



DCHPv6 test suite Status & Go4IT general results and demos

**ETSI/MTS#46 Meeting
Sophia-Antipolis, March 18th 2008**



GO4 IT

European Commission
Information Society and Media

ADVANCED TOOLS and services for **IPv6** TESTING

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DCHPv6 test suite Status



Go4IT DHCPv6 ATS

- The development followed the test specification published by the IPv6 Ready Logo and focus on the Client profile
 - Client profile : 140 test cases
- Additional set of 27 test cases was specified for covering Prefix Delegation for DHCPv6
- Scope
 - RFC 3315 Dynamic Host Configuration Protocol for IPv6 (DHCPv6), July, 2003
 - RFC 3646 DNS Configuration options for DHCPv6, December, 2003
 - RFC 3736 Stateless Dynamic Host Configuration Protocol Service for IPv6, April, 2004
 - RFC 3633 IPv6 Prefix Options for DHCPv6, December, 2003



MTS#45 meeting minute

- *Based on the assertion that the DHCP ATS developed by Go4IT will be validated, the meeting thought that it would be worth capturing them as an ETSI deliverable (TR or TS).*
- *It was clear that as this ATS was built without following the ETSI methodology (Requirements catalogue, Test Purposes in TPLan, Test Cases) they can for the moment not be included in the IP Testing library.*
- *Nevertheless, the meeting thought that it was worth “capturing” the TTCN-3 ATS under the condition that the TTCN-3 code is extensively and properly documented. I.e. use of TTCN-3 documentation tags (see ES 201 873-10).*
- ...
- **MTS#45-AP7** Send Frank Regnier ES 201 873-10 “TTCN-3 documentation tags” + the last version of T3Doc tool. **Stephan SCHULZ**
- **MTS#45-AP8** Contribute the full validated and documented ATS to MTS when available. **Frank Le Gall**



DHCPv6 ATS status

- **ATS Documentation**
 - DHCPv6 ATS has been rewritten following the naming conventions in ETSI TS 102 351
 - DHCPv6 ATS is documented according the recommendations from ETSI MTS ES 201 873-10
 - Methods for Testing and Specification (MTS)
 - Part 10: TTCN-3 Documentation Comment Specification
 - Documentation tool : T3DOC v1.4



DHCPv6 ETS

- An ETS was generated with Telelogic Tester and using the CoDec and adapters from the Go4IT project
- The ETS was executed against an existing open source DHCPv6 implementation (the WIDE DHCPv6 client "dhcp6c")
- Results were compared with the results obtained by the DHCPv6 test suite from the TAHI tool



DHCPv6 ETS execution: results

■ Results

- Pass verdict 131
- Fail verdict 32
 - The implementation does not support DHCPv6 Confirm and Decline Messages
 - Client behavior not conform
- Not tested 4
 - The implementation does not support Vendor-specific DUID and Link-Local DUID



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GO4IT general results and demos



Go4IT approach

- Two packages:
 - **Package 1: TTCN-3 based downloadable executable test suites (ETS) for IPv6 testing**
 - TTCN-3 made simple : Download the tools and ETS, launch the installer and run your tests
 - Run available ETSI-STF IPv6 test cases
 - **Package 2: TTCN3 open source platform**
 - Initiating the move by drafting specification and starting the development of a complete TTCN-3 based environment mainly for promotion, education and research within universities



Go4IT Package 1 results

- Downloadable executable test suites:
 - Based on Testingtech compiler, SA, PA & CD + Go4IT open-source TM/TL - UI
 - IPv6 core protocol
 - Mobile IPv6
 - IPsec
 - Transition mechanisms (to come soon)
 - Based on package 2 tools
 - DHCPv6
 - RIPng



Package 2: Main decisions

- Development environment : C/C++, Linux
- Integrating cross-validation in the design

- Codec Generator
 - Based on existing knowledge
 - Added value component for test developers
- Compiler (complex and huge task)
 - Only basic compiler will be delivered
 - Long term architecture and roadmap
- Other modules (focus on quality and basic features)



Package 2: Main decisions

- Compiler development strategy: Step by step, and complexity oriented
 - A0: support a simple ATS (DNS tester sample); limited set of keywords and mechanisms :
 - Design of the complete compiler
 - Development and validation are limited
 - A1: support a simple IPv6 ATS
 - A2: support any IPv6 ATS
 - A3: full TTCN-3 support
- Only A0 will be developed and A1 will be fully specified, partially developed if possible



Go4IT Package 2 results

■ **Compiler**

■ Basic compiler

- “A0”: subset of the language and mechanisms; capable of compiling a sample test suite (not IPv6): DNS tester

■ Long term architecture and roadmap

■ **CoDec Generator**

■ Mechanism (C++) for data description enrichment

■ Automatic CoDec generator

■ Libraries for TCI implementation (reusability)

■ CoDec Generator source code and DNSTester and RIPng codecs



Go4IT Package 2 results

■ SA and PA:

- Methodology & Samples (“how to code ” SA/PA for IPv6)
- Libraries for TRI implementation (reusability)
- Specification available for:
 - RIPng (routing protocol for IPv6)
 - IPv6 Core protocol test Suite
- Source code available for:
 - A sample (methodology oriented): DNS tester
 - RIPng
 - DHCPv6



Go4IT Package 2 results

■ CH, TM, TL, TM-UI :

- Reuse general design and technical specification of Package 1
- Adapt the design: share some source code (java), redevelop necessary layers (C++)
- Modules available :
 - Test manager UI: Release 1.0
 - Test manager: Release 1.0
 - Test Logger: Release 1.0
 - Component handler: - Release 1.0



Go4IT Package 2: Open Source Platform - Conclusion

- Some module fully delivered:
 - CoDec Generator
 - Adapters
- Beta version of some modules
 - TM-UI, TM, TL, CH
- Compiler not finished:
 - Compiler (based on the A0 subset) available
 - Design specifications and long term roadmap provided



Demos

- Package 1:
 - Core protocol test tool execution
- Package 2 :
 - DHCPv6 test suite execution
 - DNStester example