

IIS 8 TROUBLESHOOTING FEATURES FOR CF/RAILO ADMINS

(UPDATED MAY 18, 2013)

Charlie Arehart
Independent Consultant

charlie@carehart.org / [@carehart](https://twitter.com/carehart)

INTRODUCTION

- Quick review of platform support
- New Application Initialization (warm up) feature
- Enhanced Dynamic IP Address Restrictions (request throttle) feature
- Enhanced CPU Throttling feature
- Other new IIS 8 features of potential interest to admins
- Some Windows 2012 features of potential and related interest
- Some IIS 7 and 7.5 features you should investigate if you missed

- Curious: how many using IIS 8 in production today? Or 7.5? Or 7?
- Note: Slide deck and resource lists both available at carehart.org/presentations

ABOUT CHARLIE AREHART

Independent Consultant

- 15+ yrs CF experience (30+ Enterprise IT)
- Certified Adv CF Developer, Instructor
- Adobe Forum MVP, CF CAB member
- Organizer, Online ColdFusion Meetup (coldfusionmeetup.com), 2800+ members
- Living in Alpharetta, Georgia (Atlanta)

Web home at www.carehart.org

- 100+ presentations, 80+ articles, 400+ blog entries
- UGTV: recordings of 600+ presos by 300+ speakers
- CF411.com: 1800+ tools/resources, 150+ categories
- CF911.com: CF server troubleshooting resources
- Hosting courtesy of EdgeWeb Hosting
- Consulting: available for CF troubleshooting, tuning
 - Remote or on-site; on-demand, single session ok

QUICK REVIEW OF PLATFORM SUPPORT

- IIS 7.0 supported from Windows Server 2008; Vista
 - 7.5 in Windows 7 and Windows Server 2008 R2
 - More later on interesting changes in IIS 7.0, 7.5 you may have missed
- IIS 8 supported from Windows Server 2012; Windows 8
 - Server 2012 (and IIS 8) Launched Sept 2012
- When might you start using it?
 - How long did you wait for Server 2008? Server 2003?
- On to the new features...

NEW APPLICATION INITIALIZATION (WARM UP) FEATURE

- Can initialize web apps, so ready for first real user request
- Demo
- Configuration
 - Feature enabled on server optionally via Server Manager
 - Configure App Pool for startmode="Alwaysrunning" (default is "onDemand")
 - Configure web site for Preload enabled="true"
 - Configure applicationInitialization entry in site web.config

```
<applicationInitialization remapManagedRequestsTo="pathtoshow"
    skipManagedModules="true" >
    <add initializationPage="pathtoexecute" />
</applicationInitialization>
```
 - Can add multiple initpage elements
 - Can force/test by simply recycling app pool, restarting IIS, or of course restarting box
- Observations/Gotchas
 - ...

NEW APPLICATION INITIALIZATION (WARM UP) FEATURE (CONT.)

- Observations/Gotchas
 - Can use FR or other request monitor
 - User-agent: "IIS Application Initialization Warmup"
 - Can't watch for request in IIS logs; initpage never logs in IIS!
 - I could not ever get the remapManagedRequestsTo page to ever appear
 - Still, at least the preload/initpage DOES run, so still useful for long-running initpages
 - Cannot run an http request for the initpage
 - Serious gotcha: feature only ever seems to call page on localhost. Use URL Rewrite to solve
 - ...

NEW APPLICATION INITIALIZATION (WARM UP) FEATURE (CONT.)

- Observations/Gotchas (cont.)
 - If specified initpage does not exist, there is no error. Just does not “work”
 - FR can confirm that it’s never called
 - Beware IIS default behavior to start new worker process while recycling an old one
 - Can configure “overlapped process recycling”. More in resources shared later
 - Many folks (on web) seem to expect this to make pages “run faster”
 - Not quite the right way to look at it. Causes a given page to run on pool recycle
 - Consider also that pool recycles can happen automatically
 - Still, valuable to ensure that long-running init page happens on server restart, at least, which for many is the main objective
 - ...

NEW APPLICATION INITIALIZATION (WARM UP) FEATURE (CONT.)

- Observations/Gotchas (cont.)
 - Articles often show creating new app pool to use this. Not needed
 - And they often show enabling startmode/preload via config file: but both are in IIS UI, so not needed
 - When changing web.config, may need to open editor with "run as admin"
 - Can add this to IIS 7.5! More later

ENHANCED DYNAMIC IP ADDRESS RESTRICTIONS (REQUEST THROTTLE) FEATURE

- Can block access for IP addresses that exceed specified request limits, specify behavior when blocked
- Demo
- Configuration
 - Configured for server or site, in optional "IP & Domain Restrictions"
 - First as "action" (on right): "Edit Dynamic Restriction Settings"
 - Either for x concurrent requests, or x requests over y ms
 - Then as "action": "Edit Feature Settings"
 - New "Deny Action Type": unauthorized, forbidden, notfound, abort
 - IIS 7 and earlier versions sent Forbidden (HTTP 403.6) response
- Gotchas...

ENHANCED DYNAMIC IP ADDRESS RESTRICTIONS (REQUEST THROTTLE) FEATURE

- Gotchas/Observations
 - Optional "logging only" mode
 - simply logs reqs in IIS logs with 403 status code
 - User must (can) wait the given ms to make requests again
 - What if you are behind proxy, and all requests come from "same" IP?
 - You can enable "proxy" mode option to check x-forwarded-for header
 - For more details, on trusting that header, see <http://blogs.iis.net/wadeh/archive/2012/08/01/dynamic-ip-restriction-proxy-mode.aspx>

ENHANCED CPU THROTTLING FEATURE

- Can limit CPU/memory/bandwidth consumption by each app pool
 - Introduced in IIS 7.0
 - IIS 8 adds additional throttling options
- Configuration
 - App Pool>Advanced Settings>CPU
 - New "Limit" % (percent of time over "Limit Interval")
 - 25000 is 25%
 - New LimitAction values: Throttle, ThrottleUnderLoad (can use more if server not under load)
 - Old action remains: KillW3wp
 - Can set using "application pool defaults" feature
- Gotchas
 - Sets a limit, not a reservation
 - Does nothing if no LimitAction is chosen
 - Doesn't help with CF itself using high CPU, only the IIS worker process

OTHER NEW IIS 8 FEATURES OF POTENTIAL INTEREST TO ADMINS

- Server Name Indication
 - can now configure multiple host headers for SSL on same IP!
- Centralized certificates (store and access certificates centrally on file share)
- FTP Logon attempt restrictions
- NUMA-aware scalability (“Non-Uniform-Memory-Access”)
- Max URL segments option
- And more

SOME WINDOWS 2012 FEATURES OF POTENTIAL AND RELATED INTEREST: THE GOOD

- IIS supported in Windows Server Core (small footprint deployment, cmd-line only option)
- Support for higher capacity servers
- Failover clusters (in Standard edition)
- Improved Hyper-V (3), Powershell (3)
- ReFS (resilient file system; next generation file system)
- Storage spaces (grouping drives into pools; also on Windows 8)
- Automatic Maintenance (better off-peak mgt; also on Windows 8)
- Much, MUCH more, of course
 - Some perhaps beyond interest of most here

SOME WINDOWS 2012 FEATURES OF POTENTIAL AND RELATED INTEREST: THE BAD

- Ugh: Windows 8 (Metro) Interface. Anyone heard experiences with it???
- Some would say:



- Are some key things to know for effective use. See more in resources at end
 - Some cool day-to-day things in 8/2012:
 - Much improved Task Manager, better file copy/move operations, better multimonitor support, file history (new backup feature), and more

SOME WINDOWS 2008 FEATURES OF POTENTIAL AND RELATED INTEREST

- Along same lines, did you skip 2008?
 - Or did you make the most of it while you had it?
 - Some key things worth noting (and which carry forward)
- Resource Monitor (available from Task Manager)
- Reliability and Performance Monitor
- And of course lots more

SOME IIS 7 FEATURES YOU SHOULD INVESTIGATE IF YOU MISSED

- And what about IIS 7? Did you notice/take advantage of all these?
 - Most carry through to IIS 8, so they are still very valuable to know about
- Many security enhancements, minimal install by default
- New management UI
- New appcmd command line tool
- New configuration architecture (web.config, applicationhost.config)
- Each site gets new app pool by default
- Configuration history tracking
- Ability to create self-signed SSL certificates
- Worker Process request monitoring! (optionally enabled)
- But wait, there's more! ...

SOME IIS 7 FEATURES YOU SHOULD INVESTIGATE IF YOU MISSED (CONT.)

- Request filtering (optionally enabled)
- Custom Error handling (optionally enabled)
- URL Rewrite (optionally installed)
- Failed Request Tracing (optionally installed)
- ARR (Application Request Routing) (optionally configured)
- Dynamic IP Restrictions module (optionally installed), later implemented in IIS 8
- SEO Toolkit (optionally installed)
- URLScan 3.1 (optionally installed)
- Web Deploy (optionally installed)
- Web Farm Framework (WFF) 2.0 (optionally installed)
- And still more, but you get the picture!

SOME IIS 7.5 FEATURES YOU SHOULD INVESTIGATE IF YOU MISSED

- And what about IIS 7.5? Did you ever install it? Notice these?
 - Again, they mostly still apply in IIS 8
- Each app pool runs with unique, less-privileged identity
- UI in Manager for managing Request Filtering
- Configuration editor for managing config file xml entries within IIS Manager
- IIS module for Windows Powershell
- Configuration logging and tracing
- Application warmup feature (which would become App Init in IIS 8)
- Integration with Windows Server 2008 R2's Best Practice Analyzer
 - advises on IIS best practices
- And more

WHERE TO LEARN MORE

- Hope you're encouraged to want to check out IIS 8, Windows 2012
 - And maybe revisit some things you may have missed in IIS 7, 7.5
- Who felt they learned a lot?
- Who feels overwhelmed by how much there is?
- Good news: links to substantially more info on each of these features
 - Offered in a PDF notes file, associated with this talk
 - <http://www.carehart.org/presentations/#iis8>

CONCLUSION

- IIS continues to evolve and improve, with enhanced security, functionality
- IIS 8 offers powerful new tools to help CF/Railo/BD admins better manage
- Don't miss out on things new in IIS 7 or 7.5 you may have missed
- If you need help implementing these,
 - As well as help resolving CF/Railo/BD server problems
 - Let me help, remotely
 - See carehart.org/consulting