Working Draft

Mplify W136.1 Draft (R2)

Allegro, Interlude and Legato Service Function Testing Business Requirements & Use Cases

July 2025

This draft represents Mplify work in progress and is subject to change.

22 Disclaimer

51

Table of Contents

List of Figures

119

List of Tables

148

1 List of Contributing Members

The following members of Mplify participated in the development of this document and have requested to be included in this list.

2 Abstract

This document defines the Business Requirements and Use Cases to support Service Function Testing (SFT) at the Allegro, Interlude, and Legato Interface Reference Points. The requirements and use cases contained in this document support Service Function Testing for Service Activation and testing performed at other times during the lifecycle of the service. Service Activation/Service Readiness Testing is used prior to the service being handed off to the Customer. Other testing is performed on active services after they have been handed off to the Customer.

3 Release Notes

This document is still under review and is subject to change.

161 # 4 Terminology and Abbreviations

162 This section defines the terms used in this document. In many cases, the normative definitions to
163 terms are found in other documents. In these cases, the third column is used to provide the refer-
164 ence that is controlling, in other Mplify or external documents.

165 In addition, terms defined in MEF 55.1 [3] are included in this document by reference and are not
166 repeated in the table below.

167

Term	Definition	Reference
Bundled	Two or more Test Profiles are related together in a bundle and are given an order in which they are run.	This document
Dependency	The related Test Profile is dependent on the success or failure of another Test Profile. As an example if test 1 passes, then test 2 is performed. If test 1 fails, then test 2 is not performed.	This document
Exclusivity	The related Test Profile requires that it be paired with a second Test Profile.	This document
Migration	The related Test Profile is being migrated to replace the Test Profile.	This document
Service Function Testing	The verification of the operation or definition of the Service Under Test. Includes Service Activation and testing performed on in-service Services for maintenance purposes.	This document
Service Identifier	The unique identifier for a specific Service.	This document
Service Specification	The specification of a set of attributes that define a Service type. These are defined in MEF 100, Mplify 101, and Mplify 102.	This document
Test Job	A definition of SFT for a specific Service Identifier.	This document
Test Profile	Detailed specification that includes the Test Job attributes and Service Specifications that are specified to be tested by this Test Profile.	This document
Substitution	The related Test Profile is substituted for the Test Profile.	This document

168 **Table 1 – Terminology**

169

Abbreviation	Definition	Reference
IRP	Interface Reference Point	MEF 55.1 [3]
SFT	Service Function Testing	This document

170 **Table 2 – Abbreviations**

171 # 5 Compliance Levels

172 The key words "**MUST**", "**MUST NOT**", "**REQUIRED**", "**SHALL**", "**SHALL NOT**",
173 "**SHOULD**", "**SHOULD NOT**", "**RECOMMENDED**", "**NOT RECOMMENDED**", "**MAY**",
174 and "**OPTIONAL**" in this document are to be interpreted as described in BCP 14 (RFC 2119 [1],
175 RFC 8174 [2]) when, and only when, they appear in all capitals, as shown here. All key words
176 must be in bold text.

177 Items that are **REQUIRED** (contain the words **MUST** or **MUST NOT**) are labeled as **[Rx]** for
178 required. Items that are **RECOMMENDED** (contain the words **SHOULD** or **SHOULD NOT**)
179 are labeled as **[Dx]** for desirable. Items that are **OPTIONAL** (contain the words **MAY** or **OP-**
180 **TIONAL**) are labeled as **[Ox]** for optional.
181

182 6 Introduction

183 This document defines the Business Requirements and Use Cases for Service Function Testing
184 (SFT). Service Function Testing is defined as testing that is performed either as a part of service
185 verification, service activation, or service maintenance. The requirements and Use Cases are the
186 same for the Allegro Interface Reference Point (IRP), the Interlude IRP, and the Legato IRP. There
187 are no differences identified within this document between them. The requirements and Use Cases
188 within this document will be used to develop an API specification and Developer's Guide. Exam-
189 ples of Service Function Tests include continuity tests, bandwidth profile testing, and delay, vari-
190 ation, and loss testing.

191 The Use Cases that are addressed in this document are:

192 • Create, Modify, Delete Test Profile

193 • Retrieve Test Profile List

194 • Retrieve Test Profile by ID

195 • Create, Modify, Delete, Suspend, Resume, Cancel Test Job w/Test Profile

196 • Create, Modify, Delete, Suspend, Resume, Cancel Test Job w/o Test Profile

197 • Retrieve Test Job List

198 • Retrieve Test Job by ID

199 • Retrieve Test Result List

200 • Retrieve Test Result by Test Job ID

201 • Subscribe to Notifications

202 • Unsubscribe to Notifications

203 • Generate Notifications

204 Within this document the terms Buyer/Client are used to representing the requesting entity. The
205 terms Seller/Server are used to represent the responding entity.

7 Terminology Cross Reference

207 This document uses terminology primarily from previous work in Mplify. TMF653 [4] uses dif-
208 ferent terminology. To aid readers who are familiar with the previous work in either group, Table
209 3 provides a cross reference between the Mplify and TMF terms for the same thing.

210

TMF Term	Mplify Term
Service Test Specification	Test Profile
Service Test	Test Job
Test Measurement	Test Results

211 **Table 3 – Terminology Cross Reference**

212 # 8 Use Cases

213 The Use Cases addressed within this document are shown in Table 4. Each Use Case is further
214 detailed along with requirements associated with this Use Case.

215

Use Case Number	Use Case Name	Use Case Description	Reference Section
1	Create Test Profile	The Buyer/Client creates a Test Profile that contains details of the measurement(s) to be performed.	Section 8.1.1
2	Modify Test Profile	The Buyer/Client modifies a Test Profile that contains details of the measurement(s) to be performed.	Section 8.1.2
3	Delete Test Profile	The Buyer/Client deletes a Test Profile that contains details of the measurement(s) to be performed.	Section 8.1.3
4	Retrieve Test Profile List	The Buyer/Client retrieves a list of Test Profiles that meet specified filter criteria.	Section 8.1.5
5	Retrieve Test Profile by Identifier	The Buyer/Client retrieves a specific Test Profile using the Test Profile Identifier.	Section 8.1.6
6	Create Test Job w/Test Profile	The Buyer/Client creates a Test Job that specifies the service to be tested and references a Test Profile.	Section 8.2.1

Use Case Number	Use Case Name	Use Case Description	Reference Section
7	Create Test Job w/o Test Profile	The Buyer/Client creates a Test Job that specifies the service to be tested and does not reference a Test Profile. Instead, attributes contained in the Test Profile are included in the Test Job.	Section 8.2.2
8	Retrieve Test Result List	The Buyer/Client retrieve a list of Test Results that meet a specified filter.	
9	Retrieve Test Result by Test Result ID	The Buyer/Client retrieves the Test Results for a specific Test Result ID.	
10	Suspend Test Job	The Buyer/Client suspends an In-Progress Test Job with or without a Test Profile.	Section 8.2.3
11	Resume Test Job	The Buyer/Client resumes a Suspended Test Job with or without a Test Profile.	Section 8.2.6
12	Cancel Test Job	The Buyer/Client cancels a Suspended, In-Progress, or Scheduled Test Job with or without a Test Profile.	Section 8.2.7
13	Modify Test Job w/Test Profile	The Buyer/Client modifies a Test Job that specifies the service to be tested and references a Test Profile.	Section 8.2.8
14	Modify Test Job w/o Test Profile	The Buyer/Client modifies a Test Job that specifies the service to be tested and does not reference a Test Profile. Instead, the attributes contained in the Test Profile are contained in the Test Job.	Section 8.2.9
15	Retrieve Test Job List	The Buyer/Client retrieves a list of Test Job that meet specified filter criteria.	Section 8.2.10
16	Retrieve Test Job by Identifier	The Buyer/Client retrieves a specific Test Job using the Test Job Identifier.	Section 8.2.11
17	Subscribe to Notifications	The Buyer/Client subscribes to SFT notifications.	Section 8.3.1

Use Case Number	Use Case Name	Use Case Description	Reference Section
18	Unsubscribe to Notifications	The Buyer/Client unsubscribes to SFT notifications.	Section 8.3.2
19	Send Notification	The Seller/Server generates SFT Notifications.	Section 8.3.3
20	Retrieve Suspend Test Job List	Retrieves a list of Suspend Test Job requests by filter criteria	8.2.12
21	Retrieve Suspend Test Job by Identifier	Retrieves all details of a specified Suspend Test Job request	8.2.13
22	Retrieve Resume Test Job List	Retrieves a list of Resume Test Job requests by filter criteria	8.2.14
23	Retrieve Resume Test Job by Identifier	Retrieves all details of a specified Resume Test Job request	8.2.15
24	Retrieve Cancel Test Job List	Retrieves a list of Cancel Test Job requests by filter criteria	8.2.16
25	Retrieve Cancel Test Job by Identifier	Retrieves all details of a specified Cancel Test Job request	8.2.17
26	Retrieve Modify Test Job List	Retrieves a list of Modify Test Job requests by filter criteria	8.2.18
27	Retrieve Modify Test Job by Identifier	Retrieves all details of a specified Modify Test Job request	8.2.19

216   **Table 4 – Use Case Overview**

217   Note: there may be roles that exist to limit what processes a user can create, modify, cancel, and
218   delete. As an example, there might be a role that allows the creation of Test Profiles and a role
219   that cannot create Test Profiles but can retrieve them. The assignment of these roles is outside the
220   scope of this document.

221   ## 8.1   Test Profile

222   The Use Cases and associated requirements related to the Test Profile are defined in this section.

223   ### 8.1.1   Create Test Profile (Use Case 1)

224   1.   The Buyer/Client can request that the Seller/Server create a Test Profile.

225

Attribute Name	Description	Value	Comments
Test Profile Identifier	A unique, within the Seller/Server, identifier for the Test Profile.	String	Set by Seller
Description	Text description of the Test Profile.	String	Set by Buyer
Creation Date	Date the Test Profile is created.	Date/Time	Set by Seller
Is Bundled	Determines whether specification represents a single Test Profile (false), or a bundle of Test Profiles (true).	Boolean	Set by Buyer Always set to FALSE for atomic Test Profiles
Lifecycle Status	Used to indicate the current Lifecycle Status of this Test Profile.	One of: Experimental Pending Approved Deprecated	Set by Buyer
Test Profile Lifecycle State		ASSIGNED AVAILABLE	
Test Profile Assigned	Indicates if the Test Profile is assigned to a Test Job	Boolean	Set by Seller
Test Profile Name	The name of the Test Profile.	String	Set by Buyer
Valid For	The last date that the Test Profile is valid	Date/Time	Set by Buyer
Last Update	Last time the Test Profile was modified by the Buyer.	Date/Time	Set by Seller
Test Profile Relationship	A list of Related Test Profiles.	See Table 6	Set by Buyer
Service Specific Test Profile Configuration	Service specific attributes that define how a test is performed for a given Test Specification.	Under Study	Set by Buyer
Related Service Offering	Relationship Service Offering Identifier.	String	Set by Buyer

| Related Contact Information | Parties who manage or have an interest in this Test Profile. | See Table 7 | Set by Buyer |

<div align="center">

Table 5 – Test Profile Attributes

</div>

227 Note: Lifecycle Status is used by the Buyer/Client to define who can access the Test Profile. As
228 an example, a Test Profile with a Lifecycle Status of Experimental may only be able to be specified
229 in a Test Job by a specific set of Users. This could be limited by the role that the User is assigned.
230 All users who can create a Test Job may be able to assign Test Profiles with a Lifecycle Status of
231 Approved. A Test Profile with a Lifecycle Status of Pending may be limited to some subset of all
232 users.

233

Attribute Name	Description	Value	Comments
Related Service Specification Identifier	The Identifier of the related Service Specification that this Test Profile can be used to test.	String	Set by Buyer
Test Profile Relationship Identifier	The unique identifier for a related Test Profile.	String	Set by Buyer
Test Profile Relationship Name	The unique name for a related Test Profile.	String	Set by Buyer
Related Test Profile Role	The role for this relationship.	One of: Primary Secondary	Set by Buyer
Test Profile Relationship Order	The order which the related Test Jobs are run during a Test Job.	Numeric	Set by Buyer
Test Profile Relationship Valid For	The last date that the Test Profile is valid	Date/Time	Set by Buyer

<div align="center">

Table 6 – Test Profile Relationship Attributes

</div>

235 Note: the Related Test Profile Role determines of the specified Test Profile is the first in the order
236 of sequence or secondary in the order of sequence.   The Test Profile Relationship Order specifies
237 the order in which different Test Profiles are used to perform Test Jobs.

238

Attribute	Description	Type
Contact Name	The person or organization to be contacted.	String
Contact Phone Number	The telephone number for this contact.	String

Attribute	Description	Type
Contact Phone Number Extension	The telephone number extension for this contact.	String
Contact Email Address	The email address for this contact.	String
Contact Postal Address	The postal address if the contact.	Installation Place Fielded Address Representation
Contact Organization	The organization of the contact	String

239

Table 7 – Contact Attributes

240
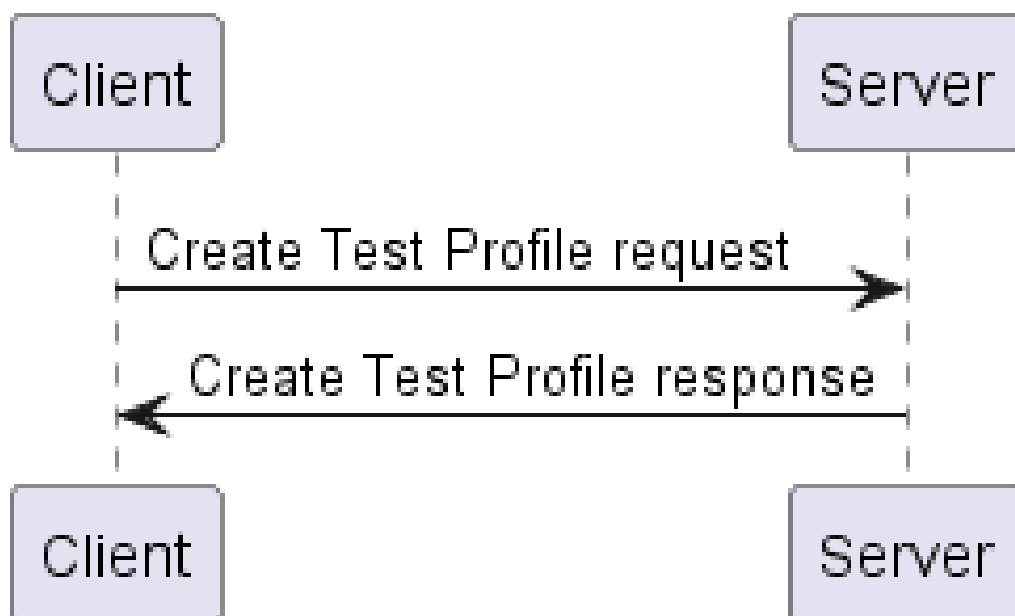
Figure 1 – High Level Create Test Profile Sequence Diagram

241

242

243 **[R1]**   The Buyer/Client Create Test Profile request **MUST** include the following at-
244   tributes and any test specific attributes:

245   • Test Profile Name

246   • Valid For

247   • Lifecycle Status

248
249

[O1] The Buyer/Client's Create Test Profile request **MAY** include any other attributes shown as Set by Buyer/Client in Table 5.

250

2. The Seller/Server responds to the Buyer/Client's request.

251
252

[R2] If the request is successful, the Seller's response to a Create Test Profile request **MUST** echo back all Buyer/Client provided attributes.

253
254

[R3] If the request is successful, the Seller's response to a Create Test Profile request **MUST** include the following attributes:

255

- Test Profile Identifier

256

- Creation Date

257

- Last Modify Date

258

- Test Profile State

259

- Test Profile Assigned

260

[R4] The Last Modify Date **MUST** be the same as the Creation Date.

261
262

[R5] If the request is not successful, the Seller/Server **MUST NOT** echo back all Buyer/Client provided attributes.

263
264
265

[R6] If the request is not successful, the Seller/Server **MUST NOT** return a Test Profile Identifier, Creation Date, Profile State, Test Profile Assigned, or Last Modify Date.

266
267

[R7] If the Seller/Server encounters errors, they **MUST** return an error with explanation to the Buyer/Client.

268

8.1.2 Modify Test Profile (Use Case 2)

269

1. The Buyer/Client can request modifications to an existing Test Profile.

270
271

[R8] The Buyer's Modify Test Profile request **MUST** include the following attributes:

272

- Test Profile Identifier

273

- At least one other attribute from shown as Set by Buyer/Client in Table 5.

274
275

[O2] The Buyer's Modify Test Profile request **MAY** include any other attributes shown as Set by Buyer/Client in Table 5.

276

2. The Seller/Server responds to the Buyer's request in a synchronous manner.

277   **[R9]**   The Seller's response to a Modify Test Profile request **MUST** return all Test
278   Profile attributes.

279   **[R10]**   The Last Modify Date **MUST** be set to the current date and time by the Seller.

280   **[R11]**   If the Seller/Server encounters errors, they **MUST** return an error with expla-
281   nation to the Buyer/Client.

282 Note: A Test Profile where Test Profile Assigned = TRUE cannot be modified. A Test Profile
283 that is dependent on another Test Profile cannot be modified.

8.1.3   Delete Test Profile (Use Case 3)

285   1. The Buyer/Client can delete a Test Profile.

286   **[R12]**   The Buyer's Delete Test Profile request **MUST** contain the Test Profile Iden-
287   tifier.

288   **[R13]**   The Buyer's Delete Test Profile request **MUST NOT** contain any other attrib-
289   utes.

290 Note: A Test Profile where Test Profile Assigned = TRUE cannot be deleted. A Test Profile that
291 is dependent on another Test Profile cannot be deleted.

292   2. The Seller/Server responds to the Buyer's request.

293   **[R14]**   If the Seller/Server encounters errors, they **MUST** return an error with expla-
294   nation to the Buyer/Client.

8.1.4   Test Profile Dependency

296 Making a Test Profile dependent on another Test Profile or Bundled Test Profile allows the
297 Buyer/Client to configure one Test Profile to need to complete successfully before another Test
298 Profile or Bundled Test Profile is started. If the previous Test Profile does not complete success-
299 fully, the next Test Profile is not started. If Bundled Test Profiles are used, a Bundled Test Profile
300 can be configured to need to complete successfully before another Bundled Test Profile or Test
301 Profile can be started.

302
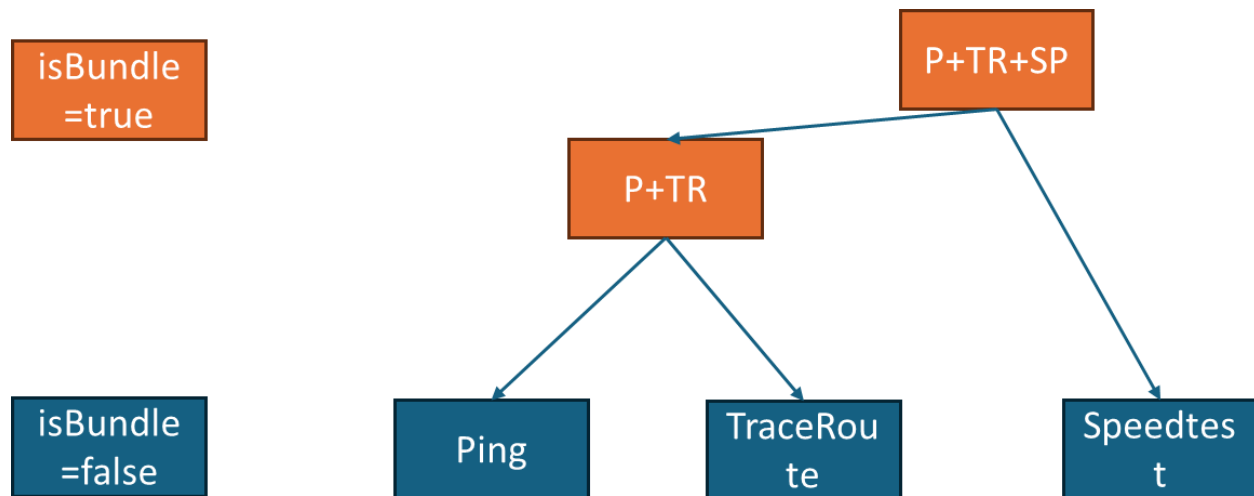
Figure 2 – Test Profile Dependency

304 Figure 2 shows the atomic Test Profiles in blue. Each of these is created as a separate Test Profile.
305 Bundles, shown in orange, are created. The first bundles the Ping and Traceroute Test Profiles.
306 The second bundle adds the Speedtest to that bundle to create a new bundle.

307   1. The Buyer/Client can create a dependency between two or more Test Profiles/Bundled
308   Test Profiles.

309   **[R15]**   The Buyer's Modify Test Profile/Bundled Test Profile **MUST** include the fol-
310   lowing:

311   • Test Profile Relationship Identifier or Bundled Test Profile Relationship
312   Identifier

313   **[O3]**   If the Test Profile Relationship is changing, the Buyer's Modify Test Pro-
314   file/Bundled Test Profile **MAY** include at least one of the following as appli-
315   cable to the changes:

316   • Test Profile Relationship with the following settings

317   • Related Service Specification Identifier

318   • Test Profile Relationship Identifier

319   • Test Profile Relationship Name

320   • Test Profile Relationship Type

321   • Test Profile Relationship Role

322   • Test Profile Relationship Order

323   • Test Profile Relationship Valid For

Mplify W136.1
Draft (R2)

324 ### 8.1.5 Retrieve Test Profile List (Use Case 4)

325   1. The Buyer/Client can retrieve a list of Test Profiles.

326   **[O4]**   The Buyer's Retrieve Test Profile List request **MAY** contain none or more of
327   the following attributes:

328   • Creation Date $(<, >)$

329   • Last Update $(<, >)$

330   • Related Service Specification Identifier

331   2. The Seller/Server responds to the Buyer's request.

332   **[R16]**   If the request is successful, the Seller/Server **MUST** reply with all attributes in
333   Table 5 to the Buyer/Client.

334   **[R17]**   If the request is successful but the Seller/Server finds no entries that match the
335   filter criteria, they **MUST** return an empty list.

336   **[R18]**   If the request is unsuccessful, the Seller/Server **MUST NOT** echo back the
337   criteria provided by the Buyer/Client.

338   **[R19]**   If the request is unsuccessful, the Seller/Server **MUST** return an error with ex-
339   planation to the Buyer/Client.

340 ### 8.1.6 Retrieve Test Profile by Identifier (Use Case 5)

341   1. The Buyer/Client can retrieve a Test Profile by Test Profile Identifier.

342   **[R20]**   The Buyer's Retrieve Test Profile by Test Profile Identifier **MUST** include the
343   Test Profile Identifier.

344   **[R21]**   The Buyer's Retrieve Test Profile by Test Profile identifier request **MUST**
345   **NOT** include other attributes.

346   2. The Seller/Server responds to the Buyer's request.

347   **[R22]**   If the request is successful, the Seller's response to a Retrieve Test Profile by
348   Test Profile Identifier request **MUST** include all attributes as defined in Table
349   5.

350   **[R23]**   If the request is unsuccessful, the Seller/Server **MUST** return an error with ex-
351   planation to the Buyer/Client.

352 ## 8.2 Test Job

353 The Use Cases and associated requirements related to the Test Job are defined in this section.

354   ## 8.2.1   Create Test Job w/Test Profile (Use Case 6)

355   1.   The Buyer/Client is able to request that the Seller/Server create a Test Job.

356   **[R24]**   The Buyer's Create Test Job request **MUST** provide the following attributes:

357   • Test Job Name

358   • End Date Time

359   • Valid For

360   • Test Profile Identifier

361   • Service ID From

362   • Service ID To

363   • Test Specific Attributes

364

Attribute Name	Description	Value	Comments
Test Job Identifier	The identifier of the Test Job.	String	Set by Seller
Test Job Name	The name of the Test Job.	String	Set by Buyer
Test Job Description	A description of the Test Job.	String	Set by Buyer
Start Date Time	The start date and time of the Test Job.	Date/Time	Set by Buyer If the Buyer desires to schedule a test, this is a future date/time. If the Buyer desires an immediate test, this is empty.
Actual Start Date Time	The actual time that a Test Job started.	Date/Time	Set by Seller/Server
End Date Time	The end date and time of the Test Job.	Date/Time	Set by Buyer
Actual End Date Time	The Actual end date and	Date/Time	Set by Seller/Server

Attribute Name	Description	Value	Comments
	time of the Test Job.		
Recurrence Period	The Date/Time that the Test Job is repeater.	One of: • None • Hourly • Daily • Weekly • Monthly	Set by Buyer/Client
Valid For	The last date that the Test Job is valid	Date/Time	Set by Buyer
Test Profile Identifier	The identifier of the Test Profile.	String	Set by Buyer
Service ID From	The attributes for a related service From side	See Table 9	
Service ID To	The attributes for a related service To side	See Table 9	
Service Specific Test Job Configuration	The schema to be used that defines the specific Test Measure attributes.	String	Set by Buyer

Table 8 – Test Job Attributes

Attribute Name	Description	Value	Comments
Related Service Identifier	The Service Identifier for the service to be tested.	String	Set by Buyer
Related Service Name	The name of the service to be tested.	String	Set by Buyer

Table 9 – Related Service Test Job Attributes

[R25] If the Test Job Valid For Date/Time is reached while in IN_PROGRESS, SUSPENED, ASSESSING_MODIFICATION state, the Seller/Server **MUST** complete the currently running Test Job.

370 **[R26]** If the Valid For Date/Time is reached while SCHEDULED, the Seller/Server
371 **MUST** cancel the Test Job.

372 2. The Seller responds to the Buyer's request.

373 **[R27]** If the request is successful, the Seller's response to a Create Test Job request
374 **MUST** echo back all Buyer/Client provided attributes.

375 **[R28]** If the request is successful, the Seller **MUST** return the following attributes:

376 • Test Job Identifier

377 • Test Job State

378 **[R29]** If the request is not successful, the Seller/Server **MUST NOT** echo back all
379 Buyer/Client provided attributes.

380 **[R30]** If the request is not successful, the Seller/Server **MUST NOT** return a Test Job
381 Identifier or Test Job State.

382 **[R31]** If the Seller/Server encounters errors, they **MUST** return an error with expla-
383 nation to the Buyer/Client

8.2.2 Create Test Job w/o Test Profile (Use Case 7)

385 1. The Buyer/Client is able to request that the Seller/Server create a Test Job without refer-
386 encing a Test Profile.

387 **[R32]** The Buyer's Create Test Job request **MUST** contain the following attributes:

388 • Test Job Name

389 • End Date Time

390 • Valid For

391 • Service ID From

392 • Service ID To

393 • Test Specific Attributes

394 • Service Specific Test Profile Attributes (Test Profile related) see Table 5

395 • Related Service Specification (Test Profile related) see Table 6

396 • Related Contact Information (Test Profile related) see Table 7

397

Attribute Name	Description	Value	Comments
Test Job Identifier	The identifier of the Test Job.	String	Set by Seller
Test Job Name	The name of the Test Job.	String	Set by Buyer
Test Job Description	A description of the Test Job.	String	Set by Buyer
Start Date Time	The start date and time of the Test Job.	Date/Time	Set by Buyer If the Buyer desires to schedule a test, this is a future date/time. If the Buyer desires an immediate test, this is empty.
Actual Start Date Time	The actual time that a Test Job started.	Date/Time	Set by Seller/Server
End Date Time	The end date and time of the Test Job.	Date/Time	Set by Buyer
Actual End Date Time	The Actual end date and time of the Test Job.	Date/Time	Set by Seller/Server
Valid For	The last date that the Test Profile is valid	Date/Time	Set by Buyer
Recurrence Period	The Date/Time that the Test Job is re-peater.	One of: • None • Hourly • Daily • Weekly • Monthly	Set by Buyer/Client
Service ID From	The attributes for a related service From side	See Table 11	
Service ID To	The attributes for a related service To side	See Table 11	
Test Job State	The state of the Test Job	One of: ACKNOWL-EDGED AS-SESSING_MODI-FICATION CANCELLED	Set by Seller

Attribute Name	Description	Value	Comments
		COMPLETED IN_PROGRESS REJECTED SCHEDULED SUSPEND	
Service Specific Test Job Configuration	The schema to be used that defines the Test Measure attributes.	String	Set by Buyer

Table 10 – Seller Test Job Attributes

Attribute Name	Description	Value	Comments
Related Service Identifier	The Service Identifier for the service to be tested.	String	Set by Buyer
Related Service Name	The name of the service to be tested.	String	Set by Buyer

Table 11 – Seller Related Service Test Job Attributes

2. The Seller responds to the Buyer's request.

[R33] If the request is successful, the Seller's response to a Create Test Job request **MUST** echo back all Buyer/Client provided attributes.

[R34] If the request is successful, the Seller **MUST** return the following attributes:

- Test Job Identifier

- Test Job State

[R35] If the request is not successful, the Seller/Server **MUST NOT** echo back all Buyer/Client provided attributes.

[R36] If the request is not successful, the Seller/Server **MUST NOT** return a Test Job Identifier or Test Job State.

[R37] If the Seller/Server encounters errors, they **MUST** return an error with explanation to the Buyer/Client

8.2.3 Retrieve Test Result List (Use Case 8)

The Buyer/Client retrieve a list of Test Results that meet a specified filter.

415   1. The Buyer submits a Retrieve Test Result List request.

416   **[O5]**   The Buyer's Retrieve Test Result List request **MAY** contain none or more of
417   the following attributes:

418   • Test Job Identifier

419   • Start Date Time

420   • End Date Time

421   • Service ID From

422   • Service ID To

423   • Related Service Specification Identifier (Test Profile related) see Table 6

424   • Related Contact Information Name (Test Profile related) see Table 7

425

Attribute Name	Description	Value	Comments
Test Job Identifier	The identifier of the Test Job.	String	Set by Buyer
Start Date Time	The start date and time of the Test Result for a given Test Job.	Date/Time	Set by Buyer
End Date Time	The end date and time of the Test Result for a given Test Job.	Date/Time	Set by Buyer
Service ID From	The From identifier for a related service	See Table 11	
Service ID To	The To identifier for a related service	See Table 11	
Related Service Specification Identifier	The identifier of the related service specification	String	Set by Buyer
Related Contact Information Name	The contact for a Test Job	String	Set by Buyer

426   **Table 12 – Retrieve Test Result List Attributes**

427   If the test only has a single end point, the Service ID From is used to reflect the end point.

428   2. The Seller/Server responds to the Buyer/Client's request with a success message
429   and a list of Test Result Identifiers for Test Jobs that match the filter criteria.

430

Attribute Name	Description	Value	Comments
Test Result Identifier	The identifier of the Test Results.	String	Set by Buyer
Test Job Identifier	The identifier of the Test Job	String	Set by Buyer
Actual Start Date Time	The actual start date and time of the Test Result for a given Test Job.	Date/Time	Set by Buyer
Actual End Date Time	The actual end date and time of the Test Result for a given Test Job.	Date/Time	Set by Buyer
Related Service	The attributes for a related service	See Table 11	

Table 13 – Retrieve Test Result List Response Attributes

[R38] If the request is successful, the Seller/Server **MUST** provide a list of Test Results that match the filter criteria as shown in Table 13.

[R39] If the request is not successful, the Seller/Server **MUST NOT** provide a list of Test Results.

8.2.4 Retrieve Test Result by Test Result Identifier (Use Case 9)

The Buyer/Client retrieves the Test Results for a specific Test Result for a given Test Job.

1. The Buyer/Client initiates a Retrieve Test Results by Test Result Identifier request.

Attribute Name	Description	Value	Comments
Test Result Identifier	The identifier of the Test Result.	String	Set by Buyer

Table 14 – Retrieve Test Result by Test Result Identifier Request Attributes

[R40] The Buyer/Client Retrieve Test Results by Test Result Identifier request **MUST** contain the attributes shown in Table 14.

2. The Seller/Server responds to the Buyer/Client's request with a success message/code and returns the Test Results for a given Test Job.

Attribute Name	Description	Value	Comments
Test Result Identifier	The identifier of the Test Result	String	Set by Seller
Test Job Identifier	The identifier of the Test Job.	String	Set by Buyer
Actual Start Date Time	The actual time that a Test Job started.	Date/Time	Set by Seller/Server
Actual End Date Time	The Actual end date and time of the Test Job.	Date/Time	Set by Seller/Server
Service ID From	The attributes for a related service From side	See Table 11	
Service ID To	The attributes for a related service To side	See Table 11	
Service Specific Test Job Report	The schema to be used that defines the Test Result attributes.	String	Set by Seller

446   **Table 15 – Retrieve Test Result by Test Result Identifier Response Attributes**

447   **[R41]**   If the response is successful, the Seller/Server response **MUST** include all the
448   attributes shown in Table 15.

449   **[R42]**   If the response is not successful, the Seller/Server **MUST NOT** include any of
450   the attributes shown in Table 15 in their response.

451   ### 8.2.5 Suspend Test Job (Use Case 10)

452   1. The Buyer/Client submits a Suspend Test Job request to suspend an existing Test
453   Job.

454   **[R43]**   The Buyer/Client's Suspend Test Job request **MUST** include the Test Job Iden-
455   tifier.

456   **[R44]**   The Test Job **MUST** be in the IN_PROGRESS state.

457   Note: Test Jobs in the SCHEDULED state cannot be suspended.

458   2. The Seller/Server responds to the Buyer/Client's request with a success message/code
459   and changes the state of the Test Job to SUSPENDED.

460

Attribute Name	Description	Value	Comments
Suspend Test Job Identifier	The identifier of the Suspend Test Job	String	Set by Seller

Attribute Name	Description	Value	Comments
Test Job Identifier	The identifier of the Test Job.	String	Set by Seller
Suspend Test Job State	The state of the Test Job	One of: ACCEPTED ACKNOWL-EDGED DECLINED REJECTED	

461 **Table 16 – Seller Suspend Test Job Attributes**

462
463 **[R45]** If the request is successful, the Seller/Server **MUST** return a response that includes the attributes shown in Table 16.

464
465
466
467 **[R46]** If the request is successful, the Seller/Server **MUST** suspend all testing and measurements being performed on the Test Job and place the Test Job in the SUSPENDED state when they receive a Suspend Test Job request from the Buyer/Client.

468
469 **[R47]** While in the SUSPENDED state, the Test Job **MUST NOT** perform any testing or measurements.

470
471 **[R48]** If the request is not successful, the Seller/Server **MUST NOT** suspend the Test Job.

472
473 **[R49]** If the Seller/Server encounters errors, they **MUST** return an error with explanation to the Buyer/Client

474   3. The Test Job tests and measurements are suspended.

475 ## 8.2.6 Resume Test Job (Use Case 11)

476   1. The Buyer/Client submits a Resume Test Job request to resume an existing Test Job.

477
478 **[R50]** The Buyer/Client's Resume Test Job request **MUST** include the Test Job Identifier.

479 **[R51]** The Test Job **MUST** be in the SUSPENDED state.

480
481   2. The Seller/Server responds to the Buyer/Client's request with a success message/code and changes the state of the Test Job to IN_PROGRESS.

482

Attribute Name	Description	Value	Comments
Resume Test Job Identifier	The identifier of the Resume Test Job	String	Set by Seller

Page 24

Attribute Name	Description	Value	Comments
Test Job Identifier	The identifier of the Test Job.	String	Set by Seller
Resume Test Job State	The state of the Test Job	One of: ACCEPTED ACKNOWL-EDGED DECLINED REJECTED	

<div align="center">

Table 17 – Seller Resume Test Job Attributes

</div>

Note: If the Valid Until Date/Time has expired while the Test Job is in the SUSPENDED state, the Test Job should be allowed to resume. It can then be cancelled by the Buyer/Client if desired.

  [R52] If the request is successful, the Seller/Server **MUST** return a response that includes the attributes shown in Table 17.

  [R53] If the request is successful, the Seller/Server **MUST** resume all testing and measurement being performed on the Test Job and place the Test Job in the IN_PROGRESS state when they receive a Resume Test Job request from the Buyer/Client.

  [R54] If the request is not successful, the Seller/Server **MUST NOT** resume the Test Job, and the Test Job remains in the SUSPENDED state.

  [R55] If the Seller/Server encounters errors, they **MUST** return an error with explanation to the Buyer/Client

  3. The Test Job tests and measurements are resumed.

8.2.7   Cancel Test Job (Use Case 12)

 1. The Buyer/Client is able to request cancellation to an existing Test Job.

  [R56] The Buyer's/Client's Cancel Test Job request **MUST** include the Test Job Identifier.

  [R57] The Test Job **MUST** be in the SUSPENDED, IN_PROGRESS, or SCHEDULED state for a Buyer/Client to cancel it.

 2. The Seller/Server responds to the Buyer's request.

Attribute Name	Description	Value	Comments
Cancel Test Job Identifier	The identifier of the Resume Test Job	String	Set by Seller

Attribute Name	Description	Value	Comments
Test Job Identifier	The identifier of the Test Job.	String	Set by Seller
Cancel Test Job State	The state of the Cancel Test Job	One of: ACCEPTED ACKNOWL-EDGED DECLINED REJECTED	

Table 18 – Seller Cancel Test Job Attributes

[R58] If the request is successful, the Seller/Server **MUST** return a response that includes the attributes shown in Table 18.

[R59] The Seller's response to a Cancel Test Job request **MUST** echo back Buyer/Client provided attributes.

[R60] The Seller's response to a Cancel Test Job request **MUST** include the attributes in Table 8.

[R61] If the request is successful, the Seller/Server **MUST** cancel all testing and measurement being performed on the Test Job and place the Test Job in the CANCELLED state.

[R62] If the request is not successful, the Seller/Server **MUST NOT** cancel the Test Job, and the Test Job remains in its previous state (SUSPENDED, IN_PRO-GRESS, or SCHEDULED).

[R63] If the Seller/Server encounters errors, they **MUST** return an error with explanation to the Buyer/Client

3. The Seller/Server modifies the Test Job as requested.

8.2.8 Modify Test Job (Use Case 13)

1. The Buyer/Client is able to request modifications to an existing Test Job.

[R64] The Buyer's Modify Test Job request **MUST** include the Test Job Identifier.

[R65] The Buyer's Modify Test Job request **MUST** contain at least one of the following attributes:

- Test Job Description

- Test Job End Date/Time

- Test Job Name

529   •   Test Job Start Date/Time

530   •   Service ID From

531   •   Service ID To

532   •   Test Profile Identifier

533   •   Test Attribute Schema

534   **[R66]**   The Test Job **MUST** be in the SUSPENDED or SCHEDULED state for a
535   Buyer/Client to modify it.

536 The Modify Test Job can be used to change the Test Profile Identifier in the event that a Test Job
537 needs to perform an additional test. The Modify Test Job process cannot be used to change a Test
538 Job created without a Test Profile to a Test Job with a Test Profile.

539   2.   The Seller/Server responds to the Buyer's request.

540

Attribute Name	Description	Value	Comments
Modify Test Job Identifier	The identifier of the Modify Test Job.	String	Set by Seller
Test Job Identifier	The identifier of the Test Job.	String	Set by Buyer
Test Job Name	The name of the Test Job.	String	Set by Buyer
Test Job Description	A description of the Test Job.	String	Set by Buyer
Start Date Time	The start date and time of the Test Job.	Date/Time	Set by Buyer If the Buyer desires to schedule a test, this is a future date/time. If the Buyer desires an immediate test, this is empty.
Actual Start Date Time	The actual time that a Test Job started.	Date/Time	Set by Seller/Server
End Date Time	The end date and time of the Test Job.	Date/Time	Set by Buyer

Attribute Name	Description	Value	Comments
Actual End Date Time	The Actual end date and time of the Test Job.	Date/Time	Set by Seller/Server
Test Profile Identifier	The identifier of the Test Profile.	String	Set by Buyer
Service ID From	The attributes for a related service From side	See Table 9	
Service ID To	The attributes for a related service To side	See Table 9	
Test Specific Configuration	The schema to be used that defines the specific Test Measure attributes.	String	Set by Buyer
Modify Test Job State	The state of the Modify Test Job	One of: ACCEPTED ACKNOWLEDGED DECLINED REJECTED	

Table 19 – Modify Test Job Attributes

541

542 **[R67]** If the request is successful, the Seller/Server **MUST** return a response that in-
543 cludes the attributes shown in Table 19.

544 **[R68]** If the request is not successful, the Seller/Server **MUST NOT** echo back all
545 Buyer/Client provided attributes.

546 **[R69]** If the Seller/Server encounters errors, they **MUST** return an error with expla-
547 nation to the Buyer/Client.

548 3. The Seller/Server modifies the Test Job as requested.

8.2.9   Modify Test Job w/o Test Specification (Use Case 14)

550 1. The Buyer/Client is able to request modifications to an existing Test Job.

551 **[R70]** The Buyer's Modify Test Job request **MUST** include the Test Job Identifier.

552
553

[R71]   The Buyer's Modify Test Job request **MUST** contain at least one of the following attributes:

554
- Test Job Name

555
- Start Date Time

556
- End Date Time

557
- Valid For

558
- Service ID From

559
- Service ID To

560
- Test Attribute Schema

561
- Service Specific Test Profile Attributes (Test Profile related) see Table 5

562
- Related Service Specification (Test Profile related) see Table 6

563
- Related Contact Information (Test Profile related) see Table 7

564
565

[R72]   The Test Job **MUST** be in the SUSPENDED or SCHEDULED state for a Buyer/Client to modify it.

566
2. The Seller/Server responds to the Buyer's request.

567

Attribute Name	Description	Value	Comments
Modify Test Job Identifier	The identifier of the Test Job.	String	Set by Seller
Test Job Identifier	The identifier of the Test Job.	String	Set by Buyer
Test Job Name	The name of the Test Job.	String	Set by Buyer

Attribute Name	Description	Value	Comments
Start Date Time	The start date and time of the Test Job.	Date/Time	Set by Buyer If the Buyer desires to schedule a test, this is a future date/time. If the Buyer desires an immediate test, this is empty.
Actual Start Date Time	The actual time that a Test Job started.	Date/Time	Set by Seller/Server
End Date Time	The end date and time of the Test Job.	Date/Time	Set by Buyer
Actual End Date Time	The Actual end date and time of the Test Job.	Date/Time	Set by Seller/Server
Valid For	The last date that the Test Profile is valid	Date/Time	Set by Buyer
Service ID From	The attributes for a related service From side	See Table 11	
Service ID To	The attributes for a related service To side	See Table 11	
Modify Test Job State	The state of the Modify Test Job	One of: ACCEPTED ACKNOWL- EDGED DECLINED REJECTED	
Test Specific Con-figuration	The schema to be used that defines the Test Measure attributes.	String	Set by Buyer

568 **Table 20 – Modify Test Job W/O Test Profile Attributes**

569 **[R73]** The Seller's response to a Modify Test Job request **MUST** echo back
570 Buyer/Client provided attributes.

571 **[R74]** The Seller's response to a Modify Test Job request **MUST** include the attrib-
572 utes in Table 20.

573 **[R75]**   If the request is not successful, the Seller/Server **MUST NOT** echo back all
574   Buyer/Client provided attributes.

575 **[R76]**   If the request is not successful, the Seller/Server **MUST NOT** return a Test Job
576   Identifier or Test Job State.

577 **[R77]**   If the Seller/Server encounters errors, they **MUST** return an error with expla-
578   nation to the Buyer/Client.

579 3. The Seller/Server modifies the Test Job as requested.

580 Note: A Modify Test Job request cannot be used to modify the Test Profile of a test that is SUS-
581 PENDED or SCHEDULED. To accomplish this, the Test Job must be deleted, and a new Test
582 Job created.

8.2.10   Retrieve Test Job List (Use Case 15)

584 1. The Buyer/Client submits a Retrieve Test Job List request using none or more of
585   the filter criteria.

586 **[R78]**   The Buyer/Client's Retrieve Test Job List request **MUST** contain none or more
587   of the following filter criteria:

588   • Service ID From

589   • Service ID To

590   • Start Date Time ($<$, $>$)

591   • End Date Time ($<$, $>$)

592   • Test Profile Identifier

593   • Test Job Name

594 2. The Seller/Server returns a response to the Buyer.

595 **[R79]**   If successful, the Seller/Server **MUST** return a list of Test Job Identifiers that
596   match the selected filter criteria along with all filter criteria attributes.

597 **[R80]**   If successful but no matches to the filter criteria are found, the Seller/Server
598   **MUST** return an empty list.

599 **[R81]**   If unsuccessful, the Seller/Server **MUST NOT** return a list of Test Job Identi-
600   fiers or an empty list.

601 **[R82]**   If unsuccessful, the Seller/Server **MUST** return an indication of the errors.

602 3. The Buyer has a list of the Test Job Identifiers that match the filter criteria.

603 ### 8.2.11 Retrieve Test Job by Identifier (Use Case 16)

604
605
    1. The Buyer/Client submits a Retrieve Test Job by Identifier request that includes the Test Job Identifier.

606
607
[R83]   The Buyer/Client's Retrieve Test Job by Identifier request **MUST** include the Test Job Identifier and only the Test Job Identifier.

608
    2. The Seller/Server responds to the Retrieve Test Job by Identifier request.

609
610
[R84]   If successful, the Seller/Server **MUST** include all attributes shown in Table 8 in their response.

611
612
[R85]   If unsuccessful, the Seller/Server **MUST NOT** return any attributes in their response.

613
614
[R86]   If unsuccessful, the Seller/Server **MUST** return an indication of the errors encountered.

615
    3. The Buyer/Client has all details of a Test Job.

616 ### 8.2.12 Retrieve Suspend Test Job List (Use Case 20)

617
618
    1. The Buyer/Client submits a Retrieve Suspend Test Job List request using none or more of the filter criteria.

619
620
[R87]   The Buyer/Client's Retrieve Suspend Test Job List request **MUST** contain none or more of the following filter criteria:

621
    • Start Date Time (<, >)

622
    • End Date Time (<, >)

623
    • Test Job Identifier

624
    2. The Seller/Server returns a response to the Buyer.

625
626
[R88]   If successful, the Seller/Server **MUST** return a list of Suspend Test Job Identifiers that match the selected filter criteria along with all filter criteria attributes.

627
628
[R89]   If successful but no matches to the filter criteria are found, the Seller/Server **MUST** return an empty list.

629
630
[R90]   If unsuccessful, the Seller/Server **MUST NOT** return a list of Suspend Test Job Identifiers or an empty list.

631
[R91]   If unsuccessful, the Seller/Server **MUST** return an indication of the errors.

632
633
    3. The Buyer has a list of the Suspend Test Job Identifiers that match the filter criteria.

8.2.13   Retrieve Suspend Test Job by Identifier (Use Case 21)

634

635   1. The Buyer/Client submits a Retrieve Suspend Test Job by Identifier request that
636   includes the Suspend Test Job Identifier.

637   **[R92]**   The Buyer/Client's Retrieve Suspend Test Job by Identifier request **MUST** in-
638   clude the Suspend Test Job Identifier and only the Suspend Test Job Identifier.

639   2. The Seller/Server responds to the Retrieve Suspend Test Job by Identifier request.

640   **[R93]**   If successful, the Seller/Server **MUST** include all attributes shown in Table 16
641   in their response.

642   **[R94]**   If unsuccessful, the Seller/Server **MUST NOT** return any attributes in their
643   response.

644   **[R95]**   If unsuccessful, the Seller/Server **MUST** return an indication of the errors en-
645   countered.

646   3. The Buyer/Client has all details of a Suspend Test Job.

8.2.14   Retrieve Resume Test Job List (Use Case 22)

647

648   1. The Buyer/Client submits a Retrieve Suspend Test Job List request using none or
649   more of the filter criteria.

650   **[R96]**   The Buyer/Client's Retrieve Resume Test Job List request **MUST** contain none
651   or more of the following filter criteria:

652   • Start Date Time (<, >)

653   • End Date Time (<, >)

654   • Test Job Identifier

655   2. The Seller/Server returns a response to the Buyer.

656   **[R97]**   If successful, the Seller/Server **MUST** return a list of Resume Test Job Identi-
657   fiers that match the selected filter criteria along with all filter criteria attributes.

658   **[R98]**   If successful but no matches to the filter criteria are found, the Seller/Server
659   **MUST** return an empty list.

660   **[R99]**   If unsuccessful, the Seller/Server **MUST NOT** return a list of Resume Test Job
661   Identifiers or an empty list.

662   **[R100]**   If unsuccessful, the Seller/Server **MUST** return an indication of the errors.

663   3. The Buyer has a list of the Resume Test Job Identifiers that match the filter criteria.

8.2.15 Retrieve Resume Test Job by Identifier (Use Case 23)

1. The Buyer/Client submits a Retrieve Resume Test Job by Identifier request that includes the Resume Test Job Identifier.

[R101] The Buyer/Client's Retrieve Resume Test Job by Identifier request **MUST** include the Resume Test Job Identifier and only the Resume Test Job Identifier.

2. The Seller/Server responds to the Retrieve Resume Test Job by Identifier request.

[R102] If successful, the Seller/Server **MUST** include all attributes shown in Table 17 in their response.

[R103] If unsuccessful, the Seller/Server **MUST NOT** return any attributes in their response.

[R104] If unsuccessful, the Seller/Server **MUST** return an indication of the errors encountered.

3. The Buyer/Client has all details of a Resume Test Job.

8.2.16 Retrieve Cancel Test Job List (Use Case 24)

1. The Buyer/Client submits a Retrieve Cancel Test Job List request using none or more of the filter criteria.

[R105] The Buyer/Client's Retrieve Cancel Test Job List request **MUST** contain none or more of the following filter criteria:

- Start Date Time $(<, >)$

- End Date Time $(<, >)$

- Test Job Identifier

2. The Seller/Server returns a response to the Buyer.

[R106] If successful, the Seller/Server **MUST** return a list of Cancel Test Job Identifiers that match the selected filter criteria along with all filter criteria attributes.

[R107] If successful but no matches to the filter criteria are found, the Seller/Server **MUST** return an empty list.

[R108] If unsuccessful, the Seller/Server **MUST NOT** return a list of Cancel Test Job Identifiers or an empty list.

[R109] If unsuccessful, the Seller/Server **MUST** return an indication of the errors.

3. The Buyer has a list of the Cancel Test Job Identifiers that match the filter criteria.

8.2.17 Retrieve Cancel Test Job by Identifier (Use Case 25)

1. The Buyer/Client submits a Retrieve Cancel Test Job by Identifier request that includes the Cancel Test Job Identifier.

[R110] The Buyer/Client's Retrieve Cancel Test Job by Identifier request **MUST** include the Cancel Test Job Identifier and only the Cancel Test Job Identifier.

2. The Seller/Server responds to the Retrieve Cancel Test Job by Identifier request.

[R111] If successful, the Seller/Server **MUST** include all attributes shown in Table 18 in their response.

[R112] If unsuccessful, the Seller/Server **MUST NOT** return any attributes in their response.

[R113] If unsuccessful, the Seller/Server **MUST** return an indication of the errors encountered.

3. The Buyer/Client has all details of a Cancel Test Job.

8.2.18 Retrieve Modify Test Job List (Use Case 26)

1. The Buyer/Client submits a Retrieve Modify Test Job List request using none or more of the filter criteria.

[R114] The Buyer/Client's Retrieve Modify Test Job List request **MUST** contain none or more of the following filter criteria:

- Start Date Time (<, >)

- End Date Time (<, >)

- Test Job Identifier

2. The Seller/Server returns a response to the Buyer.

[R115] If successful, the Seller/Server **MUST** return a list of Modify Test Job Identifiers that match the selected filter criteria along with all filter criteria attributes.

[R116] If successful but no matches to the filter criteria are found, the Seller/Server **MUST** return an empty list.

[R117] If unsuccessful, the Seller/Server **MUST NOT** return a list of Modify Test Job Identifiers or an empty list.

[R118] If unsuccessful, the Seller/Server **MUST** return an indication of the errors.

3. The Buyer has a list of the Test Job Identifiers that match the filter criteria.

724 ## 8.2.19 Retrieve Modify Test Job by Identifier (Use Case 27)

725   1. The Buyer/Client submits a Retrieve Modify Test Job by Identifier request that in-
726   cludes the Modify Test Job Identifier.

727   **[R119]** The Buyer/Client's Retrieve Modify Test Job by Identifier request **MUST** in-
728   clude the Modify Test Job Identifier and only the Modify Test Job Identifier.

729   2. The Seller/Server responds to the Modify Suspend Test Job by Identifier request.

730   **[R120]** If successful, the Seller/Server **MUST** include all attributes shown in Table 19
731   or Table 20 in their response.

732   **[R121]** If unsuccessful, the Seller/Server **MUST NOT** return any attributes in their
733   response.

734   **[R122]** If unsuccessful, the Seller/Server **MUST** return an indication of the errors en-
735   countered.

736   3. The Buyer/Client has all details of a Modify Test Job.

737 ## 8.3   Notifications

738 Notifications may be supported by the Seller/Server. If the Seller/Server supports notifications,
739 the Buyer/Client may subscribe to them.

740 ### 8.3.1   Register for Notifications (Use Case 17)

741   1. The Buyer/Client registers for Notifications.

742

Attribute Name	Description	Value	Comments
Register Notification Identifier	The Identifier of the register for notification request (Hub ID)	String	Set by Seller/Server
Callback Address	The Callback Address being registered	String	Set by Buyer/Client
Notification Type	The type of notifications being registered for.	ne or more of: • Test Job Create • Test Job Attribute Value Change • Test Job State Change • Test Job Delete • Test Profile Create	Set by the Buyer/Client

Attribute Name	Description	Value	Comments
		• Test Profile At-tribute Value Change • Test Profile State Change • Test Profile De-lete • Test Job Results Available	
Action	Specification to Start Notifications or Stop Notifica-tions.	One of: • START • STOP	Set by the Buyer/Client

Table 21 – Register for Notification Attributes

[R123] The Buyer/Client Register for Notifications request **MUST** include the follow-ing:

- Callback Address

- Zero or more Notification Types

- Action = START

2. The Seller/Server responds with an indication of success and includes the Register Notification Identifier.

[R124] If successful, the Seller/Server response **MUST** indicate success and include the Register Notification Identifier and echo back all Buyer/Client provided attributes.

[R125] If successful, the Seller/Server **MUST** begin sending the appropriate notifica-tions to the Buyer/Client.

[R126] The Seller/Server **MUST NOT** send notifications if the Buyer/Client has not registered for them.

[R127] If unsuccessful, the Seller/Server **MUST NOT** return a Register Notification Identifier.

[R128] If the Seller/Server experiences any errors, they **MUST** return an error indica-tion to the Buyer/Client.

8.3.2 Unregister for Notifications (Use Case 18)

1. The Buyer/Client unregisters for Notifications.

764
765
[R129] The Buyer/Client Register for Notifications request **MUST** include the following:

766
  • Callback Address

767
  • Zero or more Notification Types

768
  • Action = STOP

769
   2.   The Seller/Server responds with an indication of success.

770
[R130] If successful, the Seller/Server response **MUST** indicate success.

771
772
[R131] If successful, the Seller/Server **MUST** stop sending the appropriate notifications to the Buyer/Client.

773
774
[R132] If unsuccessful, the Seller/Server **MUST NOT** stop sending the appropriate notifications to the Buyer/Client.

775
776
[R133] If the Seller/Server experiences any errors, they **MUST** return an error indication to the Buyer/Client.

777
8.3.3   Send Notification (Use Case 19)

778
779
   1.   The Seller/Server sends a Notification to a Buyer/Client who has registered for Notifications when a Notification Event occurs.

780

Attribute Name	Description	Value	Comments
Event Notification Identifier	The Identifier of the notification	String	Set by Seller/Server
Test Profile Identifier	The Identifier of the Test Profile	String	Set by Seller/Server
Test Job Identifier	The Identifier of the Test Job	String	Set by Seller/Server
Notification Type	The type of notification being generated.	One or more of: • Test Job Create • Test Job Attribute Value Change • Test Job Test Results Ready • Test Profile Create • Test Profile Attribute Value Change	Set by the Seller/Server

Attribute Name	Description	Value	Comments
		• Test Profile Delete • Test Job Results Available	
Event Time	The time that the event in the notification occurred.	Date/time	Set by Seller

781 **Table 22 – Notification Attributes**

782 **[R134]** The Seller/Server's Notification **MUST** include the following attributes:

783 • Event Identifier

784 • Notification Type

785 • Event Time

786 Note: If the Notification Type is for a Test Profile, the Test Profile Identifier can be sent. If the
787 Notification Type is for a Test Job, the Test Job Identifier can be sent.

788   2. The Buyer/Client acknowledges the receipt of the notification.

789 **[O6]** If the Seller/Server does not receive a response from the Buyer/Client to the
790 notification, they **MAY** cease sending notifications to the Callback Address.
791

792   # 9 Process Flows

793   The Process Flows for Test Profile and Test Job are defined in the following sections.

794   ## 9.1   Test Profile Lifecycle Flow

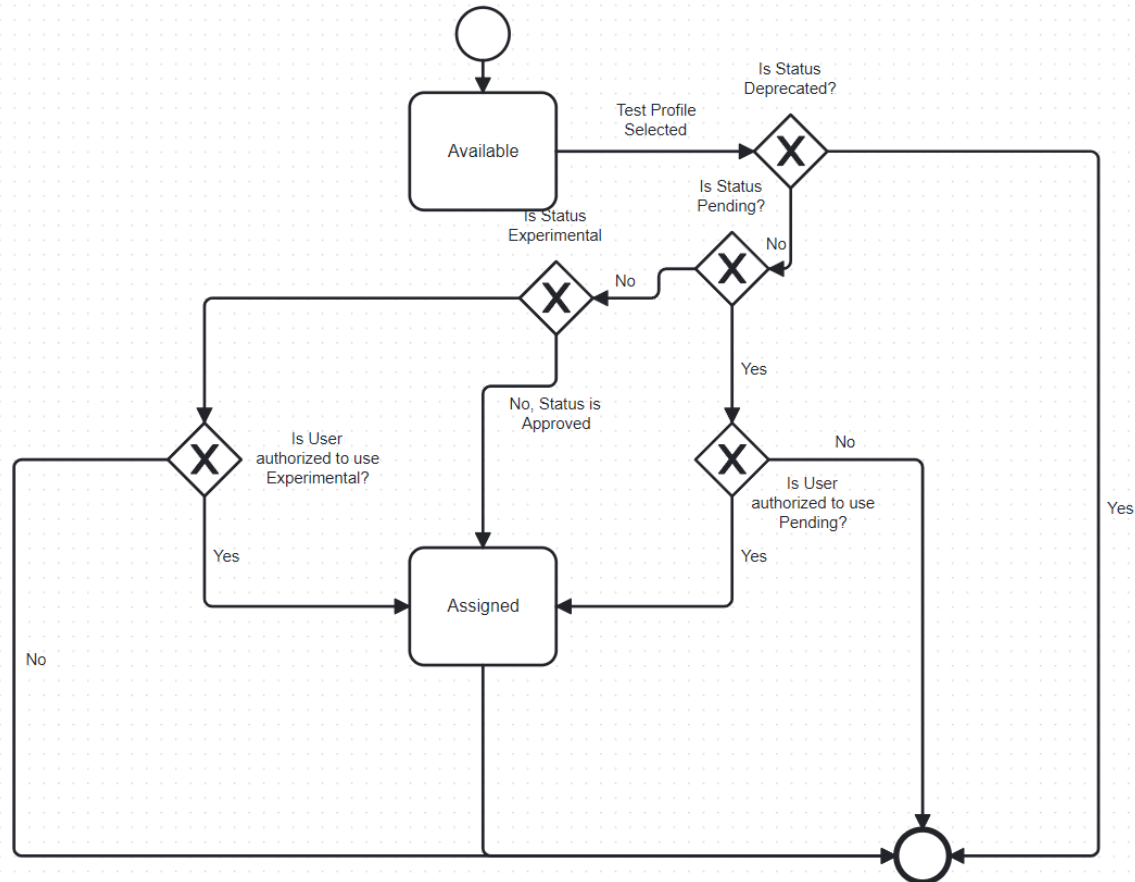795   The lifecycle flow for a Test Profile is reflected in this section.

796

797   **Figure 3 – Test Profile Lifecycle Flow**

798

State Name	Description	Comments
ASSIGNED	The Test Profile has been assigned to a Test Job.	
AVAILABLE	The Test Profile has been created or modified and is ready for users to specify in a Test Job.	

799   **Table 23 – Test Profile Lifecycle States**

800   When the Test Profile State is COMPLETED, the Test Profile Assigned becomes FALSE.

801   ## 9.2 Test Job Process Flow

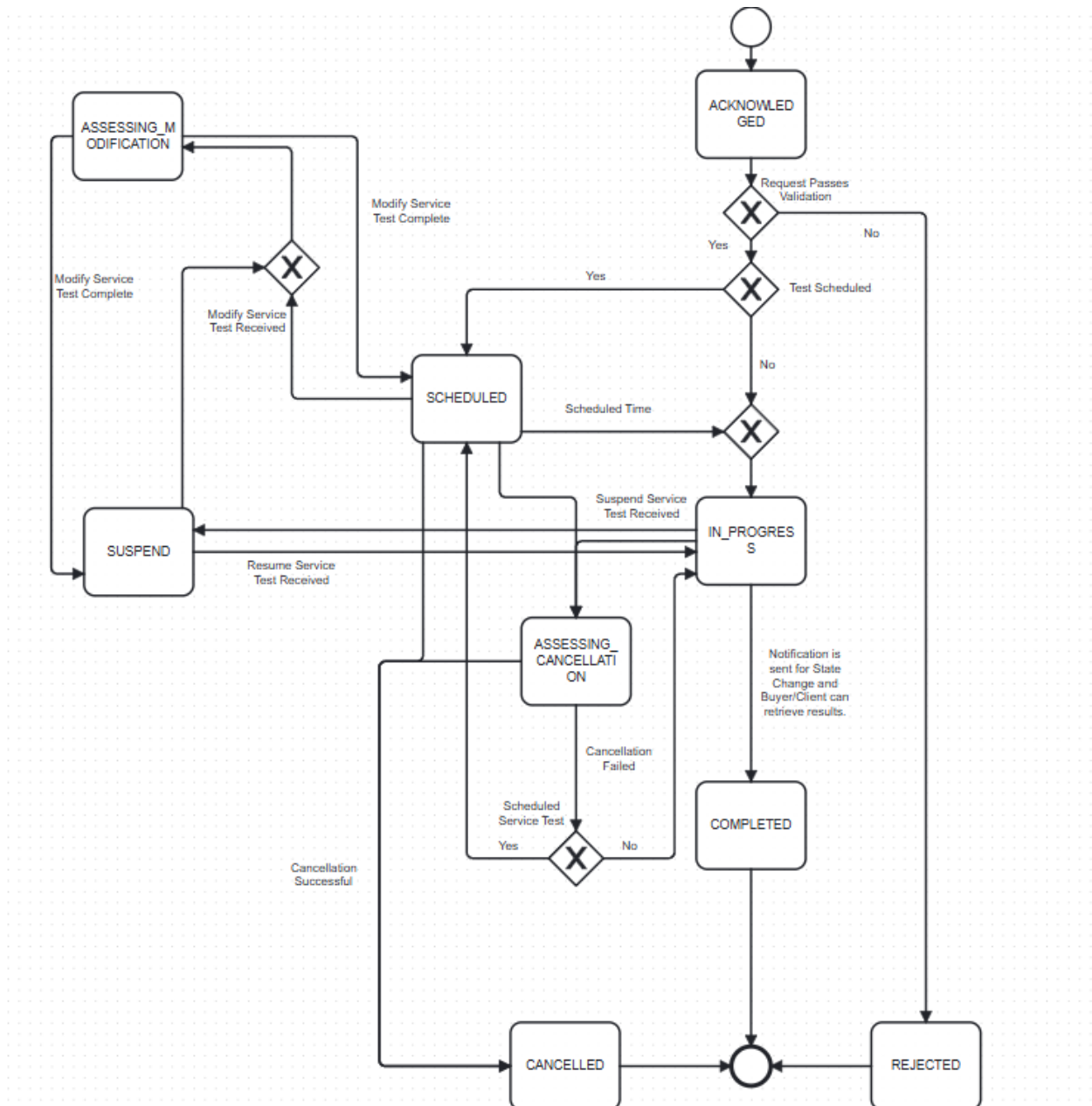802   The process Flow for Create Test Job is shown in Figure 4.

803

804   **Figure 4 – Test Job Lifecycle**

805   The Create Test Job State are detailed in Table 24.

806

State Name	Description	Comments
ACKNOWLEDGED	The Create Test Job request has been received from the Buyer/Client and the	

State Name	Description	Comments
	Seller/Server has assigned a Test Job Identifier to it. If the request attributes fail validation, the Create Test Job moves to the REJECTED state. If the attributes pass validation, it is then determined if the Create Test Job Start Date Time is immediate or if the Create Test Job Start Date Time indicates that the Test Job is to be scheduled for a later date time. If the Test Job is to be scheduled the Test Job moves to the SCHEDULED state and awaits the scheduled date and time. If the Test Job is to be performed immediately, the Test Job moves to the IN_PROGRESS state and Test Results begin.	
ASSESSING_CANCELLA-TION	A Cancel Test Job request is received while the Test Job is in the IN_PROGRESS or SCHEDULED state. If the Cancel Test Job request is approved, the Test Job moves to the CANCELLED state. If not, the Test Job returns to the IN_PROGRESS or SCHEDULED state.	
ASSESSING_MODIFICA-TION	A Modify Test Job request while the Test Job is in the SUSPEND or SCHEDULED state. If the Modify Test Job is accepted, the Test Job is updated. If the Modify Test Job is declined, the Test Job is not updated and returns to the SUSPEND or SCHED-ULED state.	
CANCELLED	A Cancel Test Job request is received from the Buyer/Client. If the request is accepted, the Test Job moves to	

State Name	Description	Comments
	the CANCELLED state. The Test Job must be in the IN_PROGRESS, SCHED-ULED, or SUSPEND, state.	
COMPLETED	The Test Job has reached the End Date Time or has completed all Test Measurements and provided Test Results.	
IN_PROGRESS	Whether an immediate request or a scheduled request, the Test Job moves to the IN_PROGRESS state when it begins performing Test Results. If a Cancel Test Job request is received and accepted, the Test Job moves to the CANCELLED state. If the Cancel Test Job request is declined, the Test Job returns to the IN_PROGRESS state and continues Test Results until they are completed. If a Suspend Test Job request is received, the Test Job moves to the SUSPEND state.	
REJECTED	The Create Test Job request fails validation and is rejected.	
SCHEDULED	The Test Job is scheduled to start at a later time. The Test Job stays in the SCHED-ULED state until the Start Date and Time is reached. The Test Job moves to IN_PROGRESS when the Start Date and Time is reached. A Test Job with the state SCHEDULED can be moved to the SUSPEND or CANCELLED state.	
SUSPEND	A Test Job in the IN_PRO-GRESS or SCHEDULED state receives a Suspend Test Job request. The Test Job moves to the SUSPEND state.	A Test Job cannot be modified unless it is in the SUS-PEND state.

807   **Table 24 – Create Test Job State**

9.3 Modify Test Job Process Flow

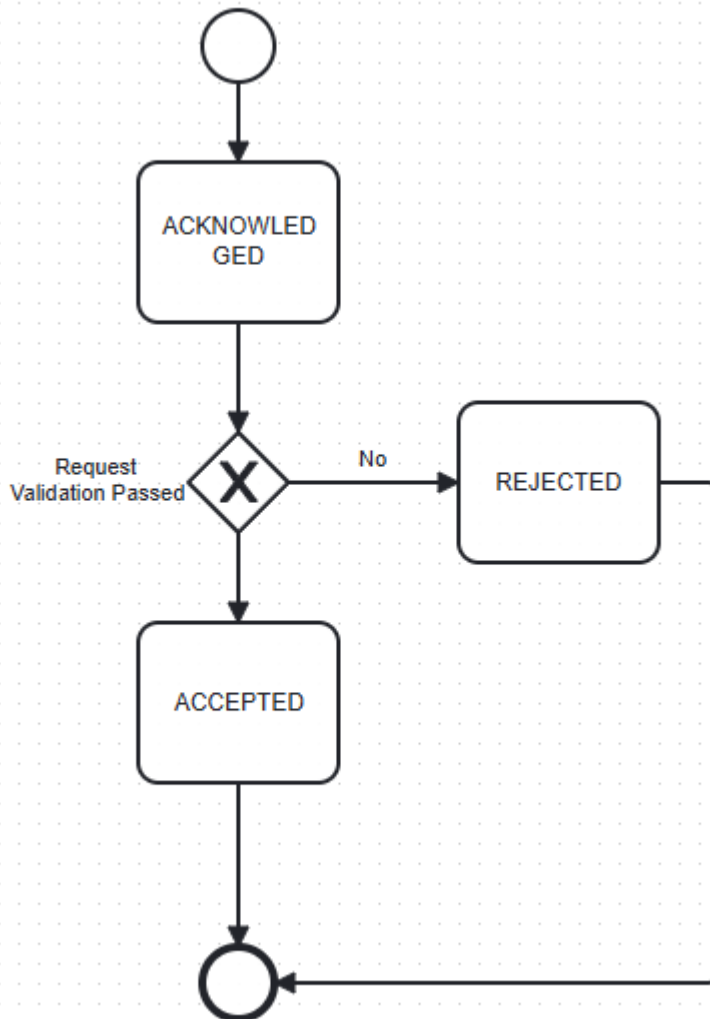809   The Modify Test Job process flow is shown in Figure 5.

810

811   **Figure 5 – Modify Test Job Process Flow**

812   The Modify Test Job State are defined in Table 25.

813

State Name	Description	Comments
ACKNOWLEDGED	The Modify Test Job request has been received from the Buyer/Client and the Seller/Server has assigned a Modify Test Job Identifier to it. If the request attributes fail validation, the Modify Test Job moves to the RE-JECTED state. If the attributes pass validation, it is determined if the Modify Test Job is accepted or declined. If accepted, it moves to the ACCEPTED state. If declined, it moves to the DE-CLINED state.	
ACCEPTED	The Modify Test Job is accepted, and the Test Job is modified.	
REJECTED	The Modify Test Job does not pass attribute validation, and the Modify Test Job is rejected.	

814   **Table 25 – Modify Test Job State**

815 ## 9.4 Suspend Test Job Process Flow

816 The Suspend Test Job process flow is shown in Figure 6.

817

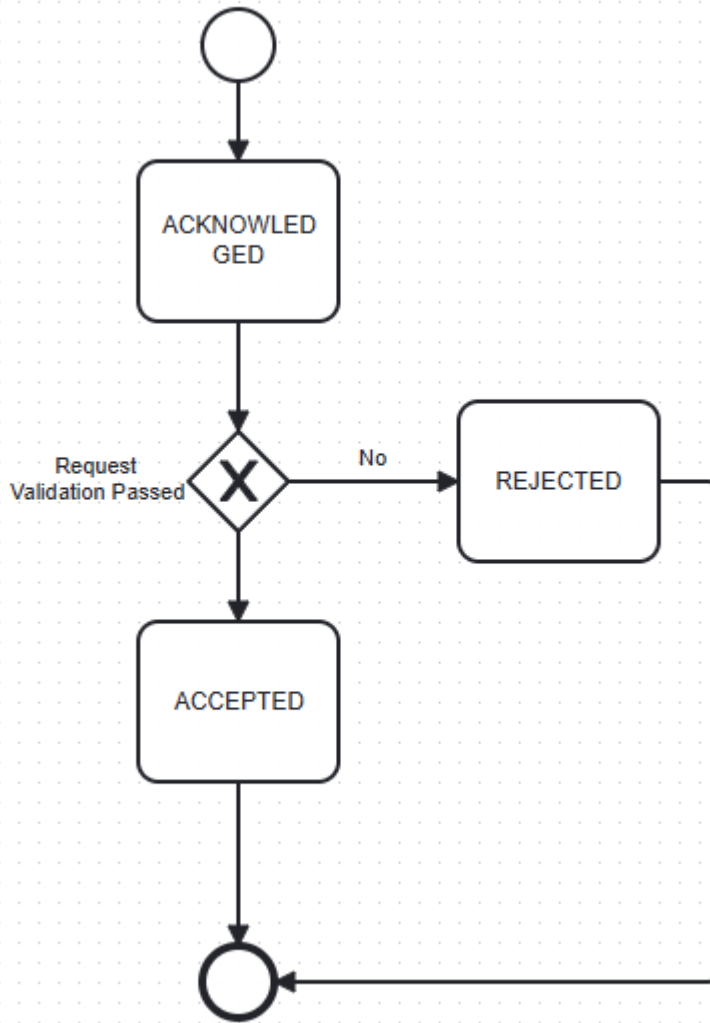**Figure 6 – Suspend Test Job Process Flow**

819   The Suspend Test Job State are defined in Table 26.

820

State Name	Description	Comments
ACKNOWLEDGED	The Suspend Test Job request has been received from the Buyer/Client and the Seller/Server has assigned a Suspend Test Job Identifier to it. If the request attributes fail validation, the Suspend Test Job request moves to the REJECTED state. If the attributes pass validation, it is determined if the Suspend Test Job request is accepted or declined. If accepted, it moves to the ACCEPTED state.	Suspend Test Job Identifier is assigned for the Suspend Test Job request and is different than the Create Test Job request.
ACCEPTED	The Suspend Test Job is accepted, and the Test Job is suspended.	
REJECTED	The Suspend Test Job does not pass attribute validation, and the Suspend Test Job is rejected.	

821 **Table 26 – Suspend Test Job State**

822 ## 9.5 Resume Test Job Process Flow

823 The Resume Test Job process flow is shown in Figure 7.
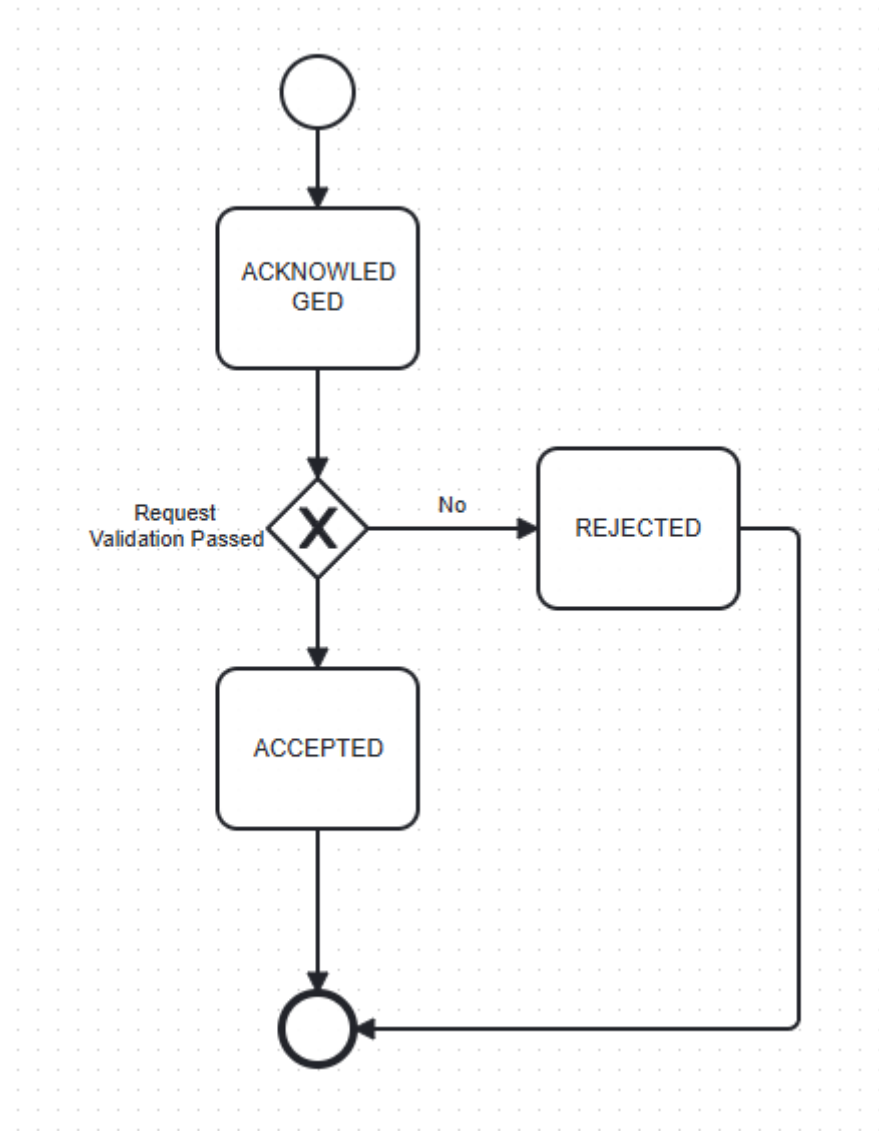
824

825

826

827

Figure 7 – Resume Test Job Process Flow

829   The Resume Test Job State are defined in Table 27.

830

State Name	Description	Comments
ACKNOWLEDGED	The Resume Test Job request has been received from the Buyer/Client and the Seller/Server has assigned a Resume Test Job Identifier to it. If the request attributes fail validation, the Resume Test Job request moves to the REJECTED state. If the attributes pass validation, it is determined if the Resume Test Job request is accepted or declined. If accepted, it moves to the ACCEPTED state.	
ACCEPTED	The Resume Test Job is accepted, and the Test Job is resumed.	
REJECTED	The Resume Test Job does not pass attribute validation, and the Resume Test Job is rejected.	

831 **Table 27 – Resume Test Job State**

9.6 Cancel Test Job Process Flow

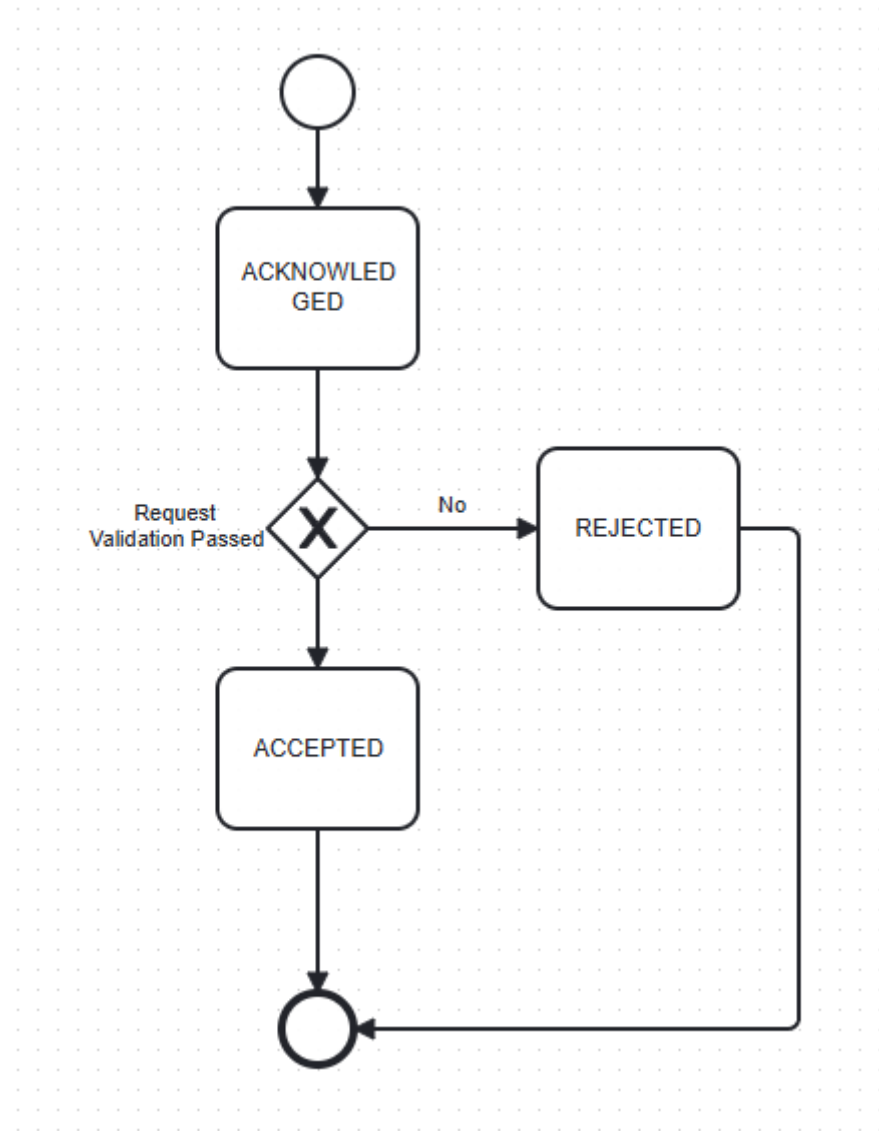833 The Cancel Test Job process flow is shown in Figure 7.

834

835

836

837

Figure 8 – Cancel Test Job Process Flow

839   The Cancel Test Job State are defined in Table 27.

840

State Name	Description	Comments
ACKNOWLEDGED	The Cancel Test Job request has been received from the Buyer/Client and the Seller/Server has assigned a Cancel Test Job Identifier to it. If the request attributes fail validation, the Cancel Test Job request moves to the REJECTED state. If the attributes pass validation, it is determined if the Cancel Test Job request is accepted or declined. If accepted, it moves to the ACCEPTED state.	
ACCEPTED	The Cancel Test Job is accepted, and the Test Job is cancelled.	
REJECTED	The Cancel Test Job does not pass attribute validation, and the Cancel Test Job is rejected.	

841

Table 28 – Resume Test Job State

842

10 References

[1]   IETF RFC 2119, *Key words for use in RFCs to Indicate Requirement Levels*, by S. Bradner, March 1997

[2]   IETF RFC 8174, *Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words*, by B. Leiba, May 2017, Copyright (c) 2017 IETF Trust and the persons identified as the document authors. All rights reserved.

[3]   MEF 55.1, *Lifecycle Service Orchestration (LSO): Reference Architecture and Frame-work*, January 2021

[4]   TMF653, *Test Job Management API REST Specification*, release 21.5, August 2021

853 # Appendix A   Test Access Provisioning

854 Test Access connects the Test Resources to the Service Under Test (SUT). Test Access is provi-
855 sioned by the Service Provisioning system before a Test Job can be run. This appendix explains
856 the types of Test Resources and how the Service Provisioning system configures the Test Access
857 before a Test Job is performed.

858 ## A.1   Test Resources

859 The term Test Resource is used to describe the function or device that performs the Test Results
860 as instructed by the Test Job and Test Profile. There are two general types of Test Resources,
861 Imbedded and External. An Imbedded Test Resource is included within a device or application
862 that is within the path of a service. Examples of Imbedded Test Resources are applications that
863 reside within a device and can be inserted into the path of a service within the device. External
864 Test Resources are probes or other type of Test Resource that are externally connected to the de-
865 vice on which the SUT is provisioned.

866 Test Resources, as described in this document, are made up of three components, the Service Func-
867 tion Measurement Point (SFMP), the Generator Test Function (GTF), and the Collector Test Func-
868 tion (CTF). These are shown in both Imbedded and External uses in Figure 9.
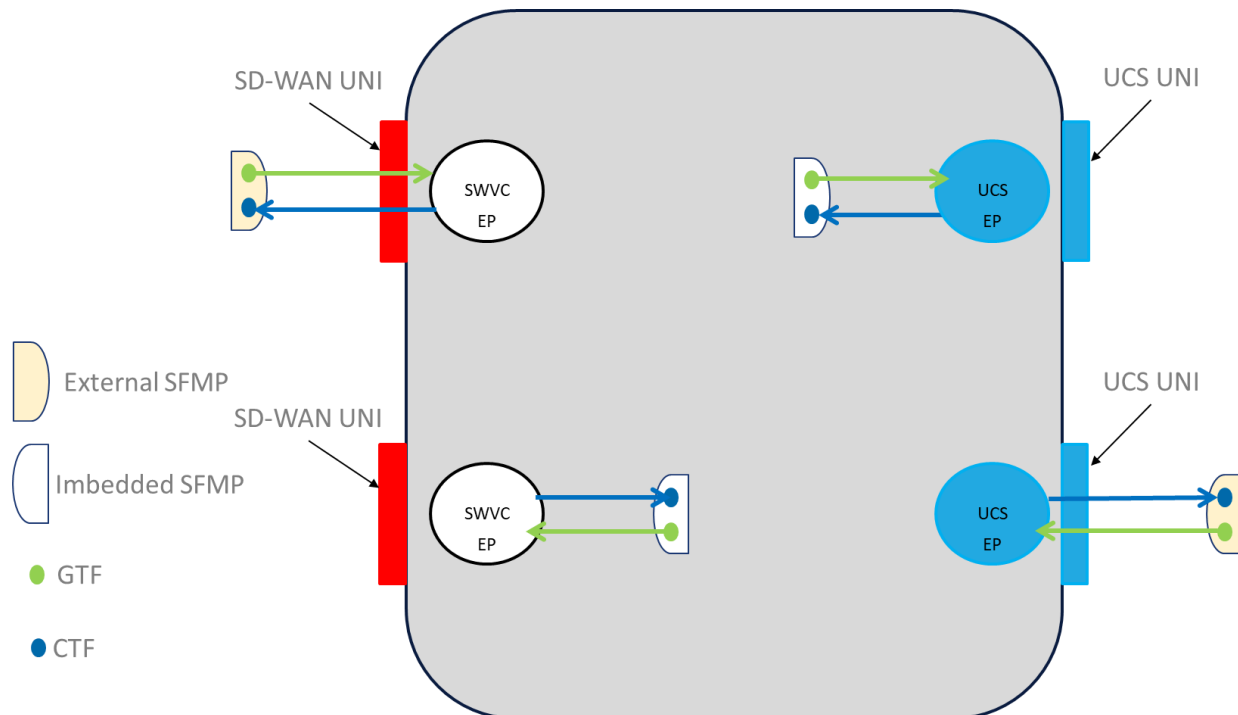

869

870 **Figure 9 – Imbedded and External SFMP, GTF, and CTF**

871 The SFMP, whether Imbedded or External, always contains one GTF and one CTF. In some cases,
872 the GTF or CTF may be inactive. At least one of them is always active. As their names imply,
873 the GTF generates test frames or packets that are formatted to be passed on the SUT. The CTF
874 collects and counts, collects and processes, or collects and performs measurements on frames or
875 packets that have been received from a GTF. Once the CTF has counted, processed, or performed

876 measurements, they discard the frames or packets. Testing is performed using a pair of GTF/CTFs.
877 These may be co-located as when testing to a loopback or may be at either end of a service when
878 testing between an ordered pair of points within the service.

879 The Test Resources that are shown in Figure 9 are controlled via the Test Management System
880 which provisions, configures, and retrieves test results from the Test Resources. The Test Man-
881 agement System is assumed to be a part of the Service Orchestration Function (SOF). The Test
882 Profiles are configured in the Test Management System. Test Jobs requests are sent to the Test
883 Management System. The Test Management System then configures the SFMP to perform the
884 test defined in the Test Profile and Test Job.

A.2   Test Access Configuration

886 The SFMP is connected to the SUT, either as an Imbedded or an External Test Resource. The
887 physical or logical connection between the SUT and the SFMP is made using the Service Provi-
888 sioning System. The SUT is identified in the Test Job as the *Related Service Identifier*. The Test
889 Management System uses the *Related Service Identifier* to identify the SUT to the Service Provi-
890 sioning System and requests that the SUT either be connected to an Imbedded or External SFMP
891 including what the GTF and CTF are connected to.

892 Once the Service Provisioning Service has connected the SUT to the SFMP, the Test Management
893 System then configures the SFMP, and Test Results are performed as specified in the Test Job.
894 This process is shown in the sequence diagrams shown in Figure 10.
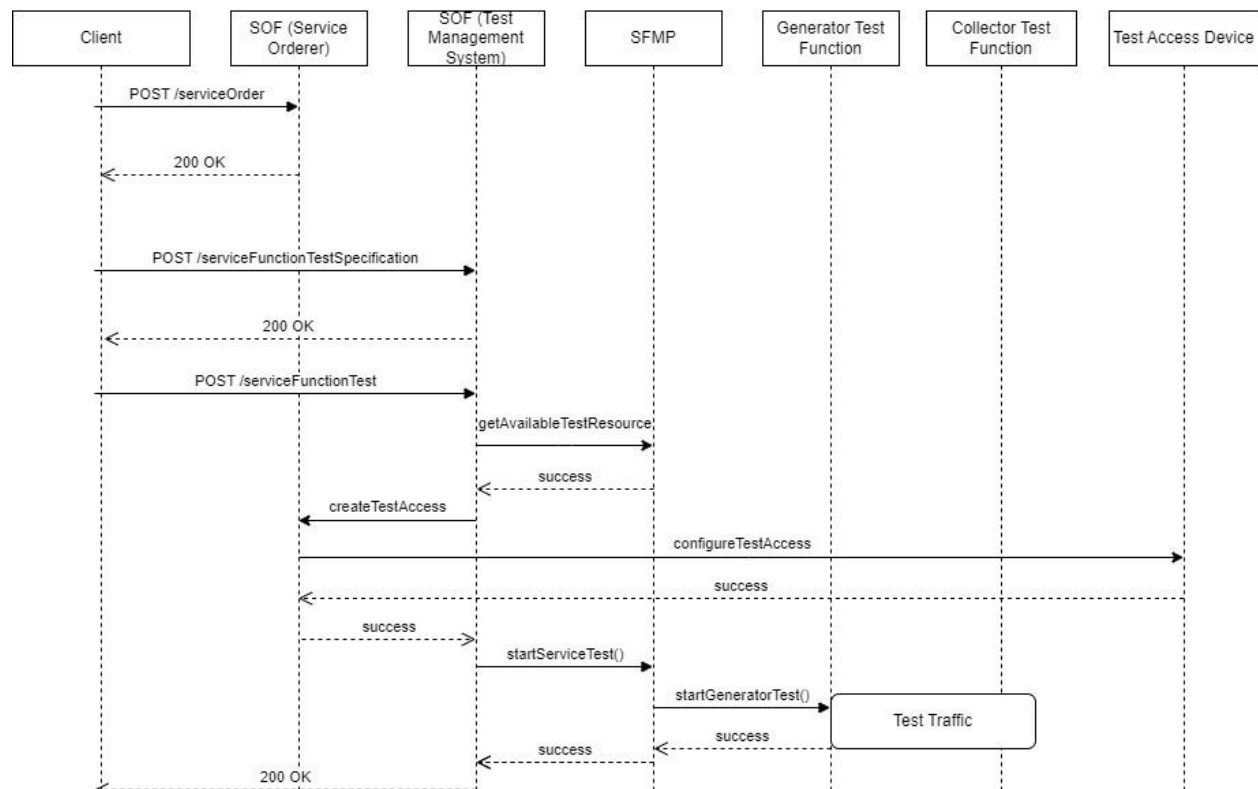

Figure 10 – Test Access Sequence Diagram

897 As seen in Figure 10, the request from the Test Management System verifies that an appropriate
898 SFMP is available at the specified test point. If there is an SFMP available, the Test Management
899 System sends a request to the Service Provisioning System to connect the SFMP to the SUT with
900 the GTF and CTF connected appropriately to perform the Test Job.

901 Once the Service Provisioning System has completed the appropriate connections, it responds with
902 a completion notice to the Test Management System. The Test Management System performs the
903 Test Job and upon completing the Test Job, requests that the Service Provisioning System restore
904 the SUT to its original configuration, which restores the service to its normal path.

905 The Test Management System then collects all measurements, performs any required calculations,
906 and reports the results of the Test Job to the requestor.
907

Appendix B   Test Profile and Test Job Overview

There are two parts, Test Profile and Test Job, to SFT that are described within this document. This appendix describes how those two parts interact with each other.

B.1   Test Profile

The Test Profile is used to define what measurements are performed for a given service type. Test Profiles are specific to a specific service type and can be referenced by many different Test Jobs simultaneously. Test Profiles provide a repeatable set of instructions for a Test Job to perform ensuring that different instances of the same Service Offering are performed the same way.

Test Profiles contain the Lifecycle Status attribute that specifies where in the development process the Test Profile is located. This can range from Experimental whose use may be limited to a small number of users, to Deprecated where the Test Profile has been replaced by another Test Profile and is not intended for use. Lifecycle Status also includes Pending where the Test Profile is waiting to be approved and Approved, where the Test Profile has been approved for general use. The Lifecycle Status is often used to indicate what type of user can use the Test Profile.

Test Profiles also include the step by step test process in the Service Specific Test Profile Attributes. As an example, the steps for generating ICMP pings, measuring the response, and calculating the results are contained in these attributes.

Editor Note 1:   After clarification of the Test Profile Relationship Type is received, the use of these relationship types will be added to this appendix.

B.2   Test Job

The Test Job is a Service specific entity that defines the service to be tested, the Test Profile to be used, and the Service specific Test attributes. Test Jobs perform the actual Test Measurements and makes the Test Results available. As a Test Job runs, it uses the instructions in the Test Profile to perform the specified Test Measurements. Once the Test Job has completed the Test Measurements, it makes a report of the Test Results available.

Test Jobs can also be created without referencing a Test Profile, known as Test Job w/o Test Profile. Test Jobs w/o Test Profiles are often used for one off testing rather than repeatable standard tests. In that case, the Test Job defines the attributes that would be defined in the Test Profile including the steps to perform the Test Measurements. The Test Job performs the actual Test Measurements and makes a report of the Test Results available.

As an example, a Test Job is created to perform Test Measurements on an IP Service. The Test Profile that defines how to perform an ICMP ping test is referenced in the Test Job. When the Test Job runs, it performs the steps defined in the Test Profile on the Service under test. Once complete, results of the test are available, and can be retrieved by the user or can be automatically reported by the test system.