



# Getting Started with Touchstone



A E G I S

# Touchstone

- Is available as a publicly accessible cloud-based testing platform
  - Touchstone.com
- Provides automated, internet-based interoperability testing of the HL7® FHIR® specification (and including CDS-Hooks)
- Tests the capabilities of and interoperability between both FHIR Server and Client implementations
- Allows easy access to test against the AEGIS.net WildFHIR servers



**TOUCHSTONE**

AEGIS.net

# Touchstone Landing Page



Conformance

Results Summary

Test Definitions

## Touchstone - an AEGIS Developers Integration Lab (DIL) Initiative

Subscription

**Touchstone** is an Infrastructure as a Service (IaaS) and Testing as a Service (TaaS) Open Access Solution for health information exchange. Touchstone strives to live up to its dictionary definition - a criterion for determining the quality or genuineness of a thing - by offering thousands of tests in an easy-to-use system for determining a test system's conformance and interoperability against published specifications, standards, and profiles, including templates and implementation guides.

Touchstone ...

- allows for automated, internet-based interoperability FHIR Testing against the HL7 FHIR specifications and standards.
- tests interoperability with other FHIR Server and FHIR Client implementations.
- has been engineered from the ground up to leverage the new FHIR TestScript resource.
- is a blend between Test-Driven-Development (TDD) methodologies and Natural Language Processing (NLP) test scripts.
- has been featured at HL7 FHIR Connectathons and is being leveraged in a continuous testing environment by numerous leading HL7 FHIR implementers.
- plays an active role in the HL7 Conformance Testing community, the HL7 Argonaut Project, and the HSPC Implementation community.



AEGIS

Features include...

- self-registration of user accounts and organizations.
- ability for users to execute FHIR test scripts against test systems with Touchstone serving as the initiator of message exchanges.
- ability for users to initiate message exchanges from their test systems against other peer test systems with Touchstone FHIR testing tool serving as the intermediary.
- ability to drill down to individual operations and assertions in test execution results during FHIR Testing.
- ability to save configured sets of test scripts as named "test setups" for re-execution.
- controlled access to test scripts, test systems, and test results at the user, organization, and organization group levels.

### Touchstone Updates

- > **Touchstone 5.4.0 Released** Jul 9, 2021
  - > Enhancements
    - > Touchstone API enhanced to allow passing of a static OAuth token in test execution call
    - > Automated the Authorization grant flow OAuth login for use via TS API
    - > Added support for slicing by pattern for FHIR Primitive Data Types
    - > Updated the slice match by pattern logic to be more lenient when pattern value does not define extension(s)
    - > Added a pop up message to the "Join Org Group" functionality to provide explanation of test execution visibility
    - > In support of pagination, the Touchstone Testing Implementation Guide was updated to add new TestScript Extension for operation pagesNext
    - > Updated WildFHIR capability statement to include support for \$document operation
    - > Increased the Validator & Touchstone timeout thresholds
  - > Bug Fixes
    - > Addressed drop down sort order to be case insensitive
    - > Addressed issues with result sets being too large for Touchstone
    - > Addressed null pointer references
    - > Addressed pull failure on Capability Statement
    - > Addressed issue with Validator giving warnings when code values were in the required valueset
- > **Touchstone 5.3.0 Released** Mar 26, 2021
  - > Enhancements
    - > Populate Variables for multiple tests with a single input
    - > Allow Conformance Suites to be set as 'inactive'
    - > Increased Validator timeout parameter
    - > Increased Rule timeout parameter
    - > Added filter "waiting for auth" in testscript history

### Help and Documentation

- > [How to register in Touchstone](#)
- > [How to become a member of or create an organization](#)
- > [How to approve an organization membership request](#)
- > [How to create a test system](#)
- > [How to execute test scripts](#)
- > [How to execute client-side \(peer-to-peer\) tests](#)
- > [How to perform Conformance-based testing](#)
- > [How to integrate Touchstone with CI including Jenkins](#)
- > [How to reset my password](#)

### Feeds

- > [View list of Companies with CMS Payer and Patient Access FHIR® API Certified Products - Drummond certification program powered by Touchstone](#) **NEW** Jul 27, 2021
- > [Smile CDR achieved the Drummond Group Payer and Patient Access FHIR® Application Programming Interface \(API\) Certification](#) **NEW** Jun 15, 2021
- > [AEGIS and Drummond Announce CMS Patient Access API Test-Driven-Development Certification](#) Oct 26, 2020
- > [FHIR Distribution Map 2020](#) Sep 7, 2020
- > [The Importance of Testing HL7® FHIR®](#) Sep 4, 2020
- > [AEGIS' Richard Ettema to Teach at FHIR DevDays](#) Jun 17, 2020
- > [Software Testing and COVID-19 Data](#) Apr 3, 2020
- > [AEGIS and FHIRBall to Present at HIMSS20](#) Feb 25, 2020
- > [AEGIS Named to 2019 NVTC Tech 100](#) Dec 10, 2019
- > [ONC Interop Forum Highlights Data Quality, Testing](#) Aug 27, 2019

### Touchstone Totals

<b>Users:</b>	2,094
<b>Organizations:</b>	875
<b>Test Systems:</b>	927
<b>Test Scripts:</b>	9,753
<b>Tests:</b>	39,604
<b>Test Script Executions:</b>	427,614
<b>Test Executions:</b>	1,712,965
<b>Message Exchanges:</b>	2,530,806



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[www.touchstone.com](http://www.touchstone.com)

# Touchstone Docs – Online Help



[Docs](#) [Sign In](#) [Register](#)



## TOUCHSTONE

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# Getting Started with Touchstone

- All testing participants need to first Register with Touchstone
- Organizations may have 1 or more registered users on Touchstone (based on the organization's subscription level)
- Registration and acceptance of registration must be completed before any testing can begin
- An organization will typically have at least 1 test system and may choose to run tests against other publicly available test systems
  - There is not a limit to the number of test systems an Org can register



# Role-Based Access

## ORG Reps can set access for their members

- Select a USER to gain access to edit their role

Users

My Org Users   Name:    Organization:    Registration:    Status:    Locked:    Private:      

1 | 2 | 3   Records 1 - 10 of 23   Page Size: 10

Name	History	Organization	Email	Registration	Roles	Status	Private	Locked	Time Zone	Contact Info
AATIF BALOCH	<a href="#">🔗</a>	AEGIS.net, Inc.	aatif.baloch@aegis.net	Approved	Tester	Active	No	No	US/Eastern	
Afsheen	<a href="#">🔗</a>	AEGIS.net, Inc.	afsheen.eeshat@aegis.net	Approved	Tester	Active	No	No	US/Eastern	
Carie Hammond	<a href="#">🔗</a>	AEGIS.net, Inc.	carie.hammond@aegis.net	Approved	Tester, Org Rep, Admin, Test Editor	Active	No	No	US/Eastern	
Catherine Holzie	<a href="#">🔗</a>	AEGIS.net, Inc.	catherine.holzie@aegis.net	Approved	Tester	Active	No	No	America/New_York	
Charles Case	<a href="#">🔗</a>	AEGIS.net, Inc.	charles.case@aegis.net	Approved	Tester	Active	No	No	US/Eastern	
Ellen Wyly	<a href="#">🔗</a>	AEGIS.net, Inc.	ellen.wyly@aegis.net	Approved	Tester	Inactive	No	No	US/Eastern	
Fran Dufour	<a href="#">🔗</a>	AEGIS.net, Inc.	fran.dufour@aegis.net	Approved	Tester	Active	No	No	America/Chicago	
Joe Lamy	<a href="#">🔗</a>	AEGIS.net, Inc.	joe.lamy@aegis.net	Approved	Tester, Admin, Test Editor	Active	No	No	US/Eastern	
Mario Hyland	<a href="#">🔗</a>	AEGIS.net, Inc.	mario.hyland@aegis.net	Approved	Tester, Org Rep, Admin, Accountant, Test Editor	Active	No	No	US/Eastern	
Mark Dela Cruz	<a href="#">🔗</a>	AEGIS.net, Inc.	mark.delacruz@aegis.net	Approved	Tester	Inactive	No	Yes	US/Eastern	



# Role-Based Access

**TOUCHSTONE** HL7 FHIR Test Systems Organizations Users Docs Gary

- Analytics
  - Conformance
  - Published
- Test Executions**
  - Test Execution
  - History
  - Exchanges
- Test Setups
  - Test Setup
  - List
- Test Definitions

### Edit Privileges

**Name:** Peter Gibbons [User History](#)

**Email:** peter.gibbons@initech34.com

**Organization:** Initech

**Roles:**

- Tester
- Org Rep
- Test Editor

**Message to Peter Gibbons:**

[Reject Membership Request](#) [Approve Membership Request](#)

# Test Systems



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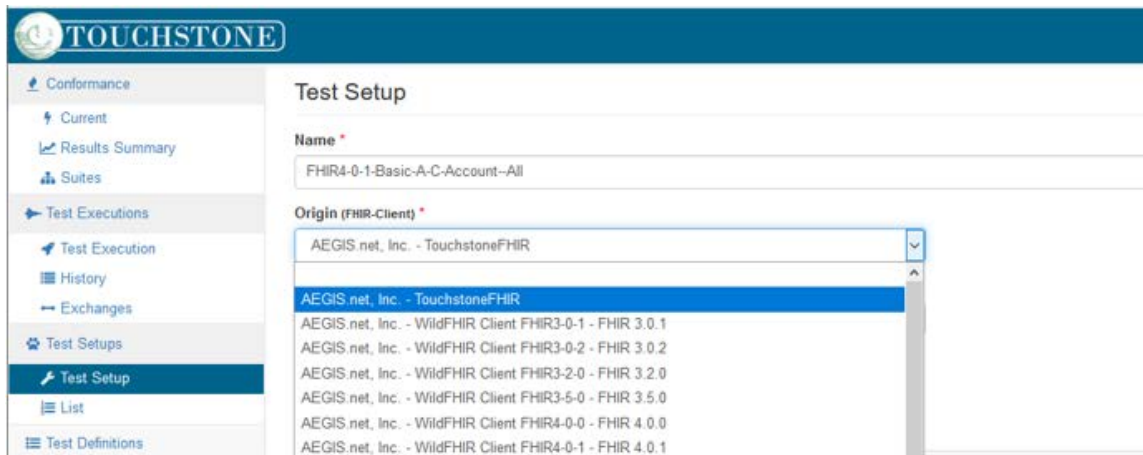
# What Test Systems are already in Touchstone?

- Touchstone has over 750+ Test Systems already defined
- Not all of those Test Systems are publically available for testing
  - Of those 750+, around 475 of those are private
  - Private Test Systems are only seen by members their own Orgs
- How a Test System is defined in Touchstone determines who can see and test with it
- The Test System List shows users which Test Systems belong to their Organization AND shows public Test Systems



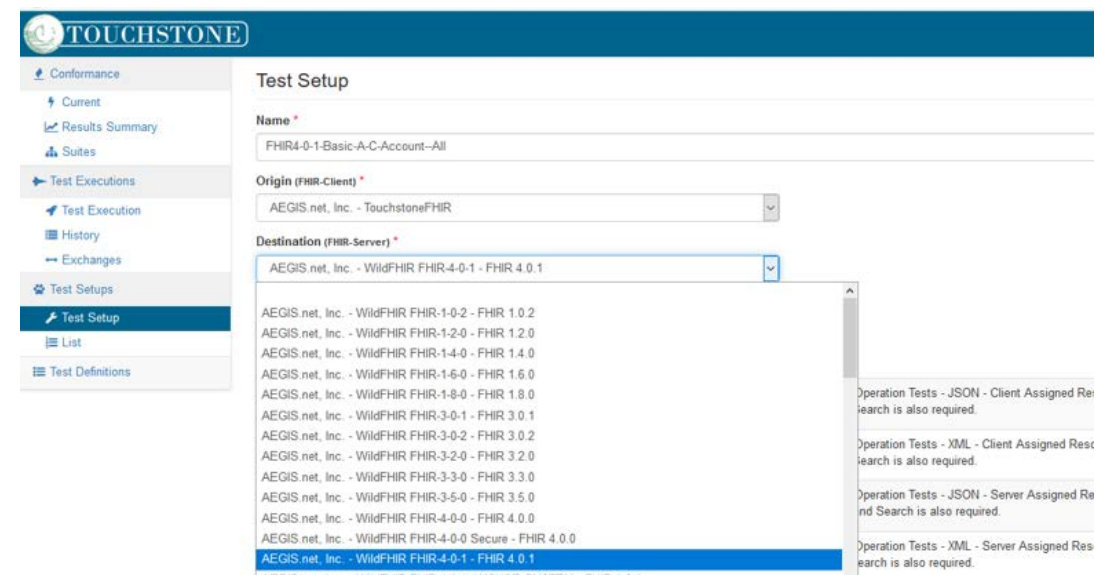
# How are Test Systems used?

- Touchstone allows for server-side testing, client-side testing, or peer-to-peer testing
- When a test is setup, the tester can select which client (requesting system) and which server (destination system) will be used in the test



The screenshot shows the Touchstone web interface. The left sidebar contains navigation options: Conformance, Current, Results Summary, Suites, Test Executions, Test Execution, History, Exchanges, Test Setups, Test Setup (highlighted), List, and Test Definitions. The main area is titled "Test Setup" and contains the following fields:

- Name \***: FHIR4-0-1-Basic-A-C-Account--All
- Origin (FHIR-Client) \***: A dropdown menu is open, showing a list of client options. The selected option is "AEGIS.net, Inc. - TouchstoneFHIR". Other visible options include "AEGIS.net, Inc. - WildFHIR Client FHIR3-0-1 - FHIR 3.0.1", "AEGIS.net, Inc. - WildFHIR Client FHIR3-0-2 - FHIR 3.0.2", "AEGIS.net, Inc. - WildFHIR Client FHIR3-2-0 - FHIR 3.2.0", "AEGIS.net, Inc. - WildFHIR Client FHIR3-5-0 - FHIR 3.5.0", "AEGIS.net, Inc. - WildFHIR Client FHIR4-0-0 - FHIR 4.0.0", and "AEGIS.net, Inc. - WildFHIR Client FHIR4-0-1 - FHIR 4.0.1".



The screenshot shows the Touchstone web interface. The left sidebar contains navigation options: Conformance, Current, Results Summary, Suites, Test Executions, Test Execution, History, Exchanges, Test Setups, Test Setup (highlighted), List, and Test Definitions. The main area is titled "Test Setup" and contains the following fields:

- Name \***: FHIR4-0-1-Basic-A-C-Account--All
- Origin (FHIR-Client) \***: AEGIS.net, Inc. - TouchstoneFHIR
- Destination (FHIR-Server) \***: A dropdown menu is open, showing a list of server options. The selected option is "AEGIS.net, Inc. - WildFHIR FHIR-4-0-1 - FHIR 4.0.1". Other visible options include "AEGIS.net, Inc. - WildFHIR FHIR-1-0-2 - FHIR 1.0.2", "AEGIS.net, Inc. - WildFHIR FHIR-1-2-0 - FHIR 1.2.0", "AEGIS.net, Inc. - WildFHIR FHIR-1-4-0 - FHIR 1.4.0", "AEGIS.net, Inc. - WildFHIR FHIR-1-6-0 - FHIR 1.6.0", "AEGIS.net, Inc. - WildFHIR FHIR-1-8-0 - FHIR 1.8.0", "AEGIS.net, Inc. - WildFHIR FHIR-3-0-1 - FHIR 3.0.1", "AEGIS.net, Inc. - WildFHIR FHIR-3-0-2 - FHIR 3.0.2", "AEGIS.net, Inc. - WildFHIR FHIR-3-2-0 - FHIR 3.2.0", "AEGIS.net, Inc. - WildFHIR FHIR-3-3-0 - FHIR 3.3.0", "AEGIS.net, Inc. - WildFHIR FHIR-3-5-0 - FHIR 3.5.0", "AEGIS.net, Inc. - WildFHIR FHIR-4-0-0 - FHIR 4.0.0", "AEGIS.net, Inc. - WildFHIR FHIR-4-0-0 Secure - FHIR 4.0.0", and "AEGIS.net, Inc. - WildFHIR FHIR-4-0-1 - FHIR 4.0.1".

On the right side of the interface, there are several informational messages:

- Operation Tests - JSON - Client Assigned Reserch is also required.
- Operation Tests - XML - Client Assigned Reserch is also required.
- Operation Tests - JSON - Server Assigned Reserch is also required.
- Operation Tests - XML - Server Assigned Reserch is also required.

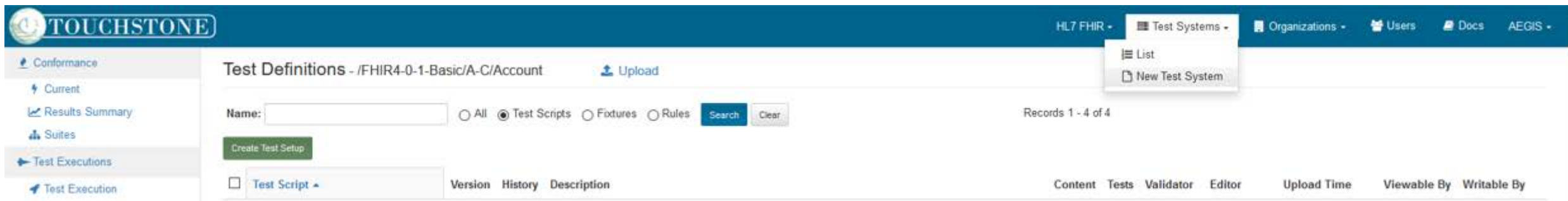


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# Registering Your Test System

- If you have a Test System that is not known to Touchstone yet, it will need to be registered to show up on those lists
- Navigate to the top menu, selecting Test System > New Test System



The screenshot displays the Touchstone AEGIS.net web application interface. The top navigation bar includes the Touchstone logo and menu items for HL7 FHIR, Test Systems, Organizations, Users, Docs, and AEGIS. The left sidebar shows navigation options for Conformance, Current, Results Summary, Suites, Test Executions, and Test Execution. The main content area is titled "Test Definitions - /FHIR4-0-1-Basic/A-C/Account" and features an "Upload" button. Below this is a search bar with a "Name:" field and radio buttons for "All", "Test Scripts" (selected), "Fixtures", and "Rules". A "Search" button and a "Clear" button are also present. A "Records 1 - 4 of 4" indicator is visible. A "Create Test Setup" button is located below the search bar. A table header is visible with columns for "Test Script", "Version", "History", "Description", "Content", "Tests", "Validator", "Editor", "Upload Time", "Viewable By", and "Writable By". A dropdown menu is open over the "Test Systems" menu item, showing options for "List" and "New Test System".



# Registering Your Test System, cont.

- Touchstone will open a new blank Test System screen

**New Test System** Create

**Name \***  **Specification \***  **Formats Supported \***  JSON  XML

**Base URL \***

**IP Addresses (comma-separated)**

**Can be viewed by**

Me  
 My organization  
 My organization groups  
 Everyone

**Can be executed against by**

Me  
 My organization  
 My organization groups  
 Everyone

**Can be modified by**

Me  
 My organization  
 My organization groups  
 Everyone

Allow Touchstone to pull Capability Statement once a day (recommended)  
 Can Be Anchor

**Requires**

OAuth2

**Profiles Supported \***

FHIR-Client  
 FHIR-Server

Create



Selections in this section will drive who can see your Test System or run tests against it



# Registering Your Test System, cont.

- If your system is OAuth enabled, select the OAuth2 checkbox for additional configuration

**Requires**

OAuth2

**OAuth2 Token Type \***

Static Token

Dynamic Token

**Authorization Endpoint**

This field will be overwritten if a URI is retrieved from a SMART Configuration

**Token Endpoint**

This field will be overwritten if a URI is retrieved from a SMART Configuration

**Registration Endpoint**

This field will be overwritten if a URI is retrieved from a SMART Configuration

**Introspection Endpoint**

This field will be overwritten if a URI is retrieved from a SMART Configuration

**Revocation Endpoint**

This field will be overwritten if a URI is retrieved from a SMART Configuration

**OAuth2 Grant Type \***

Authorization Code

Client Credentials

JWT Assertion

SMART on FHIR

Selecting SMART-on-FHIR will cause Touchstone to attempt to pull the SMART Well-Known configuration when the Capability Statement is pulled.



# Registering Your Test System, cont.

- Selection of OAuth2 Grant Type will open further configuration fields

**OAuth2 Grant Type \***

- Authorization Code  
 Client Credentials  
 JWT Assertion

**Client ID \***

**JWT Signing Algorithm \***

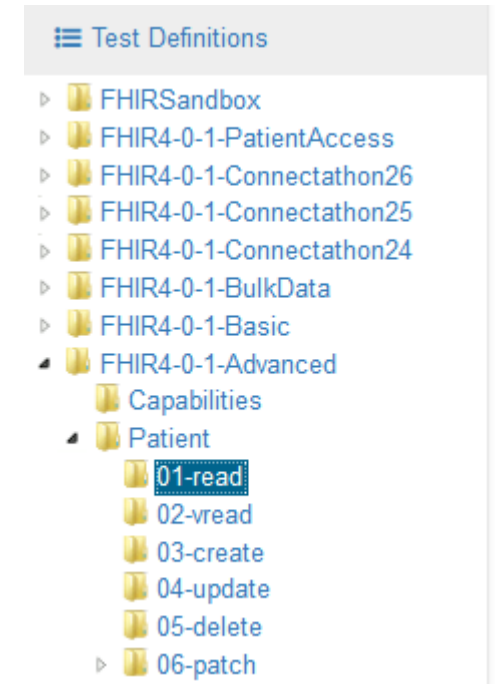
You can register Touchstone in your OAuth2 server using the public-key-containing [Touchstone JWKS for RS384](#). See [here](#) for details.

**OAuth2 Scopes Supported:**



# Completing Setup

- Once created, pull your Test System's Capability Statement (and potentially SMART Well-Known configuration file)
  - Verifies basic connectivity
  - Caches a copy of the CapabilityStatement for conformance checking
  - Can populate your SMART end-points dynamically
- Once ready, try running a quick test
  - suggestion, FHIR4-0-1-Advanced > Patient > 01-read



# Selecting Test Systems on a Test

- When a Test Setup is created, the tester can choose which Test Systems should be involved in the test
- If you are testing a FHIR-Server, you may select AEGIS TouchstoneFHIR as your FHIR-Client in the Origin list (Touchstone will act as the client) if needed
  - Select your Test System from the Destination list
- If you are testing a FHIR-Client, select that client from the Origin list
  - Select a Test System from the Destination list (If you need a server to test your client with, you may select an AEGIS WildFHIR server or any publically available server from the list)
- Only Test Systems available to the user will display in the lists for selection

The screenshot displays the AEGIS Touchstone web interface. The top navigation bar includes the Touchstone logo, the text 'HL7 FHIR', and a dropdown menu for 'Test Systems'. A left sidebar contains navigation links: Conformance, Current, Results Summary, Suites, Test Executions, Test Execution, History, Exchanges, Test Setups, Test Setup (highlighted), List, and Test Definitions. The main content area is titled 'Test Setup' and features a 'Name' field with the value 'FHIR4-0-1-Advanced-fhir-api-r4-patient-read-01-found'. To the right of this field are two columns: 'Scripts' with a value of '1' and 'Tests' with a value of '13'. Below the name field are two dropdown menus: 'Origin (FHIR-Client)' set to 'AEGIS.net, Inc. - TouchstoneFHIR' and 'Destination (FHIR-Server)' set to 'AEGIS.net, Inc. - WildFHIR FHIR-4-0-1 - FHIR 4.0.1'. A 'Validator' field is set to 'FHIR 4.0.1'. At the bottom, there is a table with columns 'Delete', 'Test Script', 'Version', and 'Description'. The table contains one entry with a red 'X' in the delete column, a test script path, version '2', and a description: 'FHIR API R4 (v4.0.1) Advanced Operation Test known, valid resource instance. All tests per id representing a known valid Patient. Assert Headers and validate the returned payload.'



# Selecting Test Systems on a Test (cont.)

- Only Test Systems available to the user will display in the lists for selection

**Test Setup**

**Name \***  
FHIR4-0-1-Advanced--fhir-api-r4-patient-read-01-found

**Origin (FHIR-Client) \***  
AEGIS.net, Inc. - TouchstoneFHIR

**Destination (FHIR-Server) \***  
Da Vinci - Da Vinci Prior Authorization Reference Implementation - FHIR 4.0.1

- AEGIS.net, Inc. - SMART on FHIR Open DSTU2 Server - FHIR 1.0.2
- AEGIS.net, Inc. - Static Token WildFHIR FHIR-4-0-1-OAUTH - FHIR 4.0.1
- AEGIS.net, Inc. - STG WildFHIR 4-0-1 - FHIR 4.0.1
- AEGIS.net, Inc. - Test Static Token - FHIR 3.0.1
- AEGIS.net, Inc. - WildFHIR Argonaut FHR-1-0-2 - FHIR 1.0.2
- AEGIS.net, Inc. - WildFHIR FHR-1-0-2 - FHIR 1.0.2
- AEGIS.net, Inc. - WildFHIR FHR-1-2-0 - FHIR 1.2.0
- AEGIS.net, Inc. - WildFHIR FHR-1-4-0 - FHIR 1.4.0
- AEGIS.net, Inc. - WildFHIR FHR-1-6-0 - FHIR 1.6.0
- AEGIS.net, Inc. - WildFHIR FHR-1-8-0 - FHIR 1.8.0
- AEGIS.net, Inc. - WildFHIR FHR-3-0-1 - FHIR 3.0.1
- AEGIS.net, Inc. - WildFHIR FHR-3-0-2 - FHIR 3.0.2
- AEGIS.net, Inc. - WildFHIR FHR-3-2-0 - FHIR 3.2.0
- AEGIS.net, Inc. - WildFHIR FHR-3-3-0 - FHIR 3.3.0
- AEGIS.net, Inc. - WildFHIR FHR-3-5-0 - FHIR 3.5.0
- AEGIS.net, Inc. - WildFHIR FHR-4-0-0 - FHIR 4.0.0
- AEGIS.net, Inc. - WildFHIR FHR-4-0-0 Secure - FHIR 4.0.0
- AEGIS.net, Inc. - WildFHIR FHR-4-0-1 - FHIR 4.0.1
- AEGIS.net, Inc. - WildFHIR FHR-4-0-1 ANCHOR SYSTEM - FHIR 4.0.1
- AEGIS.net, Inc. - WildFHIR FHR-4-0-1-OAUTH - FHIR 4.0.1



# Common Issues

- The server under test is returning a 401 error instead of good response
  - Verify the Test System setup
    - Is the Client ID/Client Secret correct for Oauth2 enabled systems?
    - Are the scopes correct?
- I cannot get a response from my Test System at all
  - Is your endpoint correct?
  - Is your Test System accessible outside your firewall?
  - Does your organization need to white-list Touchstone? Check with [Touchstone\\_Support@aegis.net](mailto:Touchstone_Support@aegis.net) for full list of IP ranges
- My Test System sent a CapabilityStatement, but Touchstone indicated a problem
  - Touchstone will automatically validate a Test System CapabilityStatement when pulled, even when the system is not yet under test.
  - Touchstone WILL still allow that system to continue testing, but will remind the tester of the issues
- My Test System doesn't have a CapabilityStatement
  - Touchstone will still allow that system to continue testing, but will remind the tester at each test that it is required per the FHIR specification



# Running Tests & Reviewing Test Results

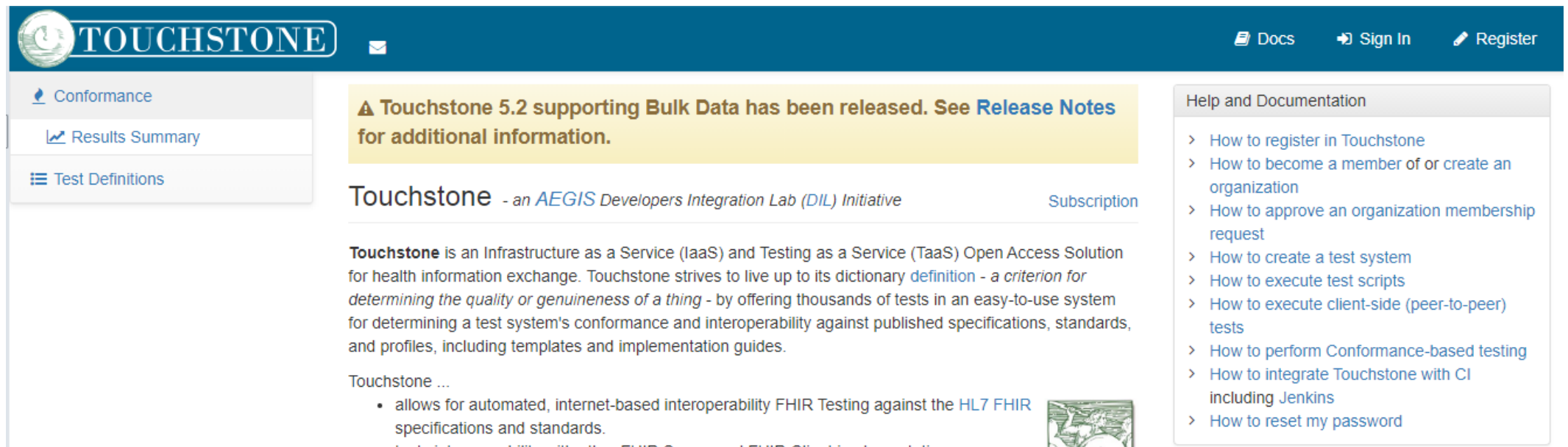


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# Finding Tests in Touchstone

- From the Home Page, select **Test Definitions** from the left side menu
  - Signing-in makes the Test Definitions available to execute
  - Users can only see the Tests viewable to them – some are hidden by their Org



The screenshot shows the Touchstone web application interface. At the top, there is a dark blue header with the Touchstone logo on the left, a mail icon, and links for Docs, Sign In, and Register on the right. Below the header is a left sidebar menu with options: Conformance, Results Summary, and Test Definitions. The main content area features a yellow notification banner about Touchstone 5.2 supporting Bulk Data. Below this is a section titled "Touchstone" with a subtitle "- an AEGIS Developers Integration Lab (DIL) Initiative" and a "Subscription" link. The text describes Touchstone as an Infrastructure as a Service (IaaS) and Testing as a Service (TaaS) Open Access Solution for health information exchange. A list of tests is shown, including "Automated, internet-based interoperability FHIR Testing against the HL7 FHIR specifications and standards." with a small image of a globe.

**TOUCHSTONE** [mail icon] Docs Sign In Register

Conformance  
Results Summary  
Test Definitions


**▲ Touchstone 5.2 supporting Bulk Data has been released. See Release Notes for additional information.**

**Touchstone** - an *AEGIS* Developers Integration Lab (DIL) Initiative [Subscription](#)

**Touchstone** is an Infrastructure as a Service (IaaS) and Testing as a Service (TaaS) Open Access Solution for health information exchange. Touchstone strives to live up to its dictionary *definition - a criterion for determining the quality or genuineness of a thing* - by offering thousands of tests in an easy-to-use system for determining a test system's conformance and interoperability against published specifications, standards, and profiles, including templates and implementation guides.

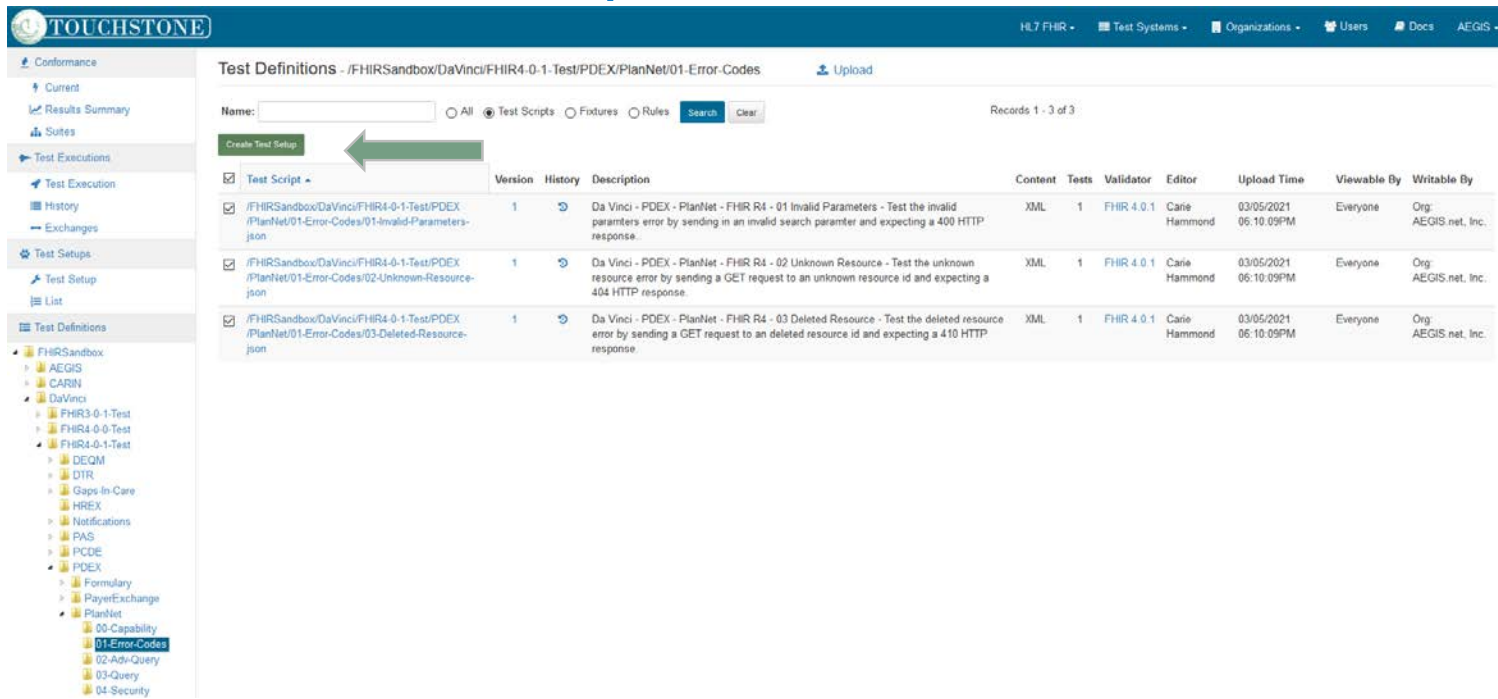
Touchstone ...

- allows for automated, internet-based interoperability FHIR Testing against the [HL7 FHIR](#) specifications and standards.



# Create a Test Setup

- Under the Test Definitions menu, select a test folder
- Select one or more TestScripts, then
- Click **Create Test Setup**



The screenshot shows the TOUCHSTONE application interface. The left sidebar contains a navigation menu with the following items: Conformance, Current, Results Summary, Suites, Test Executions, Test Execution, History, Exchanges, Test Setups, Test Setup, List, Test Definitions, FHIRSandbox, AEGIS, CARN, DaVinci, FHIR3-0-1-Test, FHIR4-0-0-Test, FHIR4-0-1-Test, DEQM, DTR, Gaps-In-Care, HREX, Notifications, PAS, PCDE, PDEX, Formulary, PayerExchange, PlanNet, 00-Capability, 01-Error-Codes, 02-Adm-Query, 03-Query, and 04-Security. The main content area is titled "Test Definitions - /FHIRSandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes" and includes a search bar and a "Create Test Setup" button. A table of test scripts is displayed below, with a green arrow pointing to the "Create Test Setup" button.

Name	Version	History	Description	Content	Tests	Validator	Editor	Upload Time	Viewable By	Writable By
/FHIRSandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/01-Invalid-Parameters-Json	1		Da Vinci - PDEX - PlanNet - FHIR R4 - 01 Invalid Parameters - Test the invalid parameters error by sending in an invalid search paramter and expecting a 400 HTTP response.	XML	1	FHIR 4.0.1	Carie Hammond	03/05/2021 06:10:09PM	Everyone	Org: AEGIS.net, Inc.
/FHIRSandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/02-Unknown-Resource-Json	1		Da Vinci - PDEX - PlanNet - FHIR R4 - 02 Unknown Resource - Test the unknown resource error by sending a GET request to an unknown resource id and expecting a 404 HTTP response.	XML	1	FHIR 4.0.1	Carie Hammond	03/05/2021 06:10:09PM	Everyone	Org: AEGIS.net, Inc.
/FHIRSandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/03-Deleted-Resource-Json	1		Da Vinci - PDEX - PlanNet - FHIR R4 - 03 Deleted Resource - Test the deleted resource error by sending a GET request to a deleted resource id and expecting a 410 HTTP response.	XML	1	FHIR 4.0.1	Carie Hammond	03/05/2021 06:10:09PM	Everyone	Org: AEGIS.net, Inc.



# Test Setup

- The Test Setup screen is displayed
- This screen allows for selection of the test system(s) involved in the test
- Variables may also be entered on this screen

**TOUCHSTONE** HL7 FHIR - Test Systems - Organizations - Users - Docs - AEGIS -

**Test Setup** Save Execute

**Name \***  
FHIRSandbox-DaVinci-FHIR4-0-1-Test-PDEX-PlanNet-01-Error-Codes--All Scripts: 3 Tests: 3

**Origin (FHIR-Client) \***  
AEGIS.net, Inc. - TouchstoneFHIR

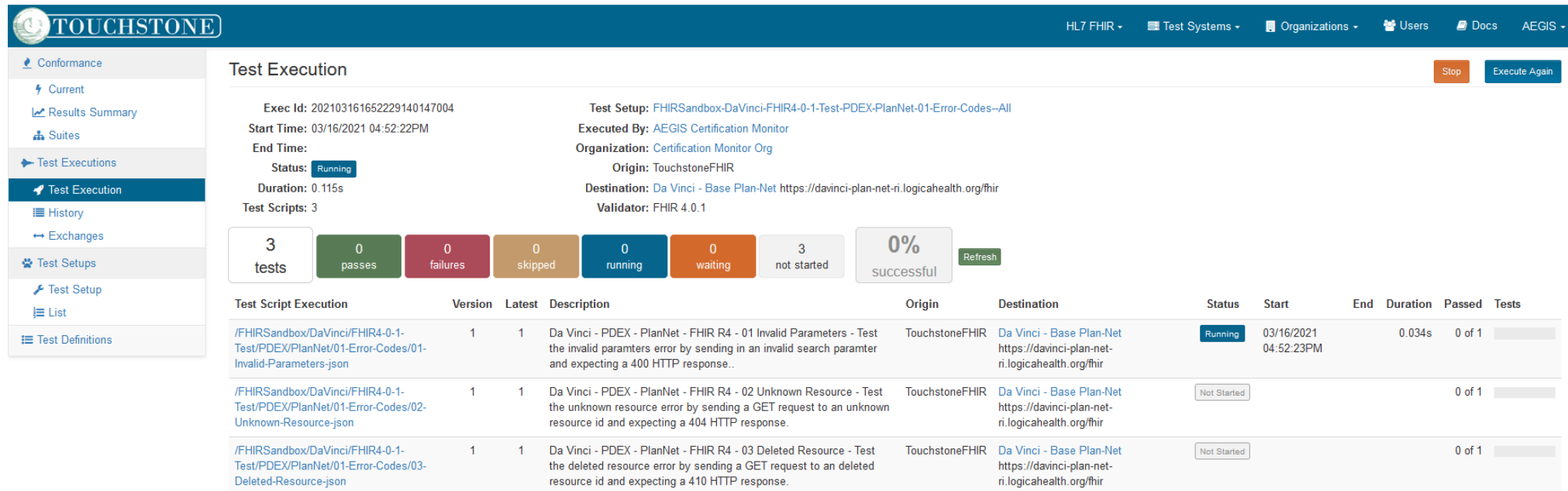
**Destination (FHIR-Server) \***  
Da Vinci - Base Plan-Net - FHIR 4.0.1

**Validator: \***  
FHIR 4.0.1

Delete	Test Script	Version	Description	Tests
<input type="checkbox"/>	/FHIRSandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/01-Invalid-Parameters-json	1	Da Vinci - PDEX - PlanNet - FHIR R4 - 01 Invalid Parameters - Test the invalid paramters error by sending in an invalid search paramter and expecting a 400 HTTP response..	1
<input type="checkbox"/>	/FHIRSandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/02-Unknown-Resource-json <b>Variable</b> unknown-resource: [Unknown Resource Id]	1	Da Vinci - PDEX - PlanNet - FHIR R4 - 02 Unknown Resource - Test the unknown resource error by sending a GET request to an unknown resource id and expecting a 404 HTTP response.	1
<input type="checkbox"/>	/FHIRSandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/03-Deleted-Resource-json <b>Variable</b> deleted-resource: [Deleted Resource Id]	1	Da Vinci - PDEX - PlanNet - FHIR R4 - 03 Deleted Resource - Test the deleted resource error by sending a GET request to an deleted resource id and expecting a 410 HTTP response.	1

# Test Execution

- **Execute** starts the execution and takes you to the Test Execution page
- Click the links under Test Script Execution for details



**TOUCHSTONE** HL7 FHIR - Test Systems - Organizations - Users - Docs - AEGIS -

**Test Execution** Stop Execute Again

Exec Id: 202103161652229140147004  
Start Time: 03/16/2021 04:52:22PM  
End Time:  
Status: Running  
Duration: 0.115s  
Test Scripts: 3

Test Setup: FHIRSandbox-DaVinci-FHIR4-0-1-Test-PDEX-PlanNet-01-Error-Codes--All  
Executed By: AEGIS Certification Monitor  
Organization: Certification Monitor Org  
Origin: TouchstoneFHIR  
Destination: Da Vinci - Base Plan-Net https://davinci-plan-net-ri.logicahealth.org/fhir  
Validator: FHIR 4.0.1

3 tests 0 passes 0 failures 0 skipped 0 running 0 waiting 3 not started 0% successful Refresh

Test Script Execution	Version	Latest	Description	Origin	Destination	Status	Start	End	Duration	Passed	Tests
/FHIRSandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/01-Invalid-Parameters-json	1	1	Da Vinci - PDEX - PlanNet - FHIR R4 - 01 Invalid Parameters - Test the invalid parameters error by sending in an invalid search paramter and expecting a 400 HTTP response..	TouchstoneFHIR	Da Vinci - Base Plan-Net https://davinci-plan-net-ri.logicahealth.org/fhir	<span>Running</span>	03/16/2021 04:52:23PM		0.034s	0 of 1	<div style="width: 0%;"></div>
/FHIRSandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/02-Unknown-Resource-json	1	1	Da Vinci - PDEX - PlanNet - FHIR R4 - 02 Unknown Resource - Test the unknown resource error by sending a GET request to an unknown resource id and expecting a 404 HTTP response.	TouchstoneFHIR	Da Vinci - Base Plan-Net https://davinci-plan-net-ri.logicahealth.org/fhir	<span>Not Started</span>				0 of 1	<div style="width: 0%;"></div>
/FHIRSandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/03-Deleted-Resource-json	1	1	Da Vinci - PDEX - PlanNet - FHIR R4 - 03 Deleted Resource - Test the deleted resource error by sending a GET request to an deleted resource id and expecting a 410 HTTP response.	TouchstoneFHIR	Da Vinci - Base Plan-Net https://davinci-plan-net-ri.logicahealth.org/fhir	<span>Not Started</span>				0 of 1	<div style="width: 0%;"></div>

# Test Results

- Execution details for each test in the TestScript are displayed on Test Script Execution
- Click on the Test Name OR the Status button for details about each test in the testscript
- The details of each test including Operations and Asserts are displayed
- Test Step operation details can be expanded (...), displayed (**Body**) and collapsed/hidden (hide)

**TOUCHSTONE** HL7 FHIR - Test Systems - Organizations - Users - Docs - AEGIS -

**Test Execution** Execute Again

Exec ID: 20210316165229140147004  
 Start Time: 03/16/2021 04:52:22PM  
 End Time: 03/16/2021 04:52:30PM  
 Status: **Failed**  
 Duration: 7.170s  
 Test Scripts: 3

Test Setup: FHIR Sandbox - Da Vinci - FHIR4-0-1-Test-PDEX-PlanNet-01-Error-Codes--All  
 Executed By: AEGIS Certification Monitor  
 Organization: Certification Monitor Org  
 Origin: TouchstoneFHIR  
 Destination: Da Vinci - Base Plan-Net <https://davinci-plan-net-ri.logicahealth.org/fhir>  
 Validator: FHIR 4.0.1

3 tests: 1 passes, 2 failures, 0 skipped, 0 running, 0 waiting, 0 not started, **33% successful** Refresh

Test Script Execution	Version	Latest	Description	Origin	Destination	Status	Start	End	Duration	Passed	Tests
/FHIR Sandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/01-Invalid-Parameters-json	1	1	Da Vinci - PDEX - PlanNet - FHIR R4 - 01 Invalid Parameters - Test the invalid paramters error by sending in an invalid search paramter and expecting a 400 HTTP response..	TouchstoneFHIR	Da Vinci - Base Plan-Net <a href="https://davinci-plan-net-ri.logicahealth.org/fhir">https://davinci-plan-net-ri.logicahealth.org/fhir</a>	Failed	03/16/2021 04:52:23PM	03/16/2021 04:52:26PM	3.908s	0 of 1	<span style="color: red;">■</span>
/FHIR Sandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/02-Unknown-Resource-json	1	1	Da Vinci - PDEX - PlanNet - FHIR R4 - 02 Unknown Resource - Test the unknown resource error by sending a GET request to an unknown resource id and expecting a 404 HTTP response.	TouchstoneFHIR	Da Vinci - Base Plan-Net <a href="https://davinci-plan-net-ri.logicahealth.org/fhir">https://davinci-plan-net-ri.logicahealth.org/fhir</a>	Passed	03/16/2021 04:52:27PM	03/16/2021 04:52:28PM	1.159s	1 of 1	<span style="color: green;">■</span>
/FHIR Sandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/03-Deleted-Resource-json	1	1	Da Vinci - PDEX - PlanNet - FHIR R4 - 03 Deleted Resource - Test the deleted resource error by sending a GET request to an deleted resource id and expecting a 410 HTTP response.	TouchstoneFHIR	Da Vinci - Base Plan-Net <a href="https://davinci-plan-net-ri.logicahealth.org/fhir">https://davinci-plan-net-ri.logicahealth.org/fhir</a>	Failed	03/16/2021 04:52:28PM	03/16/2021 04:52:30PM	1.847s	0 of 1	<span style="color: red;">■</span>



# Test Results, Cont.

- Click on the Status button or the hyperlink for the test to see individual test results

**TOUCHSTONE** HL7 FHIR Test Systems Organizations Users Docs AEGIS

**Test Script Execution** - /FHIRsandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/01-Invalid-Parameters-json [← To Test Execution](#)

**Exec ID:** 202103161652229140147004  
**Description:** Da Vinci - PDEX - PlanNet - FHIR R4 - 01 Invalid Parameters - Test the invalid paramters error by sending in an invalid search paramter and expecting a 400 HTTP response..

**Start Time:** 03/16/2021 04:52:23PM  
**Test Setup:** FHIRsandbox-DaVinci-FHIR4-0-1-Test-PDEX-PlanNet-01-Error-Codes--All

**End Time:** 03/16/2021 04:52:26PM  
**Executed By:** AEGIS Certification Monitor

**Status:** Failed  
**Organization:** Certification Monitor Org

**Duration:** 3.908s  
**Origin:** TouchstoneFHIR

**Version:** 1  
**Destination:** Da Vinci - Base Plan-Net <https://davinci-plan-net-ri.logicahhealth.org/fhir>

**Validator:** FHIR 4.0.1  
**Test Script:** /FHIRsandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/01-Invalid-Parameters-json

**Interactions**

	0% passed	Pass	Fail	Other	Total
<b>Summary</b>	0	1	0	0	1
search-type HealthcareService	0	1	0	0	1

**1 tests** 0 passes 1 failures 0 skipped 0 running 0 waiting 0 not started **0% successful** Refresh

**Tests**

Test Name	Description	Status	Duration
Test: Invalid-Parameters	Test the invalid paramters error by sending in an invalid search paramter and expecting a 400 HTTP response.	Failed	0.193s

**Profiles**

Id	Source	Contents
capabilities-profile	<a href="http://hl7.org/fhir/StructureDefinition/CapabilityStatement">http://hl7.org/fhir/StructureDefinition/CapabilityStatement</a>	XML JSON

# Test Results, Cont.

- Continue to dig deeper into results by clicking the Status or Test Name hyperlinks to see assertions and operations as well as detailed results

The screenshot displays the Touchstone AEGIS.net test results interface. The top navigation bar includes 'TOUCHSTONE', 'HL7 FHIR', 'Test Systems', and 'Organizations'. The main content area is titled 'Test Script Execution - /FHIR Sandbox/DaVinci/FHIR4-0-1-Test/PDEX/PlanNet/01-Error-Codes/01-Invalid-Parameters-json'. It shows the test execution details, including the description, test setup, and organization. A summary bar indicates 1 test, 0 passes, 1 failure, 0 skipped, 0 running, 0 waiting, and 0 not started, with a 0% successful status. Below this, a table lists the test results, showing one test named 'Invalid-Parameters' with a status of 'fail' and a duration of 0.195s. The test details section shows the operation 'search-type - HealthcareService' with a status of 'fail' and a duration of 0.165s. The response details show a 200 OK status, but the assertion 'Response code is 400' failed because the actual value was '200' and the expected value was '400'. The profiles section shows the 'capabilities-profile' with a source of 'http://hl7.org/fhir/StructureDefinition/CapabilityStatement' and a content type of 'XML, JSON'.

In this example, the test is searching using an invalid search parameter and the expected response is a 400. This server returned a 200 & fails.

## 6.1.2.1 FHIR RESTful Capabilities

The Plan-Net Server **SHALL**:

1. Support all profiles defined in this Implementation Guide..
2. Implement the RESTful behavior according to the FHIR specification.
3. Return the following response classes:
  - (Status 400): invalid parameter
  - (Status 401/4xx): unauthorized request
  - (Status 403): insufficient scope
  - (Status 404): unknown resource
  - (Status 410): deleted resource.

# Test Results When Profile Validation fails

- In this example of Test Results, the TestScript has an assertion performing Profile Validation. A listing of ALL found errors and warnings will be displayed. These come from the Validation engine interpreting the Structure Definition of the resource being tested and provide detailed descriptions of non-compliance.
  - Errors are shown in **Red**
  - Warnings are shown in **Orange**

Assert	Response validates against the profile id 'PDex-PlanNet-HealthcareService-profile'	Warning	0.070s	<p>Validation of response body against profile 'http://hl7.org/fhir/us/davinci-pdex-plan-net/StructureDefinition/plannet-HealthcareService' by FHIR specification's Validation Engine produced the following results:</p> <ol style="list-style-type: none"><li>1. WARNING: [Display Name for http://hl7.org/fhir/us/davinci-pdex-plan-net/CodeSystem/HealthcareServiceCategoryCS#pharm should be one of 'Pharmacy' instead of Pharm]. Location: HealthcareService.category[0] (line 35, col 14).</li><li>2. WARNING: None of the codes provided are in the value set http://hl7.org/fhir/us/davinci-pdex-plan-net/ValueSet/SpecialtiesVS (http://hl7.org/fhir/us/davinci-pdex-plan-net/ValueSet/SpecialtiesVS, and a code from this value set is required) (codes = http://nucc.org/provider-taxonomy#3336C0000X). Location: HealthcareService.specialty[0] (line 43, col 15).</li><li>3. WARNING: None of the codes provided are in the value set http://hl7.org/fhir/us/davinci-pdex-plan-net/ValueSet/SpecialtiesVS (http://hl7.org/fhir/us/davinci-pdex-plan-net/ValueSet/SpecialtiesVS, and a code from this value set is required) (codes = http://nucc.org/provider-taxonomy#3336C0002X). Location: HealthcareService.specialty[1] (line 51, col 15).</li><li>4. WARNING: None of the codes provided are in the value set http://hl7.org/fhir/us/davinci-pdex-plan-net/ValueSet/SpecialtiesVS (http://hl7.org/fhir/us/davinci-pdex-plan-net/ValueSet/SpecialtiesVS, and a code from this value set is required) (codes = http://nucc.org/provider-taxonomy#3336C0003X). Location: HealthcareService.specialty[2] (line 59, col 15).</li><li>5. WARNING: None of the codes provided are in the value set http://hl7.org/fhir/us/davinci-pdex-plan-net/ValueSet/SpecialtiesVS (http://hl7.org/fhir/us/davinci-pdex-plan-net/ValueSet/SpecialtiesVS, and a code from this value set is required) (codes = http://nucc.org/provider-taxonomy#3336H0001X). Location: HealthcareService.specialty[3] (line 67, col 15).</li><li>6. WARNING: A resource should have narrative for robust management [text.div.exists()]. Location: HealthcareService (line 1, col 48).</li></ol> <p>Description: (WARNING ONLY) Validate PDex HealthcareService within the response. Warning only to allow review of all assert results. Definition: ...</p>
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# Test Results - More

- Touchstone allows for the tester to see all details of a Request and Response for any Operation
  - Use the ellipsis ... on any Operation step to expand the details
  - Hyperlinks expand to show details like Request Body or Response Body

Tests

Test Name	Description			
Test: <a href="#">SearchHealthcare Services</a>	Search for HealthcareServices conforming to the PlanNet-HealthcareService profile.			
Action	Description	Status	Duration	Details
Operation	<b>search-type - HealthcareService</b>  Origin: TouchstoneFHIR Destination: Da Vinci - Base Plan-Net <a href="https://davinci-plan-net-ri.logicahealth.org/fhir">https://davinci-plan-net-ri.logicahealth.org/fhir</a>	200 OK	0.297s	<b>Description:</b> Search for HealthcareServices conforming to the PlanNet-HealthcareService profile. <b>Type:</b> <a href="#">search-type</a> <b>Resource:</b> <a href="#">HealthcareService</a> <b>Params:</b> <a href="#">_count</a> <b>Submitted URL:</b> <a href="https://touchstone.aegis.net:64239/fhir/HealthcareService?_count=100">https://touchstone.aegis.net:64239/fhir/HealthcareService?_count=100</a> <b>Forwarded URL:</b> <a href="https://davinci-plan-net-ri.logicahealth.org/fhir/HealthcareService?_count=100">https://davinci-plan-net-ri.logicahealth.org/fhir/HealthcareService?_count=100</a> <b>Definition:</b> ... <a href="#">[hide]</a> <b>Request:</b> Method: GET Path: <a href="https://davinci-plan-net-ri.logicahealth.org/fhir/HealthcareService?_count=100">https://davinci-plan-net-ri.logicahealth.org/fhir/HealthcareService?_count=100</a> Headers: <b>Accept</b> application/fhir+xml; charset=utf-8 <b>Response Id:</b> searchResponse <a href="#">[hide]</a> <b>Response:</b> Status: HTTP/1.1 200 OK Headers: <b>Connection</b> Keep-Alive <b>Content-Type</b> application/fhir+xml; charset=utf-8 <b>Date</b> Tue, 16 Mar 2021 21:12:43 GMT <b>Keep-Alive</b> timeout=5, max=100 <b>Last-Modified</b> Tue, 16 Mar 2021 21:12:43 GMT <b>Server</b> Jetty(9.4.18.v20190429) <b>Transfer-Encoding</b> chunked <b>X-Powered-By</b> HAPI FHIR 4.1.0 REST Server (FHIR Server; FHIR 4.0.0/R4) <b>X-Request-ID</b> IZccc2jpiVLRlAKE  <b>Response:</b> <a href="#">Body</a>



# Testing Using Suites



**TOUCHSTONE**

AEGIS.net

# Conformance Suites

- Suites are collections of Test Scripts that are grouped together and provide an easy way to test and to see test results
- From the left side menu, select Suites and the list of Suites available to that user will display

The screenshot shows the TOUCHSTONE AEGIS.net interface. The top navigation bar includes the TOUCHSTONE logo and user options: HL7 FHIR, Test Systems, Organizations, Users, Docs, and AEGIS. The left sidebar menu is expanded to 'Suites'. The main content area is titled 'Conformance Suites' and features a search bar with the following filters: Type (dropdown), Name (text input), Owned By (MedCom dropdown), and Validator (dropdown). Below the search bar, it indicates 'Records 1 - 2 of 2'. A table displays the following data:

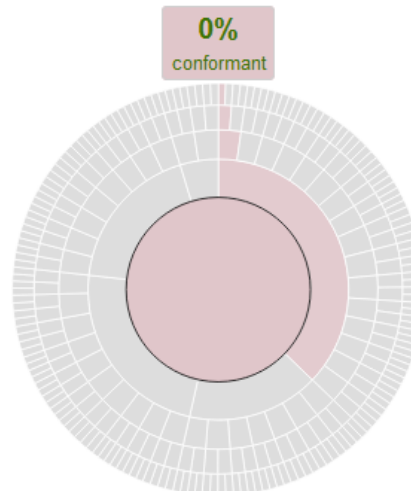
Name	Version	History	Action	Owned By	Description	Filters	Publishable	Updated
FHIR4-0-1-HospitalNotification-sent-Client	128			MedCom	HospitalNotification 1.0.3 sent - Conformance of FHIR-Client system against FHIR 4.0.1 Medcom profiles.	Supported Formats		08/13/2021 02:58:35AM
FHIR4-0-1-HospitalNotification-receiving-Client	10			MedCom	HospitalNotification 0.1.3 receiving- Conformance of FHIR-server system against FHIR 4.0.1 Medcom profiles.	Supported Formats		07/08/2021 05:13:59AM

# Conformance Suites (cont.)

- Clicking on the Suite name hyperlink will take the user to the Current view where the test scripts display and the user can select the server to run against
- Note that Suites that test FHIR-Clients have an anchor system already defined as the destination server, so that does not need to be selected
- Note that Suites that test FHIR-Servers have an origin system already defined as the FHIR-Client, so that does not need to be selected

Conformance Type: **FHIR-Server** Suite: **FHIR4-0-1-Basic-Server v11** Server: **AEGIS.net, Inc. - WildFHIR FHIR-4-0-0** Format: **All**  Supported in CapabStm **Refresh**

**0%**  
conformant



Test Scripts

**Execute Selected** **Refresh** Search:  Total:172 Previous **1** Next Show **300** entries

<input type="checkbox"/> Test Script	Status	Start Time	End Time	Interactions	By	Org
<input type="checkbox"/> <a href="#">/FHIR4-0-1-Basic/A-C/Account/Client Assigned Id/Account-client-id-json</a> FHIR Server Account Basic Operation Tests - JSON - Client Assigned Resource Id - Create, Delete, History, Read, Search, Update, Vread. Support for referenced resource type Patient Update, Delete and Search is also required.	<b>Execute</b> <b>Failed</b>	08/18/2021 02:27:37PM	08/18/2021 02:27:49PM		Carie Hammond	AEGIS.net, Inc.
<input type="checkbox"/> <a href="#">/FHIR4-0-1-Basic/A-C/Account/Client Assigned Id/Account-client-id-xml</a> FHIR Server Account Basic Operation Tests - XML - Client Assigned Resource Id - Create, Delete, History, Read, Search, Update, Vread. Support for referenced resource type Patient Update, Delete and Search is also required.	<b>Execute</b>					
<input type="checkbox"/> <a href="#">/FHIR4-0-1-Basic/A-C/Account/Server Assigned Id/Account-server-id-json</a> FHIR Server Account Basic Operation Tests - JSON - Server Assigned Resource Id - Create, Delete, History, Read, Search, Update, Vread. Support for referenced resource type Patient Create, Delete and Search is also required.	<b>Execute</b>					
<input type="checkbox"/> <a href="#">/FHIR4-0-1-Basic/A-C/Account/Server Assigned Id/Account-server-id-xml</a> FHIR Server Account Basic Operation Tests - XML - Server Assigned Resource Id - Create, Delete, History, Read, Search, Update, Vread. Support for referenced resource type Patient Create, Delete and Search is also required.	<b>Execute</b>					



/FHIR4-0-1-Basic

# Conformance Suites (cont.)

- Testers can select any or all of the tests on this page and either run them one at a time or select several and execute the ones selected
- The page will refresh automatically and results will be shown on the page
  - Note that for FHIR-Client Tests, the test will remain in Waiting status until the Client issues a request to Touchstone
- Select any test execution Status on the page to view the details of that test

Test Scripts

[Execute Selected](#) [Refresh](#) Search:  Total:172 [Previous](#)

<input type="checkbox"/>	Test Script	Status	Start Time	End Time
<input checked="" type="checkbox"/>	<a href="#">/FHIR4-0-1-Basic/A-C/Account/Client Assigned Id/Account-client-id-json</a> FHIR Server Account Basic Operation Tests - JSON - Client Assigned Resource Id - Create, Delete, History, Read, Search, Update, Vread. Support for referenced resource type Patient Update, Delete and Search is also required.	<a href="#">Execute</a> Failed	08/18/2021 02:27:37PM	08/18/2021 02:27:49PM
<input type="checkbox"/>	<a href="#">/FHIR4-0-1-Basic/A-C/Account/Client Assigned Id/Account-client-id-xml</a> FHIR Server Account Basic Operation Tests - XML - Client Assigned Resource Id - Create, Delete, History, Read, Search, Update, Vread. Support for referenced resource type Patient Update, Delete and Search is also required.	<a href="#">Execute</a>		





# Conformance Suites (cont.)

- Testers can rerun tests after correcting their test server behavior as needed
- The Conformance Suite will overlay the latest test run results
  - Servers that previously failed a test can update that result by running it again here

Conformance Type: FHIR-Server Suite: FHIR4-0-1-Basic-Server v11 Server: AEGIS.net, Inc. - WildFHIR FHIR-4-0-1 Format: All  Supported in CapabStm Refresh

**94%**  
conformant

**/FHIR4-0-1-Basic**

Interactions

	94% passed	Pass	Fail	Other	Total
Summary	<div style="width: 94%;"></div>	1,844	0	104	1,948
A-C	<div style="width: 94%;"></div>	720	0	0	720
D-H	<div style="width: 94%;"></div>	272	0	52	324

Test Scripts

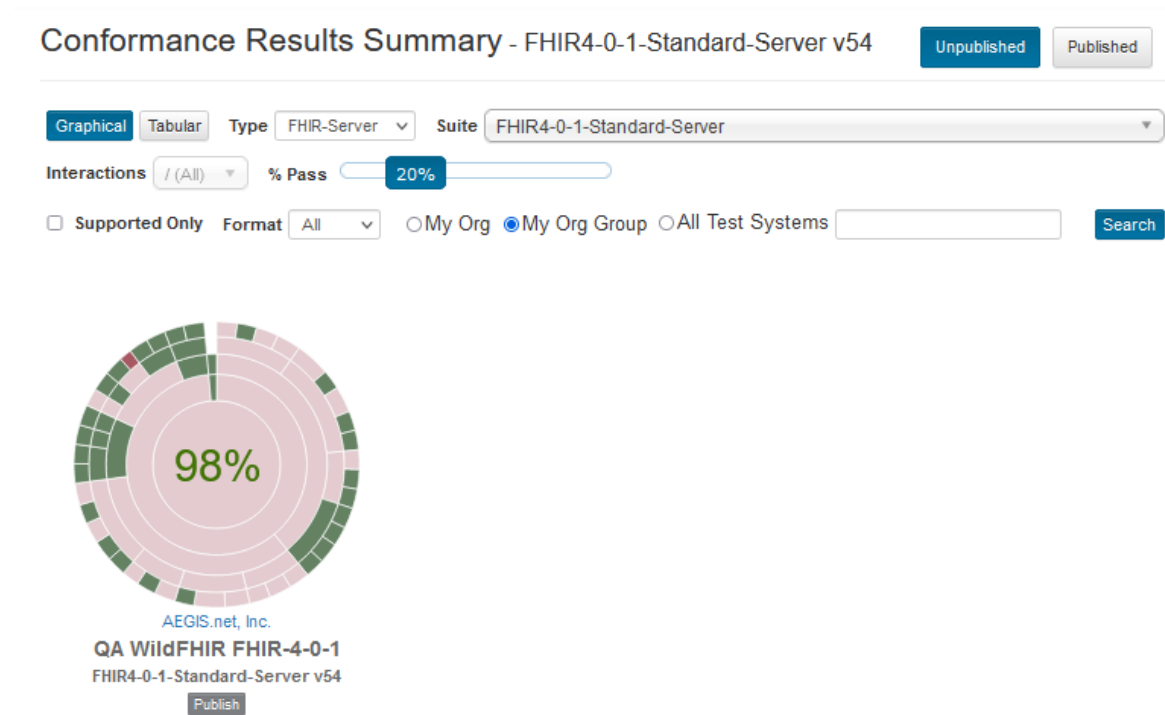
Execute Selected Refresh Search: Total: 172 Previous 1 Next Show 300 entries

<input type="checkbox"/>	Test Script	Execute	Status	Start Time	End Time	Interactions	By	Org
<input type="checkbox"/>	<a href="#">/FHIR4-0-1-Basic/A-C/Account/Client Assigned Id/Account-client-id-json</a> FHIR Server Account Basic Operation Tests - JSON - Client Assigned Resource Id - Create, Delete, History, Read, Search, Update, Vread. Support for referenced resource type Patient Update, Delete and Search is also required.	Execute	Passed	08/10/2021 02:08:54PM	08/10/2021 02:09:09PM	<div style="width: 100%;"></div>	Mario Hyland	AEGIS.net, Inc.
<input type="checkbox"/>	<a href="#">/FHIR4-0-1-Basic/A-C/Account/Client Assigned Id/Account-client-id-xml</a> FHIR Server Account Basic Operation Tests - XML - Client Assigned Resource Id - Create, Delete, History, Read, Search, Update, Vread. Support for referenced resource type Patient Update, Delete and Search is also required.	Execute	Passed	08/10/2021 02:09:09PM	08/10/2021 02:09:23PM	<div style="width: 100%;"></div>	Mario Hyland	AEGIS.net, Inc.
<input type="checkbox"/>	<a href="#">/FHIR4-0-1-Basic/A-C/Account/Server Assigned Id/Account-server-id-json</a> FHIR Server Account Basic Operation Tests - JSON - Server Assigned Resource Id - Create, Delete, History, Read, Search, Update, Vread. Support for referenced resource type Patient Create, Delete and Search is also required.	Execute	Passed	08/10/2021 02:09:23PM	08/10/2021 02:09:37PM	<div style="width: 100%;"></div>	Mario Hyland	AEGIS.net, Inc.
<input type="checkbox"/>	<a href="#">/FHIR4-0-1-Basic/A-C/Account/Server Assigned Id/Account-server-id-xml</a> FHIR Server Account Basic Operation Tests - XML - Server Assigned Resource Id - Create, Delete, History, Read, Search, Update, Vread. Support for referenced resource type Patient Create, Delete and Search is also required.	Execute	Passed	08/10/2021 02:09:38PM	08/10/2021 02:09:51PM	<div style="width: 100%;"></div>	Mario Hyland	AEGIS.net, Inc.
<input type="checkbox"/>	<a href="#">/FHIR4-0-1-Basic/A-C/ActivityDefinition/Client Assigned Id/ActivityDefinition-client-id-json</a> FHIR Server ActivityDefinition Basic Operation Tests - JSON - Client Assigned Resource Id - Create, Delete, History, Read, Search, Update, Vread. Support for referenced resource	Execute	Passed	08/10/2021 02:09:51PM	08/10/2021 02:10:04PM	<div style="width: 100%;"></div>	Mario Hyland	AEGIS.net, Inc.



# Conformance Suites (cont.)

- Test Systems can choose to publish results by going to the Results Summary page
  - Select the Suite and Server
  - You will only see Test Systems belonging to your Org in Unpublished results
  - Only users from your Org can Publish results from your Test Systems
  - Once published, anyone can see the Test System results (optional)



# Tips for Touchstone



**TOUCHSTONE**

AEGIS.net

# Tip: Use the History View to find test runs

- From the left menu, click on History and a running list of all your past tests will display
- Filter Test Setup keyword, Test System name, and/or Status (such as Failed or Passed)
- Only History for your Org or Org Group is displayed
- ALL tests can be found here – Touchstone does not archive old tests from view

The screenshot displays the Touchstone AEGIS.net interface. The top navigation bar includes the Touchstone logo, user information (HL7 FHIR), and system settings (Test Systems, Orga). The left sidebar contains a menu with options: Conformance, Current, Results Summary, Suites, Test Executions (selected), Test Execution, History (highlighted), Exchanges, Test Setups, Test Setup, List, and Test Definitions. The main content area is titled "Test Executions" and features a search filter with fields for Test Setup, Test System, and Status, along with Search and Clear buttons. Below the search bar, there are radio buttons for "Executed:" (By Me, By My Org, By My Org Groups, With My Org Test Systems) and pagination controls (1, 2, 3, Records 1 - 10 of 22, Page Size: 10). The main table lists test runs with columns for Start Time, Test Setup, Validator, Origin, Destination, By, Org, Stop, Status, and End Time.

Start Time	Test Setup	Validator	Origin	Destination	By	Org	Stop	Status	End Time
08/06/2021 01:40:04PM	Wendys demo test FHIR4-0-1-ProviderDir--00-capabilities-xml	FHIR 4.0.1	TouchstoneFHIR	AEGIS.net, Inc. - WildFHIR FHIR-4-0-1 http://wildfhir4.aegis.net/fhir4-0-1	AEGIS Certification Monitor	Certification Monitor Org	Stopped	Failed	08/06/2021 01:40:10PM
08/06/2021 01:28:45PM	Wendys demo test FHIR4-0-1-ProviderDir--00-capabilities-xml	FHIR 4.0.1	TouchstoneFHIR	AEGIS.net, Inc. - WildFHIR FHIR-4-0-1 http://wildfhir4.aegis.net/fhir4-0-1	AEGIS Certification Monitor	Certification Monitor Org	Failed	Failed	08/06/2021 01:29:28PM
07/09/2021 07:11:00PM	FHIR4-0-1-Formulary-DaVinci-Formulary-00-Capability-dv-formulary-r4-00-capability-xml	FHIR 4.0.1	TouchstoneFHIR	Da Vinci - DrugFormulary https://davinci-drug-formulary-ri.logicahealth.org/fhir	AEGIS Certification Monitor	Certification Monitor Org	Passed	Passed	07/09/2021 07:11:08PM
07/09/2021 07:10:42PM	FHIR4-0-1-Formulary-DaVinci-Formulary-00-Capability-dv-formulary-r4-00-capability-json	FHIR 4.0.1	TouchstoneFHIR	Da Vinci - DrugFormulary https://davinci-drug-formulary-ri.logicahealth.org/fhir	AEGIS Certification Monitor	Certification Monitor Org	Passed	Passed	07/09/2021 07:10:52PM



# Tip: Additional details about your Test are in the results

- By scrolling to the bottom of any Test Script Execution Detail, testers can see which profiles the test uses, any variables and the values used in the test, and details on any rule that was used

## Tests

Test Name	Description	Status	Duration
Test: <a href="#">CompareByRxNorm</a>	Search for formulary drugs matching RxNorm codes across all Coverage Plans and validate against the PDex Formulary Drug Profile.	Passed <sup>W</sup>	0.834s

## Profiles

Id	Source	Contents	Pulled
bundle-profile	<a href="http://hl7.org/fhir/StructureDefinition/Bundle">http://hl7.org/fhir/StructureDefinition/Bundle</a>	<a href="#">XML</a> <a href="#">JSON</a>	0.046s
PDex-Formulary-Drug-profile	<a href="http://hl7.org/fhir/us/davinci-drug-formulary/StructureDefinition/usdf-FormularyDrug">http://hl7.org/fhir/us/davinci-drug-formulary/StructureDefinition/usdf-FormularyDrug</a>	<a href="#">XML</a> <a href="#">JSON</a>	0.064s
PDex-CoveragePlan-profile	<a href="http://hl7.org/fhir/us/davinci-drug-formulary/StructureDefinition/usdf-CoveragePlan">http://hl7.org/fhir/us/davinci-drug-formulary/StructureDefinition/usdf-CoveragePlan</a>	<a href="#">XML</a> <a href="#">JSON</a>	0.045s

## Variables

Name	Definition
drugCode	value: 1999026

## Rules

Id	Params	Version	Latest
<a href="#">rule-validate-PDex-Formulary-Drug</a>	jsonPath: '\$.entry[?(@.resource.resourceType == 'MedicationKnowledge')].resource' elementRequired profileId: 'PDex-Formulary-Drug-profile' profilePath	2	2



# Tip: Check the Exchanges Page if your Waiting test is not moving

- Touchstone must be aware of the requesting system (registered as a Test System) to match incoming requests to waiting tests
- Check the Exchanges page if your tests are not being picked up and ensure that your incoming requests are being matched correctly or that a test is waiting

The screenshot displays the Touchstone web interface. The top navigation bar includes the Touchstone logo and user information (Carie). The left sidebar shows a menu with 'Exchanges' selected. The main content area is titled 'Exchanges' and contains search filters for 'Executed By', 'Response Code', 'Exec Status', 'From', and 'To'. Below the filters, there are dropdowns for 'Initiated By', 'Origin Org', 'Origin System', 'Dest Org', and 'Dest System'. A table of records is shown with columns: Request Time, Origin, Exchange, Destination, Method, Status, Domain, Test Setup, Test Execution, Exec User, and Matched. The first record is highlighted in red, indicating an error: 'Invalid origin IP '2.106.187.236'. If this is the IP address of one of your test systems, please register it on Test System screen.'

Request Time	Origin	Exchange	Destination	Method	Status	Domain	Test Setup	Test Execution	Exec User	Matched
08/18/2021 11:37:44AM	2.106.187.236	Request →	WildFHIR FHIR-4-0-1 - http://wildfhir4.aegis.net:80/fhir4-0-1/Patient?_pretty=true AEGIS.net, Inc.	POST		HL7 FHIR				Invalid origin IP '2.106.187.236'. If this is the IP address of one of your test systems, please register it on Test System screen.
08/11/2021 01:59:43PM	172.16.50.33	Request → ← Response	WildFHIR FHIR-4-0-1 - http://wildfhir4.aegis.net:80/fhir4-0-1/metadata AEGIS.net, Inc.	GET	200 OK	HL7 FHIR			Richard Ettema AEGIS.net, Inc.	No test execution was found with status 'Waiting for Request' for the user 'Richard Ettema'.

# Tip: Reuse the same Test Setup easily

- Touchstone will save your Test Setups for easy reuse. Using the left menu, select List under Test Setups
  - Click on the Test Setup Name hyperlink
  - The previously used Test Setup will be found and can be run
- Select Test Setup under Test Setups and that will take you to the last Test Setup run if you are attempting to re-run

The screenshot shows the Touchstone web application interface. The top navigation bar includes the Touchstone logo and the text "TOUCHSTONE" in a blue box. On the right side of the top bar, there are dropdown menus for "HL7 FHIR" and "Test Systems".

The left-hand navigation menu is expanded to show "Test Setups" with a sub-menu item "List" selected. Other menu items include "Conformance", "Current", "Results Summary", "Suites", "Test Executions", "Test Execution", "History", "Exchanges", "Test Setup", and "Test Definitions".

The main content area is titled "Test Setups" and features a search bar with "Name:" and buttons for "Search" and "Clear". Below the search bar, there are pagination controls showing "1 2 3 ... 45" and "Records 1 - 10 of 446". A "Page Size: 10" dropdown is also present.

The main content area displays a table of test setups with the following columns: "Execute", "Name", "Used", "Validator", "Delete", "Origin", "Destination", and "Tests".

Execute	Name	Used	Validator	Delete	Origin	Destination	Tests
▶	<a href="#">FHIR4-0-1-Basic-A-C-Account-Client Assigned Id-Account-client-id-json</a>	08/18/2021 02:27:37PM	FHIR 4.0.1	✗	TouchstoneFHIR	AEGIS.net, Inc. - WildFHIR FHIR-4-0-0 http://wildfhir4.aegis.net/fhir4-0-0	7
▶	<a href="#">FHIR4-0-1-Advanced--fhir-api-r4-patient-read-01-found</a>	08/18/2021 01:30:22PM	FHIR 4.0.1	✗	TouchstoneFHIR	Da Vinci - Da Vinci Prior Authorization Reference Implementation https://davinci-prior-auth.logicahealth.org/fhir	13
▶	<a href="#">FHRSandbox--dv-pas-r4-01-claimsubmit-json</a>	08/17/2021 03:38:38PM	FHIR 4.0.1	✗	TouchstoneFHIR	Da Vinci - Da Vinci Prior Authorization Reference Implementation https://davinci-prior-auth.logicahealth.org/fhir	1
▶	<a href="#">FHRSandbox--dv-pas-r4-06-claiminquiry-json</a>	08/17/2021 03:37:34PM	FHIR 4.0.1	✗	TouchstoneFHIR	Drummond Group - Inferno Reference Server 401 - Confid Client https://inferno.healthit.gov/reference-server/r4	1
▶	<a href="#">FHIR4-0-1-PAA-ClinData--headcircum-sequence</a>	08/12/2021 01:02:44PM	FHIR 4.0.1	✗	TouchstoneFHIR	Drummond Group - Inferno Reference Server 401 - Confid Client https://inferno.healthit.gov/reference-server/r4	10

# Tip: Reuse the same Test Setup easily

- Testers wishing to re-run a test can also use the Execute Again button on the upper right hand corner of any Test Execution they are viewing
  - This will run the same test, using the same Origin and Destination servers and the same variables

The screenshot displays the Touchstone AEGIS.net Test Execution page. The interface includes a top navigation bar with the Touchstone logo and user information (HL7 FHIR, Test Systems, Organizations, Users, Monitor, Docs, Carie). A left sidebar contains navigation options like Conformance, Current, Results Summary, Suites, Test Executions, Test Execution (selected), History, Exchanges, Test Setup, Test Setup, List, and Test Definitions.

The main content area is titled "Test Execution" and features an "Execute Again" button in the top right corner. The test details are as follows:

- Exec Id:** 202108181427376099909811
- Start Time:** 08/18/2021 02:27:37PM
- End Time:** 08/18/2021 02:27:49PM
- Status:** Failed
- Duration:** 12.076s
- Test Scripts:** 1
- Test Setup:** FHIR4-0-1-Basic-A-C-Account-Client Assigned Id-Account-client-id-json
- Executed By:** Carie Hammond
- Organization:** AEGIS.net, Inc.
- Origin:** TouchstoneFHIR
- Destination:** AEGIS.net, Inc. - WildFHIR FHIR-4-0-0 <http://wildfhir4.aegis.net/fhir4-0-0>
- Validator:** FHIR 4.0.1

A progress bar shows the following counts: 7 tests, 0 passes, 7 failures, 0 skipped, 0 running, 0 waiting, 0 not started, and 0% successful. A "Refresh" button is located to the right of the progress bar.

Test Script Execution	Version	Latest	Description	Origin	Destination	Status	Start	End	Duration	Passed	Tests
/FHIR4-0-1-Basic/A-C/Account-Client Assigned Id/Account-client-id-json	3	3	FHIR Server Account Basic Operation Tests - JSON - Client Assigned Resource Id - Create, Delete, History, Read, Search, Update, Vread. Support for referenced resource type Patient Update, Delete and Search is also required.	TouchstoneFHIR	AEGIS.net, Inc. - WildFHIR FHIR-4-0-0 <a href="http://wildfhir4.aegis.net/fhir4-0-0">http://wildfhir4.aegis.net/fhir4-0-0</a>	Failed	08/18/2021 02:27:37PM	08/18/2021 02:27:49PM	11.974s	0 of 7	



# Q&A



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