

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 Project website in a web browser. The browser's address bar displays <https://www.dnssec-tools.org>. The website has a blue header with the DNSSEC-Tools logo and sub-tools: Donuts, Libval, Roller, and Zonesigner. Below the header, the text "Is your domain secure?" is displayed, followed by links for "Sign Your Zone", "Tutorials", and "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.

- [Read the Tutorials](#)
- [Explore the wiki](#)
- [See the Tool Descriptions and ScreenShots](#)
- [Download and Install](#)

To contact the project developers, please write the [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.

A screenshot of the DNSSEC-Check tool interface is shown, displaying a table of results for various hosts. The table has columns for Host, Grade, DNS, TSP, DO, AD, RRSIG, EDNS0, NSEC, NSEC3, DNSKEY, and DS. The results show a mix of green and red indicators, indicating varying levels of DNSSEC readiness.

DNSSEC-Tools Resources

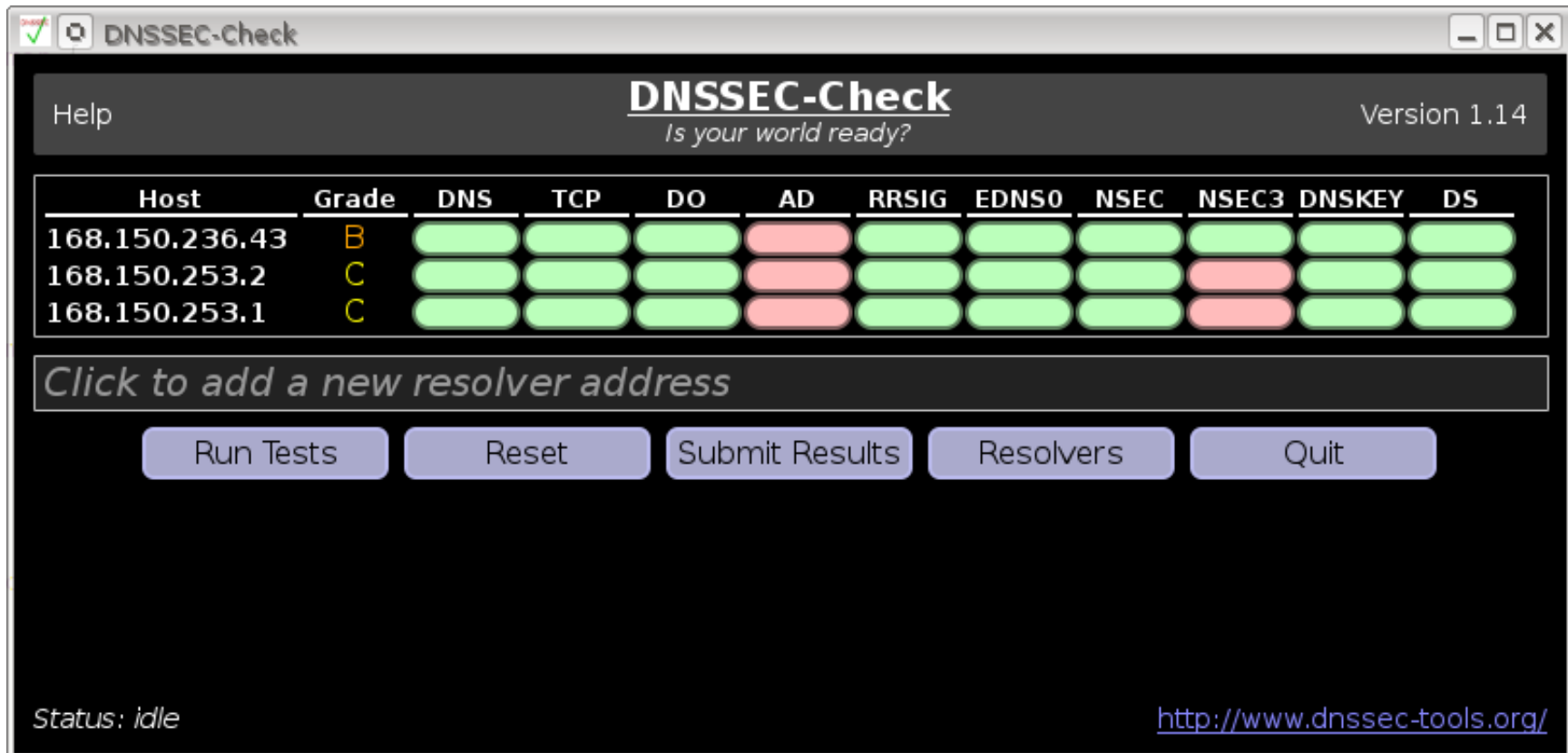
- Main Page
- Tutorials
- Tool Descriptions And Screen-Shots
- Download
 - [Everything](#)
 - [Libval](#)
 - [GUI Apps](#)
 - [DNSSEC-Check](#)
 - [Lookup](#)
 - [DNSSEC-Notes](#)
- Additional Documentation
- Test Zone

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 columns: Host, Grade, DNS, TCP, DO, AD, RRSIG, EDNS0, NSEC, NSEC3, DNSKEY, and DS. The table contains three rows of data for the hosts 168.150.236.43, 168.150.253.2, and 168.150.253.1. Below the table is a button labeled "Click to add a new resolver address". At the bottom are five buttons: "Run Tests", "Reset", "Submit Results", "Resolvers", and "Quit". The status bar at the bottom left says "Status: idle" and the bottom right has the URL "http://www.dnssec-tools.org/".

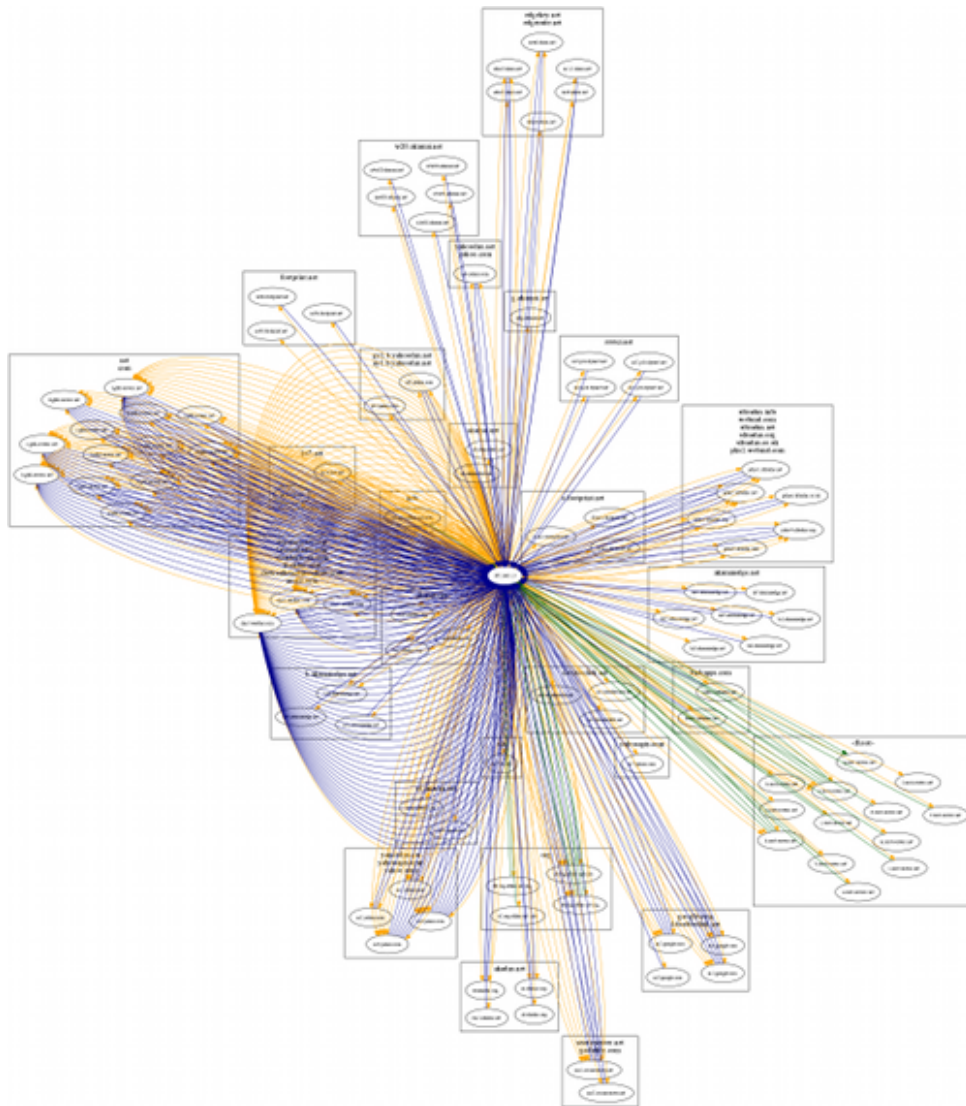
Host	Grade	DNS	TCP	DO	AD	RRSIG	EDNS0	NSEC	NSEC3	DNSKEY	DS
168.150.236.43	B	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green
168.150.253.2	C	Green	Green	Green	Red	Green	Green	Green	Red	Green	Green
168.150.253.1	C	Green	Green	Green	Red	Green	Green	Green	Red	Green	Green

Click to add a new resolver address

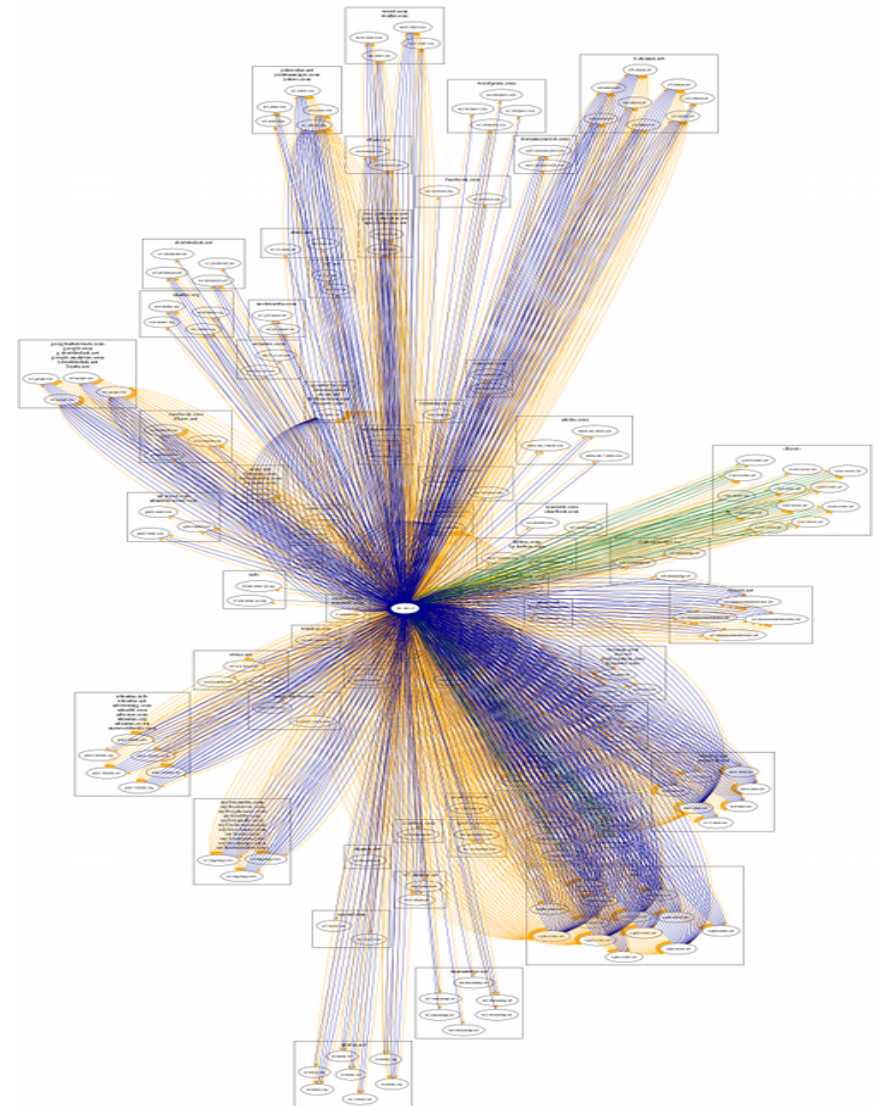
Run Tests Reset Submit Results Resolvers Quit

Status: idle <http://www.dnssec-tools.org/>

1 address = multiple DNS lookups

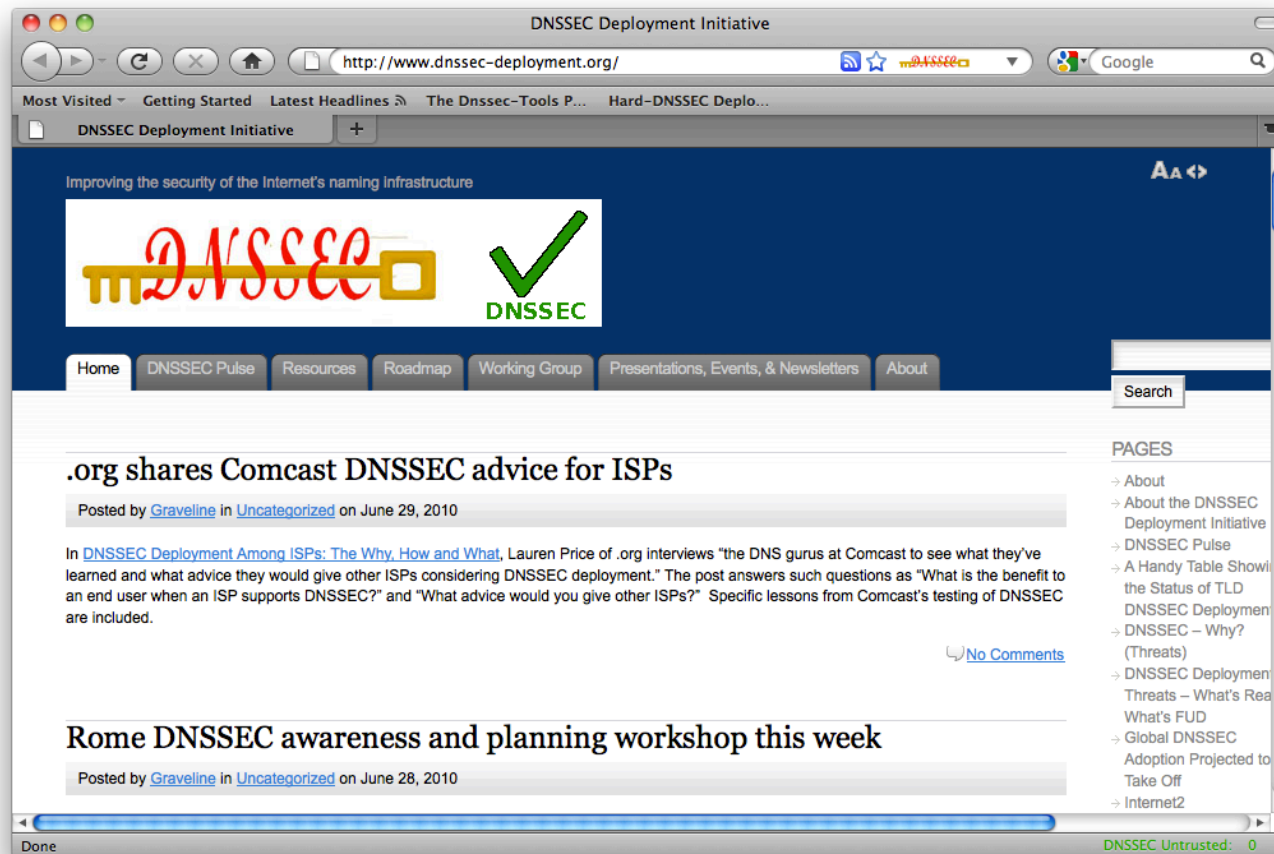


www.weather.com

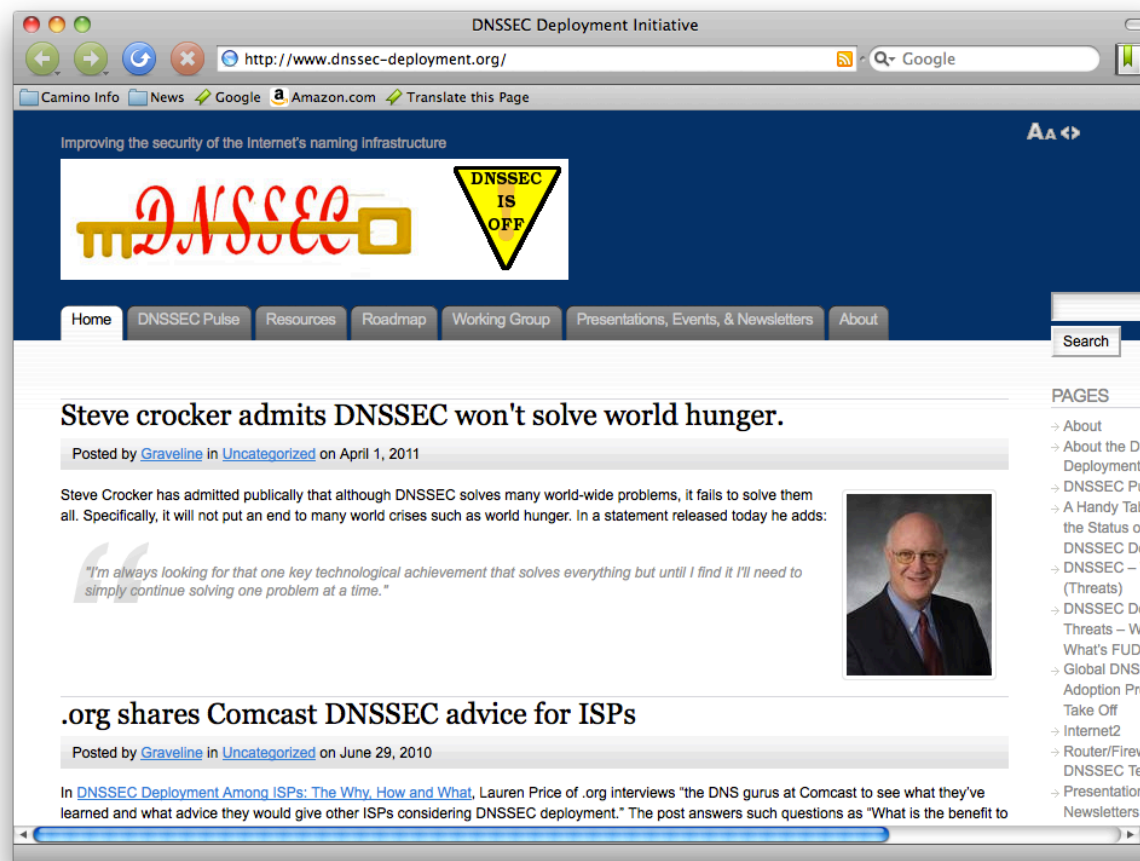


www.foxnews.com

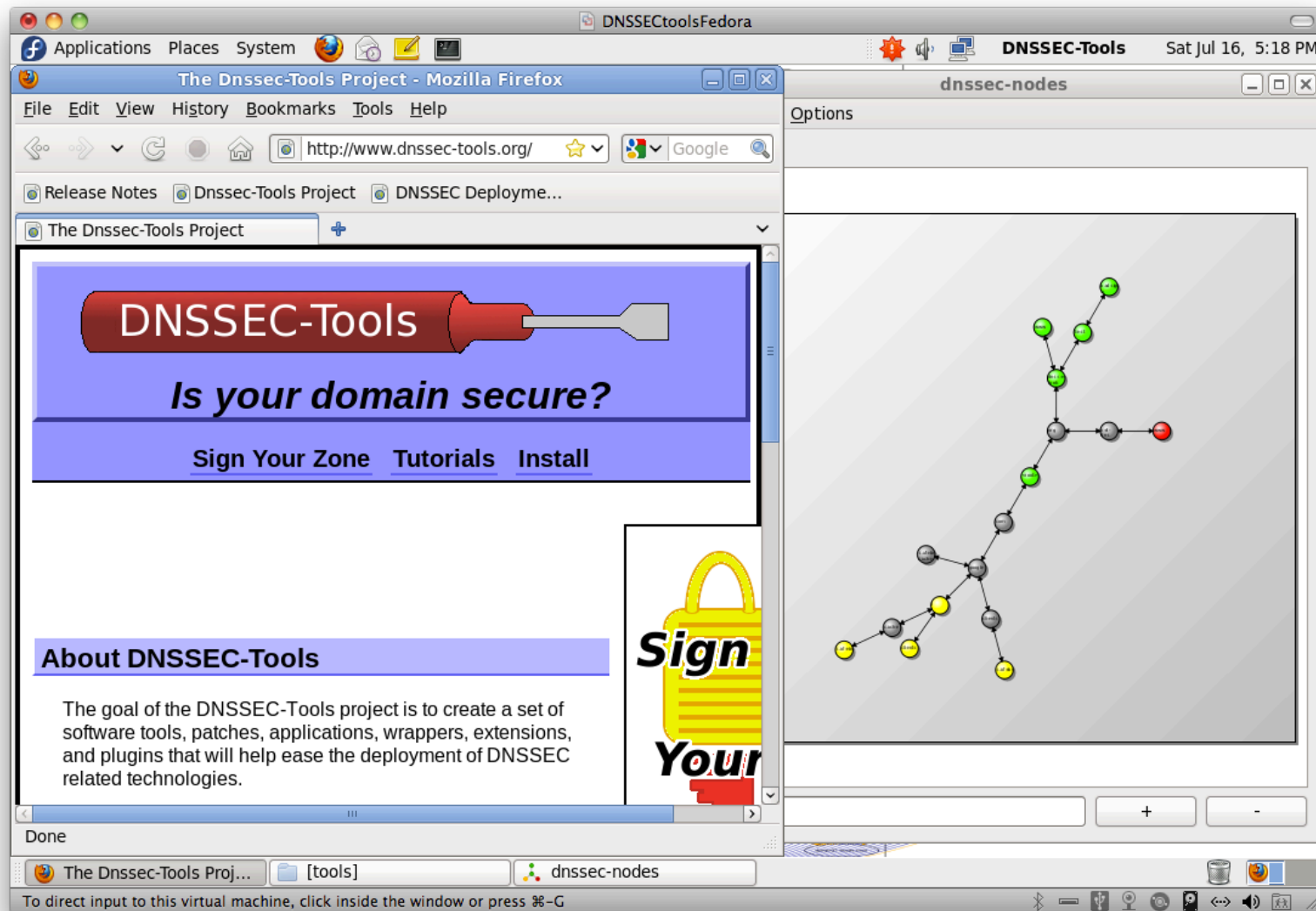
Valid Web Site Content



INVALID Web Site Content From DNS Based Attack

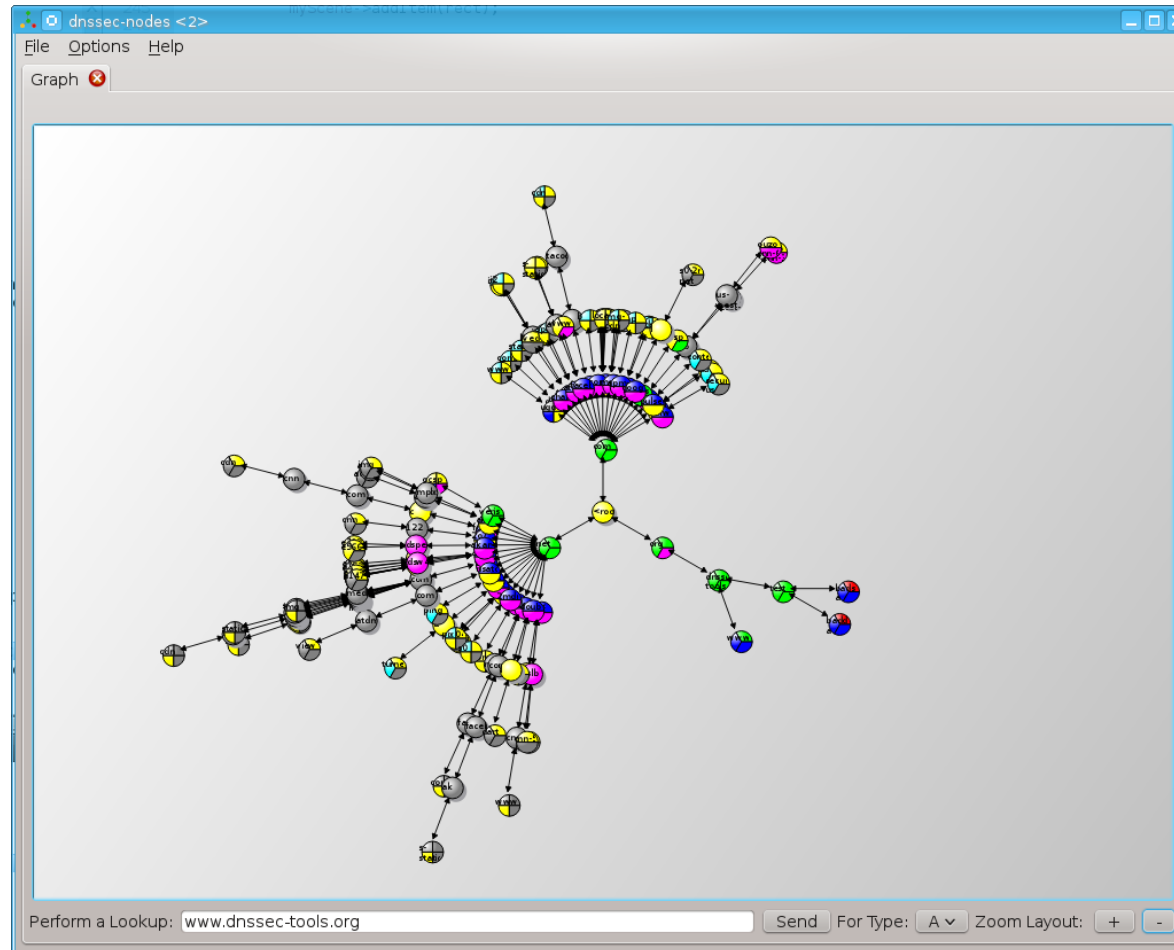


“Seeing” DNSSEC Better

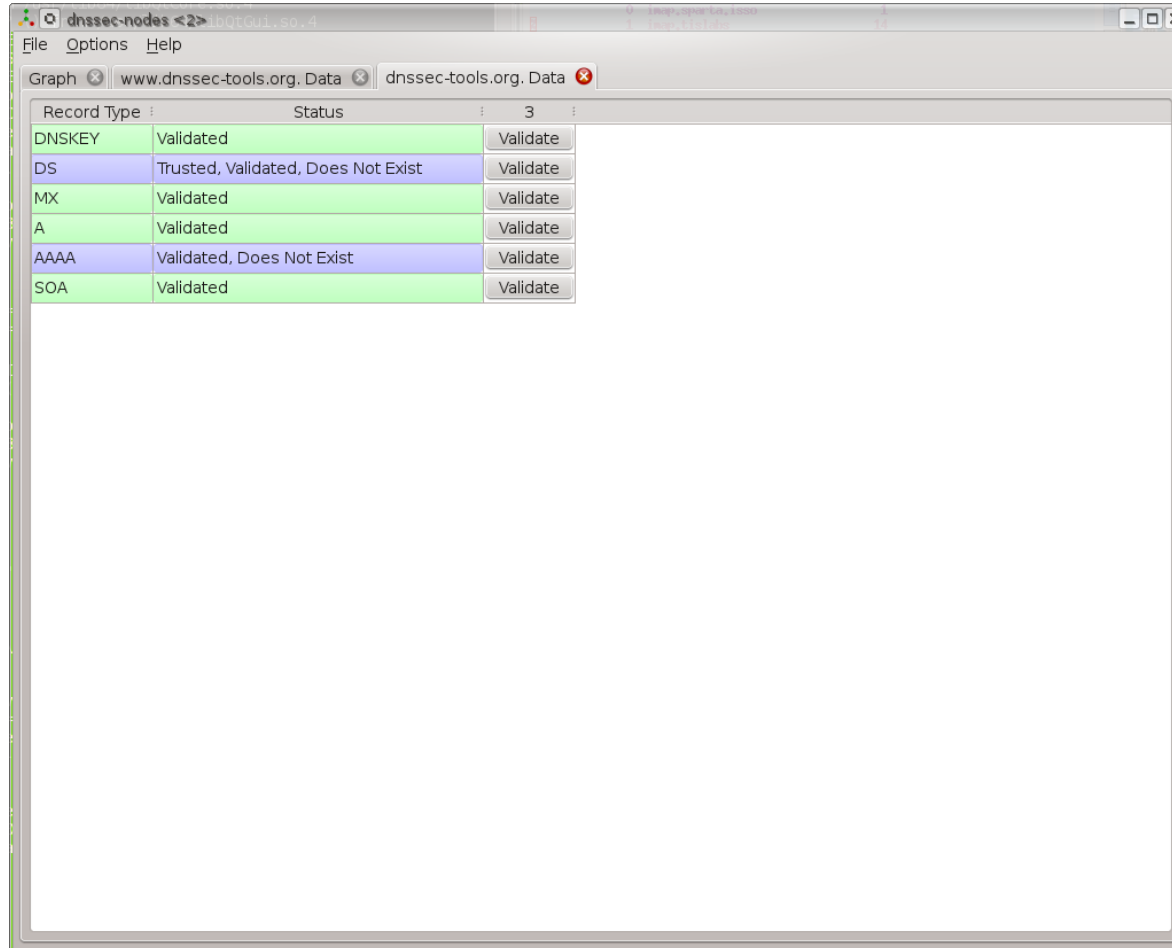


The screenshot shows a virtual machine window titled "DNSSECToolsFedora". Inside, a Mozilla Firefox browser window displays the "The Dnssec-Tools Project" website. The website has a blue header with the "DNSSEC-Tools" logo (a red wrench) and the text "Is your domain secure?". Below this are links for "Sign Your Zone", "Tutorials", and "Install". A section titled "About DNSSEC-Tools" explains the project's goal. A yellow shopping bag icon with the text "Sign Your" is also visible. To the right of the browser, a window titled "dnssec-nodes" displays a network diagram with nodes connected by lines, representing a DNS hierarchy. The status bar at the bottom of the VM window indicates "To direct input to this virtual machine, click inside the window or press ⌘-G".

DNSSEC Nodes - Graph



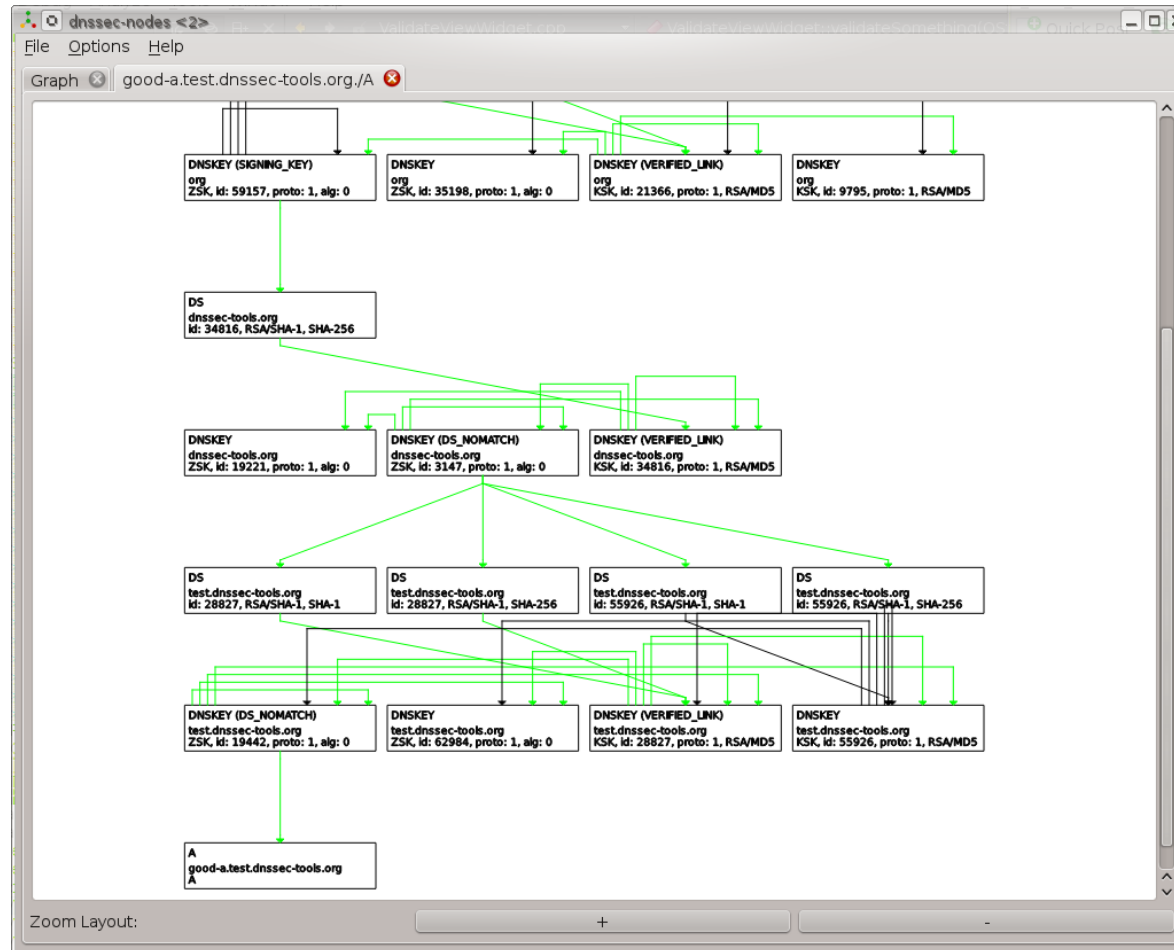
DNSSEC Nodes – Node Details



The screenshot shows a web application window titled "dnssec-nodes <2>". It has a menu bar with "File", "Options", and "Help". Below the menu bar is a tabbed interface with two tabs: "Graph" and "www.dnssec-tools.org. Data". The "www.dnssec-tools.org. Data" tab is active, displaying a table of DNS records. The table has three columns: "Record Type", "Status", and a "Validate" button. The records are as follows:

Record Type	Status	Validate
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



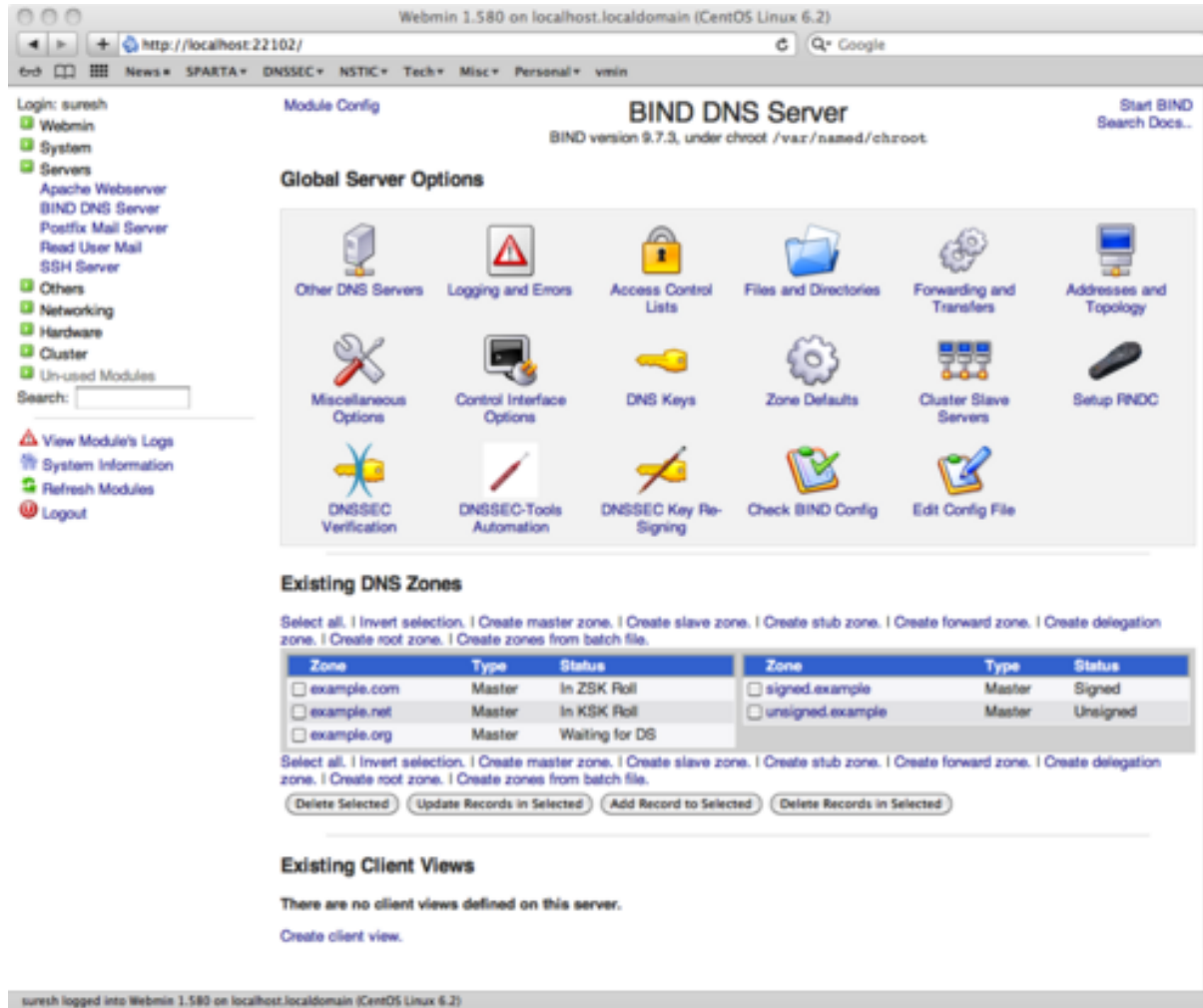
DNSSEC-Tools: Tools for Using DNSSEC

- 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)

http://localhost:22102/

Login: suresh

Module Config

BIND DNS Server

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

Start BIND Search Docs...

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
<input type="checkbox"/> example.com	Master	In ZSK Roll
<input type="checkbox"/> example.net	Master	In KSK Roll
<input type="checkbox"/> example.org	Master	Waiting for DS

Zone	Type	Status
<input type="checkbox"/> signed.example	Master	Signed
<input type="checkbox"/> unsigned.example	Master	Unsigned

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.

Delete Selected | Update Records in Selected | Add Record to Selected | Delete Records in Selected

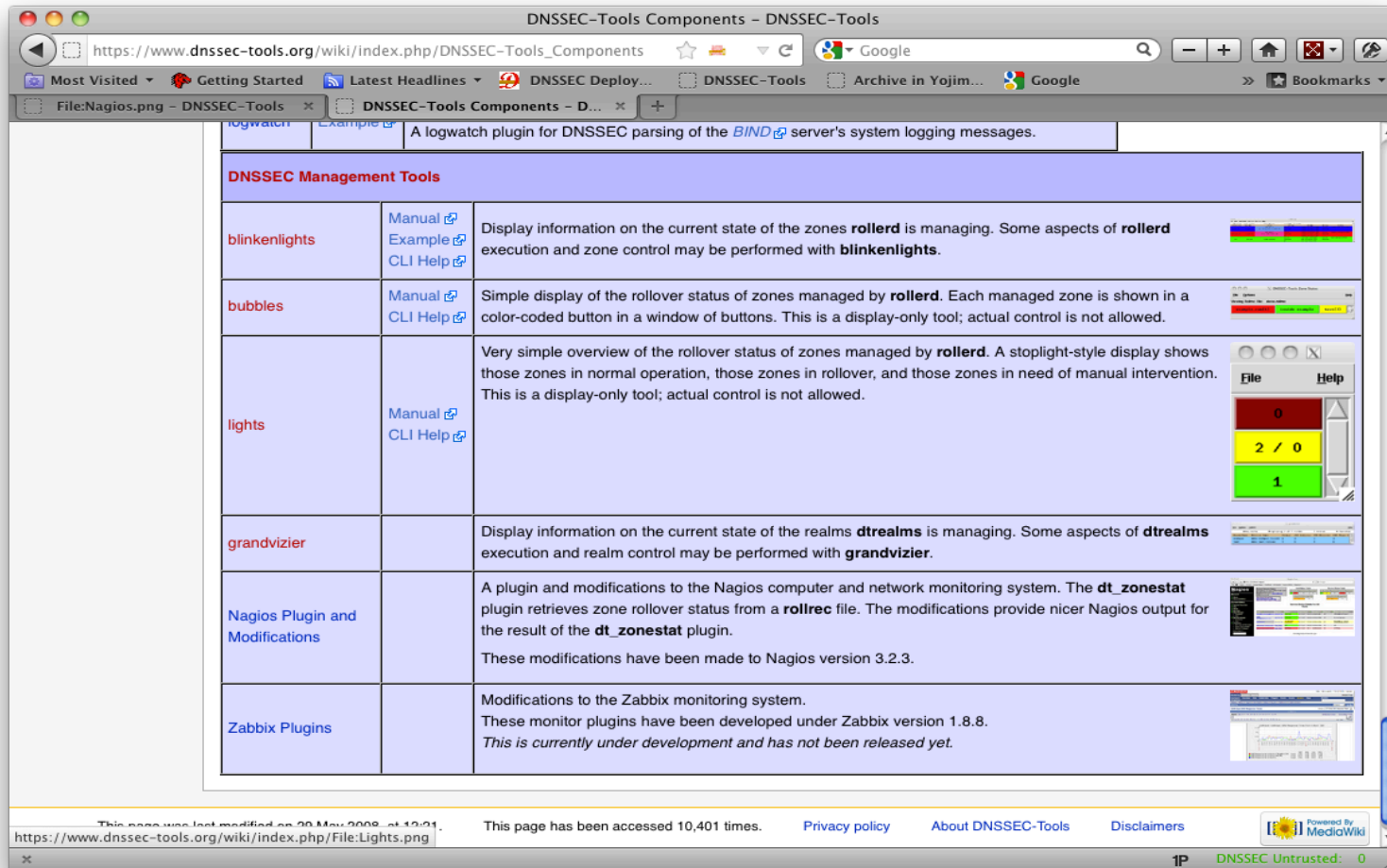
Existing Client Views

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 displaying the "DNSSEC-Tools Components" page. The page title is "DNSSEC-Tools Components - DNSSEC-Tools". The URL in the address bar is "https://www.dnssec-tools.org/wiki/index.php/DNSSEC-Tools_Components". The page content is organized into a table with the following rows:

DNSSEC Management Tools		
blinkerlights	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 blinkerlights .
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 information:

- This page was last modified on 20 May 2008 at 12:01.
- This page has been accessed 10,401 times.
- Privacy policy
- About DNSSEC-Tools
- Disclaimers
- Powered by MediaWiki
- DNSSEC Untrusted: 0

Blinkenlights

Visualizing Key Rollover

blinkenlights

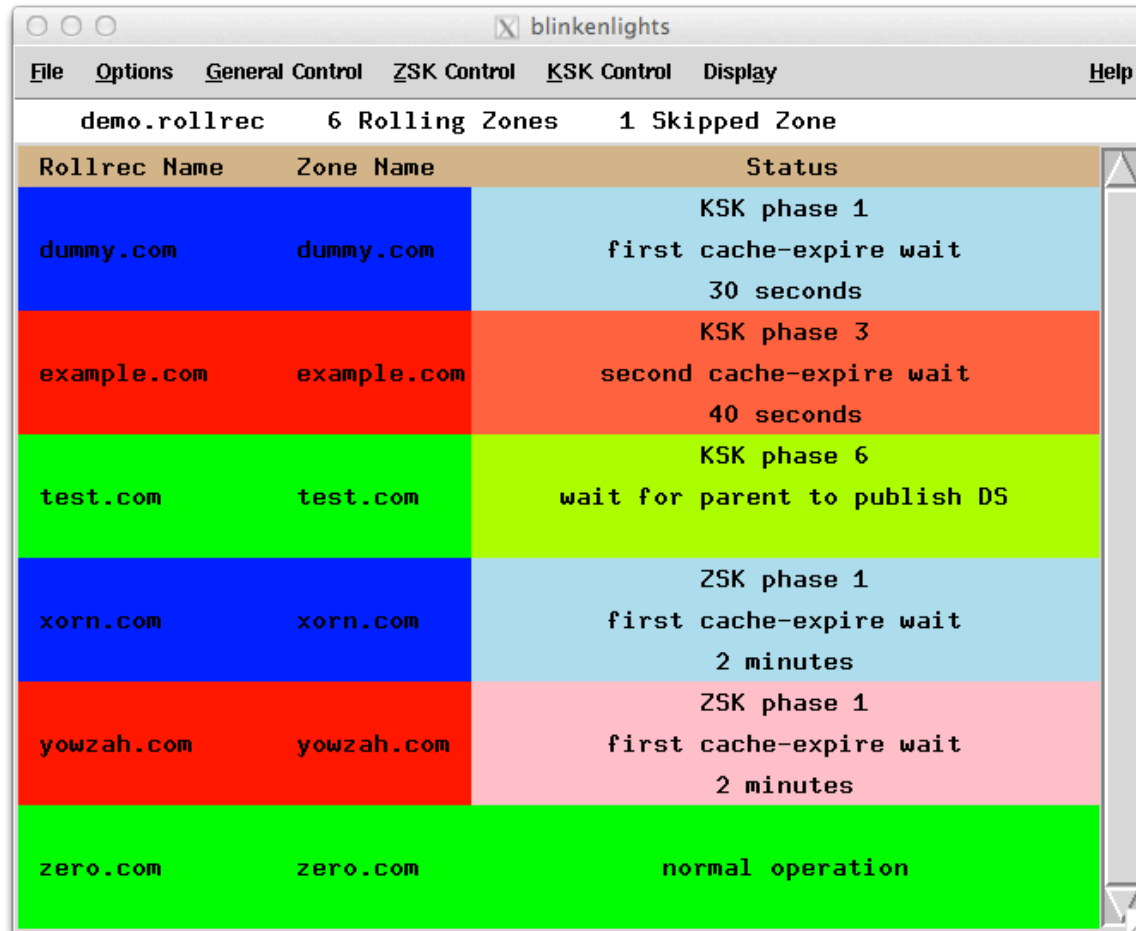
File Options General Control ZSK Control KSK Control Display Help

demo.rollrec 6 Rolling Zones 1 Skipped Zone Query Interval: 15 seconds Displaying 7 of 7 zones

Rollrec Name	Zone Name	Status	ZSK Type	ZSK Name	KSK Type	KSK Name
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", and "1 Skipped Zone". The main content is a table with three columns: Rollrec Name, Zone Name, and Status. The table has six rows, each representing a different domain. The rows are color-coded: blue for dummy.com, red for example.com, green for test.com, blue for xorn.com, red for yowzah.com, and green for zero.com. The status for each row indicates the current phase of key rollover (KSK or ZSK) and the time remaining until the next phase or completion.

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 the Nagios Core web interface at <http://localhost/nagios/>. The interface displays the following sections:

- 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 fowok.
- Host Status Totals:**

Up	Down	Unreachable	Pending
4	1	0	0
- Service Status Totals:**

Ok	Warning	Unknown	Critical	Pending
3	1	0	1	0
- Service Status Details For All Hosts:**

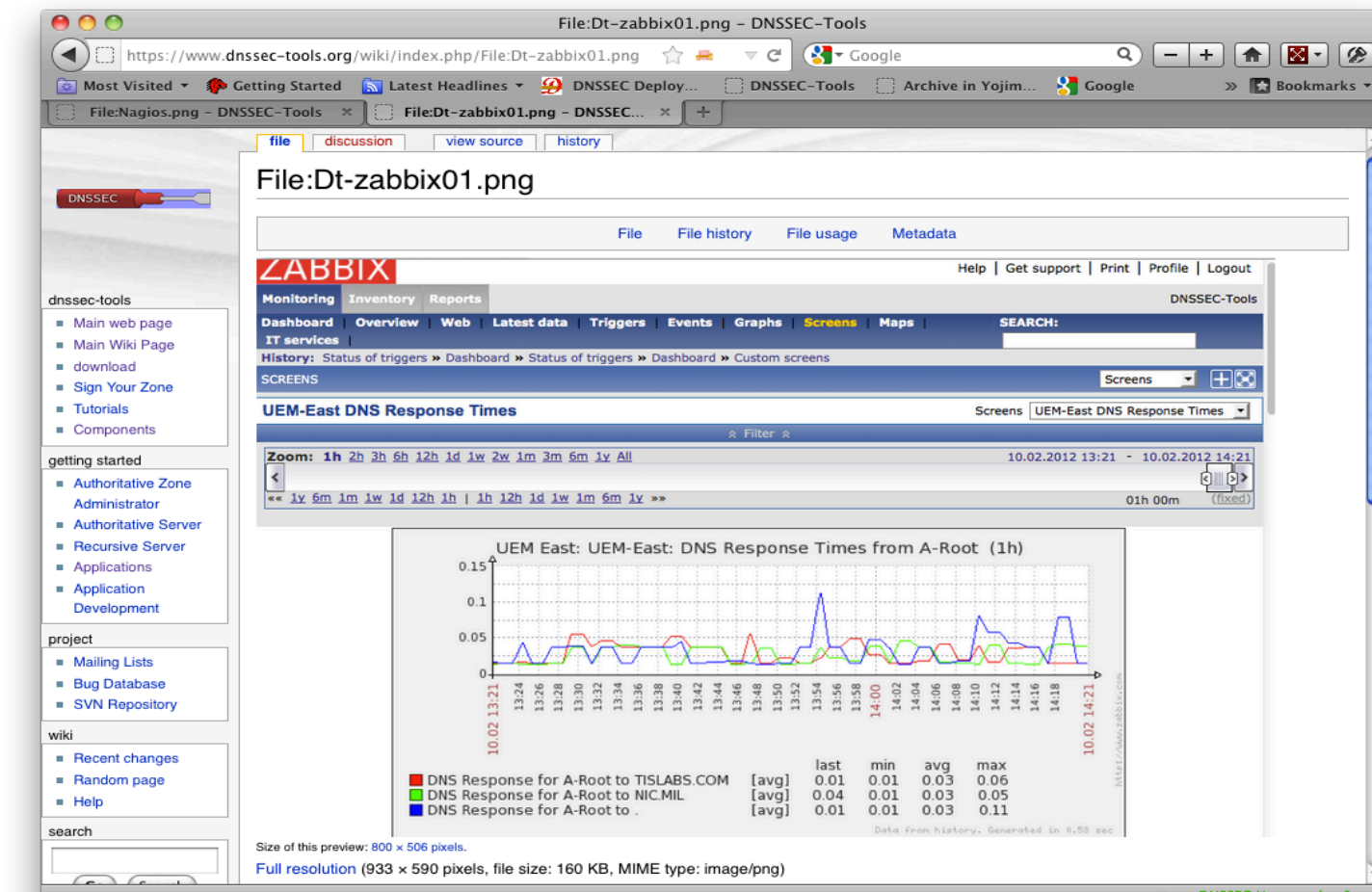
Host	Service	Status	Last Check	Duration	Attempt	Status Information
example.com/example.com	zone rollover	ROLLING	03-10-2011 18:00:23	0d 0h 6m 6s	1/3	ZSK Rollover Phase 3
inside.example.com/example.com	zone rollover	NORMAL	03-10-2011 18:00:35	0d 0h 5m 56s	1/3	Normal Operation
test1.test.com	zone rollover	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

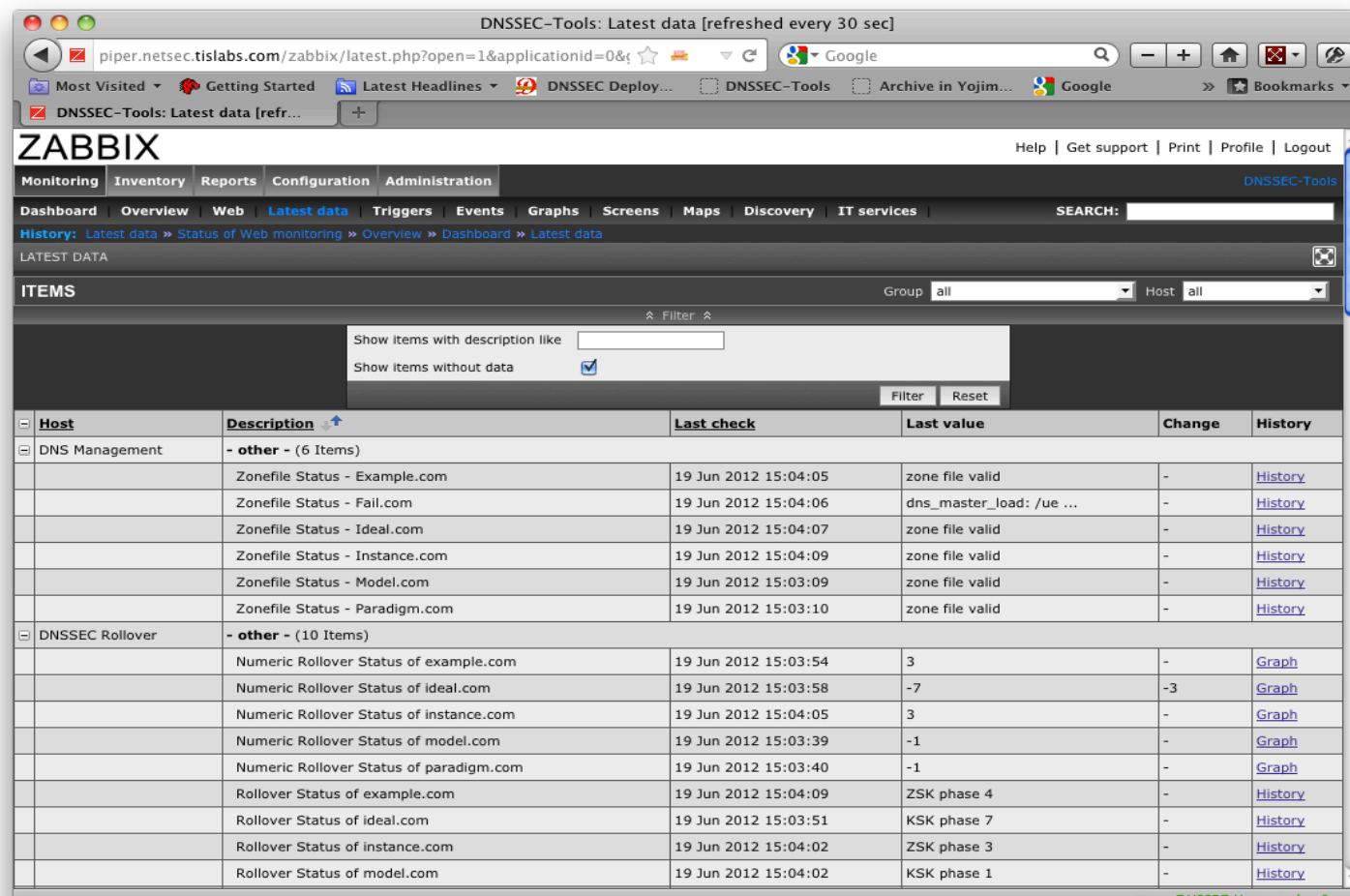
Size of this preview: 800 x 416 pixels.
Full resolution (944 x 491 pixels, file size: 409 KB, MIME type: image/png)
Screen grab of the updated Nagios interface for zone rollover.

File history

DNSSEC-Tools: Plug-In for ZABBIX



DNSSEC-Tools: Plug-In for ZABBIX



The screenshot shows the ZABBIX web interface with the DNSSEC-Tools plugin. The browser address bar shows the URL: piper.netsec.tislabs.com/zabbix/latest.php?open=1&applicationid=0&.... The ZABBIX header includes navigation tabs like Monitoring, Inventory, Reports, Configuration, and Administration. The main content area displays the 'LATEST DATA' for the 'ITEMS' group, filtered by 'all' hosts. The table lists various DNSSEC-related items, including Zonefile Status and Numeric Rollover Status for different domains.

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

