

Rail Delivery Group



Ticket Issuing System Accreditation Guide

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Release Control

The following personnel must formally approve the document prior to assigning a non-draft version number.

Organisation	Role	Name
RDG	Document Owner	RDG Head of Service Assurance
RDG	Document Owner	RDG Accreditation Business Manager

Distribution

Organisation	Role	Name
RDG Accreditation	N/A	N/A
TOCs	N/A	N/A
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Contents

1.	Introduction.....	6
1.1	Our role.....	6
1.2	Purpose of this guide.....	6
1.3	Intended audience.....	6
1.4	TIS definition.....	6
2.	Accreditation overview.....	7
2.1	Background.....	7
2.2	RDG Standards.....	7
2.3	Scope of Accreditation	7
2.4	Certification model	8
2.5	Timescales	8
3.	Ticket issuing business process	9
3.1	Introduction.....	9
3.2	Accreditation requirements	10
4.	Accreditation process	11
4.1	Overview.....	11
4.2	Initial discussion	13
4.3	TIS development.....	15
4.4	Application.....	16
4.5	Scheduling accreditation	18
4.6	Compliance Review	20
4.7	Accreditation testing	22
4.8	Pilot.....	26
4.9	Certification	29
4.10	Withdrawal of Accreditation	31
5.	Systems used by RDG accreditation	32
5.1	ASSIST	32
5.2	JIRA	32
6.	Costs	34
6.1	Accreditation charges	34
6.2	Pilot monitoring.....	34
6.3	Connectivity.....	34
	Appendix A. JIRA categorisation	35
	Appendix B. Product Record state transition diagram	36
	Appendix C. Accreditation process checklist	37

Glossary

Term	Meaning
ALTS	Automated Lennon Test Service; system used for the submission and verification of test SDCI+ data files. All RDG Accreditation settlement evidence is sent to ALTS, prior to entering the pilot stage.
ATOC	Association of Train Operating Companies; set up following privatisation to bring together all train operators to preserve and enhance the benefits for passengers, now under the RDG brand.
ASSIST	Accreditation Standards Site Integrating System Toolset; RDG's Accreditation and Compliance Standards website.
CTR	Customer Transaction Record; an entry in the ToD database containing details of a customer's transaction, i.e. booked ticket(s), to enable later printing. See 'RSPS5040: Ticket on Departure Functional Specification' for more information.
DTD	Data Transformation and Distribution; service providing fares, timetable and routeing data.
eTVD	Electronic Ticket Validation Database; stores barcode ticket events. See 'RSPS5043: eTVD Messaging Specification' for more information.
Flow	Defines the passenger journey through the combination of Origin, Destination and Route.
Interavailable	Products which are valid on the services of more than one train operator.
Interoperable	A description of the successful communications between the various RDG systems and Ticket Issuing Systems for sale, issue and settlement. For example, national Ticket on Departure and ITSO smart media schemes.
ITSO	Specification for interoperable smart ticketing schemes, owned by ITSO Ltd.
JIRA	The Issue Management portal used by RDG Accreditation.
Knowledgebase	Industry store of retail information and guides issued by National Rail Enquiries.
Lennon	Latest Earnings Networked Nationally Over Night; RDG's apportionment and settlement information service, controlling the distribution of earnings between the train operators.
LSM	Live Sales Management; system used to manage the CTR database.
NLC	National Location Code; all rail and non-rail locations must have a unique NLC.
NRS	National Reservations Service; industry system to manage seat reservations for all trains.
PMS	Product Management System; industry system to manage fares data for all train operators.
RCS	Retail Control Service; RDG system for controlling which retailer(s) may retail a particular product and its permitted fulfilment options. See 'RSPS2001: Retail Control Service – Interface Control Document' for more information.
RSP	Rail Settlement Plan; now under the RDG brand providing a wide range of services to the UK's franchised passenger rail operators and third-party providers of information and retail services.
SDCI+	Standard Data Capture Interface Plus; standard for the format of industry settlement data sent from TIS to Lennon.
TIS	Ticket Issuing System; a system which provides the facility for an Authority to Travel to be selected, purchased and/or issued to a customer.
TOC	Train Operating Company; a business operating passenger trains on the UK railway network.
ToD	Ticket on Departure; a national scheme for the deferred collection of a paid-for rail product using the centralised ToD database, LSM. See 'RSPA2016: TIS Process Guide – National Ticket on Departure' for more information.
TMS	Ticket Management System. RDG system and portal for the management of rail products fulfilled to smart media using ITSO.
TSA	Ticketing & Settlement Agreement; defines the obligations of TOCs and retailers, issued following privatisation.
UAT	User Acceptance Testing; testing phase undertaken to establish whether or not the requirements of the specification have been met by the completed software.

1. Introduction

1.1 Our role

- 1.1.1 The Rail Delivery Group (RDG) is responsible for the accreditation of Ticket Issuing Systems (TIS).
- 1.1.2 RDG Accreditation is the service which facilitates this and provides the following assurances to the TOCs, customers and TIS suppliers:
- a) Ensures passengers are able to purchase valid interoperable and interavailable tickets to travel, based on accurate timetable and fares data;
 - b) Ensures accurate apportionment of revenue between the TOCs;
 - c) Protects RDG systems such as NRS, LSM and PMS;
 - d) Supports TIS suppliers to meet industry standards when developing their systems.

1.2 Purpose of this guide

- 1.2.1 This guide acts as an introduction to RDG Accreditation and describes its procedures as well as its scope.
- 1.2.2 It directs the reader to more detailed specification documents that cover the finer details of TIS processes and their accreditation requirements, as well as other relevant material.
- 1.2.3 This document describes the processes that must be followed to achieve accreditation.

1.3 Intended audience

- 1.3.1 This document is primarily aimed at TIS Suppliers, both existing and new, who need to understand the accreditation process in order to:
- a) Design aspects of TIS that are subject to accreditation; and
 - b) Gain system accreditation.
- 1.3.2 Retailers seeking to procure a TIS (including the TOCs) also need to understand accreditation and their role in the process in order to engage with a TIS Supplier. Information about how to become a retailer, licence conditions, obligations and so on is available on request from the RDG Licensing team at enquiries@raildeliverygroup.com.
- 1.3.3 This document is also for use by existing retailers (including the TOCs) who already operate TIS, who must keep abreast of updated accreditation processes and requirements, or who wish to extend the scope of their TIS functionality.
- 1.3.4 Generally, this document is aimed at readers with existing knowledge of transport retailing, but who may not be familiar with the details of the UK rail industry.

1.4 TIS definition

- 1.4.1 A TOC or third-party retailer will procure a TIS to carry out the retailing of industry rail products.
- 1.4.2 A TIS comprises the physical ticket issuing machine and consumables, plus any non-ticket issuing equipment, software and communication systems.
- 1.4.3 With smart ticketing methods, a TIS may include, or hand-off to, a third-party fulfilment service for the completion of a rail product.
- 1.4.4 In summary, a TIS provides the facility for an Authority to Travel to be selected, purchased and/or issued to a customer.

2. Accreditation overview

2.1 Background

2.1.1 TOCs and third-party retailers are bound by the TSA, either directly or via their retail licence, to use an 'approved' TIS that complies with the criteria specified by RDG to retail industry rail products.

2.2 RDG Standards

2.2.1 The criteria to be an 'approved' TIS is defined in the RDG Standards.

2.2.2 Conformance to the RDG Standards ensures that:

- A customer is provided with an Authority to Travel which is consistent in appearance and, accepted by all TOCs, thereby supporting interavailable travel across all passenger services in line with the TSA;
- Associated transaction data is generated in an acceptable form for interpretation by the centralised RDG settlement systems, to ensure accuracy and integrity of settlement between operators;
- Interoperable functionality between TIS is supported for reservations, ToD, and other systems;
- Fraudulent activity may be more easily identified by a retailer or operator;
- Acceptable levels of security and integrity in relation to RDG systems are maintained; and
- Disaster recovery and business continuity is supported, with robust error handling and a full audit trail.

2.2.3 RDG publishes several different types of document, known as 'Subjects', to describe the processes and technical requirements for TIS Suppliers to become compliant with.

2.2.4 These 'Subjects' provide background, guidance and requirements on TIS design, accreditation and operation. Other relevant documents may be of either, or mixed content.

2.2.5 RDG Standards are updated from time to time, with new RDG Standards also issued. These updates follow an established review process, defined in RSPS9000: Documentation Development Process.

2.2.6 Published RDG documents are accessible from ASSIST; see section 5.1 for access information.

2.2.7 In order to allow sufficient time to react to updated RDG Standards, TIS Suppliers are generally given 6-12 months (depending on the complexity of the change) to implement the changes. In some cases, it is necessary for all TIS Suppliers to implement a change at the same time, and in such circumstances, TIS Suppliers will be given sufficient notice of such changes by RDG, who may also play a co-ordinating role.

2.2.8 It is for the TIS Supplier to determine how to design and build their TIS such that it conforms to the requirements set by RDG.

2.3 Scope of Accreditation

2.3.1 Accreditation is the verification of a TIS's functional compliance with an agreed set of versioned RDG Standards, resulting in the award of an accredited or 'approved' status to a specific version of the TIS.

2.3.2 Reaccreditation is necessary to ensure a previously 'approved' TIS remains compliant where a new version is to be released or where there are revised/new RDG Standards in effect.

2.3.3 RDG Accreditation determines if reaccreditation is necessary for a new TIS version through an assessment of the enhancements contained within the release; RDG must therefore be notified of all new TIS versions as soon as possible to avoid delay.

- 2.3.4 Where certain core Standards are updated by RDG (such as those relating to CCST and SDCI+) following internal and external reviews, TIS Suppliers are obliged to adopt updated versions at their own cost to remain accredited.
- 2.3.5 It is the responsibility of each TIS Supplier to ensure that they have adequate financial and human resources in order to maintain their accreditation status in line with updated or newly applicable RDG Standards and specifications, which may be issued from time to time.
- 2.3.6 Where multiple TIS are involved in the end-to-end retailing solution, interrogation of a specific version of all component TISs is necessary to demonstrate collective compliance with RDG Standards.

2.4 Certification model

- 2.4.1 Accredited status is awarded to a named TIS version following completion of the accreditation process.
- 2.4.2 RDG Accreditation recognises two types of accreditation; 'full' and 'interim', as defined below. The same accreditation process is applied to each.
- 2.4.3 A 'full' accreditation cycle applies to all accreditable TIS functionality, regardless of whether or not it has been accredited previously. All current versions of the applicable RDG Standards are used, except where RDG Accreditation agrees that insufficient time has elapsed to be able to become compliant with a recently published RDG Standard. Upon completion of full accreditation, a named TIS version is awarded accredited status for three years, subject to any conditions imposed by the accompanying 'Conditions of Approval' document. These conditions include the requirement on the TIS Supplier to amend the TIS as necessary to comply with updates to RDG Standards within the specified timescale (usually twelve months after issue of a new version of a Standard)
- 2.4.4 Provided a TIS Supplier is covered by the accredited status awarded following a full accreditation, a succeeding TIS version can be presented for an 'interim' accreditation. An 'interim' accreditation considers the changes in the new TIS version against the related RDG Standards and the general compliance of the TIS against new versions of RDG Standards, subject to the timescales permitted for compliance (usually twelve months after the issue of a new version of a Standard). Upon completion of an 'interim' accreditation, a named TIS version is awarded accredited status with the same expiry date as that of the most recent full accreditation, again subject to any conditions imposed by the accompanying 'Conditions of Approval' document.
- 2.4.5 A 'full' reaccreditation is required at least every three years to ensure compliance with current RDG Standards to obtain renewed accredited status.
- 2.4.6 A 'Conditions of Approval' document is issued for each accredited TIS version. It states the conditions for accredited status to be retained after the accreditation process has completed. These cover operational incidents (see categorisation criteria in Appendix A) and reaccreditation against any intervening updates to RDG Standards.

2.5 Timescales

- 2.5.1 The timescales for each accreditation process need to be individually planned, as the complexity and duration depends on the range of products to be offered and the fulfilment method supported. It is therefore advised to engage with RDG early on in the TIS design stage, and certainly prior to committing to a date for the TIS to be put into production.
- 2.5.2 Prospective TIS Suppliers should expect that completion of the accreditation process will take several months.
- 2.5.3 Furthermore, there may be a lead time to establish any connections required to RDG systems, or any other external systems. These will be stated in the relevant RDG Standards.

3. Ticket issuing business process

3.1 Introduction

3.1.1 To support the checking of TIS compliance with RDG Standards, the retailing journey for industry rail products is broken down into a series of TIS business processes, as summarised in Figure 1 below:

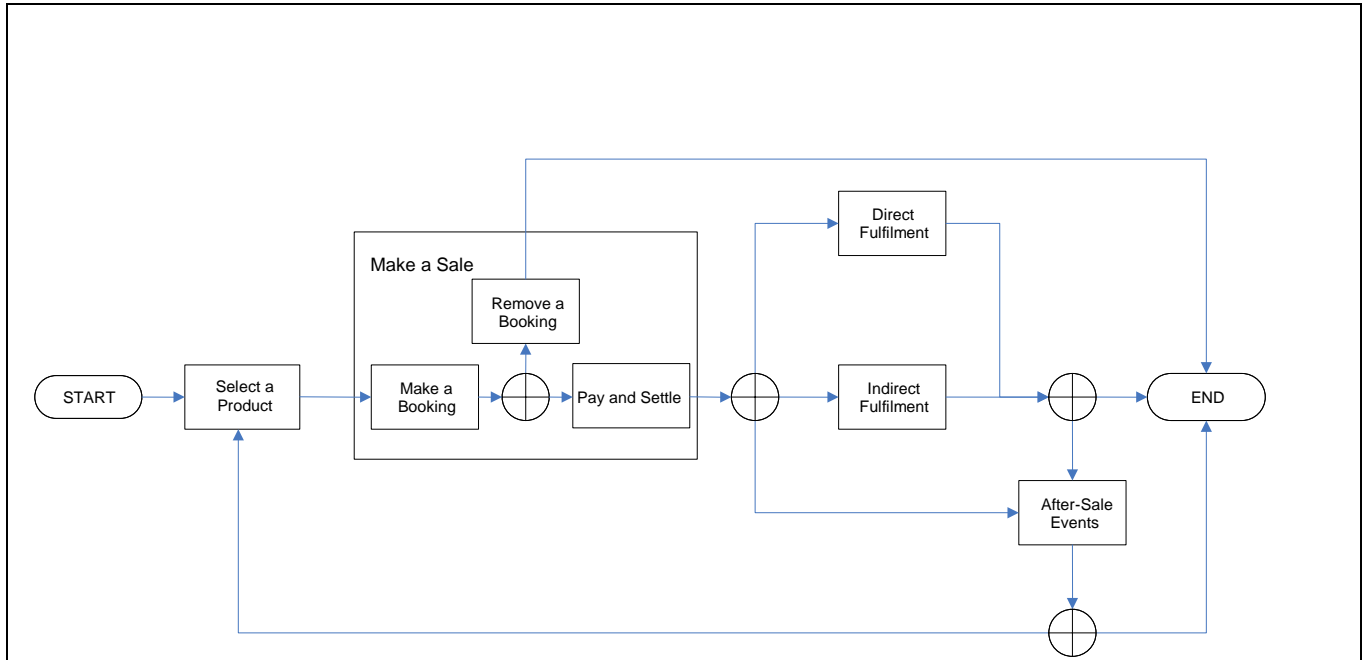


Figure 1 – TIS business Process

- 3.1.2 'Select a Product' covers the process of journey planning and/or direct fare enquiry, resulting in one or more products being selected for onward processing. At this stage no transactions are created in the TIS. Where a product is quota controlled, an NRS availability check must be performed and the TIS may only allow the product to be selected if NRS shows that it has availability.
- 3.1.3 'Make a Sale' covers the process of confirming the booking of a rail product (including any reservations), taking payment from the customer, and the creation of RDG settlement data. Where a sale does not proceed, the booking is removed and any reservations are released within the maximum time period specified.
- 3.1.4 Direct and Indirect Fulfilment processes cover fulfilment of a rail product to the chosen media. This may be immediately in the case of the former, or 'issued later' in the case of the latter.
- 3.1.5 The conditions under some rail products may also permit an 'After-Sale Event' process; common examples are refunds, changeover and replacement.
- 3.1.6 Each TIS business process is described in detail in its RDG Standard; RSPA2002: TIS Process Guide - Select a Product, RSPA2003: TIS Process Guide - Make a Sale, RSPA2004: TIS Process Guide - Direct Fulfilment, RSPA2005: TIS Process Guide - Indirect Fulfilment and RSPA2006: TIS Process Guide - After-Sale Events.

3.2 Accreditation requirements

- 3.2.1 Each TIS business process comprises one or more 'Product Record' state transitions.
- 3.2.2 In this context, a product is defined by a combination of Origin, Destination, Ticket Type, Discount, Class of Travel, etc, as issued for one person (or multiple persons in the case of a group product). A TIS sales transaction can include several products, which may subsequently be refunded independently of others in the original sales transaction.
- 3.2.3 Each Product Record state transition has a set of compliance or test requirements that must be met to be accredited for that process. These are captured as accreditation requirements.
- 3.2.4 The Product Record is a logical entity and it is up to the TIS Supplier to decide how to hold it in the TIS along with a supporting audit trail which is required to meet the accreditation requirements. Conditions determine when a Product Record can move to a new state via a transition.
- 3.2.5 The lifecycle of a Product Record is based on predefined states according to where it is in the end-to-end retail process. The lifecycle is rendered as the Product Record State Transition Diagram (see Appendix B).

4. Accreditation process

4.1 Overview

4.1.1 The accreditation process applies to a named version of a TIS.

4.1.2 Figure 2 is a high-level diagram highlighting the key stages that comprise the accreditation process:

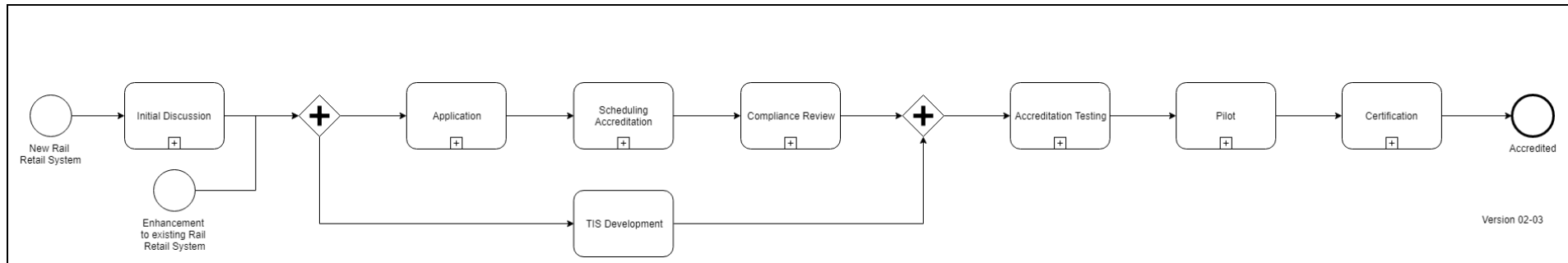


Figure 2 - Accreditation Process Overview

Key:



The “+” symbol indicates a sub-process diagram exists for the activity.

4.1.3 Several activities need to have been completed before certain stages of the accreditation process can commence, and in some cases before an application for accreditation can be made. As a reminder, all activities are listed as a separate checklist in Appendix C, though not all will necessarily apply to each individual TIS.

4.1.4 In some circumstances, as an alternative to the above, a particular TIS version may comply with the conditions for an alternative accreditation process, known as ‘Delegated Accreditation’. This process is defined in ‘RSPA2010: TIS Process Guide – TIS Supplier APIs’.

4.1.5 To track the progress of a given application during the accreditation process, a named TIS version moves through a series of states depending on the events that subsequently unfolded. Upon successful completion of the full process, ‘accredited’ status can then be awarded. Figure 3 provides a visual representation of this in practice:

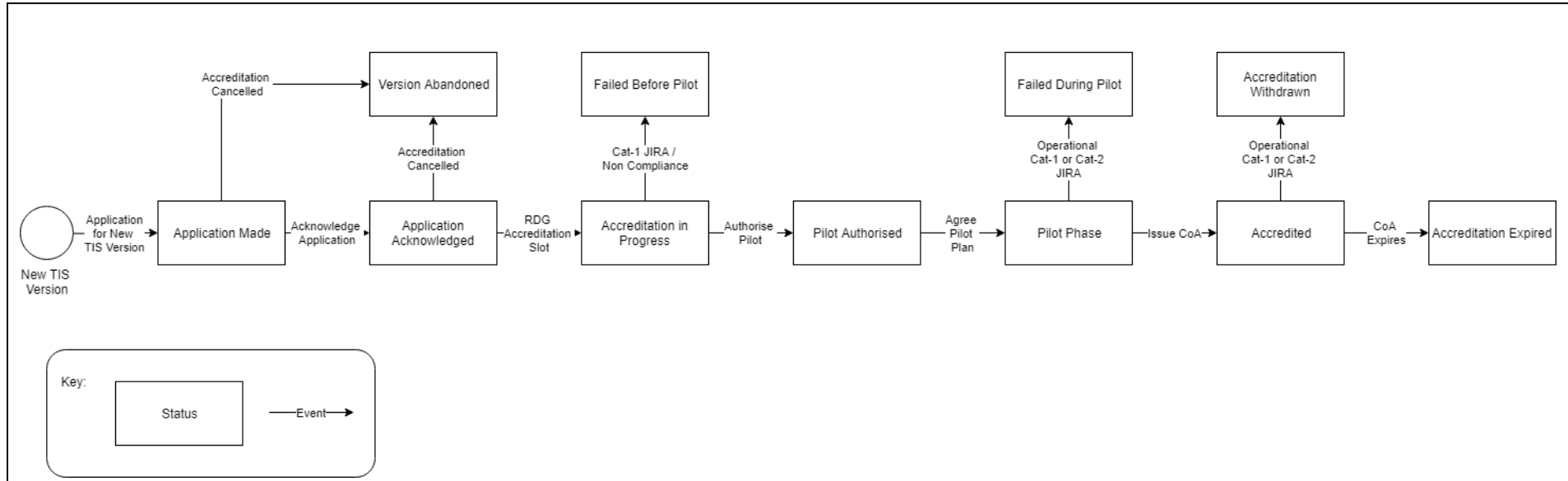


Figure 3 - TIS Version Status Flow

Some changes to the status of a given TIS version are triggered by events outside of the accreditation process

- Accreditation Expired: occurs where the Conditions of Approval document expires
- Accreditation Withdrawn: occurs where a serious issue is identified during TIS operation that invalidates the Conditions of Approval document

4.2 Initial discussion

- 4.2.1 The purpose of the 'Initial Discussion' stage is for RDG Accreditation to understand what a supplier is seeking to achieve through the implementation of a TIS, and how it fits into an overall retail solution.
- 4.2.2 RDG Accreditation is provided with the details of the TIS as a 'System Proposal'. The System Proposal is a document describing the proposed solution, including any system changes if this is a new release of the TIS.
- 4.2.3 With an understanding of the system, RDG Accreditation can consider whether it conforms to existing RDG Standards or necessitates escalation to the RDG Head of Ticketing to provide guidance on whether it aligns with the industry's retail strategy.
- 4.2.4 Provided that the System Proposal is acceptable, access is given to RDG documentation (via ASSIST) to enable development of the TIS to continue in conformance with the applicable RDG Standards.
- 4.2.5 A provisional timeframe for accreditation can be agreed with RDG Accreditation.
- 4.2.6 Narrative:
1. The supplier provides RDG Accreditation with a System Proposal describing the TIS, or new features of the TIS, at a high level. The initial contact point with RDG Accreditation is TIS.Accreditation@raildeliverygroup.com.
 2. RDG Accreditation reviews the System Proposal in respect of existing RDG Standards as well as the industry's current retail strategy. This review may involve the RDG Head of Ticketing. Each component system that comprises a retail solution will be considered in isolation to determine whether or not it requires accreditation.
 3. The supplier considers whether or not to proceed with the proposal.
 - 3.1 The supplier reaffirms their intention to proceed with TIS development, which may be revised based on feedback from RDG Accreditation.
 - 3.1.1 In ASSIST, RDG Accreditation creates each new system that forms part of the retail solution under the respective Supplier. If necessary, a new supplier is set up to enable user access to be granted.
 - 3.2 All relevant personnel at the Supplier should request their own individual ASSIST account at www.rspaccreditation.org.
 - 3.2.1 An ASSIST account is created for each requestor under their company and training of the tool is arranged.
 - 3.2.2 Relevant personnel at the supplier complete ASSIST training so that they can navigate the tool, find relevant documentation, use verification tools and make an application for accreditation.

4.2.7 Initial Discussion Process Diagram:

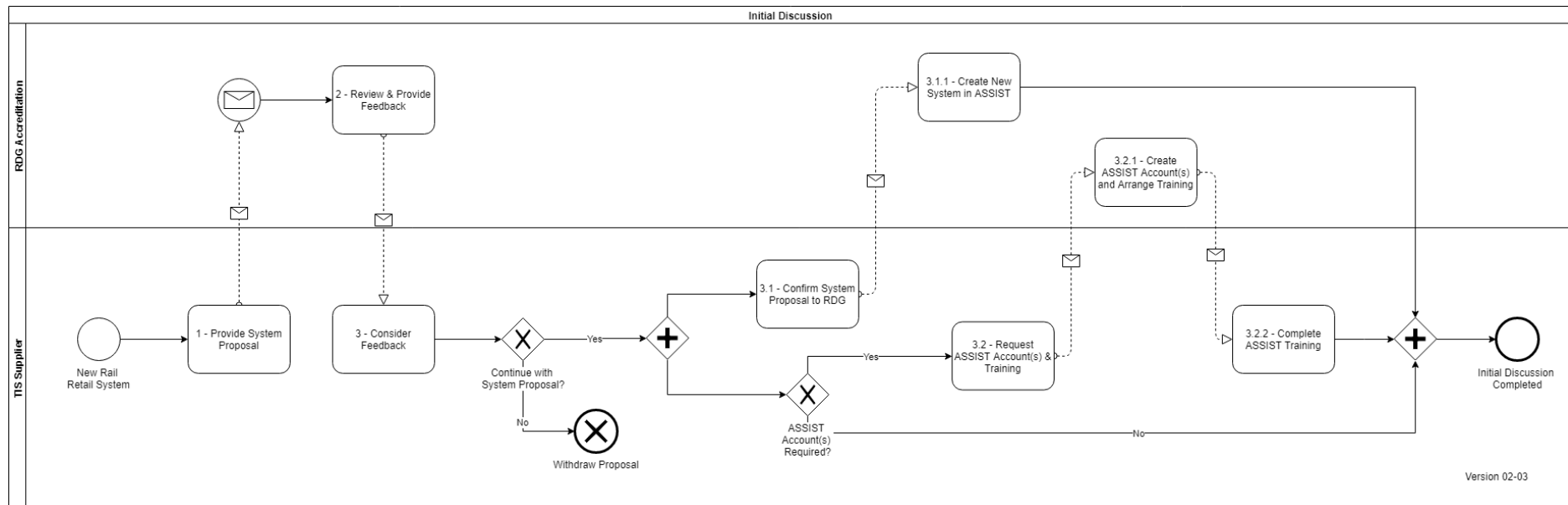


Figure 4 – Initial Discussion

4.3 TIS development

- 4.3.1 Suppliers are advised to refrain from commencing TIS development in earnest until the Initial Discussion stage has completed. This is to avoid issues arising where the system proposal needs to be revised.
- 4.3.2 The TIS must be developed in accordance with the applicable RDG Standards.
- 4.3.3 Although RDG Accreditation is unable to advise on system development, support can be offered in the understanding of RDG Standards. Any such work is chargeable.
- 4.3.4 The Supplier must request access to the relevant RDG systems such as; NRS, LSM, ALTS, Lennon, RCS, DTD, etc. Access is initially limited to test instances of these systems, where they exist. Credentials for the equivalent live systems are provided later in the accreditation process, shortly before entry into pilot operation.
- 4.3.5 Setting up a connection to an RDG system may incur a charge or a lead time, which will be stated in the relevant RDG Standard.
- 4.3.6 All TIS development must have completed prior to the Accreditation Testing stage to ensure that test evidence is submitted using the finalised version of TIS software.

4.4 Application

- 4.4.1 RDG Accreditation requires the technical details of a TIS version to estimate the accreditation effort involved and define the scope of accreditation (Compliance Review stage).
- 4.4.2 An application should only be made when the content of the TIS version is finalised, or near to completion, to ensure relevance of the accreditation estimate and resourcing. It is preferable to de-scope certain features of a TIS release than for functionality to be added at a late stage.
- 4.4.3 A 'Functional Specification' document is then produced, which should detail:
- All new functionality in the TIS version (or all functionality for a new TIS);
 - A description of the retailing and issuing processes;
 - Architecture diagram of system components, including any external APIs;
 - Any resolved RDG Accreditation JIRA issues;
 - Any changes made to achieve compliance with updated RDG Standards;
 - The previous version of the TIS to which the new version is based on; and
 - The envisioned deployment dates.
- 4.4.4 If the 'Functional Specification' does not adequately explain the behaviour of the TIS, the Compliance Review stage will be unnecessarily prolonged.
- 4.4.5 An application must be made for all versions of a TIS, so that it is recorded in ASSIST. RDG Accreditation will determine whether a version is subject to accreditation or not, based on the application. Any decision not to perform accreditation of a TIS version needs to be recorded for audit purposes.
- 4.4.6 Narrative:
1. The supplier produces the technical 'Functional Specification' document for the system version.
 2. The supplier makes an Application for a new version of a TIS in ASSIST, attaching the 'Functional Specification' document.
 3. RDG Accreditation informs central RDG system providers of the new TIS version and creates a record in RDG Accreditation's issue management tool, JIRA.

4.4.7 Application stage Process Diagram:

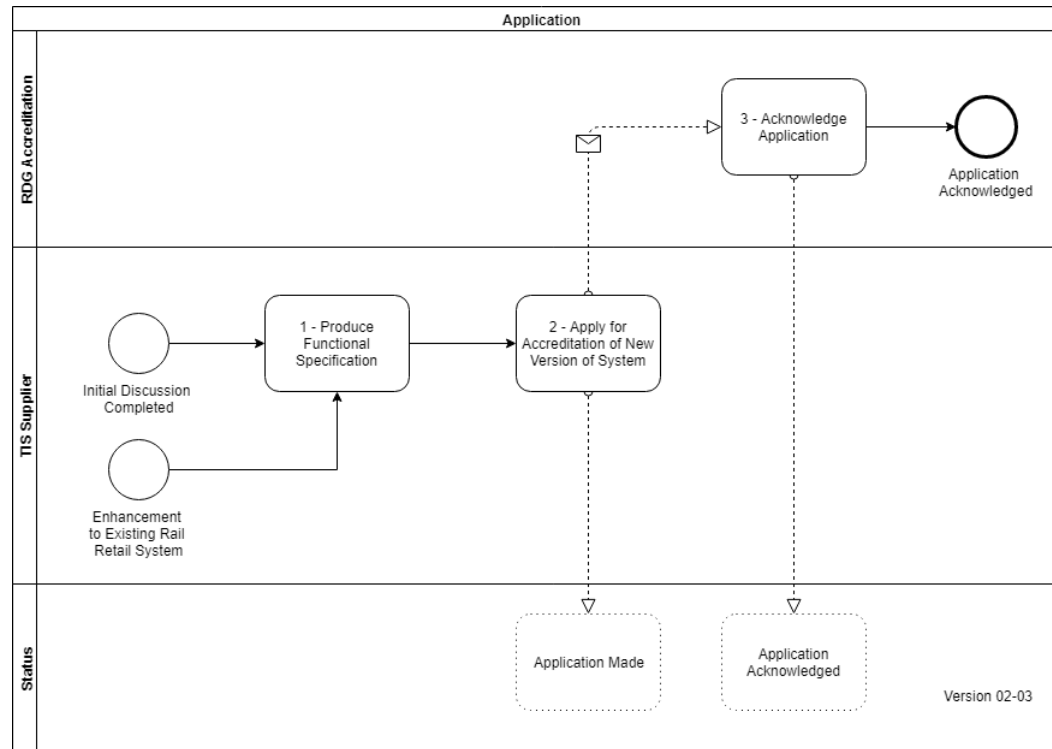


Figure 5 - Application

4.5 Scheduling accreditation

- 4.5.1 From the content of the application and associated Functional Specification, RDG Accreditation can estimate the accreditation effort involved and provisionally confirm a slot for accreditation of the TIS. On rare occasions, for small changes to a TIS, no accreditation is required.
- 4.5.2 A provisional accreditation slot, agreed at the time of Initial Discussion, is formalised when a purchase order is received from the Supplier for the estimate. The exception is where a Supplier has an accreditation contract (see section 6) and intends to use their allocated resource.
- 4.5.3 RDG Accreditation will only invoice for work carried out, which may be different from that specified in the estimate.
- 4.5.4 Where RDG Accreditation determines that accreditation of the new TIS version is not required, it will take the same status as the previous version, which may be unaccredited.
- 4.5.5 Narrative:
1. The supplier application, including the 'Functional Specification' document, is reviewed by RDG Accreditation to determine the amount of accreditation effort required.
 - 1.1 If the application is covered by an accreditation contract with the Supplier, the RDG Accreditation Business manager confirms the accreditation slot with the Supplier
 - 1.2 If the application is not covered by an accreditation contract with the Supplier, the RDG Accreditation Business Manager checks resourcing within RDG Accreditation and identifies available accreditation slots.
 - 1.2.1 RDG Accreditation provides the supplier with an estimate and accreditation slot.
 - 1.2.2 The Supplier raises a purchase order for the accreditation effort estimated.
 - 1.2.3 The RDG Accreditation Business Manager adds the TIS version to the accreditation workplan and allocates resource.

4.5.6 Scheduling Accreditation Process Diagram:

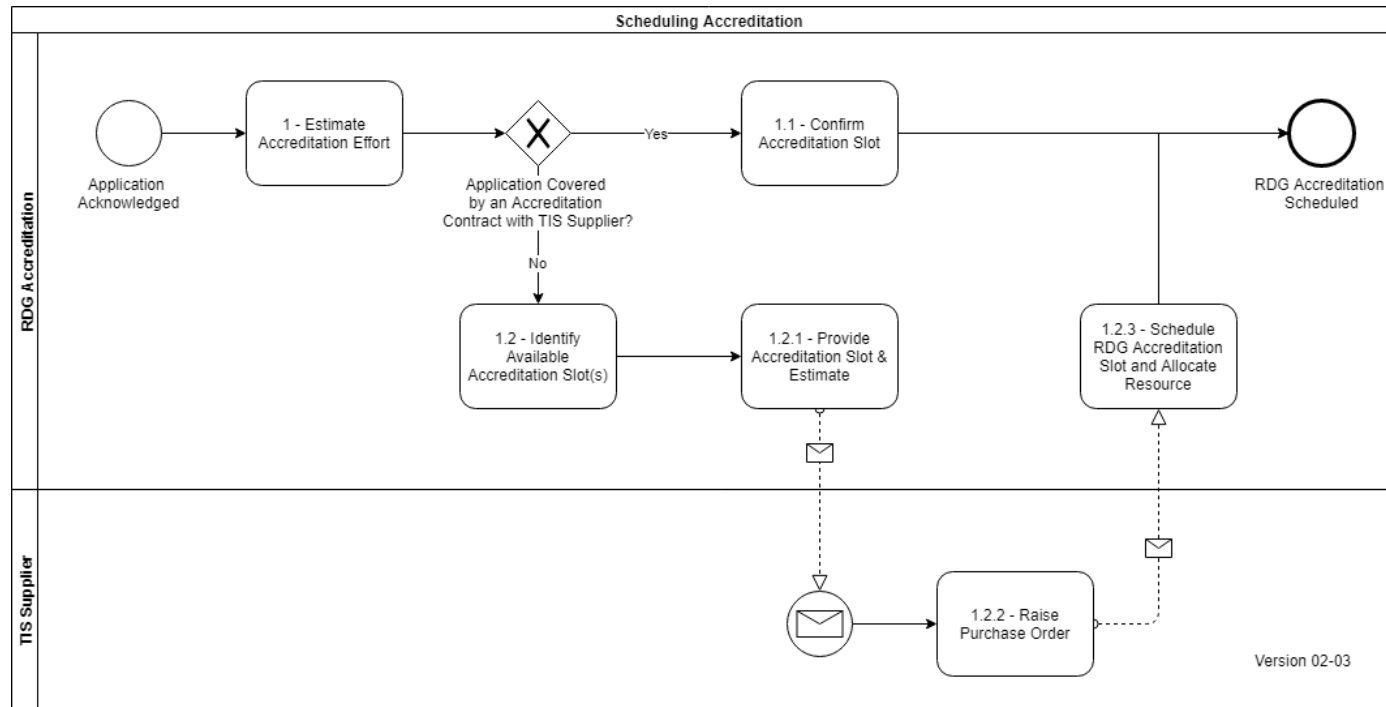


Figure 6 - Scheduling Accreditation

4.6 Compliance Review

- 4.6.1 The Compliance Review is the first stage to commence following confirmation of the accreditation slot.
- 4.6.2 A Compliance Review document is produced to confirm RDG Accreditation's understanding of the content of the new TIS version, define the scope of accreditation and set the test coverage for accreditation.
- 4.6.3 RDG Accreditation determines the RDG Standards to be reviewed under the accreditation and the relevant version for each (generally the latest version of each Standard will be relevant). If a new version of an RDG Standard has only recently been published, the TIS Supplier may negotiate with RDG Accreditation to use the previous version of the Standard. However, the TIS Supplier must provide a plan for achieving compliance with the latest version within the timescale specified at the time of publication (usually twelve months).
- 4.6.4 Other external systems under the remit of the TIS Supplier, including their system versions, which comprise the overall retail solution are recorded in the Compliance Review document.
- 4.6.5 An issued Compliance Review document is valid for three months.
- 4.6.6 For a small change to an existing TIS version (e.g. fault fix), then at the discretion of RDG Accreditation, the Compliance Review may not be required for the supplier to implement a new version.
- 4.6.7 Narrative:
1. RDG Accreditation creates a draft 'Compliance Review' document based on the information provided during the Application stage.
 2. An initial draft of the 'Compliance Review' document is shared with the supplier for review.
 3. The draft 'Compliance Review' document is reviewed by the supplier, addressing any questions raised by RDG Accreditation and highlighting any inaccuracies or misunderstandings.
 - 3.1 The supplier submits comments relating to the draft 'Compliance Review' document to RDG Accreditation.
 - 3.1.1 The supplier's comments are reviewed by RDG Accreditation.
 - 3.1.1.1 The supplier is notified where comments will not be incorporated into the 'Compliance Review' document.
 - 3.1.1.2 If comments are to be incorporated, a new draft version of the 'Compliance Review' document is produced.
 - 3.2 The supplier confirms the completeness and accuracy of the 'Compliance Review' document.
 - 3.2.1 RDG Accreditation issues the 'Compliance Review' document.

4.6.8 Compliance Review Process Diagram:

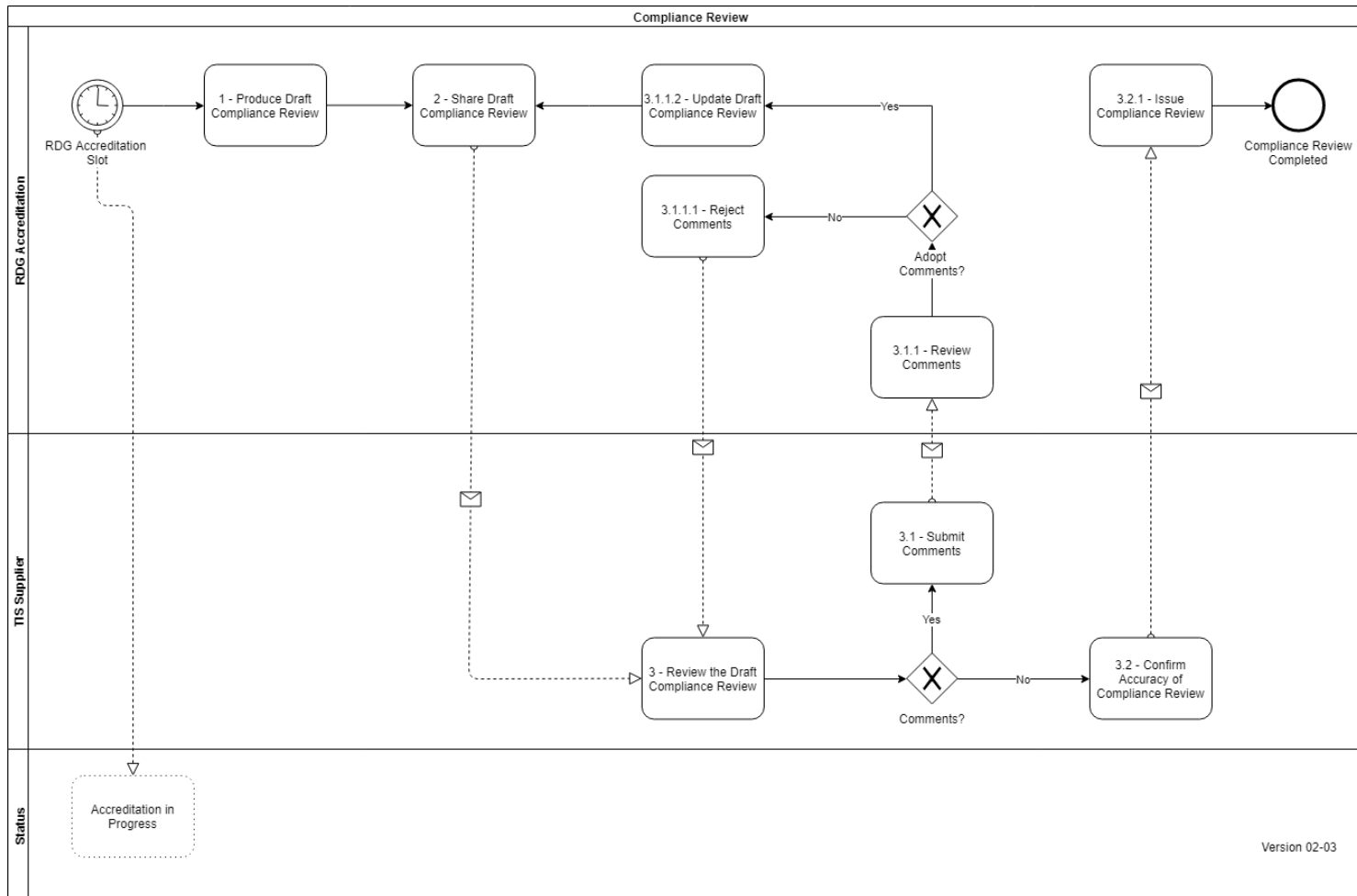


Figure 7 - Compliance Review

4.7 Accreditation testing

- 4.7.1 RDG Accreditation recommends that UAT is concluded before entry into this stage to avoid the need for repetition of accreditation activities.
- 4.7.2 The agreed test coverage set out in the issued 'Compliance Review' document is performed.
- 4.7.3 There may be (up to) four elements of accreditation testing required;
- Version-specific testing.
 - Evidence of fixes to rectify RDG Accreditation JIRA issues.
 - Accreditation testing Requirements in the RDG Standards.
 - Regression testing, including interoperability testing.
- 4.7.4 Demonstration of compliance with an accreditation requirement from an RDG Standard may take several forms:
- A written statement of compliance;
 - A screenshot or visual evidence provided;
 - Physical evidence provided;
 - Witness testing with RDG Accreditation.
- 4.7.5 Test results from UAT or regression testing can be presented as accreditation evidence provided there has been no change to that element of the TIS since the last accreditation.
- 4.7.6 The TIS Supplier should present evidence in ASSIST (unless the form of evidence prevents doing so), by uploading files and providing any relevant comments or statements. Comments are of a more transient nature (e.g. discussion to clarify requirements), whereas Statements are permanent and are carried forward to any subsequent interim accreditation.
- 4.7.7 Test evidence may be completed and submitted to RDG in batches. This approach is preferable so that checking by RDG Accreditation can commence as soon as possible.
- 4.7.8 Any highlighted non-compliance is recorded in JIRA, with the severity of the issue set according to the categorisation criteria (see Appendix A).
- 4.7.9 Following submission and checking of all test evidence, RDG Accreditation reviews any open JIRA issues against the TIS version. Any unresolved JIRA issues from previous TIS versions are then associated with the new TIS version and are included in the review. If there are any open Category 1 (Cat-1) issues associated with the TIS version, accreditation testing cannot be completed.

- 4.7.10 Where a TIS version has failed accreditation testing, a new system build is required to resolve the issue, resulting in a new TIS version to be presented for accreditation to track the change(s).
- 4.7.11 If all test evidence has passed accreditation checks, and no Cat-1 issues are open, the TIS version is authorised to enter pilot – subject to an approved pilot plan.
- 4.7.12 Narrative:
- 1.1 The applicable accreditation requirements tests from RDG Standards are assigned to the supplier in ASSIST by RDG Accreditation
 - 1.1.1 The supplier is instructed to respond to accreditation requirements tests assigned to them.
 - 1.1.2 The requested evidence is entered onto ASSIST by the supplier.
 - 1.1.3 The evidence provided by supplier is checked by RDG Accreditation.
 - 1.1.3.1 RDG Accreditation informs the supplier if further information or evidence is needed.
 - 1.1.3.2 An accreditation requirement is marked as passed where the evidence provided demonstrates compliance.
 - 1.1.3.3 A JIRA issue is raised where an accreditation requirement has not been met. The severity of the issue is set according to the categorisation criteria (see Appendix A).
 - 1.2 RDG Accreditation requests the test plan from supplier.
 - 1.2.1 The test plan is prepared by the supplier.
 - 1.2.2. The test plan is submitted to RDG Accreditation for review.
 - 1.2.3 The test plan is reviewed by RDG Accreditation and revised if necessary.
 - 1.2.4 The final revised test plan is undertaken by the supplier.
 - 1.2.5 Test evidence is submitted to RDG Accreditation.
 - 1.2.6 Test evidence is checked by RDG Accreditation.
 - 1.2.6.1 Test evidence is passed where evidence is compliant with RDG Standards.
 - 1.2.6.2 A JIRA issue is raised where evidence is not compliant with RDG Standards. The severity of the issue is set according to the categorisation criteria (see Appendix A).

2. Following submission and checks for all accreditation test evidence, the list of open JIRA issues is reviewed, including those raised in previous TIS versions that will now apply to the current version.
 - 2.1 If there is an open Cat-1 JIRA issue, the TIS version has failed accreditation and the supplier is notified.
 - 2.2 If there are no open Cat-1 JIRA issues, RDG Accreditation confirms to the supplier that accreditation testing is complete, authorises entry into pilot and requests a pilot plan.

4.7.13 Accreditation Testing Process Diagram:

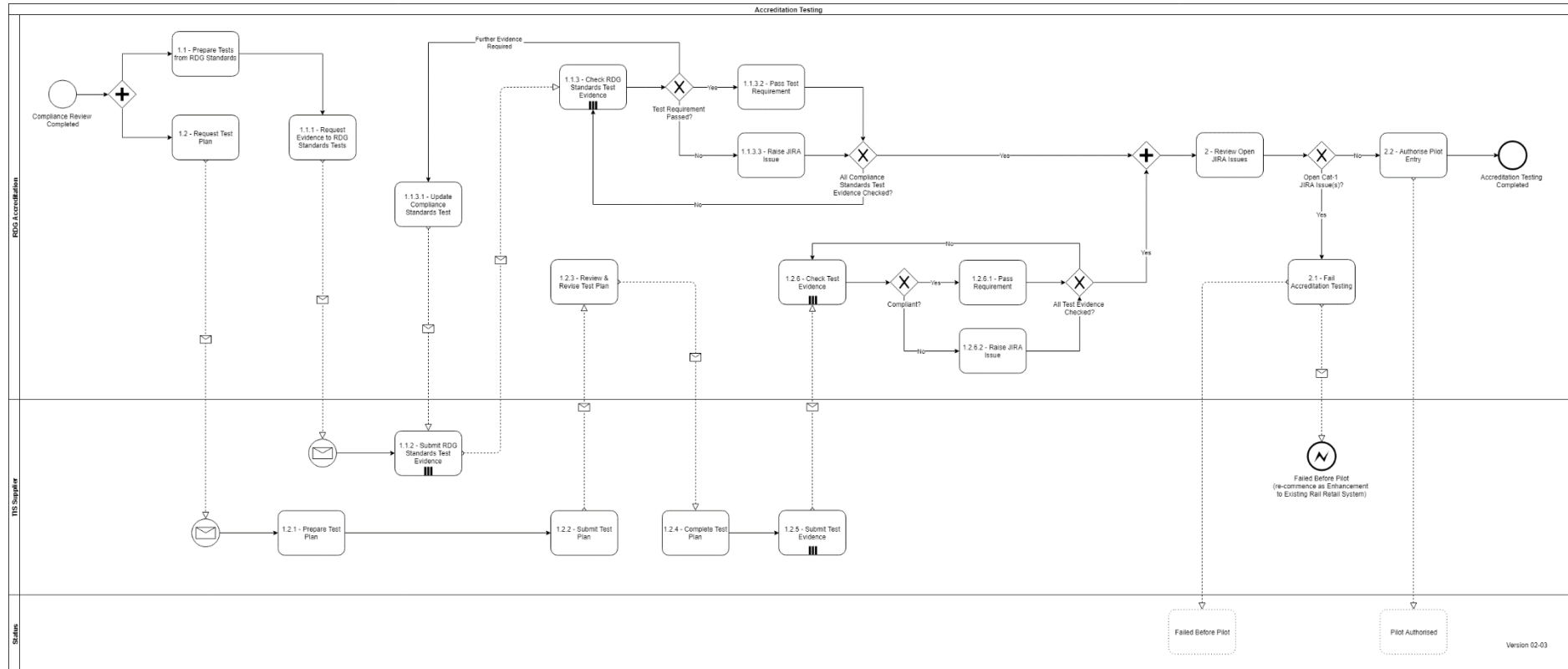


Figure 8 - Accreditation Testing

Key:
"III" symbol indicates an activity is repeated.

4.8 Pilot

- 4.8.1 The Pilot stage is a period of live operation of a TIS and all sales must be settled through RDG systems. Therefore, pilot planning is required to ensure a TIS version is deployed in a controlled manner and is monitored effectively.
- 4.8.2 The pilot plan needs to ensure a balance between attaining sufficient volume of traffic to prove system performance, but also retaining the ability to mitigate risk if any issues are encountered.
- 4.8.3 Pilot operation lasts for four weeks and should include the full period-end settlement process so that the retailer can verify revenue apportionment. If a four-week pilot does not provide sufficient evidence for the correct operation of the key new features in the TIS version, a longer pilot will be required. Only in exceptional circumstances may RDG Accreditation accept a pilot of shorter duration.
- 4.8.4 To ensure the availability of personnel to respond to any immediate issues, pilot cannot commence on a Friday or Saturday, or any day preceding a bank holiday in England. In addition, three business days' notice is required ahead of entering pilot.
- 4.8.5 If necessary, RDG Accreditation may elect to closely monitor settlement records during pilot through the Lennon support team, a service provided by Worldline. This service introduces an additional cost to the retailer.
- 4.8.6 The piloting retailer (which may be a TOC) will be consulted during pilot and advise on the TIS performance.
- 4.8.7 Any issues that occur during pilot are raised as a JIRA Issue. The severity of the issue is set according to the categorisation criteria (See Appendix A).
- 4.8.8 If any issue is determined to be Cat-1 in severity, pilot operation is suspended immediately, and the TIS must rollback to the previous version or be withdrawn from customer use. Issues outside of Cat-1 in severity do not impact continuation of the pilot.
- 4.8.9 At the end of the pilot, all open JIRA issues that apply to the TIS version are reviewed. If a Cat-2 issue remains unresolved, the system is considered to have failed during pilot. This prevents further rollout of the TIS version, and ultimately means that the retailer is in breach of their licencing obligations to use an accredited retail solution.
- 4.8.10 It may be beneficial to enter or continue pilot operation with a Cat-2 issue open so that confidence in the TIS version can be achieved in other areas. However, this TIS version will fail accreditation at the end of the pilot, and a new TIS version will need to be accredited.
- 4.8.11 Exit from pilot operation is permitted with open Cat-3 or Cat-4 JIRA issues.

4.8.12 Narrative:

1. The supplier provides RDG Accreditation with a pilot plan for TIS deployment.
2. The pilot plan is reviewed by RDG Accreditation, making any changes and notifying the supplier where necessary.
3. The supplier responds to the amended pilot plan.
4. The pilot plan is approved and RDG sends formal notification to;
 - Worldline - regarding the requirement, or not, to monitor the pilot, and
 - The TIS Supplier - authorising deployment of the TIS version.
5. The TIS version is deployed by the supplier in accordance with the pilot plan.
 - 5.1 If a Cat-1 JIRA issue is raised (in accordance with the categorisation criteria in Appendix A), the pilot is terminated immediately, and RDG instructs the TIS Supplier to withdraw the TIS version from customer use.
 - 5.1.1 The TIS is rolled back to a previous version by the supplier or is withdrawn from public use.
 - 5.2 After completion of the agreed pilot period, and with no Cat-1 JIRA issues raised, the list of open issues is reviewed, including those raised against a previous TIS version that remain unresolved.
 - 5.2.1 If a Cat-2 JIRA issue is open, the supplier is notified that the TIS version has failed accreditation during the pilot stage.
 - 5.2.2 If there are no Cat-2 JIRA issues open after completion of the pilot period, RDG Accreditation approves exit from pilot, permitting further deployment of the TIS version.

4.8.13 Pilot Process Diagram:

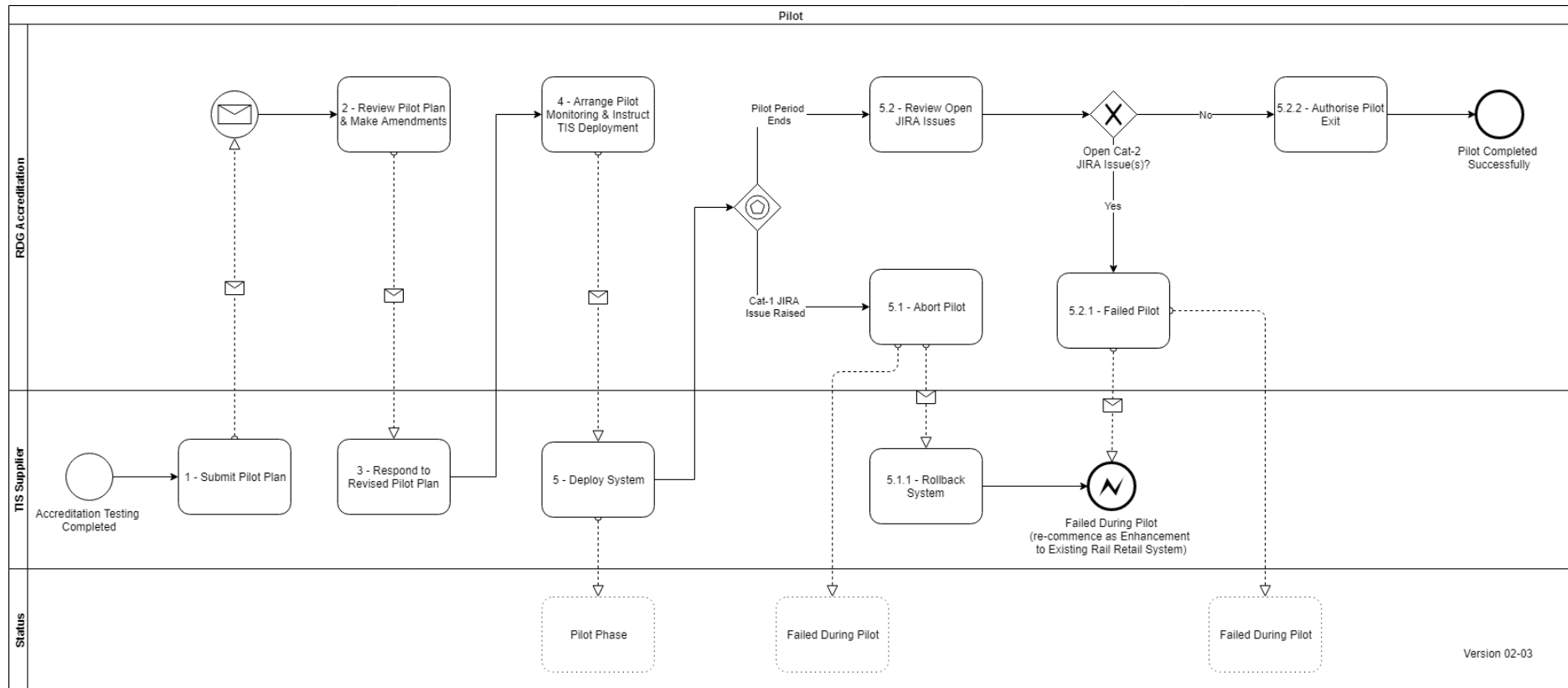


Figure 9 - Pilot

4.9 Certification

- 4.9.1 After successful completion of pilot, RDG Accreditation issues a 'Conditions of Approval' document, defining the accredited functionality of the TIS version and the conditions for accredited status to be retained.
- 4.9.2 It documents the scope of testing carried out by RDG Accreditation, including the caveat that testing only pertains to the integrity of settlement and ticketing, including the protection of RDG systems.
- 4.9.3 Schedules to the document will contain the details of concessions and derogations granted to the system. A derogation may require collective approval from the TOCs, and delay issue of the 'Conditions of Approval' as a result.
- 4.9.4 The TIS cannot be deployed beyond the constraints set in the 'Conditions of Approval' document without seeking re-accreditation of a new version of the system.
- 4.9.5 A TIS's accredited status pertains to a specific evidence-tested version of all, accreditable, component systems that comprise the end-to-end retail solution.
- 4.9.6 The 'Conditions of Approval' document is time-constrained and accompanied by a 'Certificate of Accreditation' specific to the TIS version.
- 4.9.7 Narrative:
1. RDG Accreditation creates a draft 'Conditions of Approval' document listing the accredited functionality for the TIS version and defining any conditions of its accredited status.
 2. A draft version of the 'Conditions of Approval' document is shared with the supplier for review.
 3. The 'Conditions of Approval' document is reviewed by the supplier.
 - 3.1 Supplier comments are sent to RDG Accreditation for consideration.
 - 3.1.1 Supplier comments are reviewed by RDG Accreditation.
 - 3.1.1.1 If comments will not be incorporated into the document, RDG Accreditation notifies the supplier.
 - 3.1.1.2 If comments will be incorporated into the document, RDG Accreditation updates the 'Conditions of Approval'.
 - 3.2 The supplier notifies RDG Accreditation that there are there are no further comments.
 - 3.2.1 RDG Accreditation issues the 'Conditions of Approval' document and 'Certificate of Accreditation'.

4.9.8 Certification Process Diagram:

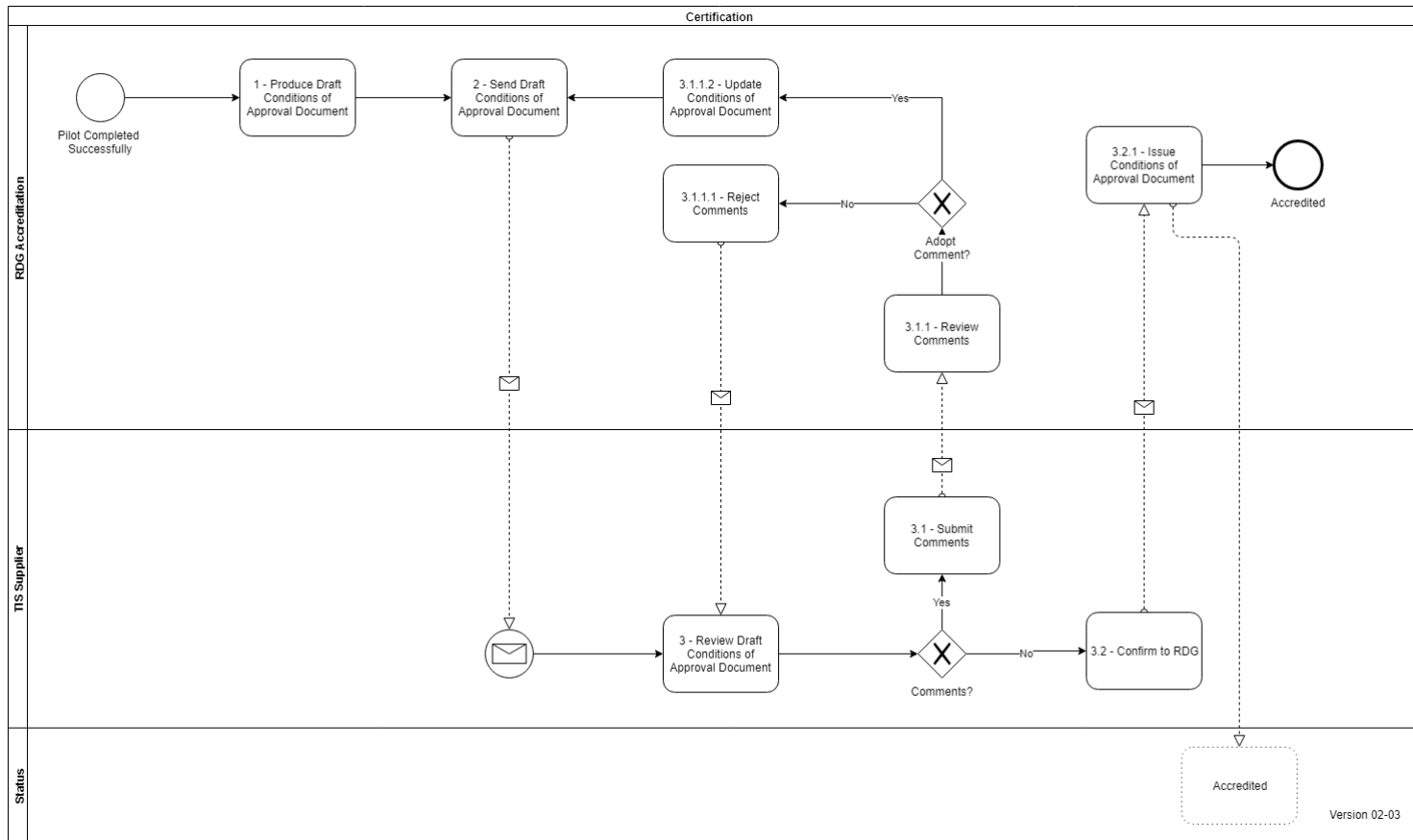


Figure 10 - Certification

4.10 Withdrawal of Accreditation

4.10.1 A TIS may have accreditation withdrawn for one of four reasons:

- 1) The RDG Back Office systems and / or the RDG data feeds no longer provide for all of the TIS functionality;
- 2) The TIS has been replaced with an upgrade which has since received accreditation;
- 3) The TIS has been decommissioned by the supplier;
- 4) Failure to address critical compliance issues

4.10.2 In the first case, RDG will provide the TIS supplier(s) reasonable time to upgrade their software to correct any errors or issues, or to remove the dependency on obsolete functionality.

4.10.3 In the third case of decommissioning, RDG will consult with the industry in respect of initiatives to decommission previously accredited TIS. This consultation will be driven by future business requirements and agreed strategy in respect of such accredited products. Following this consultation, RDG will review the asset base of the product and identify a date by which all installations should have been decommissioned. From this date the product will be declared 'Accreditation Withdrawn'.

4.10.4 In the event that a supplier fails to address critical compliance issues in respect of its application in the previously declared timescales, RDG will withdraw accreditation for the product. This withdrawal of accredited status will be accompanied with a notice to the known customer base.

4.10.5 The status of the TIS version will be amended in ASSIST to 'Accreditation Withdrawn'.

5. Systems used by RDG accreditation

5.1 ASSIST

- 5.1.1 ASSIST is a web portal used by the RDG Standards & RDG Accreditation teams, as well as TOCs and TIS Suppliers.
- 5.1.2 Current and previous RDG Standards are available to download from ASSIST.
- 5.1.3 The accreditation process is tracked through ASSIST.
- 5.1.4 A user's access is restricted to those areas relevant to them, to safeguard the commercially sensitive information of any other company.
- 5.1.5 A user account for ASSIST can be requested from the landing page at www.rspaccreditation.org. RDG will verify an account request with a known ASSIST user for the company.
- 5.1.6 Training and training materials for the ASSIST portal can be requested from RDG Accreditation at TIS.Accreditation@raildeliverygroup.com.

5.2 JIRA

- 5.2.1 Any issues raised during the accreditation process are logged in RDG Accreditation's issue management portal, JIRA, available at <https://raildeliverygroup.atlassian.net>.
- 5.2.2 Any issues highlighted outside of the accreditation process are also raised in JIRA but are categorised as 'operational'.
- 5.2.3 Every TIS and its associated version number is added to JIRA, so that any issue can be associated with the affected TIS version(s).
- 5.2.4 JIRA terminology uses 'Project' for a TIS, and 'Component' for a TIS version.
- 5.2.5 A request for a JIRA account should be sent to TIS.Accreditation@raildeliverygroup.com. The request must include the following:
- Email subject of 'JIRA Account Request';
 - Name;
 - Company;
 - Job Title; and
 - List of TIS that access is requested for.
- 5.2.6 RDG Accreditation will verify the request with a known JIRA user for the company.
- 5.2.7 Access requests from TOCs can only be granted with the agreement of the TIS Supplier(s) appropriate to the Project(s) requested.
- 5.2.8 Access in JIRA is restricted to the TIS(s) for which a user has been granted permission to view.
- 5.2.9 All users can view, create, comment, add watchers and change assignee of an Issue for the TIS(s) for which they have access to.
- 5.2.10 Only RDG can amend the severity of an Issue or amend the status of an Issue to 'Closed'.
- 5.2.11 The severity of a JIRA Issue will be set by RDG Accreditation according to the categorisation criteria set out in Appendix A.

5.2.12 An Issue in JIRA has the following lifecycle:

- **Open:** the first state of a JIRA Issue when it has been created.
- **In Progress:** the state when a fix to the Issue is being progressed.
- **Monitoring:** a fix to an Issue may need to be demonstrated during the pilot stage of the accreditation process and is monitored for reoccurrence.
- **Resolved:** a fix to an issue has been demonstrated and confirmed by RDG Accreditation. The TIS version containing the fix is added to the 'Fix Version' field.
- **Closed:** all TIS versions affected by the Issue have been upgraded to a new version which does not carry the same issue.
- **CoA/Compliance Review:** RDG Accreditation has determined that a fix for the Issue is not required at this time. This exception is recorded in the 'Conditions of Approval' document issued at the end of the accreditation process.

6. Costs

6.1 Accreditation charges

6.1.1 RDG Accreditation charges for time expended on accreditations on a time and expenses basis. Please contact TIS.Accreditation@raildeliverygroup.com for details of current rates.

6.1.2 A Supplier may enter into a contract with RDG Accreditation to purchase a fixed number of days' accreditation resource per rail period, at a reduced rate. Please contact TIS.Accreditation@raildeliverygroup.com for further details.

6.1.3 The estimate for accreditation effort required will be based on prior experience of running the accreditation process on a range of different types of TIS. The factors affecting the effort required for accreditation include:

- Complexity of the TIS design and associated functionality (e.g. product range, fulfilment methods supported, journey planning functionality);
- Proposed scale of implementation and the likely risks to settlement;
- Information provided to RDG in the application stage of the accreditation process;
- Co-operation from the TIS Supplier during the accreditation process;
- Quality and execution of the testing carried out by the supplier prior to accreditation; and
- Quality of test evidence submitted to RDG.

6.1.4 An estimate of the likely cost of accreditation will be provided prior to the commencement of work, however any reference to dates or timescales for the completion of an activity by RDG shall be an estimate only.

6.2 Pilot monitoring

6.2.1 RDG Accreditation may require close monitoring of settlement records during the pilot stage of the accreditation process.

6.2.2 Pilot monitoring is an external service provided by Worldline and incurs a separate weekly charge to monitor a fixed number of TIS instances.

6.3 Connectivity

6.3.1 Connection to an RDG data feed or system may incur a charge. Likewise, a charge may be levied to use a third-party system involved in the retailing process.

6.3.2 The nature of the charging regime, and any lead times to connect, are provided in the relevant RDG Standard.

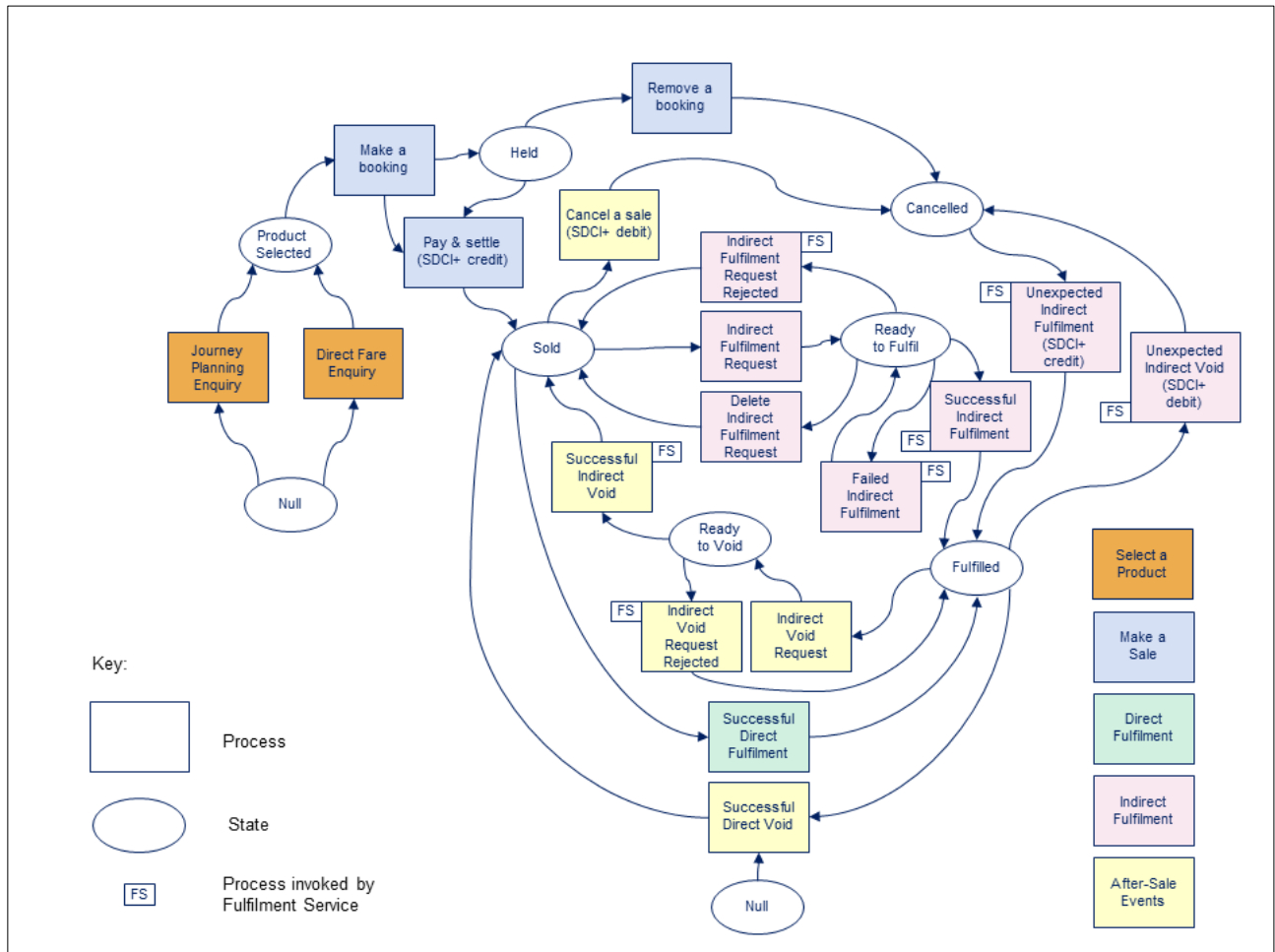
Appendix A. JIRA categorisation

Accreditation and Operations Issues can be categorised as one of three levels of severity¹, as described below. It may be necessary to temporarily place an issue in Category 4 should a resolution require assistance from a third party.

Definition	Compliance Review & Accreditation	Pilot Operation	Live Operation
Category 1	The issue has a business-critical impact on RDG Systems, RDG Services or the chosen fulfilment process, causing any one of them to stop working, or has an impact on the accuracy of settlement. There is evidence that RDG Systems, RDG Services or the chosen fulfilment process have stopped working, or that settlement is inaccurate.		
Action	Agree with the supplier how and when the issue will be fixed during accreditation and record in JIRA. This will include any re-accreditation work. The TIS cannot proceed into Pilot Operation until the issue has been closed by RDG.	The issue must be fixed within the business day. Pilot Operation must cease and the TIS regressed to the previous accredited version pending re-accreditation. RDG to escalate the issue to TIS customer(s) if the deadline to fix is missed.	The issue must be fixed within the business day and an emergency patch implemented. If unable to patch, the supplier must regress to the previous accredited version within the business day. RDG to escalate the issue to TIS customer(s) if the deadline to fix is missed.
Category 2	The issue has a non-business critical impact and whilst RDG Systems, RDG Services or the chosen fulfilment process are still able to operate, the quality or timeliness of RDG Systems, RDG Services or the chosen fulfilment process is being impacted. There is evidence that RDG Systems, RDG Services or the chosen fulfilment process are being adversely impacted. There is no impact on the accuracy of settlement.		
Action	Agree with the supplier how and when the issue will be fixed during accreditation and record in JIRA. This will include any re-accreditation work. The TIS can still enter Pilot Operation with the issue open.	Agree with the supplier how and when the issue will be fixed during Pilot Operation and record in JIRA. This will include any re-accreditation work. The TIS cannot exit Pilot Operation until the issue has been fixed. RDG to escalate the issue to TIS customer(s) if the deadline to fix is missed.	Agree with the supplier how and when the issue will be fixed and record in JIRA. This will include any re-accreditation work. RDG to escalate the issue to TIS customer(s) if the deadline to fix is missed.
Category 3	The issue does not impact on RDG Systems, RDG Services or the chosen fulfilment process. There is no evidence that RDG Systems, RDG Services or the chosen fulfilment process are being adversely impacted. There is no impact on the accuracy of settlement.		
Action	Agree with the supplier how and when the issue will be fixed and record in JIRA. The TIS can still enter Pilot Operation with the issue open.	Agree with the supplier how and when the issue will be fixed and record in JIRA. The TIS can still exit Pilot Operation with the issue open.	Agree with the supplier how and when the issue will be fixed and record in JIRA. RDG to escalate the issue to TIS customer(s) if the deadline to fix is missed.
Category 4	An issue has been identified but cannot be resolved without action by a third-party. Evidence and acknowledgement are needed from the third-party.		
Action	Monitor progress of third-party resolution and re-categorise when dependency has been removed.	Monitor progress of third-party resolution and re-categorise when dependency has been removed.	Monitor progress of third-party resolution and re-categorise when dependency has been removed.

¹ This table is available within ASSIST on the home page.

Appendix B. Product Record state transition diagram



Appendix C. Accreditation process checklist

Stage of Accreditation Process	Item
Initial Discussion	System Proposal provided to RDG Accreditation.
	Access to RDG documentation through ASSIST.
	ASSIST training completed.
Application	Functional Specification document issued.
	Application for accreditation in ASSIST.
Scheduling Accreditation	Accreditation estimate provided.
	Accreditation scheduled.
TIS Development	Connectivity to (as required): <ul style="list-style-type: none"> • Journey Planner. • ALTS/Lennon. • Test/Live LSM. • Test/Live TMS/other Fulfilment Service. • Test/Live NRS. • Approved data feeds. • An eTVD.
	Access to verification tools (if new TIS): <ul style="list-style-type: none"> • Test LSM Console. • Test NRS portal. • Test TMS portal.
	Internal testing completed.
	Forms <ul style="list-style-type: none"> • Lennon Machine Type, if writing SDCI+.
	Third-party certification, such as ITSO or Oyster.
Compliance Review	Compliance Review document issued.

Accreditation Testing	Connected to (as required):
	<ul style="list-style-type: none"> • ALTS • Test LSM • Test TMS/other Fulfilment Service • Test NRS • Approved data feeds • An eTVD
	TIS version captured in (as required):
	<ul style="list-style-type: none"> • SDCI+ 2C record • LSM CTRs
	Test fulfilment indicators (as required):
	<ul style="list-style-type: none"> • Specimen CCST stock • Specimen PRT stock • Test barcode key • Test mTicket colour scheme • Test eTicket colour scheme • Test ITSO keys
	Accreditation testing completed.
	No open Cat-1 RDG JIRA issues.
Pilot	Retail licence issued to sponsoring retailer.
	Connected to (as required):
	<ul style="list-style-type: none"> • Lennon • Live LSM • Live TMS/other Fulfilment Service • Live NRS • Approved data feeds • An eTVD
	TIS version captured in (as required):
	<ul style="list-style-type: none"> • SDCI+ 2C record • LSM CTRs
	Distribution of live barcode key (lead time necessary).
	No open Cat-1 or Cat-2 RDG JIRA issues.
	Authorisation of wider deployment of system version.
Certification	Conditions of Approval document issued.
	Certificate of Accreditation issued.

End.