

CA IAMCS Round- Robin Load-Balancing for Endpoints

Example: Active Directory

Alan Baugher

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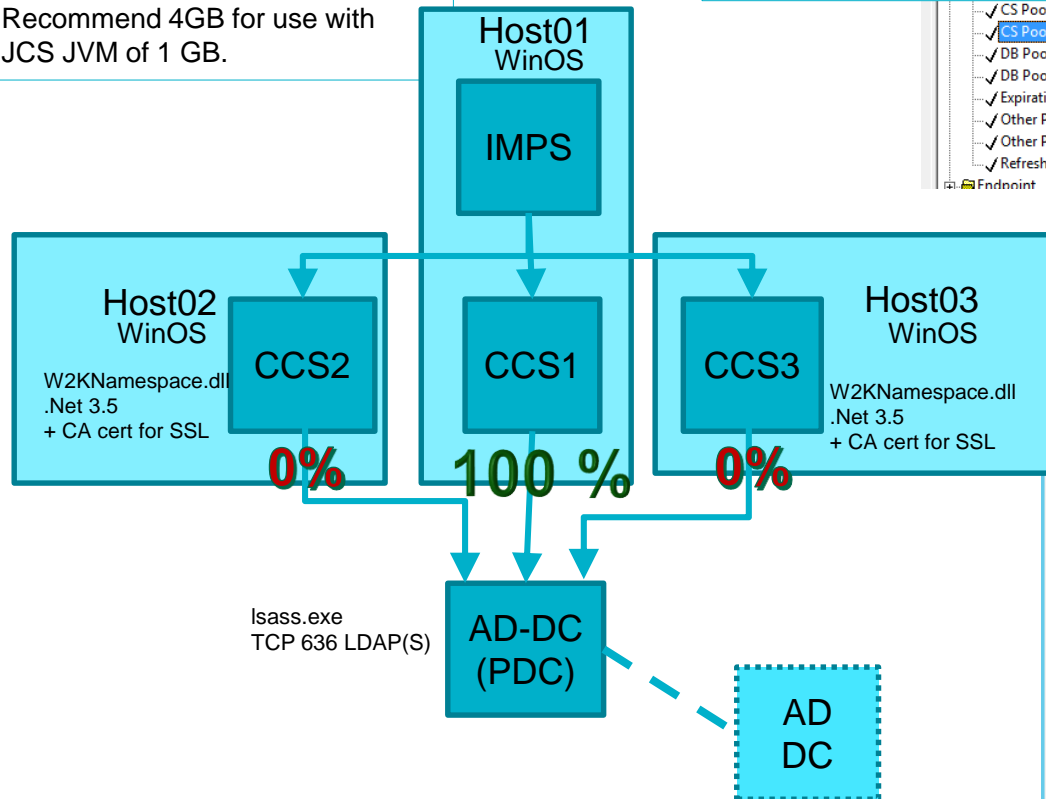


Increase IMPS to Endpoint Performance with “legacy” Failover CCS Service (CA IM r12.0/5 framework)

Increase vCPU from 1 to 2

RAM Size: min 2GB
Recommend 4GB for use with JCS JVM of 1 GB.

Increase minimal pool of CCS connections to endpoints from 2 to 20



- ✓ CS Pool Maximum Size
- ✓ CS Pool Minimum Size
- ✓ DB Pool Maximum Size
- ✓ DB Pool Minimum Size
- ✓ Expiration Time
- ✓ Other Pool Maximum Size
- ✓ Other Pool Minimum Size
- ✓ Refresh Time

Domain Configuration | Statistics |

Parameter: Connections/CS Pool Minimum Size

Description: The minimum size of each of the provisioning server's CS Connection Pools. The connection monitor thread, when it closes expired idle connections, will retain at least this many

☐ Restore default ☐ Show default

Value(s): 20

Add... Edit... Remove

Use ConnectorXpress to update CCS
Default IMPS Server = null
Force Failover by endpoint type

Connector Server Host Name
imps001.exchange.dom

Port: 0 TLS Port: 20403

☒ Use TLS

Provisioning server (optional)
IMPS001

Password

Note that changing any of the host name, port, Provisioning Server or "Use TLS" fields requires that the password be re-entered.

☒ Make this the default CS

Managed Objects

Object Handle

Namespace=eTrust SSO WAC,Domain=im,Server=Server
Namespace=RSA,Domain=im,Server=Server
Namespace=Siebel,Domain=im,Server=Server
Namespace=CA-Top Secret,Domain=im,Server=Server
Namespace=Oracle Applications,Domain=im,Server=Server
Namespace=EIAM Namespace,Domain=im,Server=Server
Namespace=ActiveDirectory,Domain=im,Server=Server
Namespace=UNIX - NIS-NIS plus Domains,Domain=im,Server=Server
Namespace=DB2 ZOS Server,Domain=im,Server=Server
Namespace=Windows NT,Domain=im,Server=Server
Namespace=DB2 Server,Domain=im,Server=Server
Namespace=RACF,Domain=im,Server=Server
Namespace=UNIX - etc,Domain=im,Server=Server

Rate of Updates = 15-17 /sec

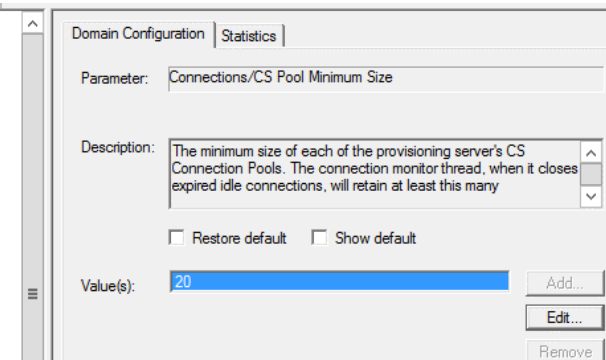
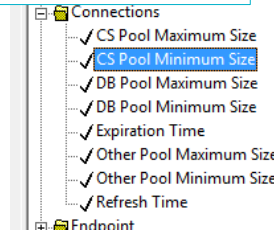
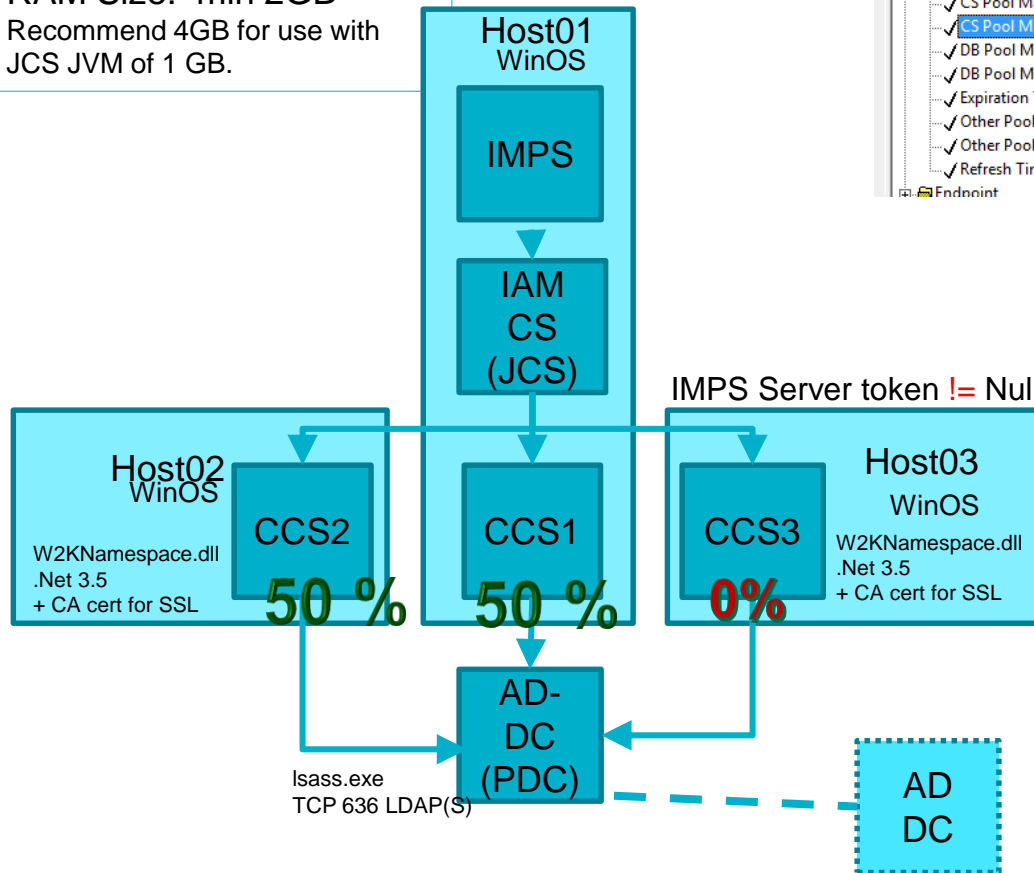
No LB feature in CA IM r12.0/5 framework for CCS; only Failover

Increase IMPS to Endpoint Performance with IAM CS (JCS) as a router (CA IM r12.6 framework)

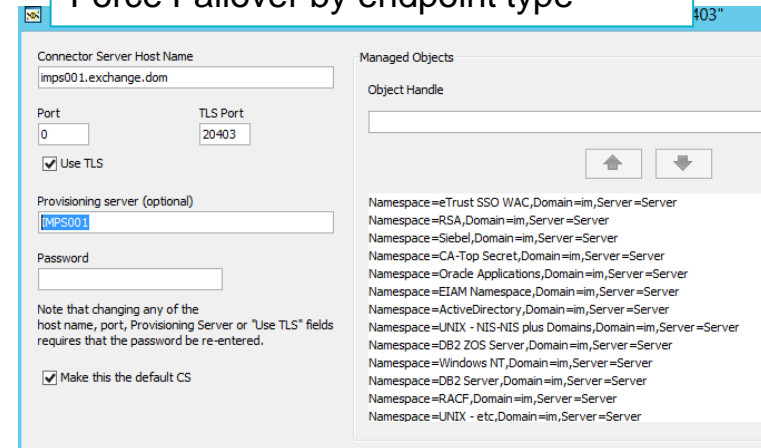
Increase vCPU from 1 to 2

RAM Size: min 2GB
Recommend 4GB for use with
JCS JVM of 1 GB.

Increase minimal pool of
CCS connections to
endpoints from 2 to 20



Use ConnectorXpress to update CCS
Default IMPS Server = null
Force Failover by endpoint type



Rate of Updates = **25-28 /sec**

with two (2) CCS + IAM CS => LoadBalancing in IM r12.6 framework

CA IMPS server with IAMCS service + im_ccs service

The screenshot displays a Windows desktop environment with the following components:

- Process Explorer - Sysinternals:** A window showing a list of running processes. The 'im_ccs.exe' process is highlighted in blue. The taskbar at the bottom shows the CPU usage at 79.64%.
- IAM Connector Server - localhost:** A web application interface with tabs for Certificates, Connector Servers, Logs, and Users. The 'Connector Servers' tab is active, showing a 'Local Connector Server' for the 'localhost' domain. Below this, the 'Endpoints' tab is selected, displaying a table with columns for 'Domain', 'Endpoint Type', and 'Endpoint Filter'. The table lists the 'im' domain with an 'ActiveDirectory' endpoint type. To the right, the 'Filter Endpoints' section provides instructions on how to filter endpoints by domain, endpoint type, and endpoint name.
- Command Prompts:** Two windows are open, both running the command 'C:\Windows\system32\cmd.exe'. The left command prompt shows a series of successful Active Directory operations for 'test_user_01' and 'test_user_02' on the 'Example_03_Delegated_Access_with_Exchange' endpoint. The right command prompt shows a similar series of operations for 'test_user_01' and 'test_user_02' on the 'Example_03_Delegated_Access_with_Exchange' endpoint.

Server 2 with local im_ccs service managed by remote IAMCS

The screenshot displays a Windows desktop environment. In the background, the Task Manager is open, showing the 'Processes' tab with a list of running applications. In the foreground, the Process Explorer window is open, showing a detailed view of the processes. The 'im_ccs.exe' process is highlighted in the list, and its properties are displayed in the 'im_ccs.exe:2936 Properties' dialog box.

Process Explorer - Sysinternals: www.sysinternals.com [ROADRUNNER01\caadmin]

Process	CPU	Private Bytes	Working Set	PID	Description	Company Name
System Idle Process	83.92	0 K	20 K	0		
System	0.30	120 K	312 K	4		
Interrupts	0.62	0 K	0 K	n/a	Hardware Interrupts and DPCs	
smss.exe		308 K	960 K	228		
csrss.exe		1,644 K	3,884 K	364		
csrss.exe	0.03	1,972 K	28,152 K	432		
wininit.exe		820 K	3,388 K	440		
services.exe		3,156 K	7,592 K	528		
svchost.exe		2,208 K	7,804 K	628	Host Process for Windows S...	Microsoft Corporation
svchost.exe		3,200 K	6,888 K	668	Host Process for Windows S...	Microsoft Corporation
svchost.exe	2.12	10,872 K	13,928 K	736	Host Process for Windo	
svchost.exe		59,660 K	812 K	812	Host Process for Windo	
svchost.exe		5,548 K	10,676 K	840	Host Process for Windo	
svchost.exe		13,380 K	21,948 K	932	Host Process for Windo	
svchost.exe		8,768 K	11,796 K	428	Host Process for Windo	
spoolsv.exe		3,544 K	10,028 K	1032	Spooler SubSystem App	
cam.exe	< 0.01	1,136 K	4,400 K	1064	CA Message Queuing S	
eCSqdmn.exe		4,028 K	9,348 K	1144	Enterprise Common Ser	
taskhost.exe		10,044 K	15,936 K	1216	Host Process for Windo	
eTFWService.exe		1,028 K	3,484 K	1328	Enterprise Common Ser	
svchost.exe		11,992 K	14,864 K	1440	Host Process for Windo	
WUDFHost.exe		1,408 K	5,612 K	2212		
vmtoolsd.exe	0.03	4,924 K	13,520 K	1464	VMware Tools Core Ser	
eCSsfmgr.exe		2,720 K	7,408 K	1588	Enterprise Common Ser	
eCSLogD.exe		2,604 K	7,564 K	1728	Enterprise Common Ser	
svchost.exe		1,236 K	4,056 K	1268	Host Process for Windo	
svchost.exe		1,140 K	4,436 K	1200	Host Process for Windo	
dllhost.exe		3,668 K	10,380 K	2232	COM Surrogate	
msdtc.exe		2,828 K	7,284 K	2372	Microsoft Distributed Tr	
im_ccs.exe	11.82	23,720 K	31,704 K	2936	CA LDAP Server for Win	
lsass.exe		3,880 K	10,944 K	536	Local Security Authority	
winlogon.exe		1,440 K	5,932 K	468		
dwm.exe	0.25	27,084 K	59,544 K	784		
explorer.exe	0.02	22,924 K	70,828 K	1296	Windows Explorer	
vmtoolsd.exe	0.12	11,208 K	21,528 K	2752	VMware Tools Core Ser	
procexp.exe		2,180 K	7,412 K	2384	Sysinternals Process Ex	
procexp64.exe	0.75	10,480 K	28,236 K	964	Sysinternals Process Ex	
ieexplore.exe	< 0.01	8,240 K	26,344 K	1132	Internet Explorer	
ieexplore.exe	< 0.01	8,856 K	28,392 K	768	Internet Explorer	

im_ccs.exe:2936 Properties

☒ Resolve addresses

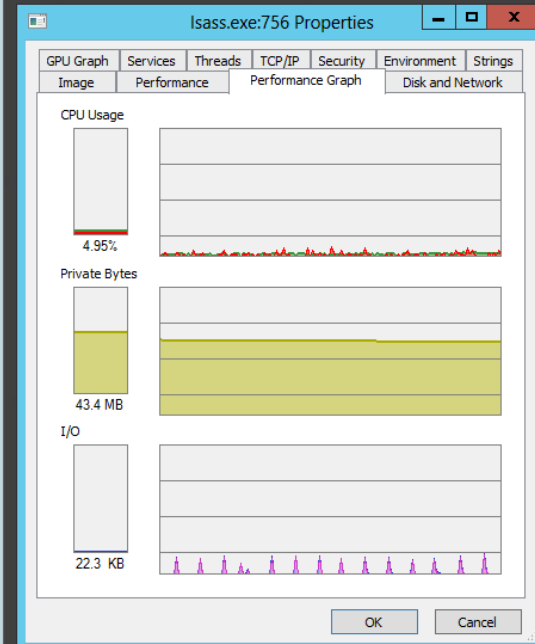
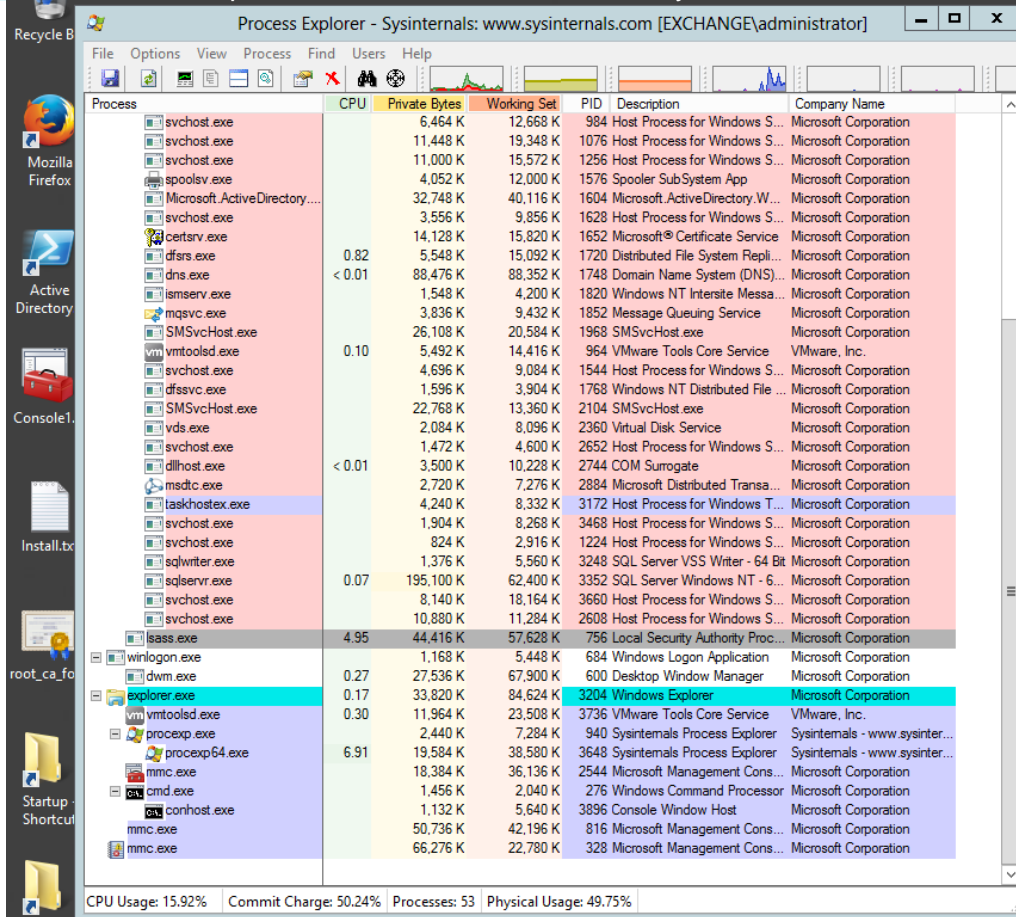
Protocol	Local Address	Remote Address	State	Servi...
TCP	roadrunner01.localdomain:49293	dc001.exchange...	ESTABLISHED	im_ccs
TCP	roadrunner01.localdomain:20403	roadrunner01:0	LISTENING	im_ccs
TCP	roadrunner01.localdomain:20403	imps001.exchan...	ESTABLISHED	im_ccs
TCP	roadrunner01.localdomain:20403	imps001.exchan...	ESTABLISHED	im_ccs
TCP	roadrunner01:20402	roadrunner01:0	LISTENING	im_ccs
UDP	roadrunner01:57585	im_ccs
UDP	roadrunner01:60657	im_ccs
TCPV6	roadrunner01:20402	roadrunner01:0	LISTENING	im_ccs
TCPV6	roadrunner01:20403	roadrunner01:0	LISTENING	im_ccs
TCPV6	roadrunner01:20403	roadrunner01:0	LISTENING	im_ccs

CPU Usage: 16.08% | Commit Charge: 10.13% | Processes: 40 | Physical Usage: 22.45%

12:03 PM 1/9/2014

Active Directory server: Isass service manages the LDAP(s) communication to ADS Less than 5% CPU hit

<https://technet.microsoft.com/en-us/sysinternals/bb896653>



OS version: windows 2012

Snapshot Time: 11/14/2013 3:13 PM

System Type: Domain Controller, Primary, Terminal Server

Us... Windows Server 2012

Script to emulate PX framework; and determine maximum rate from IMPS and CCS to Active Directory for group modifications to AD accounts.

```
@echo on
```

```
"C:\Program Files (x86)\CA\Identity Manager\Provisioning Server\bin\etautil.exe" -o -d im -u etaadmin -p Password01 -f test03.txt
```

```
pause
```

Created input file with these two (2) lines copied 10K times

```
update
'eTADSOrgUnitName=Office_002,eTADSOrgUnitName=CompanyABC_Users_OU,eTADSDirectoryName=Example_03_Delegated_Access_with_Exchange,eTNa
mespaceName=ActiveDirectory,dc=im' eTADSAccount eTADSAccountName=test_user_01 to -eTADSmemberOf='CN=Help Desk,OU=Microsoft Exchange
Security Groups,DC=exchange,DC=dom';
update
'eTADSOrgUnitName=Office_002,eTADSOrgUnitName=CompanyABC_Users_OU,eTADSDirectoryName=Example_03_Delegated_Access_with_Exchange,eTNa
mespaceName=ActiveDirectory,dc=im' eTADSAccount eTADSAccountName=test_user_01 to eTADSmemberOf='CN=Help Desk,OU=Microsoft Exchange
Security Groups,DC=exchange,DC=dom';
update
```

Default setup: No changes to IMPS server: log level =3

IMPS 2GB RAM: 99% CPU utilization on 1 CPU (i7) for etautil CLI until file is read; then 5% execution for etautil + 5% for console CLI window.

NOTE: less than 1% CPU utilization for for im_ccs, im_ps, im_jcs, dxserver services during loading; then 25% for im_ccs and im_ps during execution.

AD 2GB RAM, <5% CPU utilization on 1 CPU (i7) for lsass process (which is used for LDAP(S) communication on AD)

Rate: max of 15-17 mods / second for Add AD group / Remove AD group from same account via etautil via CCS connector strings; based on number of entries in the IMPS etatrans logs for successful update/delete of the memberOf attribute.

Improve Performance for MS Exchange Powershell API by increase the default throttle limit from 18 to 100

1. Create a throttle limit to be used exclusively by the CA IdentityMinder service account. Set the limit to 100 concurrent connections. For example:

New-ThrottlingPolicy MaxPowershell -PowerShellMaxConcurrency 100

2. Apply the new policy to the CA IdentityMinder service account on the Exchange server. For example:

Set-Mailbox "User Name" -ThrottlingPolicy MaxPowershell where "User Name" = service account to manage AD & Exchange accounts for CA IM

Justification: Scenario: 2000 creations from IME BLC.

Exchange able to create user mailbox in 20 seconds. Timeouts bumped to 600 seconds

18 session pool: $2000 * 20 / 18 = 40,000 \text{ seconds} / 18 = 2222 \text{ seconds} = < 40 \text{ minutes}$ (Expect 5-10% failure due to timeout over 600 seconds)

100 session pool: $2000 * 20 / 100 = 40,000 \text{ seconds} / 100 = 400 \text{ seconds} = < 5 \text{ minutes}$ [Expect no failures]

3. Increase the default timeouts of the CA IdentityMinder Exchange Agent to 600 seconds.

a. On the Exchange server, increase the agent timeout as follows:

HKEY_LOCAL_MACHINE\SOFTWARE\ComputerAssociates\Identity Manager\Ex2k7AgentTimeout = 600 (seconds)

b. On Provisioning servers (ALL of them), set the environmental variables as follows:

ADS_E2K_SEND_DC = 1 & **ADS_CONFIRM_MAILBOX** = 600 (seconds)

4. Restart the im_ccs service.

Ref: <http://cookbooks.ca.com/cagovernanceminder/2014/02/14/solution-for-microsoft-exchange-performance-problems/>