

How to configure Citrix for maximum WAAS optimization?

ICA is the protocol used by Citrix to communicate between Citrix servers and their clients. ICA compression is enabled by default on later versions of both types of Citrix servers, the Metaframe and the Presentation Server.

WAAS compression algorithm provides higher compression ratio for Citrix ICA traffic comparing with Citrix native compression. For maximum utilization of WAAS optimization for Citrix ICA traffic, it is crucial to ensure that Citrix compression is turned off on the clients and servers. Additional performance improvements can be gained by setting the client encryption to 'low' (which encrypts authentication only).

Please find below the guidelines for turning off Citrix native compression on various Citrix server and client models and versions.

Disabling Citrix compression requires modifying some configuration files. It is highly recommended that all files are backed up before any modification is applied.

Citrix Presentation Server 4.0 and 4.5

Citrix has a few client versions available. The ICA client types and versions this document deals with are:

- Web Interface
- Program Neighborhood Agent
- Program Neighborhood Client Software (prior to version 10.x)
- Client Version 10.x and above

How to disable compression with Web Interface

- Open and edit the client ICA template files. For Web Interface 4.0 or above these files are located by default at: %systemroot%\inetpub\wwwroot\Citrix\<sitename>\conf.
- If a line exists that begins with "Compress=", change the line to show "Compress=Off". Otherwise, add a line that says "Compress=Off" to the Application section.
- If Bandwidth Control has been enabled on the Web Interface site, make sure to modify the following files as well:
 - Bandwidth_low.ica
 - Bandwidth_medium.ica
 - Bandwidth_medium_high.ica
 - Bandwidth_high.ica
- To configure for low encryption: if a line exists that begins with "EncryptionLevelSession=", change the line to show "EncryptionLevelSession=EncRC5-0". Otherwise, add a line that says "EncryptionLevelSession=EncRC5-0".

In case of a mixed environment where some of the Citrix sites are optimized by WAAS and some are not, it is important to verify that compression is disabled only for Web Interface sites in which WAAS optimization is applied. This can be achieved by creating a dedicated Web Interface for WAAS optimized sites only, in which ICA compression will be disabled.

While in a WAAS POC, make sure to disable ICA compression only for the sites in which WAAS is installed.

How to disable compression with a Program Neighborhood Agent

- Open and edit the client ICA template files. For Web Interface 4.0 or above these files are located by default at: %systemroot%\inetpub\wwwroot\Citrix\ PNAgent\conf.
- If a line exists that begins with "Compress=", change the line to show "Compress=Off". Otherwise, add a line that says "Compress=Off" to the Application section.
- To configure for low encryption: if a line exists that begins with "EncryptionLevelSession=", change the line to show "EncryptionLevelSession=EncRC5-0". Otherwise, add a line that says "EncryptionLevelSession=EncRC5-0".

In case of a mixed environment where some of the Citrix sites are optimized by WAAS and are not, it is important to verify that compression is disabled only for Web Interface sites in which WAAS optimization is applied. This can be achieved by creating a dedicated PNA Site for WAAS optimized sites only, in which ICA compression will be disabled.

While in a WAAS POC, make sure to disable ICA compression only for the sites in which WAAS is installed.

Sites Using a Program Neighborhood Client Versions 9.x through 10.x

- Open and edit the appsrv.ini file. For Client versions 9.00 through 10.x, this file is stored by default at %appdata%\ICAClient. If a line exists that begins with "Compress=", change the line to show "Compress=Off". Otherwise, add a line that says "Compress=Off" to the Farm section. Make sure to add the new line to the appropriate section for each connection to a Citrix Farm.
- To configure for low encryption: if a line exists that begins with "EncryptionLevelSession=", change the line to show "EncryptionLevelSession=EncRC5-0". Otherwise, add a line that says "EncryptionLevelSession=EncRC5-0".

An alternate way to the above is to disable compression in the Citrix Program Neighborhood GUI:

- Open Citrix Program Neighborhood GUI by right click the Relevant Application Set
- Click the "Default Options" tab
- Uncheck the box next to "Use data compression"
- Then, click "apply" and click "Ok"

Note that this change must be made to every device in the Citrix deployment environment.

The modification via Program Neighborhood GUI requires direct configuration on each one of the devices. Therefore this method is applicable for smaller scale Citrix deployments.

For large Citrix deployment environment it is advised to create a preconfigured Appsrv.ini and roll it out using scripts or Group Policy.

Sites Using a Program Neighborhood Client Version 10.x and above

Make the same changes as described for client version 9.x through 10.x. In order for these changes to take effect the following registry value should be added into the client registry:

HKLM\Software\Citrix\ICA Client\Engine\Configuration\Advanced\Canonicalization\TCP/IP

Value: Compress

Type: REG_SZ

Data: Compress

This registry informs the client that the Compress value can be overridden with an ICA file (i.e. by the PN settings).

Restart the Citrix client after modifying the registry value, in order for the registry to take effect.

If registry modification was made on the server as well, the server should also be restarted for the registry to take effect.

Verify that Compression is actually off

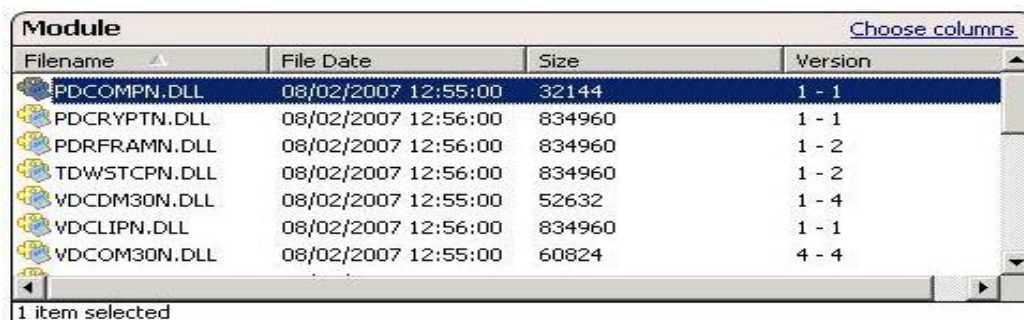
After applying the above modifications, make sure to restart any open connection.

It is important to verify that the connection is actually being optimized by WAAS (i.e. positive compression reduction is observed in the relevant statistics). Make sure, following the change, to identify a specific connection from the client where compression and encryption being handled using 'sh stat dre connection client-ip' for example and run some test with the client, inspecting the actual DRE/LZ reduction.

To crosscheck that actually the compression module has not being loaded, on the Citrix client, check using CMC (Citrix Management Console), that the following DLL is not loaded 'DPCOMP.N.DLL'.

When an ICA connection is made to a Presentation Server with ICA compression enabled, the client module PDCOMP.N.DLL is loaded and can be seen in the client modules list under the relevant ICA session.

If ICA compression has been disabled, this client module will not appear in the list.



Module	Filename	File Date	Size	Version
	PDCOMP.N.DLL	08/02/2007 12:55:00	32144	1 - 1
	PDCRYPTN.DLL	08/02/2007 12:56:00	834960	1 - 1
	PDRFRAMN.DLL	08/02/2007 12:56:00	834960	1 - 2
	TDWSTCPN.DLL	08/02/2007 12:56:00	834960	1 - 2
	VDCDM30N.DLL	08/02/2007 12:55:00	52632	1 - 4
	VDCCLIPN.DLL	08/02/2007 12:56:00	834960	1 - 1
	VDCOM30N.DLL	08/02/2007 12:55:00	60824	4 - 4

How do I configure Citrix for low encryption?

To enable low encryption (authentication only) on the Citrix Management Console for Metaframe XP:

- Open Citrix Management Console for Presentation Server (found in the Start menu)
- In the left pane, select (serverfarm) > Policies
- Then, right click "Policies" and select "Create a new policy"
- Double-click the policy to edit
- In the policy window left pane click "Required Encryption Level"
- In the policy window right pane click "Rule enabled" and set the encryption level to "RC5 (128bit) logon only"
- Then, click "Apply" and click "Ok"

To enable low encryption (authentication only) on the Citrix Connection Configuration console:

- Open Citrix Connection Configuration console (found in the Start menu)
- Double-click the ica-tcp connection
- In the 'edit connection' dialog box that appears, click "Advanced"
- Under security, ensure that the drop-down box shows that required encryption is set to "RC5 (128bit) logon only"
- Then, click Ok

To configure the client ICA file:

- Open and edit the client ICA template file
- If a line exists that begins with "EncryptionLevelSession=", change the line to show "EncryptionLevelSession=EncRC5-0". Otherwise, add a line that says "EncryptionLevelSession=EncRC5-0".