

Solutions to Help People Implement DNSSEC

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DNSSEC-Tools: Tools to Help People “Do DNSSEC”

- Zone Administration Tools
- Authoritative Domain Name Server Tools
- Recursive Domain Name Server Tools
- Application/Script Writers
- End Users (DNSSEC Native Applications)
- DNS Error Checking Tools
- DNSSEC Management Tools

DNSSEC-Tools: Tools to Help People “Do DNSSEC”

The screenshot shows the DNSSEC-Tools website with the following content:

- Navigation:** Sign Your Zone, Tutorials, Install
- About DNSSEC-Tools:**
 - The goal of the DNSSEC-Tools project is to create a set of software tools, patches, applications, wrappers, extensions, and plugins that will help ease the deployment of DNSSEC related technologies.
 - Links: [Read the Tutorials](#), [Explore the wiki](#), [See the Tool Descriptions and ScreenShots](#), [Download and Install](#)
 - Contact: [users AT dnssec-tools.org mailing list](#) or submit bugs to the [bug database](#).
- Help Us Measure The World!**
 - The DNSSEC-Tools project is undertaking a study to determine how ready the world's is for deploying DNSSEC all the way to user applications. You can help!
 - 1. [Download DNSSEC-Check](#), Run it on every network you can and submit Your results
 - 2. Visit our [DNSSEC-Check Wiki Page](#) for more information about DNSSEC-Check and how it works
 - 3. View the [results page](#) to see information about the data collected to date.
- DNSSEC-Check Tool Interface:**

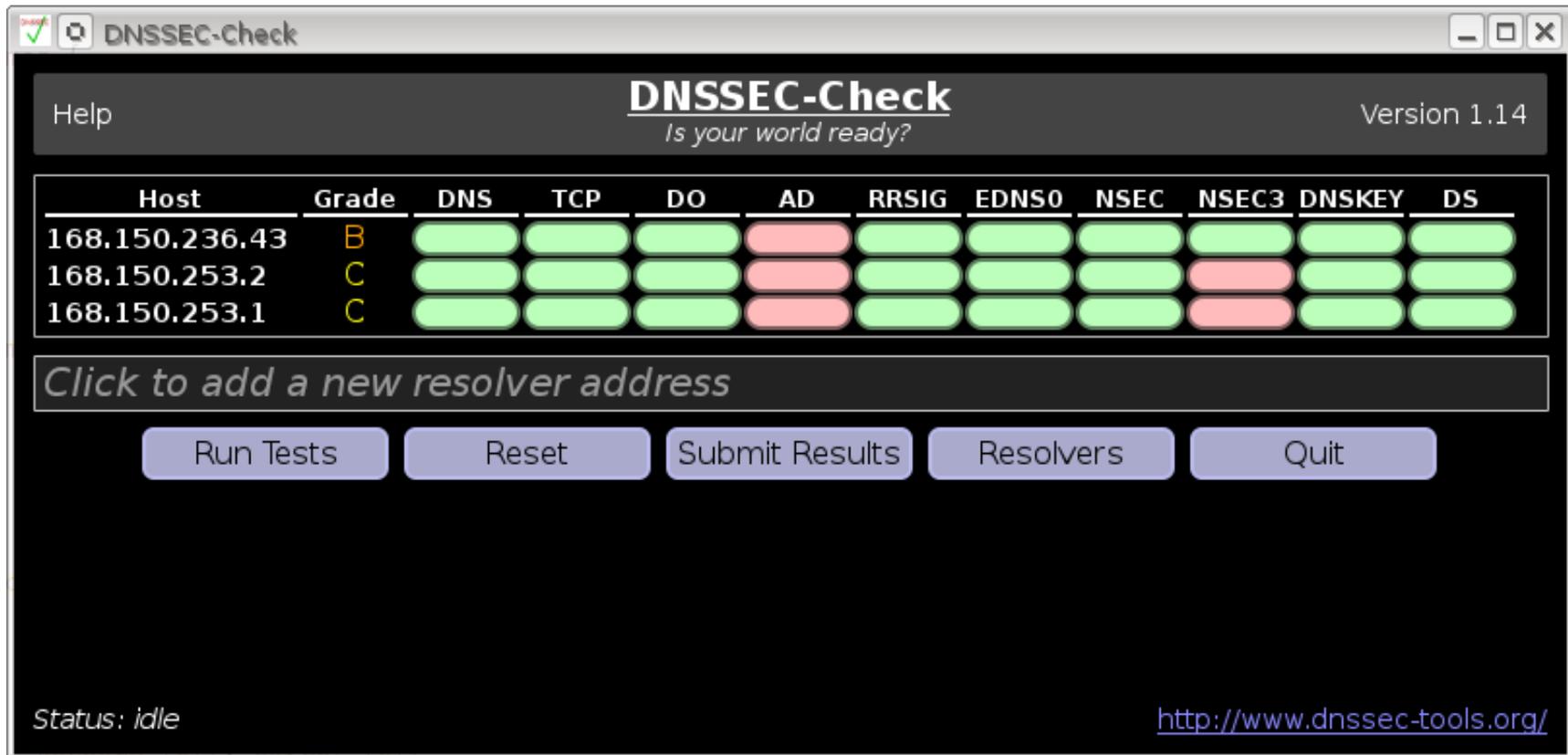
Host	Grade	DNS	TSP	DO	AD	RNSIG	EDNS0	NSSEC	NSSEC3	DNSKEY	DS
10.0.0.1	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
172.0.0.1	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8.8.8.8	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
- Sign Your Zone:** A graphic of a yellow padlock and key.
- DNSSEC-Tools Resources:**
 - Main Page
 - Tutorials
 - Tool Descriptions And Screen-Shots
 - Download
 - Everything
 - Libval
 - GUI Apps
 - DNSSEC-Check
 - Lookup
 - DNSSEC-Nodes
 - Additional Documentation
 - Test Zone

Automating & Visualizing DNSSEC

- Tools for end-users including several mobile platforms
 - DNSSEC is available on Android & some other small platforms (e.g. cell phones)
- Tools for network and name server providers & operators
 - Automated key management & monitoring

Help Us Measure the World!

Available for Windows, Linux, OS X and Android

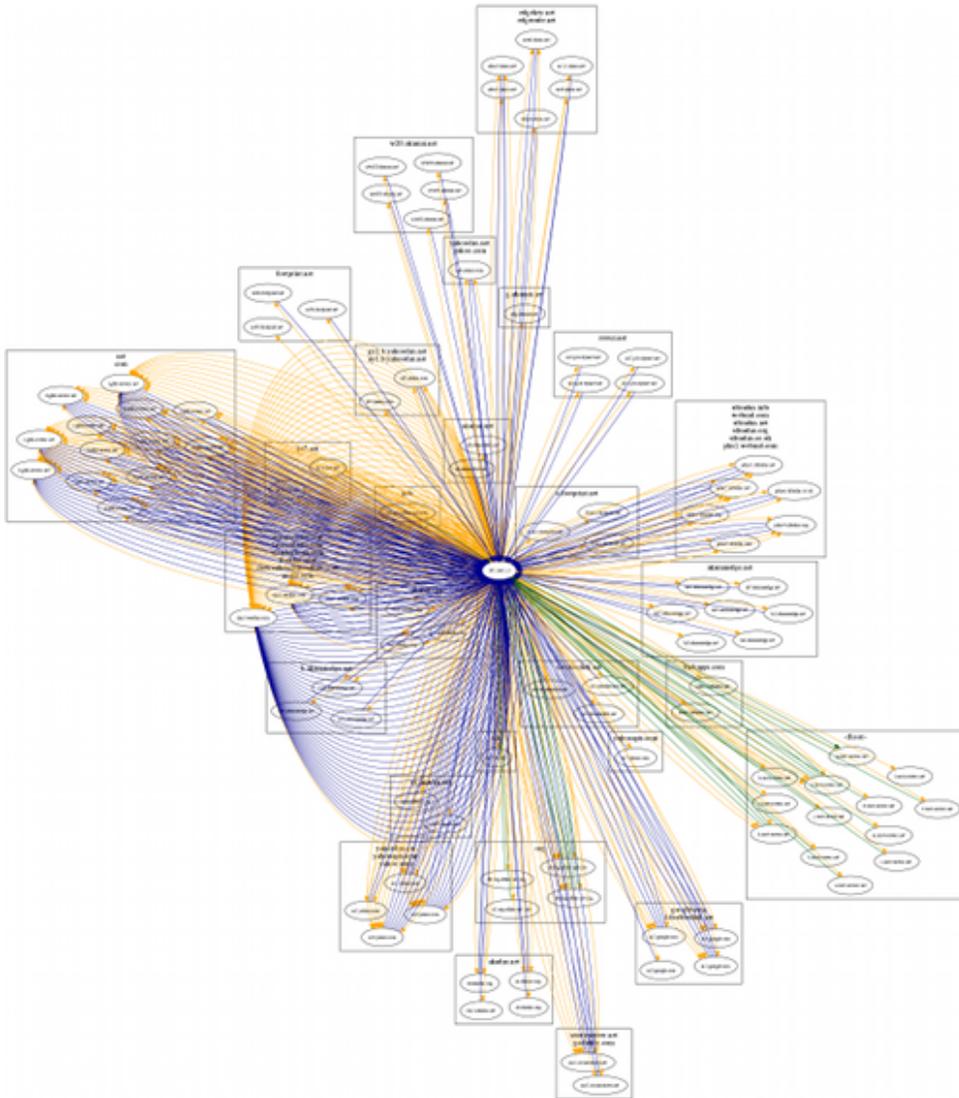


The screenshot shows the DNSSEC-Check application window. The title bar reads "DNSSEC-Check". The main header area contains "Help", "DNSSEC-Check", "Is your world ready?", and "Version 1.14". Below this is a table with the following data:

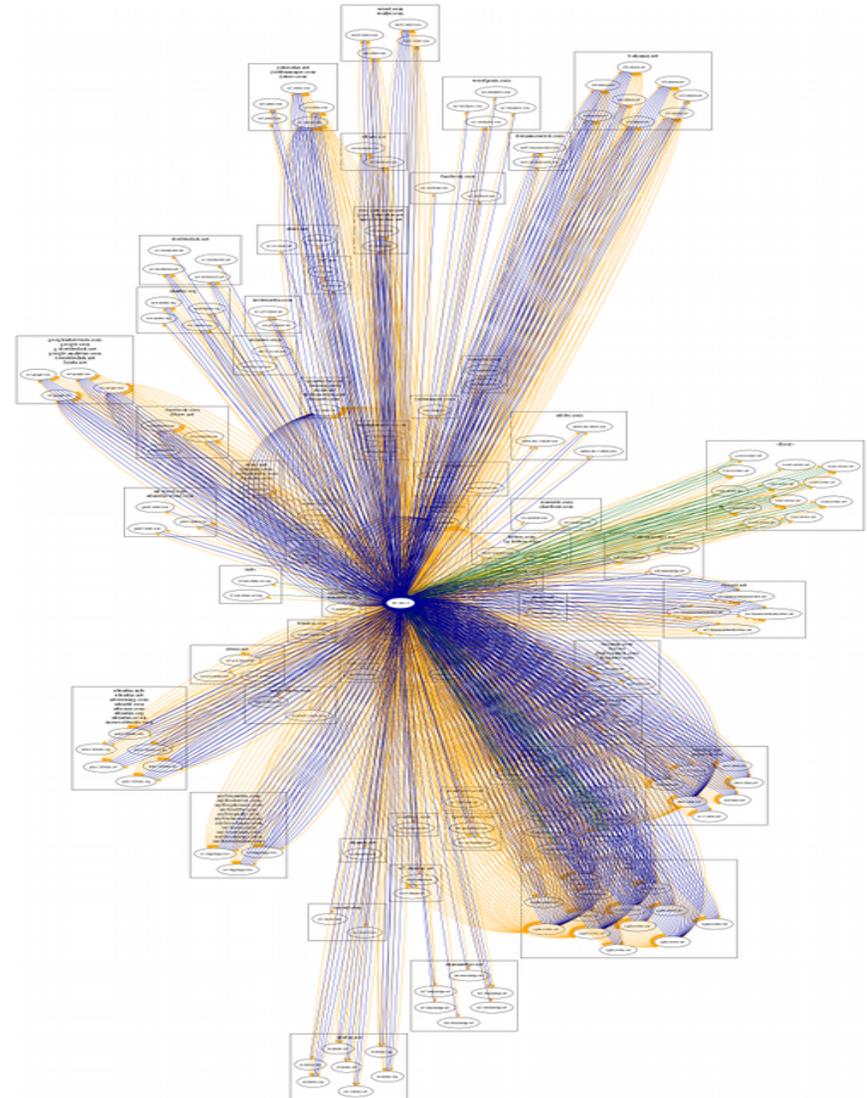
Host	Grade	DNS	TCP	DO	AD	RRSIG	EDNS0	NSEC	NSEC3	DNSKEY	DS
168.150.236.43	B	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green
168.150.253.2	C	Green	Green	Green	Red	Green	Green	Green	Red	Green	Green
168.150.253.1	C	Green	Green	Green	Red	Green	Green	Green	Red	Green	Green

Below the table is a text box with the prompt "Click to add a new resolver address". At the bottom, there are five buttons: "Run Tests", "Reset", "Submit Results", "Resolvers", and "Quit". The status bar at the bottom left shows "Status: idle" and the bottom right shows the URL "http://www.dnssec-tools.org/".

1 address = multiple DNS lookups

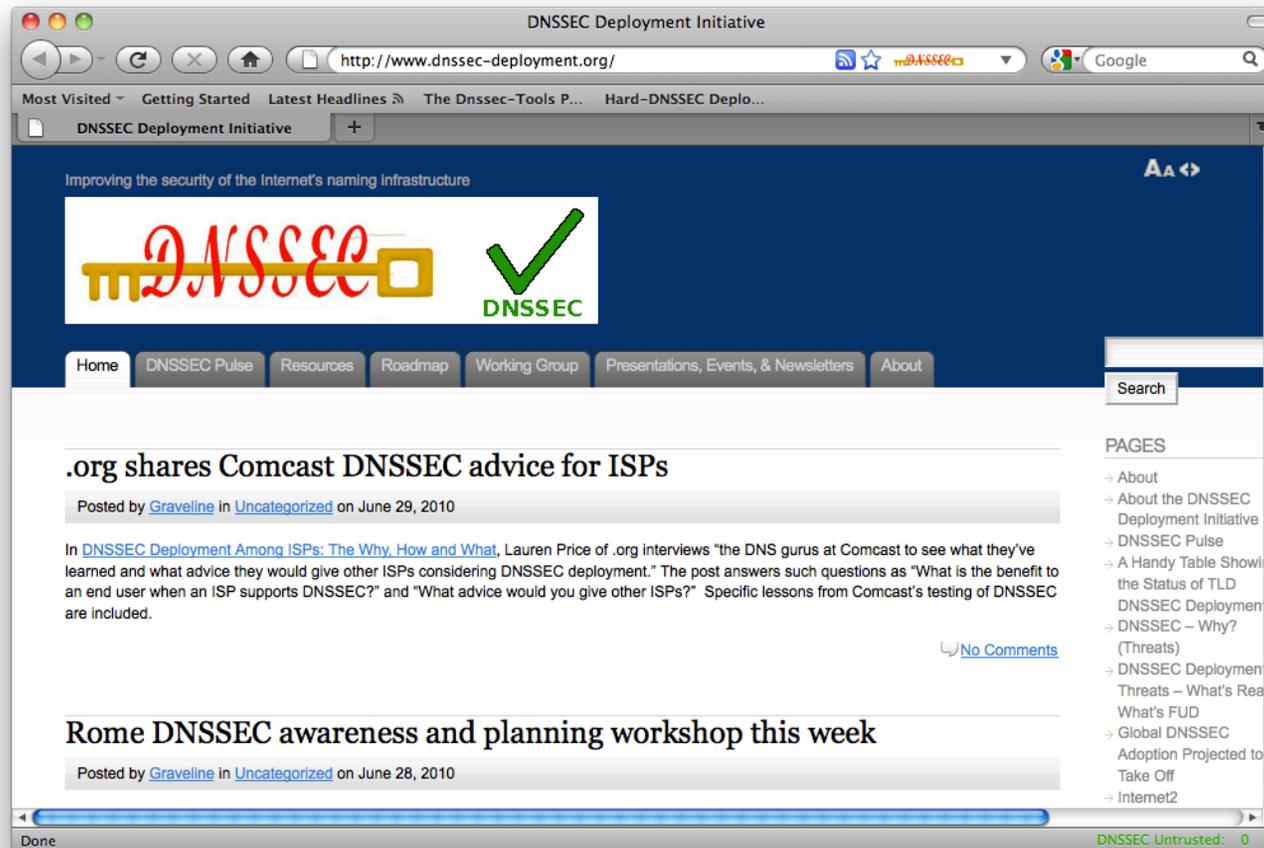


www.weather.com

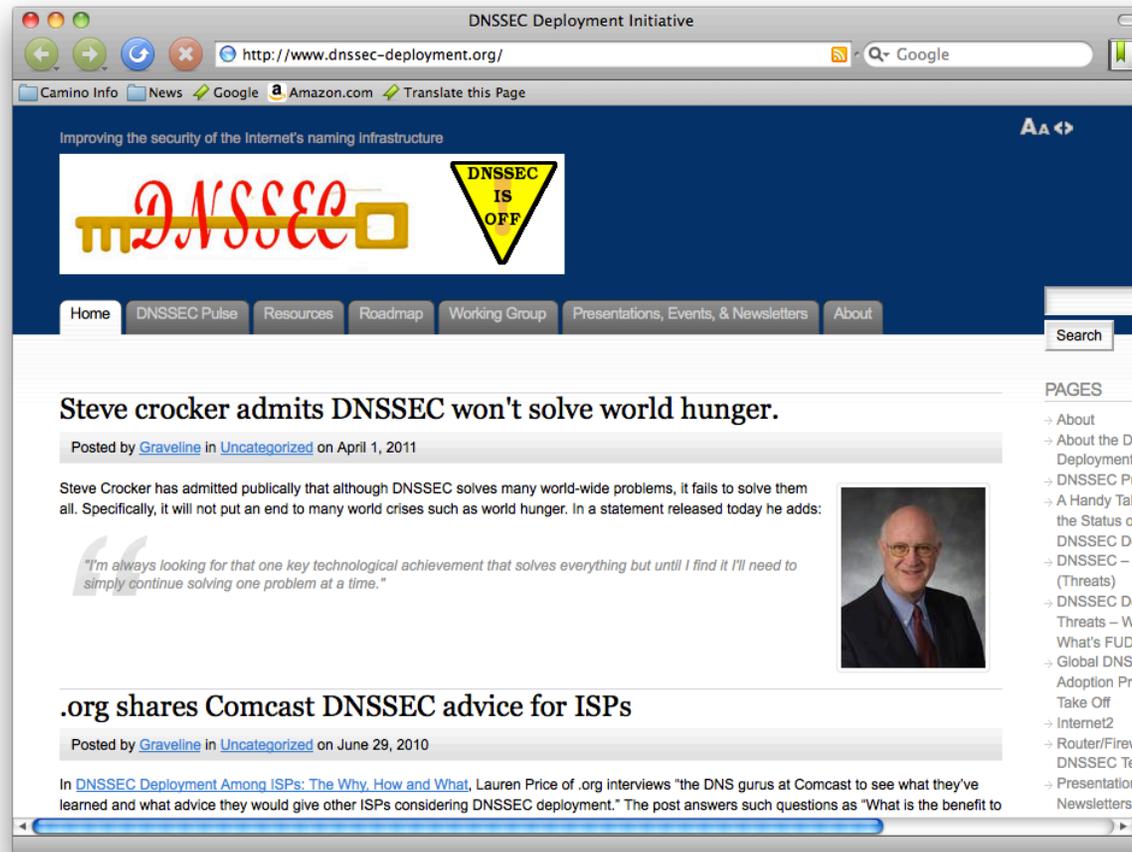


www.foxnews.com

Valid Web Site Content



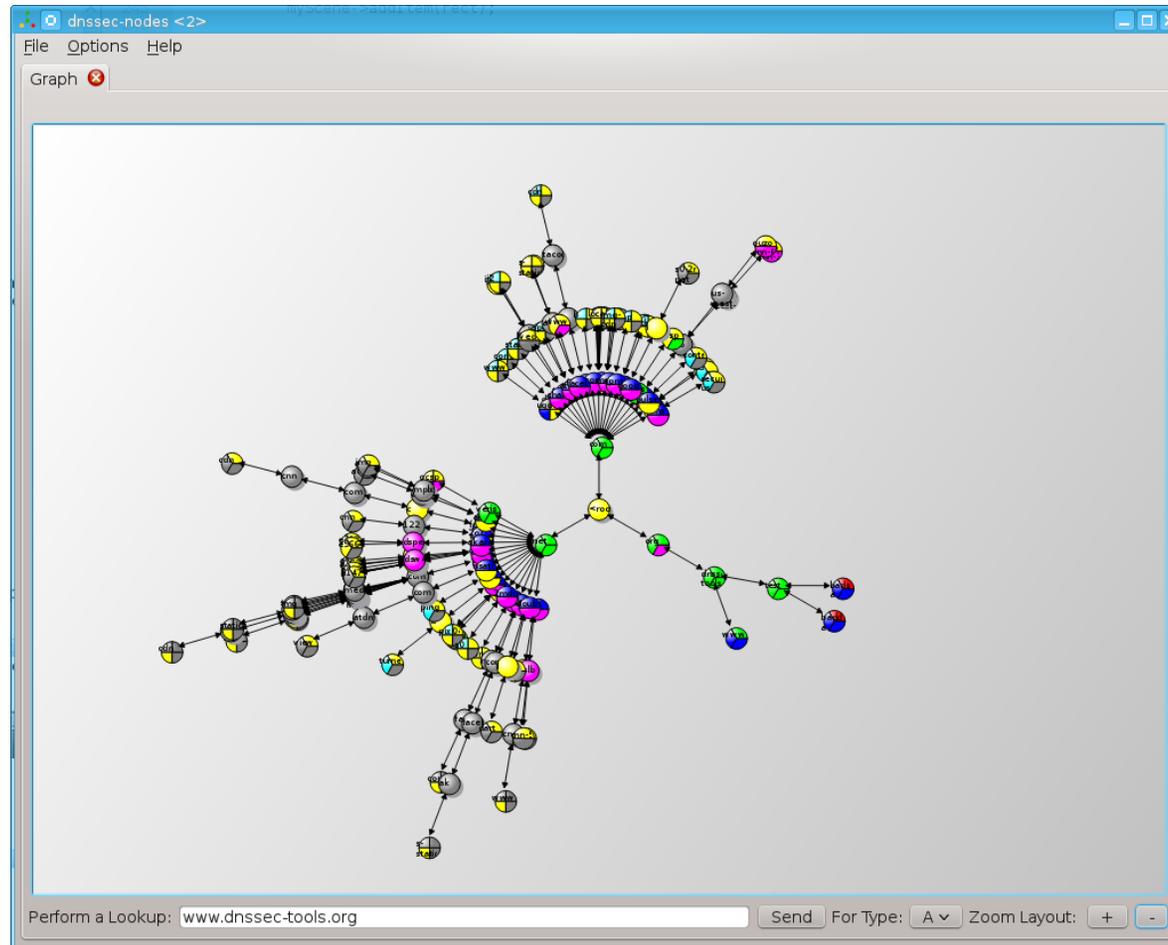
INVALID Web Site Content From DNS Based Attack



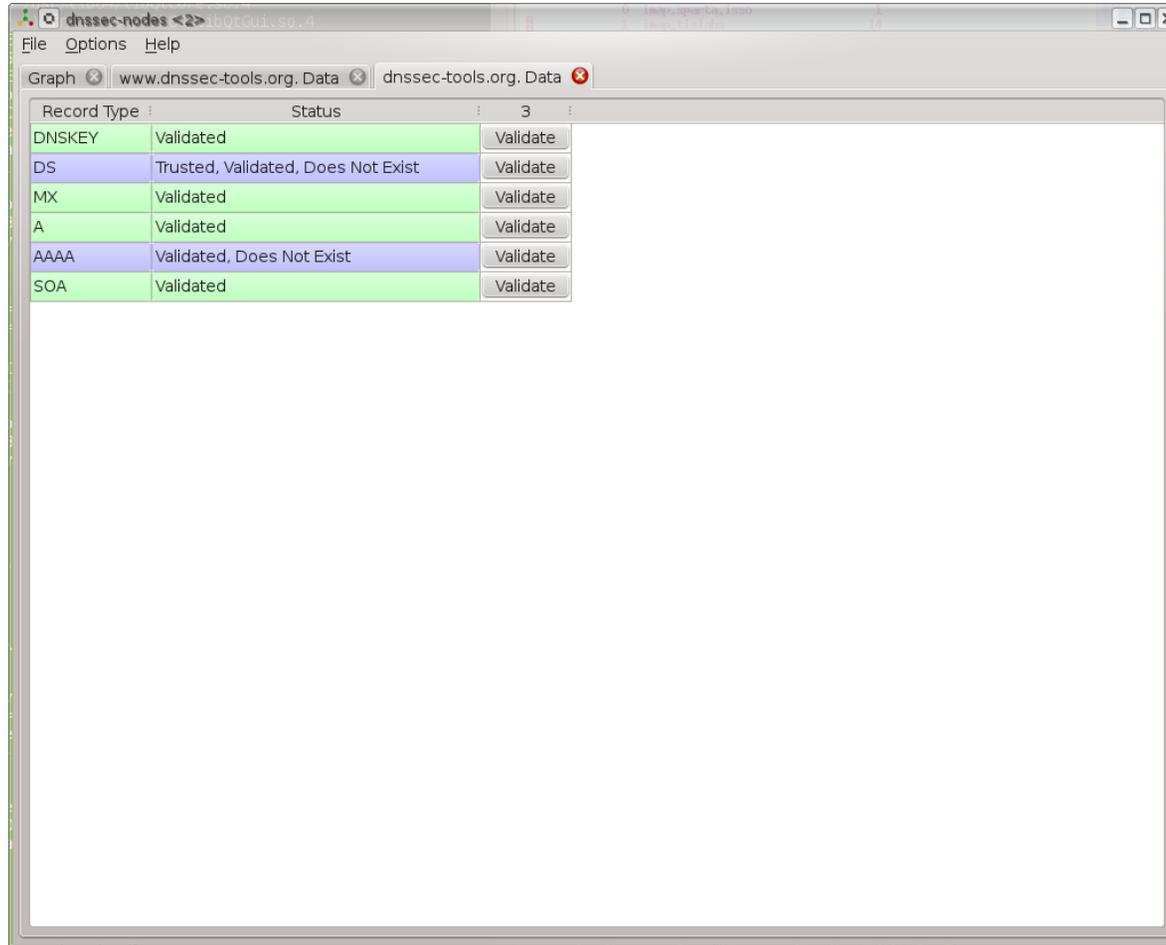
“Seeing” DNSSEC Better

The screenshot shows a virtual machine window titled "DNSSECToolsFedora". Inside, a Mozilla Firefox browser window displays the "The Dnssec-Tools Project" website. The website features a large red wrench icon with the text "DNSSEC-Tools" and the question "Is your domain secure?". Below this, there are links for "Sign Your Zone", "Tutorials", and "Install". A section titled "About DNSSEC-Tools" explains the project's goal: "The goal of the DNSSEC-Tools project is to create a set of software tools, patches, applications, wrappers, extensions, and plugins that will help ease the deployment of DNSSEC related technologies." To the right of the browser, a window titled "dnssec-nodes" displays a network diagram of DNSSEC nodes. The diagram shows a hierarchy of nodes, with some nodes highlighted in green and others in yellow or red. The system tray at the bottom of the window shows the date and time as "Sat Jul 16, 5:18 PM".

DNSSEC Nodes - Graph



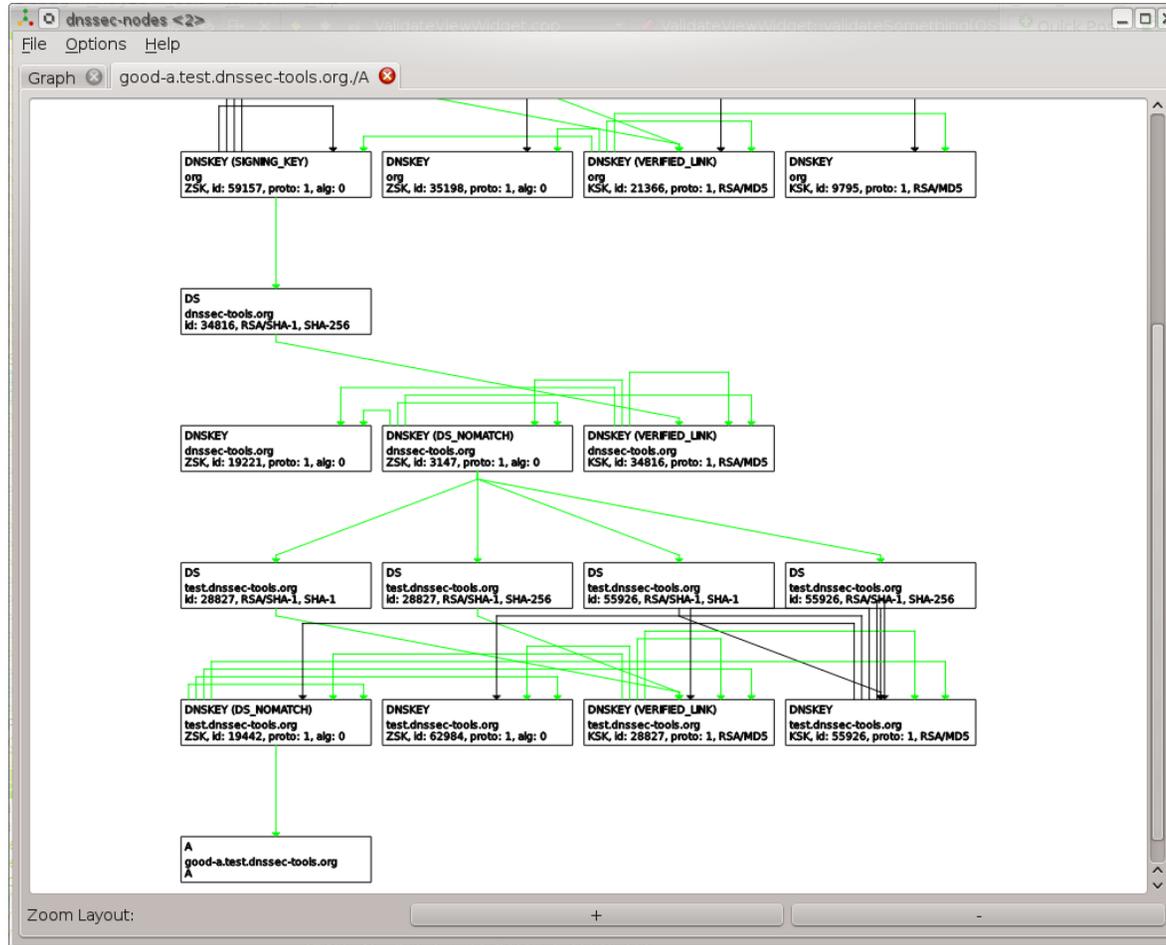
DNSSEC Nodes – Node Details



The screenshot shows a window titled "dnssec-nodes <2>". The main content area displays a table with the following data:

Record Type	Status	3
DNSKEY	Validated	Validate
DS	Trusted, Validated, Does Not Exist	Validate
MX	Validated	Validate
A	Validated	Validate
AAAA	Validated, Does Not Exist	Validate
SOA	Validated	Validate

DNSSEC Nodes – Validate Map



DNSSEC-Tools: Tools for Using DNSSEC

- Zone Administration Tools
- Authoritative Domain Name Server Tools
- Recursive Domain Name Server Tools
- Application/Script Writers
- End Users (DNSSEC Native Applications)
- DNS Error Checking Tools
- **DNSSEC Management Tools**

DNSSEC-Tools: Webmin Integration

- DNSSEC status displayed in the zone listing
- Manage Rollover operations using rollerD
- Migration to DNSSEC-Tools
- Configuring Global DNSSEC-Tools related options
- Currently shipping in Webmin for CENTOS 6.x

DNSSEC-Tools: Webmin Integration

Webmin 1.580 on localhost.localdomain (CentOS Linux 6.2)

Module Config **BIND DNS Server** Start BIND Search Docs...

BIND version 9.7.3, under chroot /var/named/chroot

Global Server Options

- Other DNS Servers
- Logging and Errors
- Access Control Lists
- Files and Directories
- Forwarding and Transfers
- Addresses and Topology
- Miscellaneous Options
- Control Interface Options
- DNS Keys
- Zone Defaults
- Cluster Slave Servers
- Setup RNDG
- DNSSEC Verification
- DNSSEC-Tools Automation
- DNSSEC Key Re-Signing
- Check BIND Config
- Edit Config File

Existing DNS Zones

Select all. | Invert selection. | Create master zone. | Create slave zone. | Create stub zone. | Create forward zone. | Create delegation zone. | Create root zone. | Create zones from batch file.

Zone	Type	Status	Zone	Type	Status
<input type="checkbox"/> example.com	Master	In ZSK Roll	<input type="checkbox"/> signed.example	Master	Signed
<input type="checkbox"/> example.net	Master	In KSK Roll	<input type="checkbox"/> unsigned.example	Master	Unsigned
<input type="checkbox"/> example.org	Master	Waiting for DS			

Select all. | Invert selection. | Create master zone. | Create slave zone. | Create stub zone. | Create forward zone. | Create delegation zone. | Create root zone. | Create zones from batch file.

Existing Client Views

There are no client views defined on this server.

[Create client view.](#)

suresh logged into Webmin 1.580 on localhost.localdomain (CentOS Linux 6.2)

DNSSEC-Tools: DNSSEC Management Tools

The screenshot shows a web browser window with the URL https://www.dnssec-tools.org/wiki/index.php/DNSSEC-Tools_Components. The page content is as follows:

DNSSEC Management Tools		
logwatch	Example	A logwatch plugin for DNSSEC parsing of the BIND server's system logging messages.
blinkenlights	Manual Example CLI Help	Display information on the current state of the zones rollerd is managing. Some aspects of rollerd execution and zone control may be performed with blinkenlights .
bubbles	Manual CLI Help	Simple display of the rollover status of zones managed by rollerd . Each managed zone is shown in a color-coded button in a window of buttons. This is a display-only tool; actual control is not allowed.
lights	Manual CLI Help	Very simple overview of the rollover status of zones managed by rollerd . A stoplight-style display shows those zones in normal operation, those zones in rollover, and those zones in need of manual intervention. This is a display-only tool; actual control is not allowed.
grandvizier		Display information on the current state of the realms dtrealms is managing. Some aspects of dtrealms execution and realm control may be performed with grandvizier .
Nagios Plugin and Modifications		A plugin and modifications to the Nagios computer and network monitoring system. The dt_zonestat plugin retrieves zone rollover status from a rollrec file. The modifications provide nicer Nagios output for the result of the dt_zonestat plugin. These modifications have been made to Nagios version 3.2.3.
Zabbix Plugins		Modifications to the Zabbix monitoring system. These monitor plugins have been developed under Zabbix version 1.8.8. <i>This is currently under development and has not been released yet.</i>

At the bottom of the page, there is a footer with the following text: "This page has been accessed 10,401 times." and "Powered By MediaWiki".

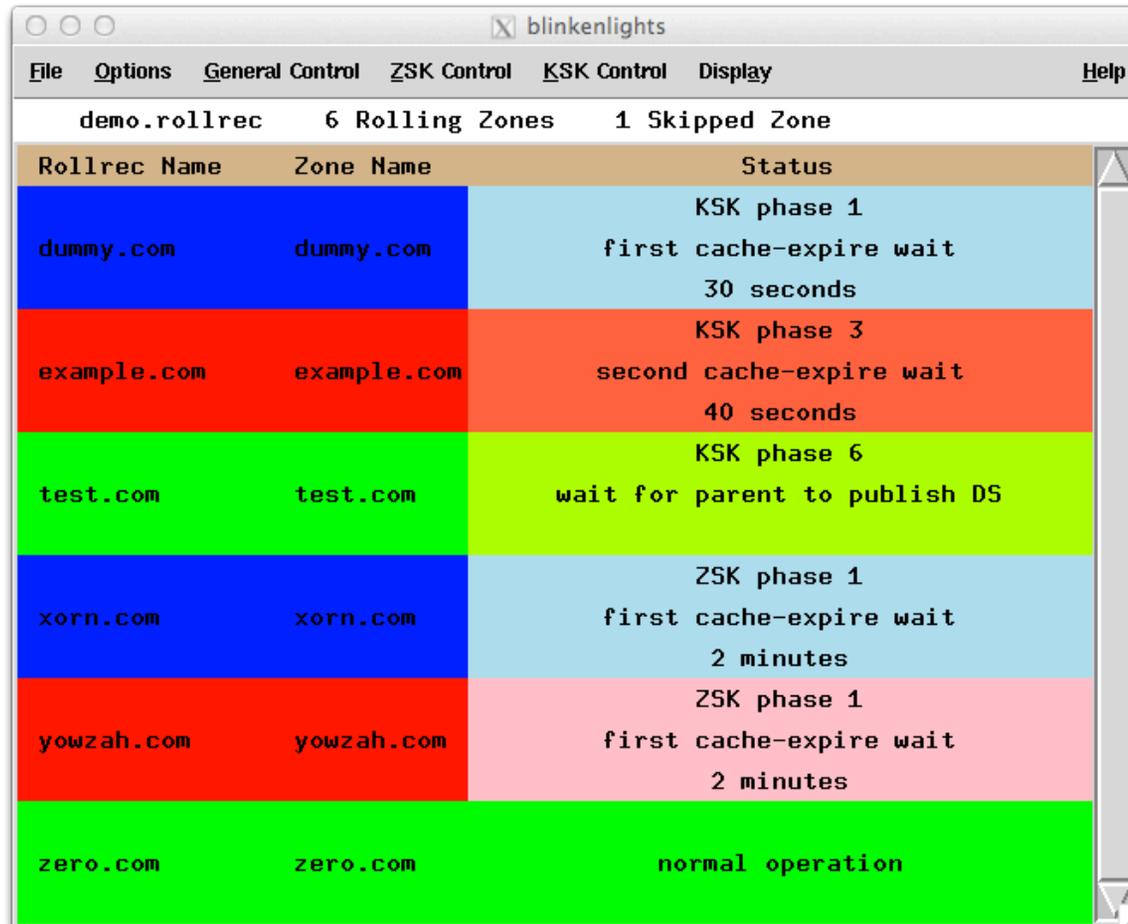
Blinkenlights

Visualizing Key Rollover

Rollrec Name	Zone Name	Status	ZSK Type	ZSK Name	KSK Type	KSK Name
demo.rollrec	6 Rolling Zones 1 Skipped Zone		Query Interval: 15 seconds		Displaying 7 of 7 zones	
dummy.com	dummy.com	normal operation	Current Published New	dummy.com-signset-00006 dummy.com-signset-00007 dummy.com-signset-00010	Current Published	dummy.com-signset-00008
example.com	example.com	KSK phase 3 second cache-expire wait 40 seconds	Current Published New	example.com-signset-00004 example.com-signset-00005 example.com-signset-00008	Current Published	example.com-signset-00006 example.com-signset-00009
test.com	test.com	KSK phase 6 wait for parent to publish DS	Current Published New	test.com-signset-00002 test.com-signset-00004 test.com-signset-00005	Current Published	test.com-signset-00006
xorn.com	xorn.com	ZSK phase 1 first cache-expire wait 2 minutes	Current Published New	xorn.com-signset-00001 xorn.com-signset-00002	Current Published	xorn.com-signset-00003
yowzah.com	yowzah.com	ZSK phase 1 first cache-expire wait 2 minutes	Current Published New	yowzah.com-signset-00001 yowzah.com-signset-00002	Current Published	yowzah.com-signset-00003
zero.com	zero.com	normal operation	Current Published New	zero.com-signset-00001 zero.com-signset-00002	Current Published	zero.com-signset-00003

Blinkenlights

Visualizing Key Rollover



The screenshot shows a window titled "blinkenlights" with a menu bar (File, Options, General Control, ZSK Control, KSK Control, Display, Help). Below the menu bar, it displays "demo.rollrec 6 Rolling Zones 1 Skipped Zone". The main content is a table with three columns: Rollrec Name, Zone Name, and Status. The table is color-coded by row: blue, red, green, blue, red, and green.

Rollrec Name	Zone Name	Status
dummy.com	dummy.com	KSK phase 1 first cache-expire wait 30 seconds
example.com	example.com	KSK phase 3 second cache-expire wait 40 seconds
test.com	test.com	KSK phase 6 wait for parent to publish DS
xorn.com	xorn.com	ZSK phase 1 first cache-expire wait 2 minutes
yowzah.com	yowzah.com	ZSK phase 1 first cache-expire wait 2 minutes
zero.com	zero.com	normal operation

DNSSEC-Tools: Plug-In for Nagios

The screenshot shows a web browser window displaying the Nagios Core interface. The browser's address bar shows the URL `https://www.dnssec-tools.org/wiki/index.php/File:Nagios.png`. The page title is "File:Nagios.png". The interface includes a sidebar with navigation links for "General", "Current Status", "getting started", "project", and "wiki". The main content area displays the Nagios Core status page, which includes:

- Current Network Status:** Last Updated: Thu Mar 10 18:01:31 EST 2011. Updated every 20 seconds. Nagios® Core™ 3.2.3 - www.nagios.org. Logged in as lowok.
- Host Status Totals:** A summary table showing the number of hosts in various states: Up (4), Down (1), Unreachable (0), and Pending (0).
- Service Status Totals:** A summary table showing the number of services in various states: OK (3), Warning (1), Unknown (0), Critical (1), and Pending (0).
- Service Status Details For All Hosts:** A table listing individual services and their status. The table has columns for Host, Service, Status, Last Check, Duration, Attempt, and Status Information.

Host	Service	Status	Last Check	Duration	Attempt	Status Information
example.com/example.com	zone rollover	ROLLING	03-10-2011 18:00:23	0d 0h 6m 6s	1/3	ZSK Rollover Phase 3
inside example.com/example.com	zone rollover	NORMAL	03-10-2011 18:00:35	0d 0h 5m 56s	1/3	Normal Operation
test@test.com	zone rollover	ATTENTION REQUIRED	03-10-2011 18:00:47	0d 0h 5m 44s	3/3	KSK Rollover Phase 6: ATTENTION NEEDED
web-server1.example.com	Host Check	OK	03-10-2011 18:00:59	0d 0h 5m 32s	1/3	OK
web-server2.example.com	Host Check	CRITICAL	03-10-2011 18:01:11	0d 0h 0m 20s	1/3	CRITICAL

5 Matching Service Entries Displayed

Size of this preview: 800 x 416 pixels.
Full resolution (944 x 491 pixels, file size: 409 KB, MIME type: image/png)
Screen grab of the updated Nagios interface for zone rollover.

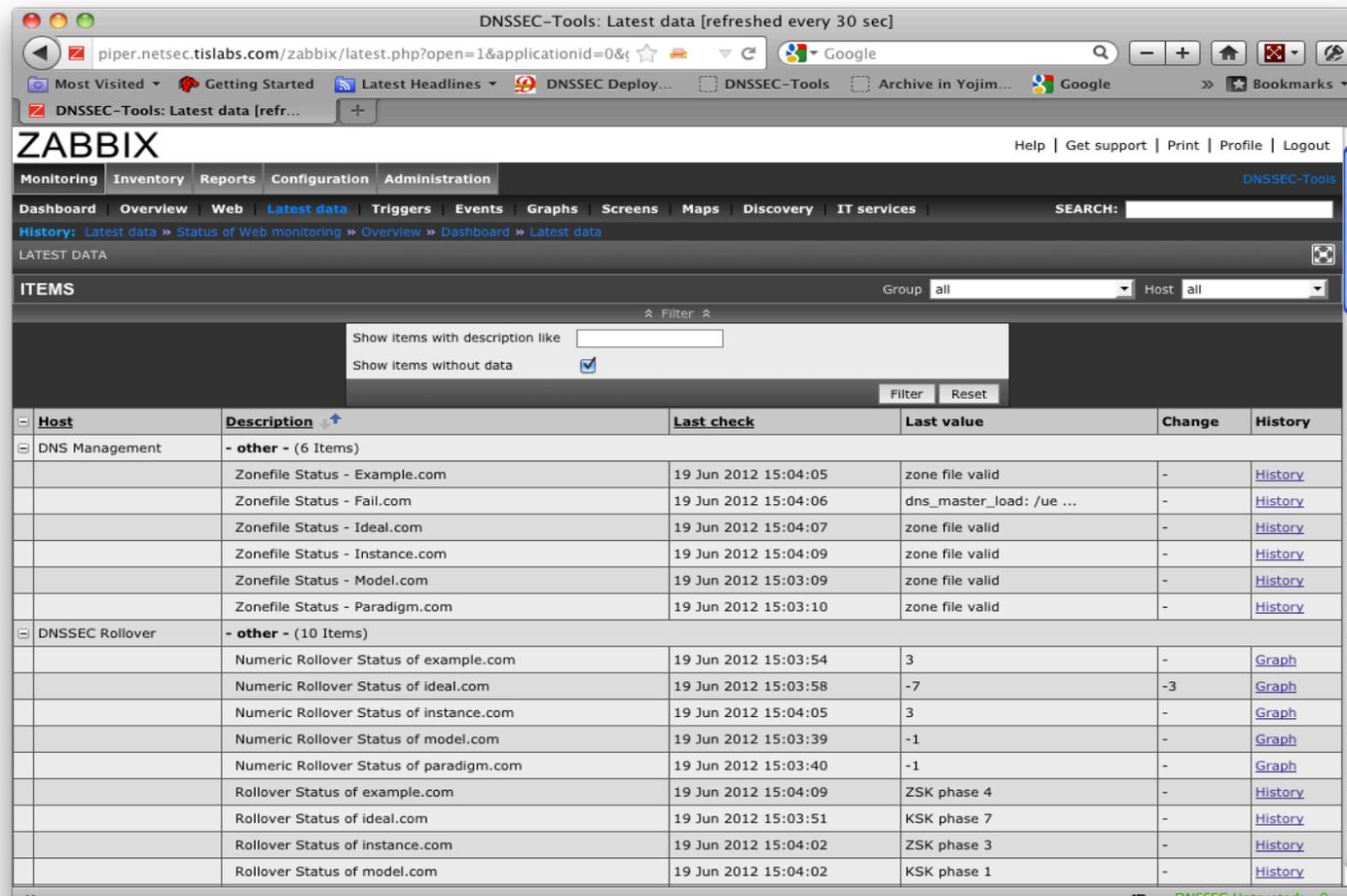
DNSSEC-Tools: Plug-In for ZABBIX

UEM East: UEM-East: DNS Response Times from A-Root (1h)

	last	min	avg	max
DNS Response for A-Root to TISLABS.COM [avg]	0.01	0.01	0.03	0.06
DNS Response for A-Root to NIC.MIL [avg]	0.04	0.01	0.03	0.05
DNS Response for A-Root to . [avg]	0.01	0.01	0.03	0.11

Size of this preview: 800 x 506 pixels.
Full resolution (933 x 590 pixels, file size: 160 KB, MIME type: image/png)

DNSSEC-Tools: Plug-In for ZABBIX



The screenshot shows the ZABBIX web interface with the DNSSEC-Tools plug-in. The browser address bar shows the URL: `http://piper.netsec.tislabs.com/zabbix/latest.php?open=1&applicationid=0&...`. The page title is "DNSSEC-Tools: Latest data [refreshed every 30 sec]".

The ZABBIX interface includes a navigation menu with "Monitoring", "Inventory", "Reports", "Configuration", and "Administration". The "Monitoring" section is active, showing a "Latest data" view. The "ITEMS" table is displayed with the following data:

Host	Description	Last check	Last value	Change	History
DNS Management - other - (6 Items)					
	Zonefile Status - Example.com	19 Jun 2012 15:04:05	zone file valid	-	History
	Zonefile Status - Fail.com	19 Jun 2012 15:04:06	dns_master_load: /ue ...	-	History
	Zonefile Status - Ideal.com	19 Jun 2012 15:04:07	zone file valid	-	History
	Zonefile Status - Instance.com	19 Jun 2012 15:04:09	zone file valid	-	History
	Zonefile Status - Model.com	19 Jun 2012 15:03:09	zone file valid	-	History
	Zonefile Status - Paradigm.com	19 Jun 2012 15:03:10	zone file valid	-	History
DNSSEC Rollover - other - (10 Items)					
	Numeric Rollover Status of example.com	19 Jun 2012 15:03:54	3	-	Graph
	Numeric Rollover Status of ideal.com	19 Jun 2012 15:03:58	-7	-3	Graph
	Numeric Rollover Status of instance.com	19 Jun 2012 15:04:05	3	-	Graph
	Numeric Rollover Status of model.com	19 Jun 2012 15:03:39	-1	-	Graph
	Numeric Rollover Status of paradigm.com	19 Jun 2012 15:03:40	-1	-	Graph
	Rollover Status of example.com	19 Jun 2012 15:04:09	ZSK phase 4	-	History
	Rollover Status of ideal.com	19 Jun 2012 15:03:51	KSK phase 7	-	History
	Rollover Status of instance.com	19 Jun 2012 15:04:02	ZSK phase 3	-	History
	Rollover Status of model.com	19 Jun 2012 15:04:02	KSK phase 1	-	History

DNSSEC-Tools: New Release Available **NOW**

at:

<https://www.dnssec-tools.org/>

Most Important Question:

What will help YOU implement DNSSEC??

Please Tell Us:
users@dnssec-tools.org

SPARTA, Inc.



10/17/12

<https://www.dnssec-tools.org/>
Sponsored by: DHS S&T

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