can be reconfigured to be the master simply by setting the RepIsMaster to TRUE and changing the MasterIPAddress to its own IP Address and the member specified in its Rep Members list will perform as the master. Because the member has an archive of transactions, the new member can be automatically resynchronized. If the archive limit on the new master has been exceeded (the transaction file txn0000000001 is no longer present in the new master's archive directory), then the new member will require a full-resynchronization. Setting the member up in this manner prevents down-time if the master fails and allows configuration changes to be made on the new master.

**Question:** How can I prevent a full-resynchronization from ever being necessary?

**Answer:** You can't, but you can limit the possibility by setting the TransactionArchiveLimit to a large value (greater than 10000). Another technique is to periodically check the archive when the master and member are synchronized. If the number of transaction files is approaching 10,000, then you can stop the master and member servers, delete all files in the replication archive, and restart the master and member. The only side effect is that if the master or member suffers a catastrophic failure, a full resynchronization will be required.

**Question:** Can I use the member to process RADIUS requests along with the master?

**Answer:** Yes, and this was one of the goals of the replication feature. Keep in mind that session information is not replicated between master and member. To use session management in this environment, use Prime Access Registrar's central session manager.

## Replication Log Messages

This section contains typical replication log messages and explains what each means.

This section include the following topics:

- [Information Log Messages](#)
- [Warning Log Messages](#)

- [Error Log Messages](#)
- [Log Messages You Should Never See](#)

## Information Log Messages

**Info Message** Starting Replication Manager

Displayed at start-up and indicates the Replication Manager is configured and enabled.  
(RepType=SMDBR)

**Info Message** Replication Disabled

Displayed at start-up and indicates that Replication is not enabled. (RepType=NONE)

**Info Message** Radius Server is On-Line

Displayed by the member at start-up to indicate the member is synchronized with the master and processing RADIUS requests. It is also displayed after a successfully completed resynchronization. This message is never displayed on the master.

**Info Message** Radius Server is Off-Line

Displayed by the member at start-up to indicate the radius server is not processing RADIUS requests until it can ensure synchronization with the master. When this is displayed after startup, it indicates the member is no longer synchronized with the master and is directly associated with a resynchronization request to the master. This message is never displayed on the master.

**Info Message** Resynchronizing <member name>

Displayed by the master to indicate that it is resynchronizing the specified member (member).

**Info Message** Resynchronization from Master in progress.

Displayed by the member to indicate the master is in the process of resynchronizing it.

**Info Message** Resynchronization complete.

Displayed by the member to indicate the resynchronization has completed successfully.

**Info Message** Resynchronization did not complete before timeout. Retrying.

Indicates the master did not complete the resynchronization before the member expected it to complete and that the member is re-requesting resynchronization from the master for the remaining missed transactions.

**Info Message** Master Selected As Partner (DEFAULT)

Displayed by the member to indicate that it has selected the master as a partner after successfully getting connected with the master. Partner selection is performed after analyzing the replication workloads on other replication members.

**Info Message** Initiating Replication of Transaction <transaction #> with <# of elements> Elements.

Displayed by the master to indicate that it is beginning replication of a transaction to the member.

**Info Message** Replication Transaction #<transaction #> With <# of elements> Elements Initiated

Displayed by the master to indicate that it has completed sending the transaction to the member.

**Info Message** Committing Replication of Transaction <transaction #> with <# of elements> Elements.

Displayed by the member to indicate that it has received a transaction and is processing it.

**Info Message** Replication Transaction #<transaction#> With <# of element> Elements Committed

Displayed by the member to indicate that the transaction has been successfully processed.

**Info Message** Stopping Replication Manager

Displayed at shutdown by both the master and member to indicate the replication manager is being shut down.

**Info Message** Stopping Replication Manager - waiting for replication to complete...

Displayed by the member when a shutdown is attempted while received replications are being processed. After the replications are complete, the shutdown will complete.

**Info Message** Replication in progress. Please wait...

Periodically displayed while a shutdown is pending and replications are being completed.

**Info Message** Replication Manager Stopped

Displayed by both the master and member to indicate the replication manager has been successfully shutdown.

## Warning Log Messages

**Warning Message** Transaction Sync not received within configured TransactionSyncInterval. Communication with the Master may not be possible.

The member displays this log messages to indicate that it has not received a TransactionSync message from the master within its configured TransactionSync interval.

**Warning Message** TXN\_SYNC Received by Master from unknown member <ip address>. Validation Failed

Displayed by the master when a TransactionSync message is received by the master. Since there can be only one configured master in a replication network, and the master is the only server who can send a TransactionSync message, this indicates there is another configured master in the replication network.

**Warning Message** TXN\_SYNC Received from unknown Master <ip address>. Validation Failed

Displayed by the member to indicate that a TransactionSync message was received from a server not configured as its master.

**Warning Message** Requesting resynchronization from Master: Last Txn#<transaction#>

Displayed by the member to indicate that it is requesting resynchronization from the master. The LastTxn# is the last transaction number the member received and processed successfully.

**Warning Message** Resynchronization Request received from unknown member.

Displayed by the master when a resynchronization request is received by a member who is not listed in its `/radius/replication/rep` members configuration.

**Warning Message** Resynchronization of <member name> requires Full Resynchronization.

Displayed by the master to indicate that the member cannot be automatically resynchronized because its last transaction number is not within the configured history length of the archive (TransactionArchiveLimit). A manual resynchronization of the member is required to put the member back in-sync.

**Warning Message** MEMBER\_SYNC Received from unknown Master at <ip address>. Validation Failed

Displayed by a member indicating that a master, other than its configured master, is requesting partnership.

**Warning Message** MEMBER\_SYNC Received by Master from unknown member <ip address>. Validation Failed

Displayed by the master to indicate a member not listed in its `/radius/replication/rep` members configuration has requested partnership.

**Warning Message** TXN\_EXPECT Received by Master from unknown <ip address>.

Displayed by the master to indicate it has received a transaction which originated from another illegal master.

**Warning Message** TXN\_EXPECT Received from unknown Master <ip address>.

Displayed by the member to indicate it has received a transaction which originated from a master other than its configured master.

**Warning Message** TXN\_EXPECT Broadcast failed.

Indicates that the master could not initiate a replication.

**Warning Message** DATA\_SYNC Received by Master from unknown <ip address>

Displayed by the master to indicate that it received a replication transaction from another illegal master.

**Warning Message** DATA\_SYNC Received from unknown <ip address>

Displayed by the member to indicate that a transaction was received from a server external to the replication network.

## Error Log Messages

**Error Message** DATA\_SYNC Validation failed - CRC Mismatch

Displayed by the member to indicate a received transaction element is invalid.

**Error Message** TXN\_SYNC: Failed To Get Member Socket Handle.

TXN\_SYNC: Failed to get master's socket handle.

MEMBER\_SYNC could not get socket handle

TXN\_EXPECT: Failed to get socket handle.

DATA\_SYNC could not get socket handle.

These messages indicate an invalid interface configuration in Cisco Access Registrar.

They could also be the result of specifying an invalid RepPort setting.

Failed To Create TXN\_SYNC packet. (out of packets?)

Failed To Create TXN\_SYNC packet.

MEMBER\_SYNC Failed to create packet.(out of packets?)

MEMBER\_SYNC Failed to create packet.

TXN\_EXPECT Failed to create packet.(out of packets?)

TXN\_EXPECT Failed to create packet.

DATA\_SYNC Create packet failed.(out of packets?)

DATA\_SYNC Create packet failed.

These message indicate that a packet could not be created. This could be the result of a low memory condition or the result of the `/Radius/Advanced/ MaximumNumberOfRadiusPackets` setting being set too low

**Error Message** TXN\_SYNC validation failed - Internal error (pTxnSync=NULL).  
 MEMBER\_SYNC validate failed - Internal Error (pMemberSync=NULL)  
 DATA\_SYNC Validation Failed - Internal (pDataSync = NULL).  
 TXN\_EXPECT Could not add new datablock to pending transaction queue.  
 Replication Member could not be added to member list.  
 Replication Member could not be added to member list.

These messages are the result of a failed memory allocation possibly due to an out of memory condition.

**Error Message** DATA\_SYNC Packet creation failed - Invalid ordinal.  
 Attempt To Replicate Transaction With Zero Elements.  
 Internal Error - Selected member not valid  
 Internal Replication Error ChangeType <change type> For <element path>  
 Internal error - Replication manager is invalid

These messages indicate an internal application failure.

**Error Message** Cannot archive transaction datablock  
 Could not archive transaction

These messages are the result of a failed archive attempt. This could be the result of a low disk space condition.

**Error Message** Could not commit transaction to MCD  
 Cannot Get Value For Unsupported DataType <data type id>  
 MCD Replication Cannot Delete Value <element path>  
 MCD Replication Cannot Delete Directory <element path>  
 MCD Replication Cannot Delete Value For <element path> With Unsupported DataType  
 <data type id>  
 MCD Replication Cannot Create Dir For <element path>  
 MCD Replication Cannot Set Value For <element path>  
 MCD Replication Cannot Set Value For <element path>  
 MCD Replication Cannot Set Value For <element path>  
 MCD Replication Cannot Set Value For <element path>  
 MCD Replication Cannot Set Value For <element path> With Unsupported DataType  
 <data type id>  
 MCD Replication Cannot Set Value For <element path> With UNKNOWN DataType <data  
 type id>

These messages are the result of a failed replication commit attempt.

## Log Messages You Should Never See

The following list contains log messages which you should never see displayed in a log. If any of these messages are displayed in the log, contact Prime Access Registrar technical support for assistance.

**Error Message**

DATA\_SYNC Received from non-partner <ip address>  
 DATA\_RE\_SYNC CRC mismatch. Replying with NAK  
 DATA\_RE\_SYNC Commit Failed. Replying with NAK  
 EVAL\_SYNC Validation failed. <ip address> is not a Master or Member of the  
 Replication network

```
EVAL_SYNC Received from unknown member.
PARTNER_SYNC Received from unknown member <ip address>.
PARTNER_SYNC Received from unknown member <ip address>.
EVAL_SYNC Cannot get socket handle.
EVAL_SYNC Failed to create packet.(out of packets?)
EVAL_SYNC Failed to create packet.
EVAL_SYNC Validation failed - Internal Error (pEvalSync=NULL).
PARTNER_SYNC Failed to get socket handle.
PARTNER_SYNC Failed to create packet. (out of packets?)
PARTNER_SYNC Failed to create packet.
DATA_RE_SYNC Can't get socket handle
DATA_RE_SYNC Failed to create packet (out of packets?)
DATA_RE_SYNC Failed to create packet
DATA_RE_SYNC Failed validation - Internal Error (pReSync = NULL)
DATA_RE_SYNC Cannot Set Value For <element path>
DATA_RE_SYNC Cannot Set Value For <element path>
DATA_RE_SYNC Cannot Set Value For <element path>
DATA_RE_SYNC Cannot Set Value For <element path>
DATA_RE_SYNC Cannot Set Value For <element path> With Unsupported DataType <data
type id>
DATA_RE_SYNC Cannot Set Value For <element path> With UNKNOWN DataType <data type
id>;
DATA_RE_SYNC Received by Master from unknown member <ip address>
DATA_RE_SYNC Received from unknown Master <ip address>DATA_RE_SYNC Reply received
by Master from unknown Member <ip address>
Could not replicate data element to partners.
Could not replicate to partners - Invalid Ordinal.
```

