Thread Test Plan - THClient API

Developer Preview 1

Developer

Contents

2025-05-09 | Copyright © 2025 Apple Inc. All Rights Reserved.

Introduction

This document provides comprehensive guidance on testing all API methods within the THClient API. Its purpose is to help developers ensure that their implementation aligns with the expected operational functionality and specification, thereby ensuring conformance of the THClient API for your certified Thread border router.

Test Setup

Devices Needed:

- One iPhone running the latest version of iOS + Dev only entitlement for ThreadNetwork
- One of any of these products (Thread Resident) below:
  - HomePod mini
  - Apple TV 4K (Wi-Fi + Ethernet)
  - 2nd Generation HomePod
- One of any of these products (Non-Thread Resident) below:
  - Apple TV 4K (Wi-Fi)
  - 1st Generation HomePod
- A Wi-Fi Router/Mesh with all the above devices connected
- Any Matter Thread accessories

Verification Steps:

This is a pre-requisite to verify that a Thread Network (NW) is running on Thread Border Router (BR). This can be done using the Discovery App (Discovery - DNS-SD Browser) on iOS or macOS on the same WiFi network as Thread Border Router.

Launch Discovery App and Navigate to local > '_meshcop._udp'

Select the Bonjour advertisement for the Thread Border Router

'nn' field should give the Thread NW Name the device is running

2025-05-09 | Copyright © 2025 Apple Inc. All Rights Reserved.

Test Plan

TestCase ID	Test Title	Test Steps	Expected Results
TCBR001	Set up new Border Router on the preferred network	1. Set up Apple Border Router (Thread resident) using Home App to configure the preferred network. 2. Set up new Border Router using Third Party App on the same network (Wi-Fi/Ethernet). 3. For Thread-capable Wi-Fi router, remove the existing Wi-Fi router and use the same SSID for the new Wi-Fi network.	1. Verify that the Third Party App checks for a configured preferred network using isPreferredNetworkAvailable(completion:). 2. Verify that the Third Party App reads the preferred network credentials using retrievePreferredCredentials(_:) in order to set up the Border Router. This step requires user consent. 3. Once the Border Router is configured, verify the Third Party App stores the credentials to iCloud Keychain using storeCredentials(forBorderAgent:activeOperationalD ataSet:completion:). 4. Verify that the new Border Router joins the existing preferred network and does not create a separate network using the verification steps above. 5. Pair Matter Thread accessory in Home App to confirm accessory can join the existing preferred network.
TCBR002	Set up new Border Router without existing preferred network	1. Remove all Border Routers from Home App and Third Party App and clear any stored preferred network credentials by deleting the Home in Home App. 2. Set up new Border Router using Third Party App on the same network (Wi-Fi/Ethernet). 3. For Thread-capable Wi-Fi router, remove the existing Wi-Fi router and use the same SSID for the new Wi-Fi network.	1. Verify that the Third Party App checks for a configured preferred network using isPreferredNetworkAvailable(completion:). 2. Once the Border Router is configured, verify the Third Party App stores the credentials to iCloud Keychain using storeCredentials(forBorderAgent:activeOperationalD ataSet:completion:). 3. Set up Apple Non-Thread resident using Home App and pair Matter Thread accessory in Home App to confirm accessory can join the existing preferred network.

2025-05-09 | Copyright © 2025 Apple Inc. All Rights Reserved.

TestCase ID	Test Title	Test Steps	Expected Results
TCBR003	Add or move a Border Router to the preferred network	1. Set up Border Router using Third Party App with/without existing preferred network. 2. Now that the App has the preferred network credentials, set up another Border Router using Third Party App on the same network.	1. Verify that the Third Party App confirms that the preferred network is available using isPreferredNetworkAvailable(completion:). 2. Verify that the Third Party App confirms that their cached credentials match the network's preferred credentials using checkPreferredNetwork(forActiveOperationalDataset:completion:). 3. If the preferred credentials have changed, verify that the Third Party App reads the preferred network credentials using retrievePreferredCredentials(_:) in order to set up the Border Router. Verify that the new Border Router joins the existing preferred network and does not create a separate network using the verification steps above. 4. If the preferred credentials have not changed, verify that the Third Party App continues to set up the Border Router on the existing preferred network and does not create a separate network using the verification steps above.
TCBR004	Reset a configured Border Router	1. Set up Border Router using Third Party App with/without existing preferred network. 2. Reset the configured Border Router to its factory settings.	1. Verify that the Third Party App removes credentials for the configured Border Router from iCloud Keychain using deleteCredentials(forBorderAgent:completion:).
TCBR005	Changing the SSID of a Thread- capable Wi-Fi router	1. Set up Thread-capable Wi-Fi router using Third Party App with/ without existing preferred network. 2. Change the SSID of the already setup Thread- capable Wi-Fi router.	1. Verify that the Third Party App confirms that the preferred network is available using isPreferredNetworkAvailable(completion:). 2. Verify that the Third Party App confirms that their cached credentials match the network's preferred credentials using checkPreferredNetwork(forActiveOperationalDataset: completion:). 3. If the preferred credentials have changed, verify that the Third Party App reads the preferred network credentials using retrievePreferredCredentials(_:) in order to set up the Border Router. Verify that the Thread-capable Wi-Fi router joins the existing preferred network and does not create a separate network using the verification steps above. 4. If the preferred credentials have not changed, verify that the Thread-capable Wi-Fi router continues on the existing preferred network and does not create a separate network using the verification steps above.
TCBR006	Retrieving credentials with the extended PAN identifier	1. If implemented, verify that the Third Party App can request credentials for the the extended PAN identifier using retrieveCredentials(forExtendedPANID:completi on:).	1. Verify that the Third Party App can request credentials for the the extended PAN identifier using retrieveCredentials(forExtendedPANID:completion:).

2025-05-09 | Copyright © 2025 Apple Inc. All Rights Reserved.

TestCase ID	Test Title	Test Steps	Expected Results
TCBR007	Retrieving credentials with the Border Agent identifier	1. If implemented, verify that the Third Party App can request credentials for the the Border Agent identifier using retrieveCredentials(forBorderAgent:completion:).	1. Verify that the Third Party App can request credentials for the the Border Agent identifier using retrieveCredentials(forBorderAgent:completion:).
TCBR008	Retrieve all Border Router records	1. If implemented, verify that the Third Party App can retrieve all Border Router records using retrieveAllCredentials(_:).	1. Verify that the Third Party App can retrieve all Border Router records using retrieveAllCredentials(_:).
TCBR009	Retrieve active Thread Border Router credentials	1. If implemented, verify that the Third Party App can retrieve active Thread Border Router credentials using retrieveAllActiveCredentials(_:).	1. Verify that the Third Party App can retrieve active Thread Border Router credentials using retrieveAllActiveCredentials(_:).
TCBR010	Performance: Apple Border Router offline/ online	1. Set up Apple Border Router (Thread resident) using Home App to configure the preferred network. 2. Set up another Apple Home hub (Non-Thread resident) using Home App. 3. Set up new Border Router using Third Party App to join the existing preferred Network. 4. Pair Matter Thread accessory in Home App to confirm accessory can join the existing preferred network. 5. Disconnect/unplug the Apple Border Router.	1. Verify Matter Thread accessories are reachable with Third Party Border Router still online in reasonable amount of time.
TCBR011	Performance: Third Party Border Router offline/online	1. Set up Apple Border Router (Thread resident) using Home App to configure the preferred network. 2. Set up new Border Router using Third Party App to join the existing preferred network. 3. Disconnect/unplug the Third Party Border Router. 4. Reconnect Third Party Border Router couple of minutes later and verify Third Party Border Router rejoins the existing preferred network.	1. Verify Third Party Border Router rejoins the existing preferred network and does not create a separate network after power cycle.

2025-05-09 | Copyright © 2025 Apple Inc. All Rights Reserved.

FAQs

A. How to verify a thread Network is running on Thread Border Router?

This can be done using the Discovery App (Discovery - DNS-SD Browser) on iOS or macOS on the same WiFi network as Thread Border Router.

1. Launch Discovery App and Navigate to local > '_meshcop._udp'
2. Select the Bonjour advertisement for the Thread Border Router

B. How to clear Thread credentials and stored Preferred Network on iOS?

Go to Home App -> Settings (3 dots on right top corner) -> Home Settings -> Remove Home

2025-05-09 | Copyright © 2025 Apple Inc. All Rights Reserved.

Revision History

Revision History

Version	Date	Notes
1.0	2025-05–09	Developer Preview 1.0

2025-05-09 | Copyright © 2025 Apple Inc. All Rights Reserved.

Apple Inc.
Copyright © 2025 Apple Inc.
All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, mechanical, electronic, photocopying, recording, or otherwise, without prior written permission of Apple Inc.

No licenses, express or implied, are granted with respect to any of the technology described in this document. Apple retains all intellectual property rights associated with the technology described in this document. This document is intended to be used in the development of solutions for Apple-branded products.

Apple Inc.
One Apple Park Way
Cupertino, CA 95014
408-996-1010

Apple, the Apple Logo, and HomeKit are trademarks of Apple Inc., registered in the U.S. and other countries. iOS is a trademark or registered trademark of Cisco in the U.S. and other countries and is used under license.

APPLE MAKES NO WARRANTY OR REPRESENTATION, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THIS DOCUMENT, ITS QUALITY, ACCURACY, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. AS A RESULT, THIS DOCUMENT IS PROVIDED "AS IS," AND YOU, THE READER, ARE ASSUMING THE ENTIRE RISK AS TO ITS QUALITY AND ACCURACY.

IN NO EVENT WILL APPLE BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECT, ERROR OR INACCURACY IN THIS DOCUMENT, even if advised of the possibility of such damages.

Some jurisdictions do not allow the exclusion of implied warranties or liability, so the above exclusion may not apply to you.