



Office of the
Deputy Prime Minister

Creating sustainable communities



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

HOME CONDITION REPORT REGISTER & ASSOCIATED SERVICES (ODPM Procurement Ref: 06043)

SERVICES REQUIREMENTS SPECIFICATION

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1 INTRODUCTION

1.1 BACKGROUND

From 1 June 2007, sellers of marketed residential property in England and Wales or their agents will be required to prepare, or arrange through an agent the preparation of, a Home Information Pack (HIP). This pack will comprise a number of documents including a Home Condition Report (HCR¹) prepared by Home Inspectors who must be a member of a Certification Scheme and will be responsible for producing Home Condition Reports.

The Home Information Pack will be made available to prospective buyers and all other interested parties subject to access rights. This only applies to sales of residential properties in England and Wales and the Home Condition Report is not required for new homes and non-domestic properties.

The Housing Act 2004 requires that where a Certification Schemes applies, the Secretary of State must be satisfied that appropriate provision exists for:

- Requiring Home Condition Reports to be entered on a register. This register may be owned by, or on behalf of, the Secretary of State.; and
- The keeping of a public register of the members of the scheme.

The Home Condition Report Register is necessary to ensure the authenticity of the Home Condition Report, so that it can and will be trusted by those entitled to rely on it, i.e. buyers and lenders as well as the seller who procures it. In particular the Home Condition Report Register ensures that:

- The Home Condition Report can be produced only by a registered Home Inspector.
- Home Condition Reports are insured.
- Consumers and others can check that the copy of a Home Condition Report provided to them is a true copy of the original.
- Mortgage Lenders can rely on the Home Condition Report as it will come from a trusted source so that the Home Condition Report may be used to underpin valuations in many cases.
- The Certification Schemes can monitor the work of their members.

1.2 PURPOSE OF THIS DOCUMENT

This document contains details of the business requirements that need to be met by the Home Condition Report Register Operator with functional specifications for all the key services and success criteria for achieving the critical non-functional requirements.

The Business Requirements cover the full set of activities and processes that a business needs to carry out in order to achieve its business aims – they are a definition of what needs to be achieved not how it is achieved.

Business Requirements can be further categorised in a number of different ways depending on the nature of the business being described. So, because the Home Condition Report Register is primarily a data storage environment, the Home Condition Report Register and Associated Consolidation Services (collectively called the Home Condition Report Register) Business Requirements has been divided into the following key sections:

¹ HCR is the generally used abbreviation for a Home Condition Report but for the purpose of clarity acronyms are not used within this document.

Requirements Summary –summarises the business requirements, including the aspirational requirements, and any assumptions and assertions that are relevant to understanding or interpreting the requirements.

Functional Requirements –contains functional descriptions of the main business processes that the Home Condition Report Register Operator is expected to operate on behalf of the ODPM. Note that these functional descriptions are not formal specifications.

Operational Requirements – outlines the general policies and data management requirements that the Home Condition Report Register Operator is expected to adhere to.

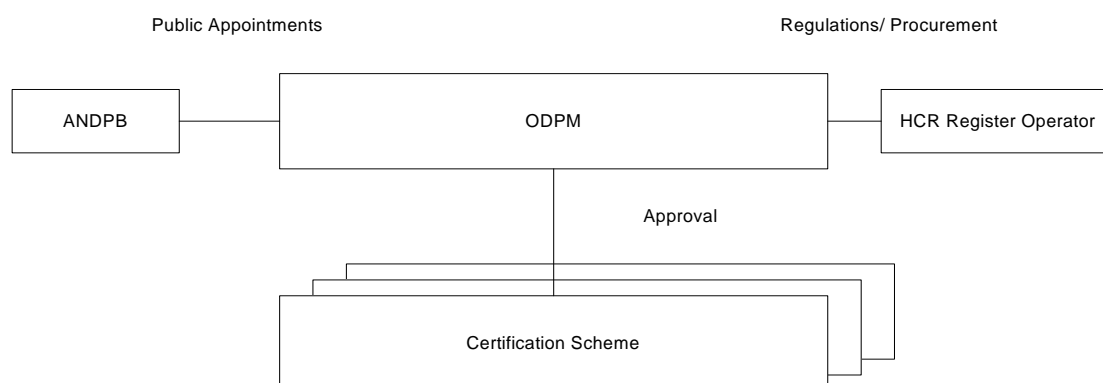
Other Responsibilities describes the administrative and governance functions that the Home Condition Report Register Operator will carry out on behalf of the ODPM.

Future Requirements – although not part of the initial procurement this section describes a number of known requirements that may potentially have to be supported during the life of the contract. Consequently it is expected that any proposed solution should, wherever possible, take these requirements into consideration in order to ensure that the cost and impact of any changes are minimised.

The **Appendices** at the end of the document contain background detail that may be of interest to the reader.

1.3 ORGANISATIONAL VIEW

Numerous organisations will be involved, either directly or indirectly, in providing the key functionality described required for the Home Information Pack. Below is a pictorial representation of the organisation level view:



The following four bodies make up the Home Condition Report and Home Inspector Registration and retrieval functions:

Advisory Group

The role of this body would solely be to provide independent expert advice to ODPM and it has no executive powers. Its purpose would be to advise ODPM on the ongoing suitability of the Standards, recommending changes where necessary, and also advising on issues relating to performance of Certification Schemes.

ODPM

The Secretary of State will approve Certification Scheme(s) against the Criteria and Standards documentation. The Standards governing Home Inspectors, Certification Schemes and Home Condition Reports will be published owned and maintained by ODPM.

Certification Scheme(s)

Certification Schemes will be required to comply with all the conditions attached to their Approval, including the Criteria and the Standards.

Certification Schemes will be required to carry out certain primary functions in accordance with the Standards which define minimum acceptable levels of operation, performance data and associated quality management that is required by ODPM together with those areas of required co-operation with other Certification Schemes.

Home Condition Report Register Operator

The Home Condition Report Register Operator will be procured by ODPM. It will be responsible for providing a central 'archive' Home Condition Report Register and the provision of a portal for locating the Home Inspector and Home Condition Report information from the various Certification Scheme(s) registers.

2 REQUIREMENTS SUMMARY

This section summarises the business requirements, including the aspirational requirements, and any assumptions and assertions that are relevant to understanding or interpreting the requirements.

2.1 FUNCTIONAL REQUIREMENTS

This section is a summary of the key services and metrics described in Section 3.

Section	Service	Availability	Responsive	Transaction Volumes (see Section 2.4.1)
3.1	Home Condition Report Registration	Very High (99.99%)	< 2 minutes on-line / 12 hours off-line	1,600,000 to 1,800,000 per annum
3.2	Change Home Condition Report Status	Low	< 12 hours	~100,000 per annum
3.3	Home Condition Report Index & Portal	Very High (99.99%)	< 1 minute	11,200,000 to 18,000,000 per annum
3.4	Search Home Inspector Register Index	Very High (99.99%)	< 1 minute	4,800,000 to 9,000,000 per annum
3.5	Property & Addressing Database	Very High (99.99%)	< 1 minute	4,800,000 to 9,000,000 per annum

In addition there may be a number of secondary services required to support the primary services that are implementation specific so out of scope of this document. These secondary services would be expected to meet the operational requirements of the primary services.

2.2 OPERATIONAL REQUIREMENTS

This section is a summary of the key requirements described in Section 4.

Section	Requirement Outline
4.1	It is incumbent on the Home Condition Report Register Operator to ensure that the internal integrity of the Home Condition Report is maintained over time and is protected from unauthorised tampering.
4.2	It is essential that all Home Condition Report in the HCR register are regularly backed-up.
4.2	The Home Condition Report Register operates as a no-loss data environment.
4.3	The Home Condition Report is to be retained as a working document for 15 years.
4.4	The overall availability requirements for the Home Condition Report Register and related services must meet the operational requirements of the significant user groups.
4.5	A critical business driver is being able to extend the Home Condition Report without incurring significant impact or unnecessary changes.
4.6	It is the responsibility of the Home Condition Report Register Operator to develop procedures for disaster recovery that minimises the impact of any major system outage.

2.3 ASPIRATIONAL REQUIREMENTS

This section covers the aspirational requirements for the Home Condition Report Register. These are the requirements that either cannot be measured or for which success is a subjective measure.

For example “The consumer should trust the Home Condition Report...” is an Aspirational Requirement because it cannot be pre-defined in absolute terms - the degree of trust is dependent on who is being asked the question and how they personally feel about the Home Information Pack in general.

Although no absolute solutions can be provided for these requirements it is expected that any tender should reflect an understanding of the purpose of the Home Condition Report and demonstrate wherever appropriate how any proposed solutions will help in achieving these aspirational requirements.

Ref	Requirement Outline
AR01	<p>The consumer should trust the Home Condition Report and have confidence in its integrity & authenticity.</p> <p>The Home Condition Report Register will be the Database of Record for all Home Condition Reports and in the event of dispute provides the definitive statement regarding the actual Home Condition Report that was produced and lodged along with the underlying data that was used to produce that Home Condition Report.</p> <p>As such it is essential to build consumer confidence in the integrity of the Home Condition Report Register, the authenticity of the reports stored in it and the services it provides.</p>
AR02	Provision should be made to ensure that the solution can be continually improved
AR03	Home Condition Report Register facilities should be a tool for upholding the Act and policing the quality of the Home Inspectors work.
AR04	Home Condition Report Register must assist in minimising fraud and abuse.
AR05	The process of using the Home Condition Report Register should not unnecessarily delay or obstruct a property sale.
AR06	The Home Condition Report Register should be capable of storing Energy Proficiency Certificate

2.4 GENERAL ASSUMPTIONS

There are a number of working assumptions made throughout this document, which are summarised here:

- The loading of new Home Condition Reports is relatively predictable. Once “Registered” a Home Condition Report cannot be modified, so there are no “modify” transactions. Incorrect or invalid reports are “cancelled” (see “Change Home Condition Report Status”) and, if appropriate, a corrected report is separately registered.
- The transaction volume may be affected by the transition to a new home buying process in the early period of operation. Similarly the fluctuations in the housing market may affect volumes.
- The Energy Performance Certificates (a defined sub-set of the Home Condition Report data) for other than marketed non-commercial properties is out of scope.

- The status of a Home Condition Report, once lodged, can only be altered with an approval from the Certification Scheme . Please note that it is alteration of the status of the Home Condition Report, not changes to the Home Condition Report data.
- Any Multi-Language capability is restricted to the English and Welsh languages and only applies to textual strings². There is no requirement to render numbers etc. with different formatting patterns depending on the viewer. For Properties in England the Home Condition Report is always in English but in Wales it may be in English or Welsh at the discretion of the Seller.
- It is not assumed that any commercial database software is used to provide the solution to the requirements but it is assumed that the data storage solution will be a managed environment with pre-defined processes for inserting data into that managed environment. It is equally assumed that these processes can, and indeed will, fail at some inconvenient point in time.
- No charge will be made for use of the portal.
- A charge will be agreed with OFDPM for the lodgement of a Home Condition Report. This charge will be included in legislation.
- A newly certified Home Inspector would not be performing home inspections on the day that they become certified because the details of their certification would be in the post (or whatever delivery mechanism is used to courier it to them). Therefore changes to any Home Inspector Register only need to be accurate up to the previous day.

The rationale for each of these assumptions are discussed at the point that it is relevant.

2.4.1 Transaction Volumes

These Transaction Volumes are indicative of expected activity and are provided to assist prospective contractors in their calculations.. The key Transaction Volumes are:

- **Home Condition Reports per annum:** This is dependent on the housing market. Between 1,600,000 and 1,800,000 Properties are likely to be marketed each year and a Home Condition Report will be required for each of these that is not a new home or any other type of home that is exempt from a Home Condition Report under regulations.
- **Seasonal and unexpected fluctuations:** Some seasonal fluctuations will have an impact on the profile of properties being sold, and therefore on the number of Home Condition Reports being lodged over any given period. The seasonal variation can vary up to 40% above the annual average per month.
- The number of active Home Inspectors is estimated at 5,000 to 7,500 though the number of registered Home Inspectors will be greater than this due to market churn (retirements, new qualifiers etc.) over time in the range 7,500 to 10,500.
- The average daily Home Inspections performed by each Home Inspector is estimated as between 1.5 and 2 per day.
- The average size of each Home Condition Report PDF will be between 50K and 100K.
- The average size of the Home Condition Report XML data will be between 200K and 250K
- **Number of Properties within England & Wales:** 30,000,000.

² "Textual Strings" are string variables that carry free-form descriptive text such as "Comments" and Enumerated Value Meanings. String Properties that carry enumerated values or number values are Strings but **not** Textual Strings – it's a significant distinction.

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- **Registered Users:** 10,000 to 15,000 including Home Inspectors, Mortgage Lenders, Home Condition Report Supplier & Home Condition Report Registrars aggregated over the 15 year life the Home Condition Report – see User Authentication and Authorisation for descriptions of the Registered Users.
- There will be approximately 7 to 10 accesses per Home Condition Report during the course of its life from a cross-section of the functional roles: Home Information Pack Provider, Home Condition Report Supplier, Home Inspector, Seller, Buyer (more than one per Home Condition Report), Mortgage Lender (one per Buyer), Estate Agent, Certification Scheme for Quality Assurance and Monitoring purposes.

3 FUNCTIONAL REQUIREMENTS

This section contains functional requirements (not specifications) of the main business services that the Home Condition Report Register Operator is expected to provide on behalf of the ODPM.

This section outlines the principle responsibilities of the Home Condition Report Register Operator and the services it provides to the marketplace.

For each key service the service definition is organised into the following sections:

- A high-level overview of the supported process, putting the service in its operational context.
 - An explanation of any significant Operational Requirements that the service must meet.
 - Diagrammatic description of the Request / Response Interface Definitions that are to be implemented.
- ODPM provides the XML Schema Definition files defining the actual messages themselves but the physical implementation of the messages – e.g. the Web Service definition Language (WSDL) file and its local port mapping – is the responsibility of the service provider to define.
- A Functional Description providing a business definition of what operation the service needs to carry out. Unless absolutely necessary no definition of how the service is to be implemented is provided.
 - List of service specific error messages that may be raised by the service in addition to the list of generic errors that may be raised from data validation etc.

Generic functionality such as Data Validation and Error Handling (see Appendices for definition) are described in the appropriate appendices and only service-specific functionality is mentioned against each service. It should be assumed that the generic functionality requirements apply to all service definitions whether explicitly mentioned or not.

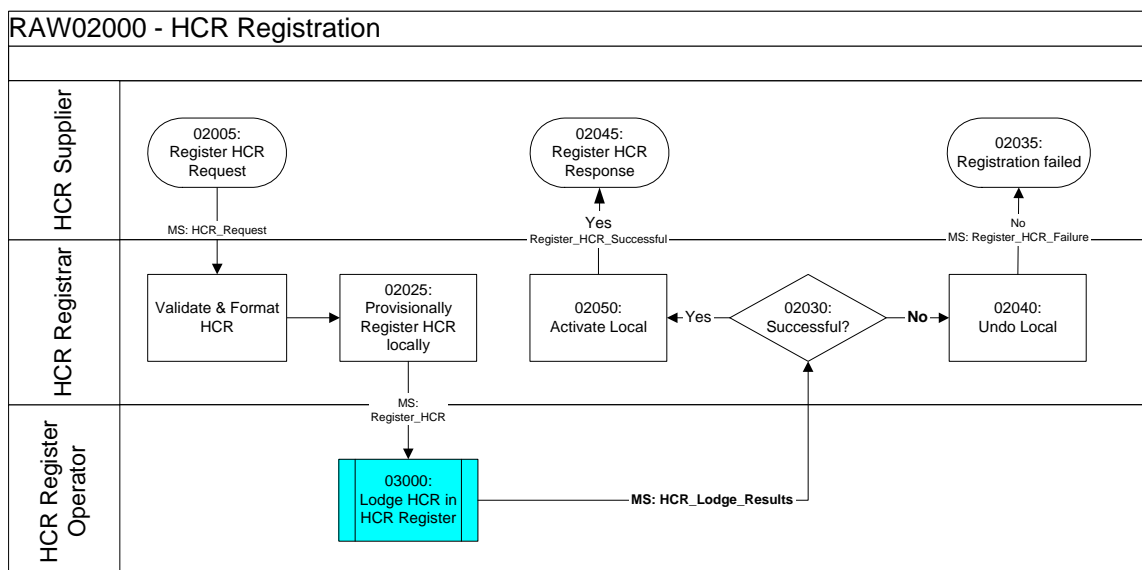
3.1 HOME CONDITION REPORT REGISTRATION

3.1.1 Context & Overview

The Home Condition Report Registration process is one of the core service required in the production of a Home Condition Report. During the production of a Home Condition Report three core operations take place:

1. Validate & Format Home Condition Report – this includes allocating the Home Condition Report Reference Number (RRN) and producing the Home Condition Report PDF to be lodged.
2. Store Home Condition Report in the Local Home Condition Report Register managed by the Home Condition Report Registrar as the industry facing repository for the Home Condition Report for subsequent consumer retrieval.
3. After provisional registering locally, the Home Condition Report Registrar sends the Home Condition Report – both raw XML data and PDF – to the Home Condition Report Register for central lodging. A confirmation message will be returned to notify of successful or unsuccessful lodging.

The overall high-level process looks like this:



Within this overall process the Home Condition Report Register Operator is responsible for providing the service for managing the lodgement of the Home Condition Report in the central Home Condition Report Register and returning an appropriate Success / Failure Response.

3.1.2 Service Operational Requirements

The Home Condition Report Registration process is a mission critical process because if a Home Condition Report cannot be registered in the Home Condition Report Register then it is not a valid Home Condition Report and the Home Inspector (or Home Condition Report Supplier) cannot give the report to the Seller for inclusion in a Home Information Pack.

The Home Condition Report Registration process is therefore a mission-critical single point of failure that needs to be both highly available and highly resistant to failure.

The service will need to demonstrate 99.99% availability for the main operational window as defined in *Resiliency & Availability (Section 4.4)*.

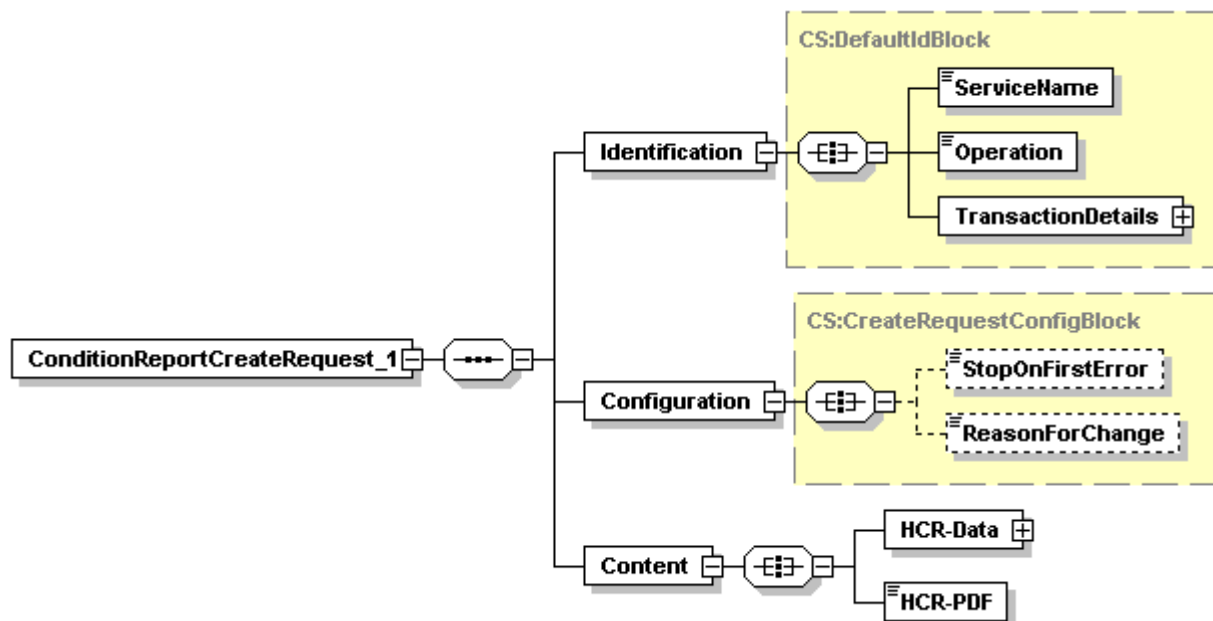
In addition to avoiding excessive waiting by the user the service is expected to respond to the user within 2 minutes if invoked during the operational window or before start of business the next day if invoked outside the operational window e.g. as an overnight batch process. This is to allow for overnight maintenance outages for housekeeping tasks such as upgrades.

In this respect it is expected that if a valid Home Condition Report is successfully delivered to the Home Condition Report Registration service then, providing the message content passes data validation, it is the service provider's responsibility to ensure that the Home Condition Report is registered. That is, an internal technical problem – such as a database outage – is not sufficient reason for failing to register a Home Condition Report³.

3.1.3 Request Interface Definition

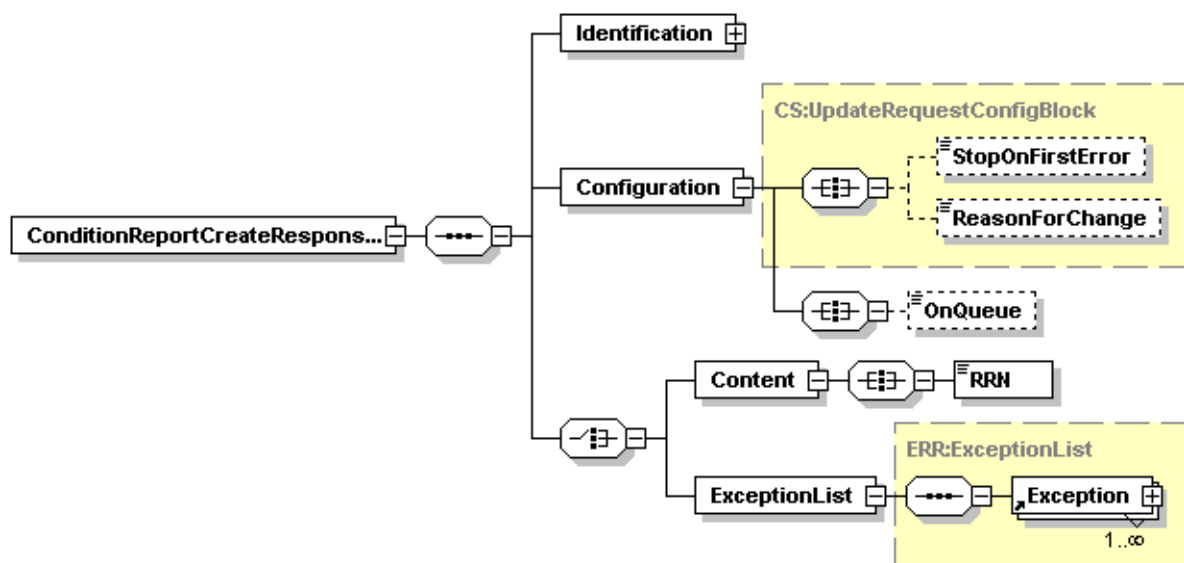
XML Schema Definition File: ConditionReportCreateRequest_1.xsd

³ According to the business processes registration is said to have occurred if the Home Condition Report Register has received the report and there is nothing wrong with it and an appropriate response has been returned to the client. In other words the Home Condition Report Register is the entire operating environment not just the database containing the data.



3.1.4 Response Interface Definition

XML Schema Definition File: ConditionReportCreateResponse_1.xsd



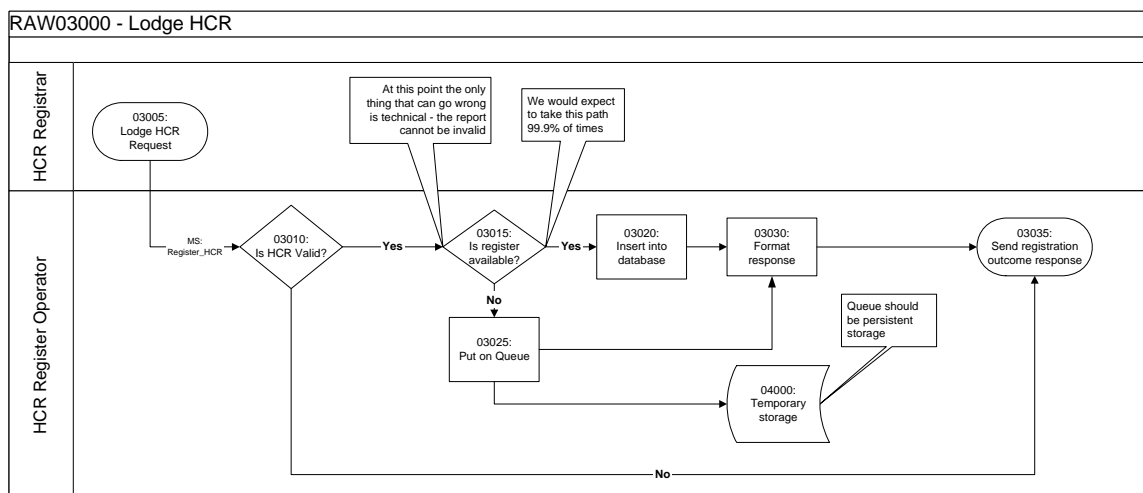
3.1.5 Functional Description

To minimise the risk of the “Home Condition Report Registration ” service failing, the operations that the service performs should be reduced to the absolute essentials. Consequently operations such as formatting the Home Condition Report PDF, which would logically be most efficiently implemented at the point of registration, are out of scope because they are processing intensive and possibly subject to a high level of error occurrences.

Consequently, upon receipt of **ConditionReportCreateRequest_1** message, the minimum functional requirements of the service are:

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- However in order to minimise the impact of a failure in the database management software⁴ it is recommended that a mechanism exists for placing the Home Condition Report on a deferred process queue for insertion once the Home Condition Report Register is available.
- So the lodgement process looks something like this:

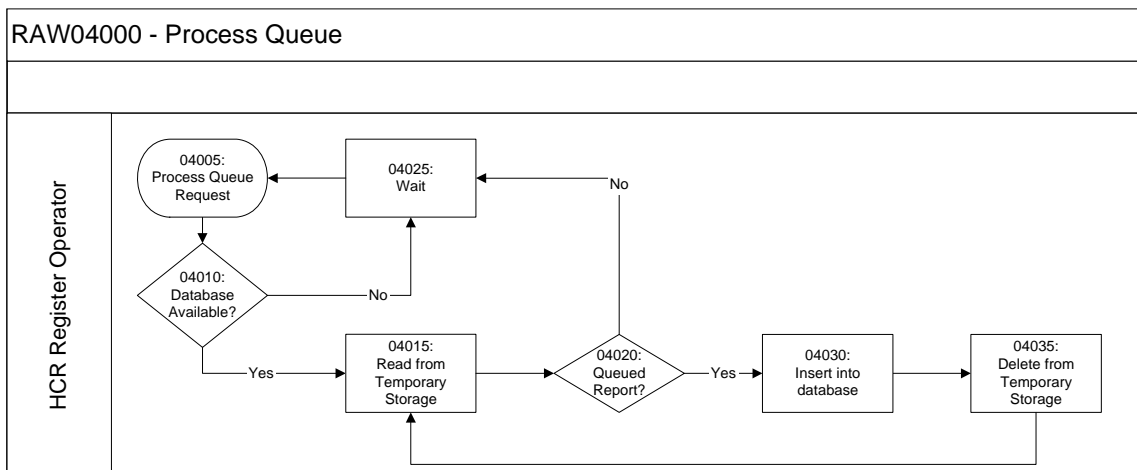


In the eventuality that the Home Condition Report is be queued for insertion then the **ConditionReportCreateResponse** message will contain a warning “*OnQueue*” in the Configuration section that indicates the actual insertion has been deferred. This is still a successful registration of the Home Condition Report and it is the Home Condition Report Register Operator's responsibility to guarantee retention of the document from this point.

3.1.6 Processing the Registration Queue

The processing of the queue is a simply a matter of periodically reading the temporary storage and processing any Home Condition Reports stored there. This looks something like this:

4 This is not presupposing that any commercial database solution is assumed but does assume that the data storage solution will be a managed environment with pre-defined processes for inserting data into that managed environment. It is equally assumed that these processes can, and indeed will, fail at some inconvenient point in time.



This is a simple infinite loop that reads a Home Condition Report in temporary storage and if a report is present then moves it into the database and removes it from temporary storage. If no reports are in temporary storage then the process wait some predetermined amount of time before starting again.

3.2 CHANGE HOME CONDITION REPORT STATUS

3.2.1 Context & Overview

The status of a Home Condition Report may change during its lifecycle to indicate the usability and reliability of the Home Condition Report. Some possible scenarios for this are:

- *The Home Condition Report is flawed and the Home Inspector and Seller mutually agree that the Home Condition Report should be cancelled and a more accurate Home Condition Report is subsequently registered.*
- *A serious complaint is received by the Certification Scheme who request that the Home Condition Report is placed "Under Appeal" whilst the complaint is investigated.*
- *A complaint about the content of the Home Condition Report is rejected by the Certification Scheme Complaints & Disciplinary board and the status is amended back to "Registered".*

In all of these cases it is necessary to update the status of the Home Condition Report recorded in the Home Condition Report Register needs.

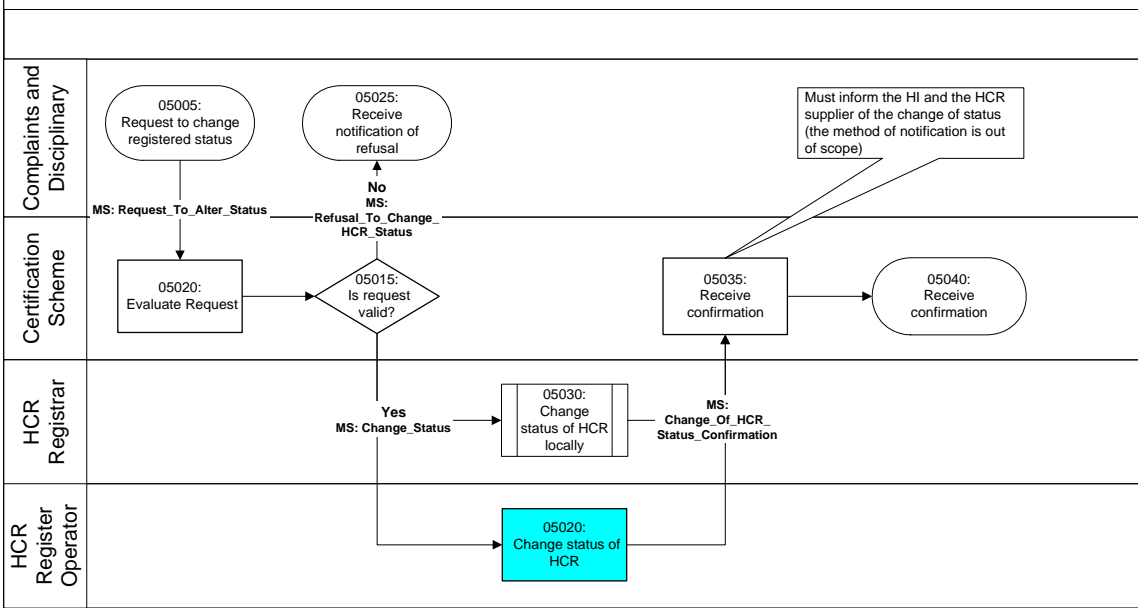
Once lodged, the status of a Home Condition Report can only be altered with the approval from the Certification Scheme. Consequently all requests, whether made directly to the Certification Scheme or via its Complaints & Disciplinary Body, will be sent to the Home Condition Report Register by the Certification Scheme that certified the Home Inspector who submitted the Home Condition Report.

On receiving confirmation that the status of a Home Condition Report has been change the Certification Scheme is responsible for informing the Home Inspector and the Home Condition Report Supplier of the change of Home Condition Report status. The method of notification is out of scope.

Therefore the overall process for changing the status of a Home Condition Report looks like this:

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RAW05000 - HCR Register - Change of Registered Status



Within this overall process the Home Condition Report Register Operator is only responsible for managing the status of the Home Condition Report stored in the Home Condition Report Register.

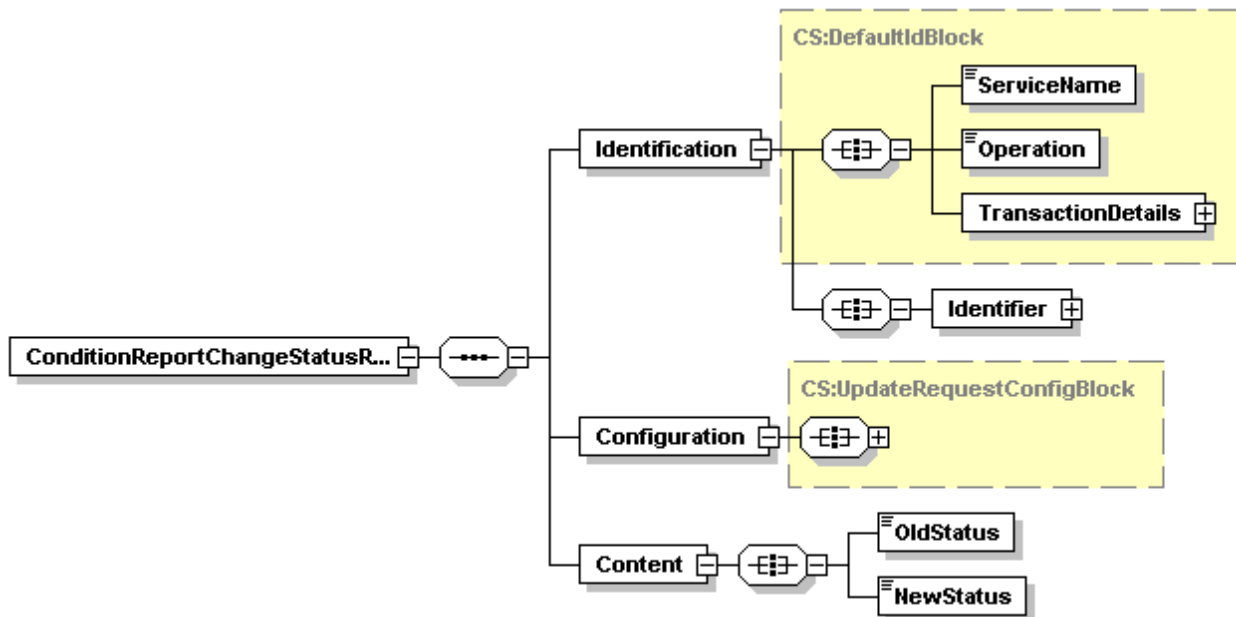
3.2.2 Service Operational Requirements

It is estimated that less than 0.1% of Home Condition Reports will need to go through a change of status. This processing should have a negligible demand on computing and processing capabilities of the Home Condition Report Register.

The Status Change is not a mission critical or high-performance operation – the maximum time allowed to process a Status Change Request is by the beginning of the following operational day after it has been received, although it is expected that the request should normally be processed electronically in a matter of seconds.

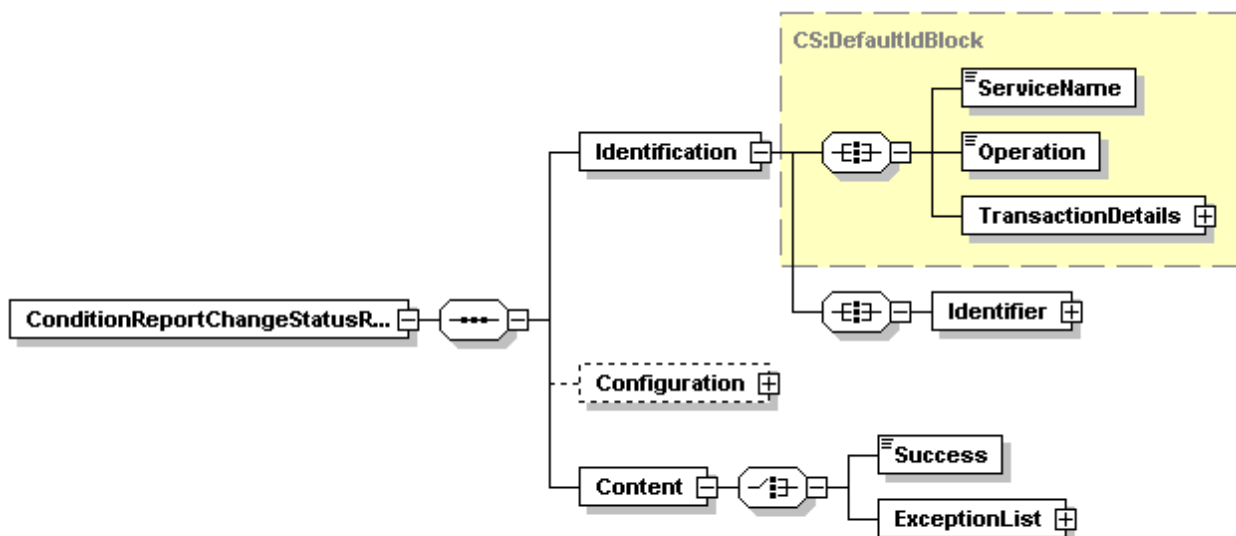
3.2.3 Request Interface Definition

XML Schema Definition File: ConditionReportChangeStatusRequest_1.xsd



3.2.4 Response Interface Definition

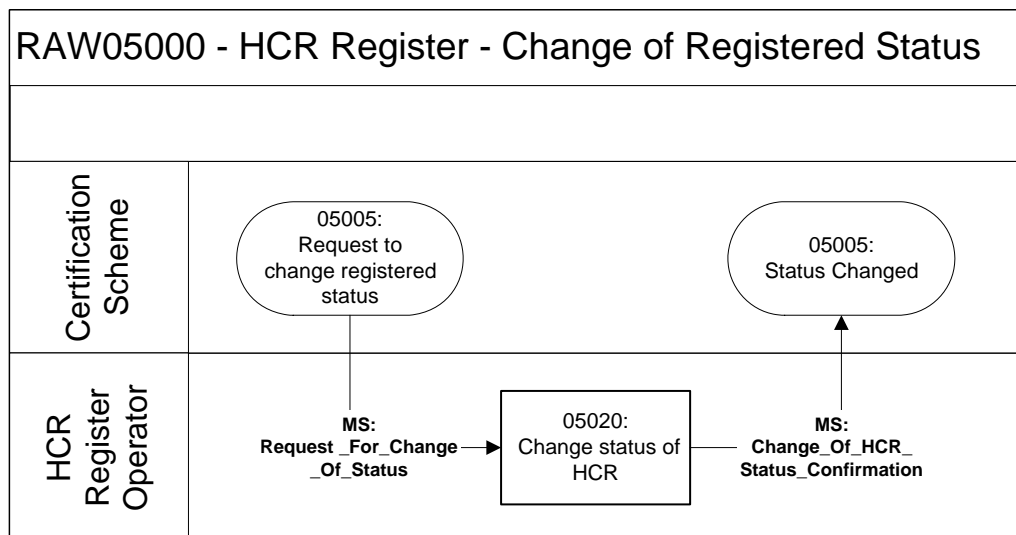
XML Schema Definition File: ConditionReportChangeStatusResponse_1.xsd



3.2.5 Functional Description

[ASM: Add description of process as per previous service.]

The specific process is:



In receipt of the ConditionReportChangeStatusRequest the process:

Check that Request::OldStatus → Request::NewStatus is a valid transition (see state-transition chart below). If invalid

Then

Return a "Invalid State Transition" response.

End if ;

Locate Home Condition Report where HCR::RRN = Request::RRN.

If Home Condition Report is not found

Then

Return a "Home Condition Report not found " response.

Else – Home Condition Report found

If HCR::Status = Request::OldStatus

Then

Update HCR::Status to Request::NewStatus.

Return "Success" response.

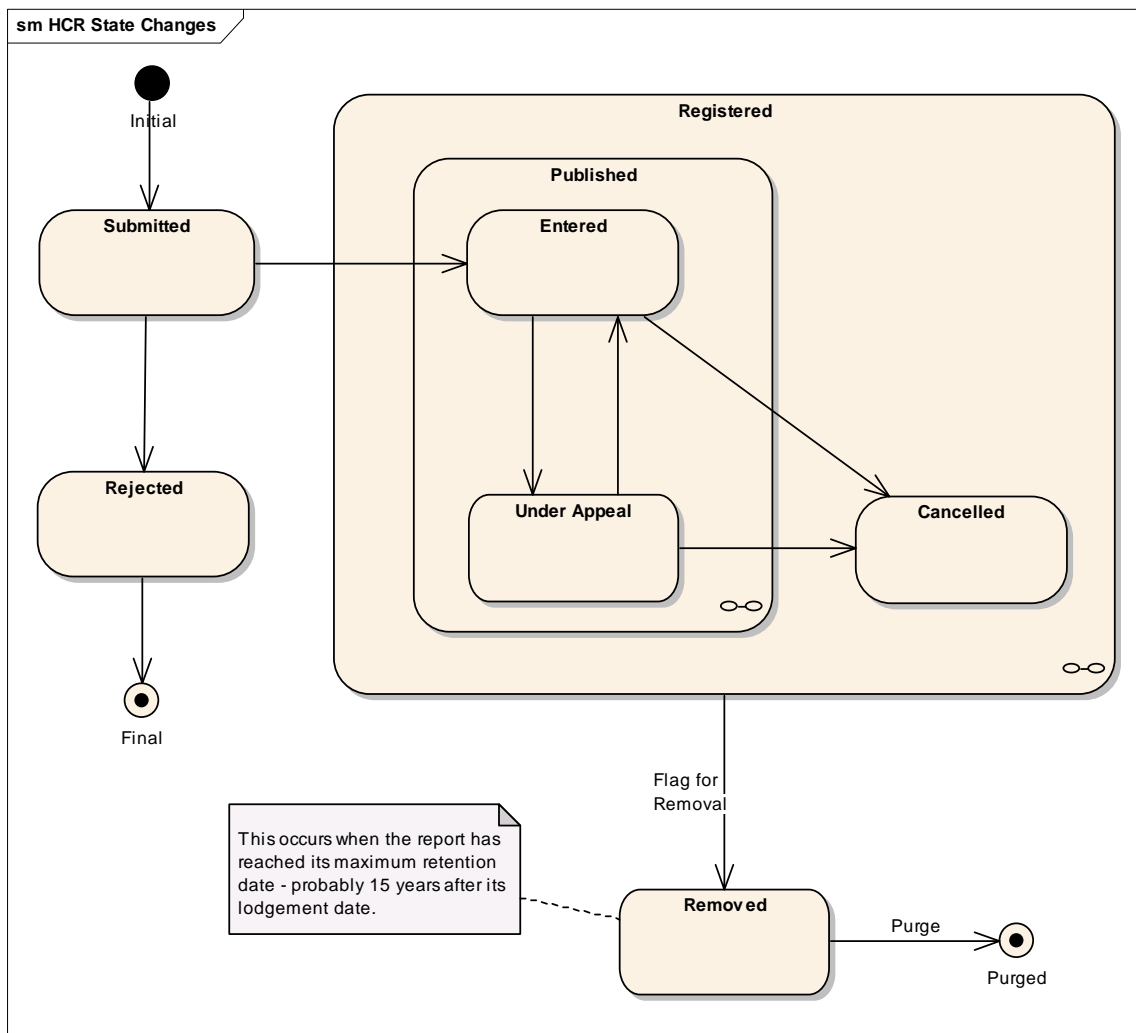
Else

Return "Incorrect Status" Response.

End if ;

End if ;

The full state-transition chart for the Home Condition Report is:



For the Home Condition Report Register the valid Status Codes of a Home Condition Report are the ones enclosed by the “Registered” state namely {Entered, Under Appeal, Cancelled}.

3.3 HOME CONDITION REPORT INDEX & PORTAL SERVICES

3.3.1 Context & Overview

The Home Condition Report Index & Portal Services will be the primary means for anyone with an interest in a Home Condition Report to retrieve an authentic copy of the Home Condition Report. This could be the Home Information Pack Provider, Mortgage Lender, Buyer, Seller or any of their agents.

Some scenarios in which an electronic copy of the Home Condition Report, or the data, are required are:

- *A member of the General Public wants an electronic copy of a Home Condition Report to check its authenticity.*
- *A Mortgage Lender, in the process of valuing a Property, requires access to the original data used in Sections B & C to use in Automated Valuation Model software. The Report Reference Number given to the Mortgage Lender may not be the most recent Home Condition Report – there are a number of possible reasons for this – so given a particular Report Reference Number they want any more recent Home Condition Report returned instead.*

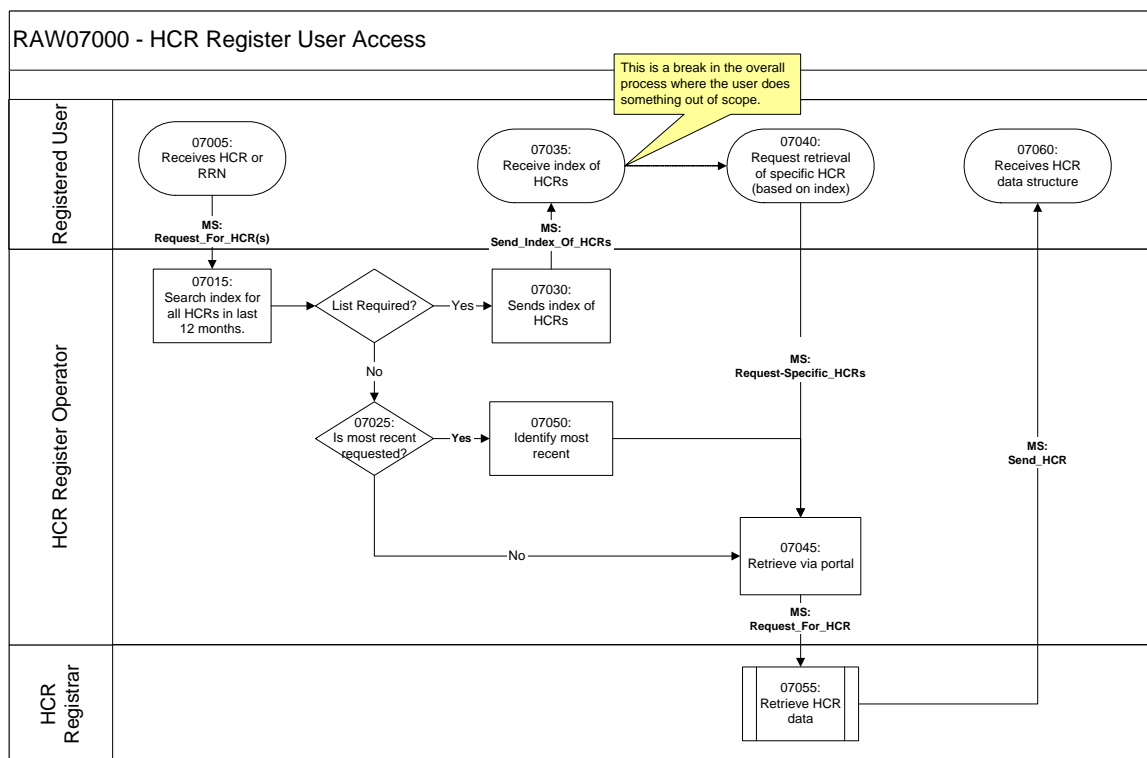
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- A Home Information Pack Provider in the process of assembling a Home Information Pack is required to include all previous Home Condition Reports relating to a particular Property. So given the Report Reference Number of a recently completed Home Condition Report they want to retrieve that Home Condition Report and all previous ones within the last 12 months.

However given that there are likely to be many Certification Schemes, and each of these Certification Schemes may delegate the ability to register Home Condition Report and maintain a local Home Condition Report Register to one or more Home Condition Report Registrars, it may be difficult to locate which of the many possible Local Registers contains the appropriate or relevant Home Condition Reports.

Consequently the Home Condition Report Register Operator will be responsible for providing a Home Condition Report Index containing the basic details of all registered Home Condition Reports and provide a portal service (see “What is a Portal Service?”) that can route any retrieval request to the appropriate Home Condition Report Registrar for processing.

The overall business process looks like this:



Because it is a portal service it is expected that the Request Message for a single Home Condition Report should be passed straight through to the Home Condition Report Registrar with the address of the originator of the request and the Response Message is sent directly from the Home Condition Report Registrar to the Requestor.

The request that is forwarded to the appropriate Home Condition Report Register could be the same request that the Home Condition Report Register Operator receives from the originator of the request i.e. the message at 07045 can be the same message as received at 07015.

3.3.2 Service Operational Requirements

The Home Condition Report Retrieve service is a mission critical service but not time critical therefore it is acceptable to take several seconds – but not several minutes - for the response to be

returned to the requestor. In the vast majority of cases it is expected for this to be around 10 – 15 seconds but in periods of heavy usage may be longer.

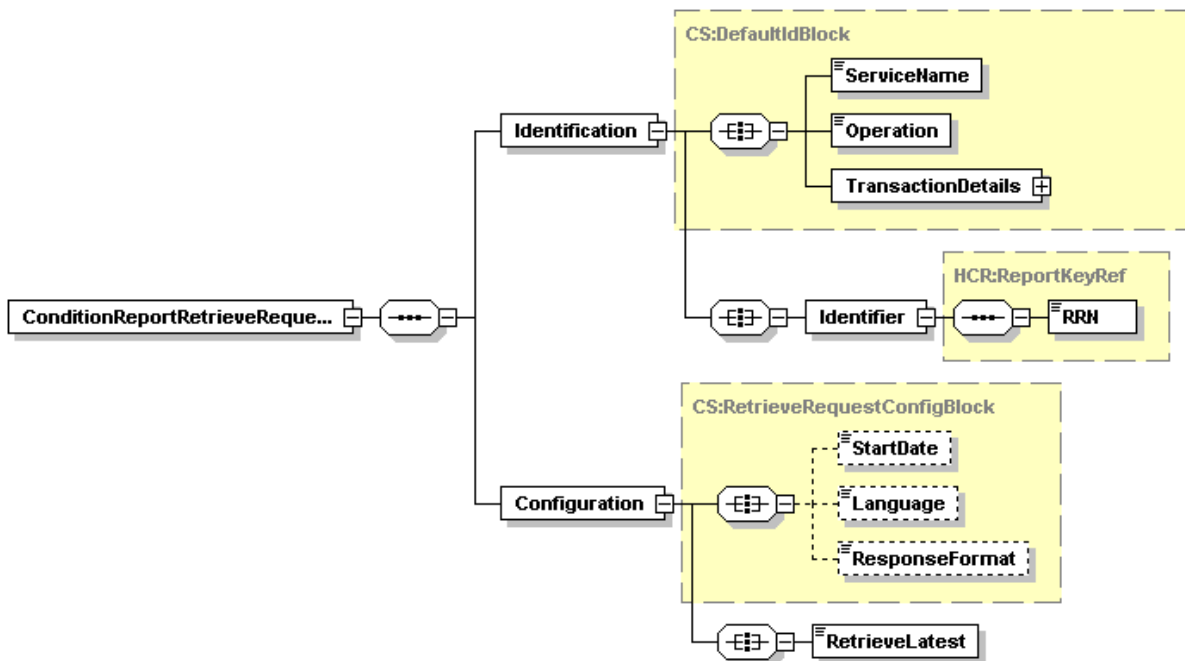
It is estimated that approximately 7 to 10 accesses will be performed per Home Condition Report during the course of its life so the estimated number of Home Condition Report Retrieval Requests is between 11,200,000 and 18,000,000 per annum.

Given that the Home Condition Report Portal is the first ‘point-of-contact’ for anyone who wants access to a Home Condition Report then the Home Condition Report Retrieval service consequently receives 100% of all requests to retrieve an Home Condition Report, irrespective of which Home Condition Report Registrar holds the Home Condition Report or whether the user who wants access is Registered or otherwise.

However if the portal is not available, the Home Condition Report can be retrieved directly through the URL (this is contained within the report). This URL may be invalid in certain circumstances but this is regarded as being of a low risk.

3.3.3 Request Interface Definition

XML Schema Definition File: ConditionReportRetrieveRequest_1.xsd



Being a “search” message the request provides a number of configuration parameters to allow the requestor to control what actions the service is to perform depending on the data found. The configuration parameters are:

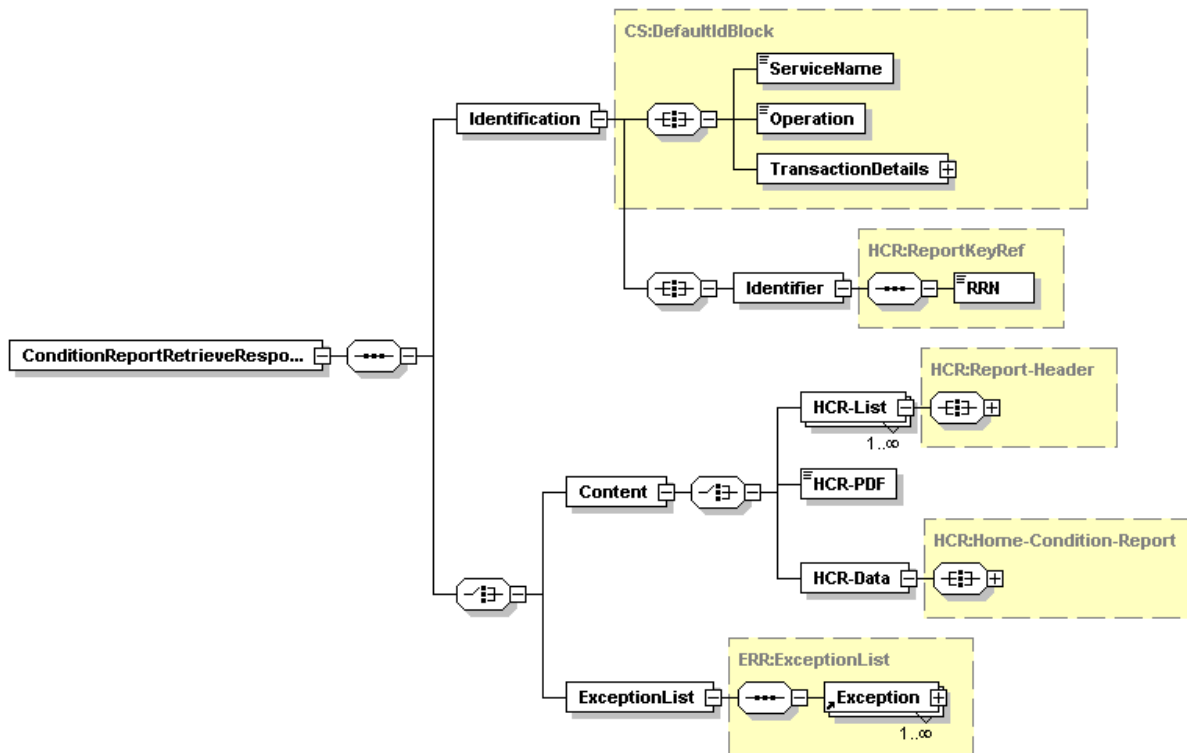
Criteria	Notes
Start Date	The earliest date of any report to be included in the retrieval list where a list of related reports is returned rather than the individual report.
Language	Identifies which language the requestor desires the report in. Allowed values are English and Welsh with the default being English. Note that the Home Condition Report is not necessarily registered in both languages so a request that may succeed in one language may fail in the other. Language Code is allowed because the requestor may have the Report

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	<p>Reference Number for the report in one language and want to read the report in the other language.</p> <p>A value of “?” is allowed where the requestor doesn’t care which language is returned as in the case where the valuation data is required.</p>
Response Format	<p>Identifies the type of response the requestor wants from the service. Valid Values are:</p> <p>List – Indicates that the requestor wants a list of historic reports related to the specified report rather than just retrieving that report. This is used by Home Information Pack Providers to find a list of related reports that potentially should be included in the Home Information Pack.</p> <p>PDF – Indicates that the requestor wants the PDF version of the Home Condition Report returning. This parameter is ignored by the Home Condition Report Register Operator but is required by the Home Condition Report Registrar.</p> <p>Data – Indicates that the requestor, usually a Mortgage Lender, wants the structured XML data returned rather than the PDF.</p>
Retrieve Latest	<p>Indicates whether the requestor wants any later report if it exists is to be returned instead of the specified report. This is used by Mortgage Lenders to ensure that they are always basing their lending decisions on the most recent report.</p>

3.3.4 Response Interface Definition

XML Schema Definition File: ConditionReportRetrieveResponse_1.xsd



3.3.5 Functional Description

This process allows for an unregistered user to select an Home Condition Report by Report Reference Number from the search results made available by the Home Condition Report Index (managed by Home Condition Report Register Operator). After selecting the Home Condition Report the user initiates the process to retrieve the Home Condition Report which may either be in PDF or XML format.

On receipt of the ConditionReportRetrieveRequest_1 message the process outline is:

Retrieve from index where Report::RRN = Request::RRN and Report:Language-Code = Request::Language..

If Home Condition Report found

Then

If Request::HistoryIncluded

Then

Find other reports where Report::UPRN = This::UPRN and Report::Completion-Date after Request::StartDate.⁽¹⁾

Return Report::Report-Header for each found Report.⁽²⁾

Else -- single report

If Request::RetrieveLatest

Then

Find later report⁽³⁾.

End if ;

Forward request to Report::HCR-Registrar.⁽⁴⁾

End if ;

Else

Return "Report Reference Number not found" exception message.

End if ;

Notes:

- (1) The default is to return all Home Condition Report completed within the last 12 months for the Property but if the current Seller purchased the property within 12 months of the most recent Home Condition Report, then this is specified in the Request::StartDate⁵ and only Home Condition Reports completed after that date are listed. This check can be performed against the information held in the Home Condition Report Index.
- (2) A list of Home Condition Reports is returned to the requestor for selecting the individual reports that they want. This facility is primarily for Home Information Pack Providers who may need to identify which reports to include.
- (3) A later Home Condition Report is identified from the Completion-Date of the Home Condition Report being later than the Completion-Date of the Home Condition Report identified by the input Report Reference Number and **not** the Inspection-Date.
- (4) The Home Condition Report Index should contain enough details about the Home Condition Report Registrar to identify where the request is to be routed. Exact details required from each Certification Scheme / Home Condition Report Registrar in order to reliably re-route the Request Message will need to be identified by the Home Condition Report Register Operator. Any required data-items will need to be supplied as part of the User Registration process specified by the Home Condition Report Register Operator.

How the Home Condition Report Registrar processes the request that it receives is outside the scope of this service description

3.4 SEARCH HOME INSPECTOR REGISTER INDEX

3.4.1 Context & Overview

The Housing Act 2004 requires that a public register of Home Inspectors is maintained. Possible scenarios for using the Home Inspector Register are:

- *A member of the General Public wants to commission a Home Condition Report as part of a Home Information Pack that they are assembling themselves and want a list of Home Inspectors that cover the Sellers locality and potentially wants a Home Inspector qualified to inspect a particular type of unusual property.*
- *A member of the General Public has the Certificate Number / Name / E-Mail Address of a Home Inspector and, for whatever reason, wants to lookup further details of the Home Inspector such as details of the Certification Scheme they are certified by.*
- *When a Home Condition Report is submitted to the Home Condition Report Register for registration it is required that the Home Inspector details are validated to ensure the basic*

⁵ The Home Information Pack Providers could do this filtering manually (and probably will) but following advice from the Data Protection Registrar we provide this parameter to meet legislative requirements so that the date can be provided if both relevant and known.

authenticity of the Home Inspector i.e. that they exist, are currently certified to carry out an inspection and are currently a member of at least one Certification Scheme.

- *When a Certification Scheme processes an application from a Candidate Home Inspector for certifying through that scheme, the Certification Scheme is required to check whether the Home Inspector is registered with any other Certification scheme and, if so, that they are not “Struck Off” or otherwise barred from performing a home inspection.*

However given that there are likely to be many Certification Schemes it is unreasonable to expect the interested party to search all the local Home Inspector Registers to discover the details of the relevant Home Inspectors. This leads to a very complex and error prone distributed process.

Consequently the Home Condition Report Register Operator will be responsible for providing a central Home Inspector Search service that acts as a portal service (see “*What is a Portal Service?*”) that aggregates the public information for all Home Inspectors into a single Home Inspector Register.

3.4.2 Service Operational Requirements

Provision of a Home Inspector Register by each Certification Scheme is a legislative requirement to allow the General Public to look up details of Home Inspectors. Consequently the ability to search the Home Inspector Register is expected to be available most of the time. However there is little impact if it is unavailable for short periods of time.

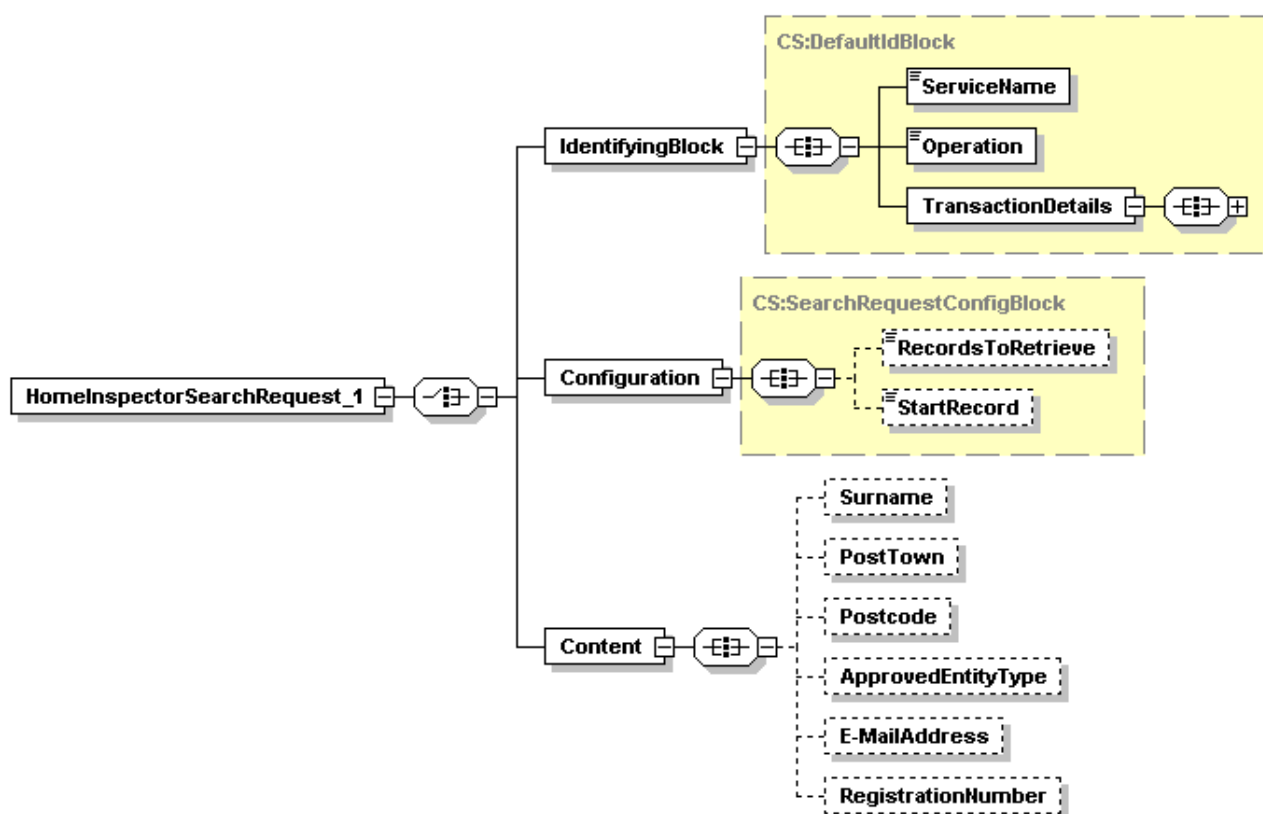
For on-line searches the response times should be in line with normal internet web-page responses i.e. less than 1 minute between submitting the search request and displaying the list of resulting matches.

The content of the Home Inspector Register needs to be accurate and complete and reflect the state of all Home Inspectors as at the close of business the previous day. The assumption is that a newly certified Home Inspector would not be performing home inspections on the day that they become certified because the details of their certification would be in the post (or whatever delivery mechanism is used to courier it to them).

However with the requirement to validate the reference to the Home Inspector during Home Condition Report Registration – i.e. that the Home Inspector exists in the Home Inspector Register and was certified to practicing at the time of the inspection – then it is necessary that the Search Home Inspector Register service has the same operational characteristics as the Home Condition Report Registration Service itself. If the Home Inspector details cannot be validated then the Home Condition Report Registration cannot take place.

3.4.3 Request Interface Definition

XML Schema Definition File: HomeInspectorSearchRequest_1.xsd



Note that the search criteria can, and probably will, be expanded over time to include more data-items as requirements mature e.g. special qualifications such as ability to inspect a Thatched Roof may be included if the need is identified. Once the technical standards have been published changes should be made through the Change Management process⁶ managed by the Home Condition Report Register Operator (see Section 5.2).

Therefore this list is not to be regarded as a definitive list of criteria.

Some of the parameters allow more complex searches than just an exact match of values against the Home Inspector Register.

Criteria	Search Type	Notes
E-Mail Address	Exact	The entire e-mail address is used for an exact match against the Home Inspector Register – it is a unique identifier for the Home Inspector so should identify at most one Home Inspector.
Post Town	Exact	
Postcode	Partial	Match on leading parts of a postcode including any embedded spaces e.g. “NN1” would match {NN1, NN10, ..., NN19} whereas “NN1 ” (with a trailing space) would match {NN1} but not match {NN10, ..., NN19}. The search is case insensitive.
Registration	Exact	The Home Inspector Inspection Number is a unique

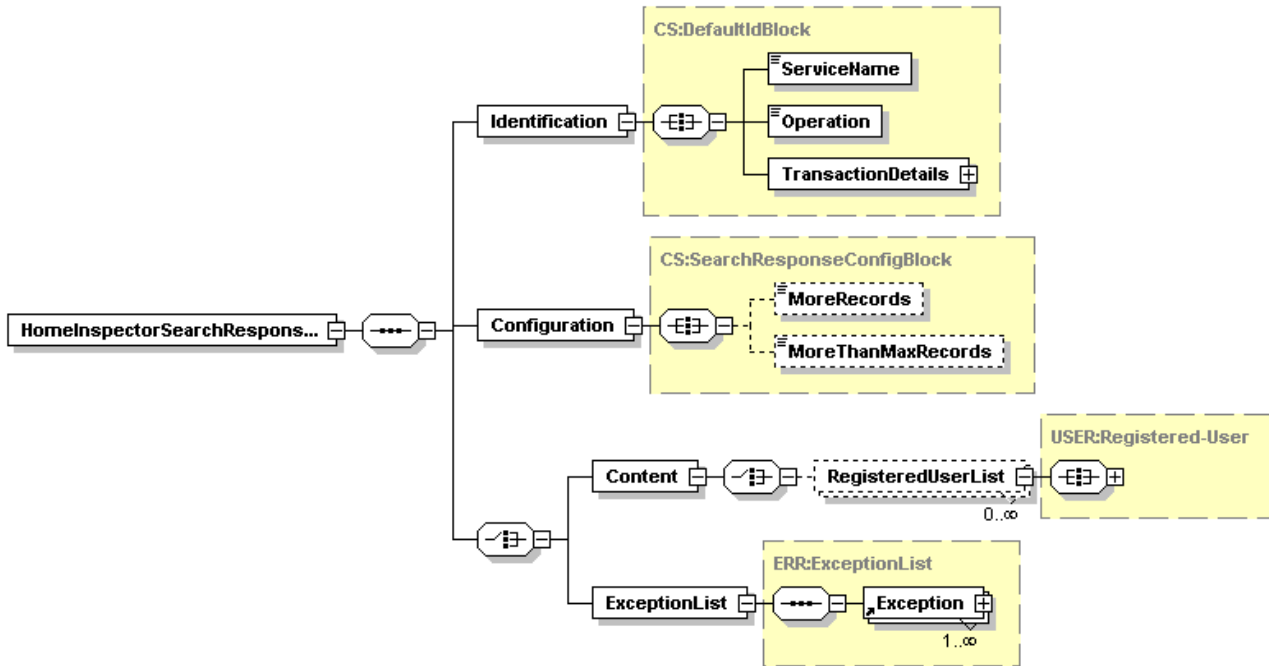
⁶ This process is to be defined but will probably involve the Advisory Body and industry stakeholders in the decision making process.

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Number		identifier for the Home Inspector so should identify at most one Home Inspector.
Surname	Partial	The search is case insensitive.

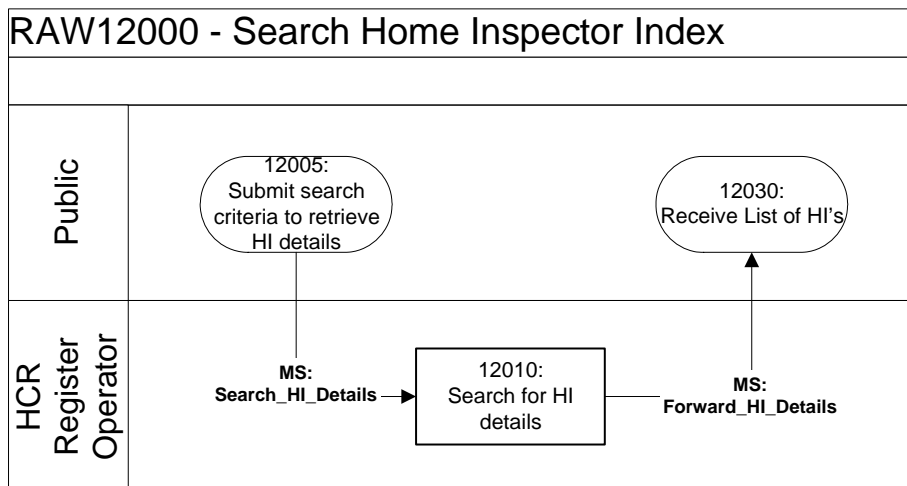
3.4.4 Response Interface Definition

XML Schema Definition File: HomeInspectorSearchResponse_1.xsd



3.4.5 Functional Description

The specific process is:



On receipt of the HomeInspectorSearchRequest_1 message the process description is:

Validate search criteria, for each invalid criterion raise an exception.

If any exception

Then

Return Exception List Response.

Else

For each Home Inspector in Search Home Inspector Register matching Search Criteria

Loop

Add Home Inspector details to Registered User List.

End loop ;

Set Configuration data-items to appropriate values.

Return Registered User List Response.

End if ;

Optional configuration parameters - defined in the SearchRequestConfigBlock - may restrict the content of the response e.g. RecordsToRetrieve defines the maximum number of records to include in a response.

3.4.6 Other details

Although there are numerous ways in which this service can be implemented it is suggested that the Home Inspector Register is implemented as a central readable data-set that is refreshed by periodically retrieving up-to-date Home Inspector details from each of the Certification Scheme Home Inspector Registers.

Two main alternative approaches have been considered, which are:

- Create a distributed query that searches each Certification Scheme Home Inspector Register and aggregate the search results into a single response at the time the request is made.
- Create a central data-set that is updated in real-time by messages that are published by each Certification Scheme as amendments are applied to the Certification Scheme Home Inspector Registers.

Both cases are viable approaches but represent significantly more complex solutions with little or no additional functional benefit.

Although a suggestion has been made it is up to the Home Condition Report Register Operator to define the approach that they will want to take and publish details of any interface for the Certification Scheme Home Inspector Registers that they require the Certification Scheme to implement

Irrespective of the approach taken, it is the responsibility of the Home Condition Report Register Operator to ensure that any response returned by the public facing service is a complete and accurate subset of the Home Inspector Register.

3.5 PROPERTY & ADDRESSING DATABASE

3.5.1 Context & Overview

Due to the highly distributed nature of the Home Condition Report marketplace there is a significant issue with enforcing consistency across the entire marketplace. A particular area where consistency is essential is in the identification and addressing of each Property being reported on.

Some scenarios where consistency is required are:

A Property may have a number of different addresses associated with it in addition to the primary or “official” address for example the street may have more than one name or the owner decided to give the house a name. In order to maintain consistency it is essential that all Home Condition Reports relating to an individual property consistently have the correct address shown on the report.

Over time the identifying characteristics of a Property can change e.g. a Royal Mail Postcode reorganisation may result in a postcode change for the Property therefore the address of the Property is not sufficient

A Property in Wales has both an English and a Welsh Address and when producing a Home Condition Report in one of those languages the Home Inspector should consistently use the correct address in the relevant language.

For all of these cases a shared central database of Property & Address details is the most obvious way of achieving consistency both cost effectively and in the required timescales.

3.5.2 Functional Description

Due to the large number of existing data-sets⁷ or service providers – such as Ordnance Survey Addresspoint, Royal Mail Postal Address File (PAF), National Land & Property Gazetteer (NLPG) or National Land Information Service (NLIS) – that could be used either to directly satisfy these requirements or form a significant foundation to meeting the requirements. Therefore this section refrains from providing detailed interface specifications.

[Instead the section provides descriptive overview and references appropriate external standards that need to be supported.](#)

The primary data requirements are:

- Provision of a Unique Property Reference Number (UPRN) that uniquely identifies every distinct "saleable" property in England & Wales. This includes flats within buildings, multiple houses on shared land etc.
- The minimum data requirements for each Property are as specified in BS7666 which includes Unique Property Reference Number, Primary Address, Title Deed Number, Secondary and Alternative Addresses e.g. English / Welsh equivalents of same property, local aliases etc, BS7666 formatted addresses.

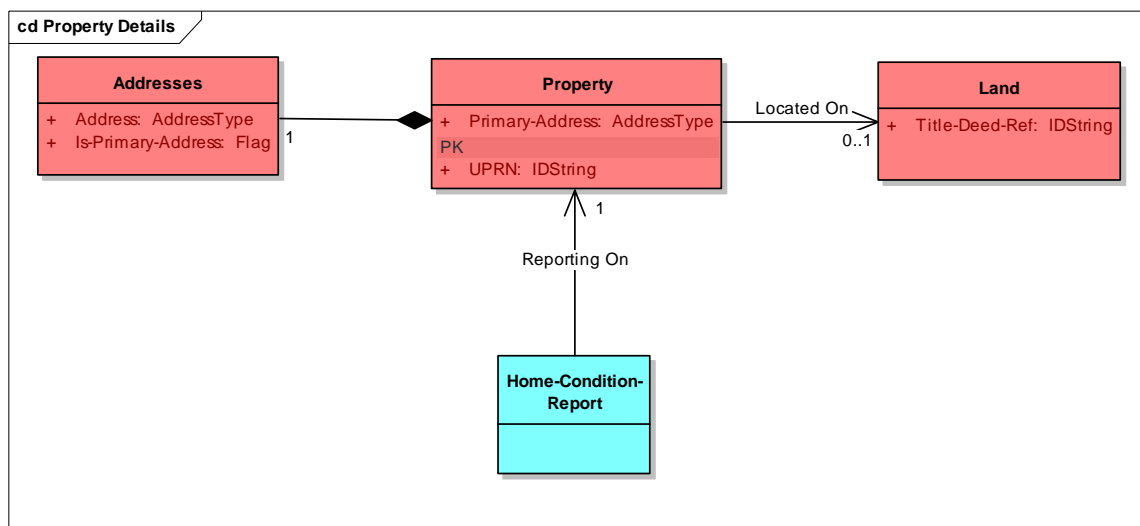
This produces a core data model⁸ as follows:

⁷ Our preferred option would be to use the National Land & Property Gazetteer (NLPG) maintained Unique Property Reference Number which has a number of significant advantages over the alternatives and, in particular, that this would make the Home Condition Report property reference consistent with the Unique Property Reference Number used to carry out searches against Local Authorities and Utility Companies.

However at the moment there appears to be a licensing impasse between Ordnance Survey and National Land & Property Gazetteer that makes this preferred approach unviable, therefore alternative approaches may be considered.

If no licensing agreement is reached then the alternative is for the Home Condition Report Register Operator to create a bespoke addressing / property database specifically for the Home Information Pack market using the Royal Mail Postal Address File (PAF) as a seed database. Effectively we create yet another BS7666 compliant Unique Property Reference Number that is different to any existing Unique Property Reference Number.

⁸ Taken from Home Condition Report High-Level Data Model [Ref 4] Section 4)



The primary functional requirements are:

- Address Searching - to be able to find a Property and its Unique Property Reference Number based on an address or partial address.
- Get Primary Address for the Property referenced by the Unique Property Reference Number.

Other key requirements:

- To be consistently usable the dataset would also have to be available to industry – preferably on a free-of-charge basis – as a common lookup service to identify Properties, provide a simple and minimal turnaround time for adding new / missing Properties or Addresses to the dataset and publish regular updates for third party maintenance of local datasets.
- Any licence agreement would have to grant secondary usage rights so that any licensed data-user can provide lookup services to Registered Users and their agents. Many of the surveying organisations use self-employed surveyors / sole traders to carry out the work on behalf of the licensed data-user.
- The "master" copy of the data is to be maintained by the Home Condition Report Register Operator to enforce consistency in the central register and can ensure uniqueness of Unique Property Reference Number over the life of the Home Condition Report. This may require daily maintenance updates.

3.5.3 Service Operational Requirements

Because of its critical role in identifying Properties and ensuring consistency of the Property's Address in a Home Condition Report the Property & Address details database has the same operational characteristics as the central Home Condition Report Register itself.

However the service is not time critical therefore any lookup or search services should respond in-line with normal internet web-page response times i.e. < 1 minute between request and response.

4 OPERATIONAL REQUIREMENTS

This section outlines the general policies and data management requirements that the Home Condition Report Register Operator is expected to adhere to.

4.1 USER AUTHENTICATION & AUTHORISATION

It is incumbent on the Home Condition Report Register Operator to ensure that the internal integrity of the Home Condition Report is maintained over time and that the Home Condition Report is protected from unauthorised tampering once it has been registered in the Home Condition Report Register.

The majority of the interactions, such as retrieving a Home Condition Report, are low risk transactions that do not require any special considerations. However because of the legal standing of a Home Condition Report and the impact that it can have on the marketing process, any data maintenance activity must operate in a secure environment.

Consequently we are expecting every user that can modify the state of the Home Condition Report Register or requires access to the RAW XML data to be Registered Users and for any operations carried out by those Registered Users to be authenticated when the service is invoked..

In particular the following are the essential set of requirements for User Authentication.

- The key Functional Roles that can perform restricted operations are: Home Inspector; Certification Scheme; Home Condition Report Supplier; Home Condition Report Registrar; and Mortgage Lender.
- The granularity of registration is dependent on the Functional Role being performed by the Registered User as shown in the following table:

Functional Role	Registration	Rationale
Mortgage Lender	Organisation	Larger organisations building automated systems do not want to register potentially 1000's of individual users of their applications.
Home Condition Report Registrar	Organisation	It is the organisation that has responsibility to carry out the registration not the individuals working for it.
Home Condition Report Supplier	Organisation or Individual	Different organisations had different opinions about what level of access control they would require for their employees so it is left to the organisation to decide this at the point of registration.
Home Inspector	Individual	All Home Inspector are individuals.
Certification Scheme	Organisation	All Certification Schemes are organisations.

- Authentication should be a certificate or token based approach rather than username / password to allow for mass deployment of client applications such as Automated Valuation Models by Mortgage Lenders and Home Condition Report software for Home Inspectors.
- It must be possible to ensure that any message that purports to be from a particular Registered User or source is in fact from that Registered User or source.
- A User (either Registered or Unregistered) may only invoke services according to their role. They must be restricted from invoking unauthorised services.

Procedures for registering and managing Authorised Users will need to be defined by the Home Condition Report Register Operator and made available as a set of standard interfaces to industry stakeholders.

4.2 BACKUP & RECOVERY

Operating as a “no-loss” data environment it is essential to ensure that all the Home Condition Reports in the Home Condition Report Register are regularly backed-up to secondary storage – tape, CD etc – to protect the data from loss or corruption.

There are no special considerations for Backup & Recoverability of the Home Condition Report Register database over and above the normally expected requirements for protecting the data. It is expected that the Home Condition Report Register Operator will define reasonable procedures for agreement by ODPM.

However the following are requirements of particular consideration:

- The estimated size of the database at full volume of:

	Minimum	Maximum
Number Of Reports	1,600,000	1,800,000
Average size of Home Condition Report	50K	100K
Average size of XML Message	200K	250K
Volume Per Year [A * (B + C)] (Gigabytes)	400	630
Volume @ 15 years (Terabytes)	6	9.5

- It is essential that the backup process does not unnecessarily impact Home Condition Report Register service connectivity, availability or responsiveness.
- Recoverability of the application in the event of a system failure should be minimised as much as is feasible within the economic constraints.
- Standard Operating Procedures (SOPs) should be in place clearly stating the step-by-step procedures to follow should the recovery operation be invoked.
- Operational training is an often-ignored aspect that should receive a high priority. The recovery operation should not be jeopardised due to a lack of properly trained alternative staff members being available when a recovery is required.
- This backup procedure should be synchronised with other affected parties.
- Recovering data from the backup copies should be regularly tested to ensure integrity of the recovered data.

4.3 DATA ARCHIVING & RETENTION

The Home Condition Report is to be retained as a working document for 15 years.

The Data Archiving process is not of immediate importance and is not considered part of the current Business Requirements. However at the time that archiving becomes significant all related information such as Home Inspector Register, Home Condition Report Index and Addressing data is to be retained for an equivalent period to ensure consistency and integrity across the entire data domain.

4.4 RESILIENCY & AVAILABILITY

The overall availability requirements for the Home Condition Report Register and related services are dependent on the operational requirements of the significant user groups.

is the following are the expected availability profiles for each of our significant groups of Registered Users:

- **Estate Agency** is a 12*7 (7-day, 12-hours per day) industry for the purpose of marketing⁹ new properties being normal business hours plus one hour either side. However 24*7 is desirable for retrieving Home Condition Reports.
- Unregistered Users may wish to have read-only access to the Home Condition Report at any time and on any day of the week.
- **Home Inspectors** will produce Home Condition Reports during the normal professional working day over a 6-day working week with possibly occasional access – e.g. to meet a heavy work load - later in the evening. Hence estimated availability is 08:00 → 22:00; Monday → Saturday.
- Most **Mortgage Lenders** offer on-line Mortgage Quotation facilities that can be accessed 24*7 by the public in order to get a preliminary offer of a mortgage.

If the Home Condition Report needs to be available to value the property as part of offering a quotation then read-only access would normally be required to match the availability of the Lender's Mortgage Quotation facility.

- **Certification Schemes** would only require access to modify details of Home Inspectors as part of their standard business operations.
Therefore access would be required during the normal professional working day over a 5-day working week. Hence estimated availability is 08:00 → 18:00; Monday → Friday. However the suggested method of updating the Home Inspector Register would require overnight access to bulk process the changes made during the day.
- **Home Condition Report Registrar.** It is expected that the Home Condition Report Registrations will be submitted as a mixture of overnight bulk-submission files and single ad-hoc registrations taking place during the day.

A key business requirement is that the Home Condition Report Register and its processes be available in a way that any organisation that relies upon it for their own processes to take place is able to conduct their business without delay or obstruction.

4.5 FLEXIBILITY & EXTENSIBILITY

A **critical business driver** is being able to extend the Home Condition Report Business Information Model¹⁰.

The data model will almost certainly be extended to integrate new information and it should be assumed that all Business Entities may be extended at any time and that the optional extensions may or may not be pre-notified to support staff.

Hence a significant design criterion is that all the API's derived from the data model must be easily extensible without incurring significant impact or unnecessary changes to any existing software.

Wherever it does not incur significant risk of not delivering other requirements then "Design for Change" is the maxim. The XML Messages themselves have been deliberately designed for

⁹ The legislation covers the "marketing" of a property not just selling it. So a Property that is marketed but not sold would still require a Home Information Pack and hence a Home Condition Report to be produced.

¹⁰ As described in the *Home Condition Report UML Data Model* [Ref 5]

extensibility (e.g. using xs:all rather than xs:sequence to avoid ordering data-items so additional data-items can be added without having to preserve order) and it is expected that this design principle is carried through into the Home Condition Report Register itself.

4.6 DISASTER RECOVERY

Disaster recovery has to cover a lot more than just the system components and should include personnel and location as well as functionality. The main consideration is the ability to provide the same functionality at a different site with alternative communications, with as close a replication of the system data as possible to the point in time of failure.

It is expected that a standby system should be in place allowing for an automatic switchover in the event the main system malfunctions or becomes unavailable, thus providing for minimal system outage. This transition should be transparent to the outside world and invoking the operation from the off-site recovery site should take no longer than one working day.

It is the responsibility of the Home Condition Report Register Operator to develop and agree acceptable and cost effective procedures for disaster recovery that minimises the impact of any major system outage on the housing market.

5 OTHER RESPONSIBILITIES

Although not part of the initial procurement this section describes a number of known requirements that may potentially have to be supported during the life of the contract. Consequently it is expected that any proposed solution should, wherever possible, take these requirements into consideration in order to ensure that the cost and impact of any changes are minimised.

5.1 CHANGE MANAGEMENT

In any organisation change inevitably occurs, which may cause the Home Condition Report Register Technical Standards to be changed as a result. Due to the legislative nature of the Home Condition Report it is not expected that change to the structural definition of the it will occur often – perhaps only once every few years once the Home Condition Report has stabilised - but change nonetheless has to be catered for.

It is expected that the Home Condition Report Register Operator should act as the ODPM agent to manage any changes to the Home Condition Report Standards including the Home Condition Report Data Model, all XML Message Specifications, the Mandatory & Preferred Text and all documentation relating to definition of the Home Condition Report.

The decision-making point of whether a requested change will be implemented or not remains with ODPM as the owner of the standards, but it is expected that all other aspects of the Change Management process will be carried out by the Home Condition Report Register Operator which will include:

- Liaison with key industry stakeholders, such as Certification Schemes, for impact analysis of proposed changes.
- Liaison with key standards bodies such as PISCES and e-Government Unit regarding the published standards and managing any conflicts / overlaps with external standards.
- Coordinating implementation of agreed changes.
- Setting timescales for changes and the implementation of those changes

It is expected that the Home Condition Report Register Operator will define and publish a Change Management process as part of their submission. Due to the extremely low volatility of the Home Condition Report data it is expected that this proposed process should not be resource heavy to the extent that it cannot operate reasonably yet robust enough to minimise the risk relating to the implementation of a change.

5.2 IT GOVERNANCE

It will be the Home Condition Report Register Operators' responsibility to govern the published Home Condition Report Technical Standards on behalf of the ODPM and assure industry adherence to them. The Home Inspector legislative or certification requirements are the responsibility of the Certification Scheme to enforce -.

As part of the IT Governance responsibility the Home Condition Report Register Operator will:

- Publish and circulate the Technical Standards on behalf of ODPM.
- Provide advice on the correct implementation or interpretation of the published Technical Standards.
- Monitor activity against the Home Condition Report Register to ensure adherence to the published standards and consistency of use across the industry. This is separate to any Home Inspector Quality Assurance activity carried out on behalf of a Certification Scheme.

6 POTENTIAL FUTURE REQUIREMENTS

This section describes a number of known requirements that may potentially have to be supported within the next few years. Consequently it is expected that any proposed solution should wherever possible take these requirements into consideration in order to ensure that the cost and impact of any changes are minimised as far as possible.

6.1 DATA HANDOVER

With all long-term data storage capabilities there are many scenarios where the data may need to be bulk extracted from the repository for transferring to another repository. For example:

The technical platform becomes obsolete – for example due to changing business requirements – and a non-transparent upgrade path requires the existing Home Condition Report data to be extracted and transferred into the new Home Condition Report Register.

Continual non-conformance to the Service Level Agreement results in the contract being terminated and awarded to another supplier. The new Home Condition Report Register Operator may choose a different Operational Platform that requires the existing Home Condition Report data to be extracted and transferred during hand-over period.

Other government departments or agencies may be granted access to the data for specific purposes and need to perform bulk extracts of data from the Home Condition Report Register for populating another repository.

As part of any solution the Home Condition Report Register Operator will need to demonstrate:

- The data can be extracted from the Home Condition Report Register in a platform neutral format – ideally by reconstructing the original messages – in order to migrate the data to another Home Condition Report Register possibly on a different operational platform.
- Any proprietary or licensable software required for this extraction is identified with the expected cost of any licensing payment. Wherever possible at least one viable alternative should also be identified.
- The solution allows for selective extraction of data – e.g. All Home Condition Reports registered between two dates – so that staged transference can occur during any handover period.

The data to be included in the handover includes:

- The contents of the Home Condition Report Register.
- The contents of the Home Inspector Register.
- The contents of the Property & Address details dataset.
- The contents of the User Registration & Authentication dataset.

The costs of Data Handover should be considered one-off additional costs and do not form part of the initial cost-base. However any solution should minimise the cost of data handover and demonstrate the necessary extension points to add this functionality later.

6.2 BUSINESS INTELLIGENCE & DATA-MINING

At the moment there are no requirements to allow organisations access to the Home Condition Report Register to carry out Data-Mining or Market Analysis activities. However an on-going

aspiration is to continually improve the quality of the Home Condition Report – in particular the Preferred Text¹¹ sections.

It is intended that any analysis or reporting activities will be implemented as dedicated back-end server-side processes that can be scheduled for off-peak processing.

The scope and characteristics of these reporting requirements are currently not established but any solution should demonstrate the ability to:

- Support large scale Data-Mining activities i.e. be able to process large volumes of data in reasonably short timescales and provide the normal functions to extract, select, group, sort and summarise the data being processed.
- Provide an Application Programming Interface (API) that allows 3rd-parties to develop bespoke batch processes to large-scale processing of the Home Condition Report Register contents.
- Allow scheduling of any periodic reporting activities so that reports can be run regularly without human intervention.

6.3 ENERGY PERFORMANCE CERTIFICATE

The Energy Performance Certificate is newly introduced legislation requiring all properties including newly built properties to be assessed for their energy efficiency and a certificate indicating the energy rating issued.

The content of the Energy Performance Certificate would briefly comprise Sections A & H of the Home Condition Report and the associated XML data. So, because of the similarity with the Home Condition Report, it may be decided that the best place to store the Energy Proficiency Certificate is in the same repository as the Home Condition Report.

Consequently any design of the Home Condition Report Register data-store should demonstrate sufficient extensibility to allow for other reports in addition to the Home Condition Report to be recorded and indexed with the minimum of change – and ideally with no change – to the public-facing interfaces.

Key characteristics to consider are:

- The Home Condition Report XML data already contains a Report Type data-item ([Report-Header : Report-Type]) that should already be part of the Home Condition Report Index and which will be extended to allow for additional values.

¹¹ See relevant Home Condition Report Mandatory & Preferred Text document [Ref 7].

Appendix A. WHAT IS A PORTAL SERVICE?

A Portal Service is a service that acts as an access point or intermediary for another Service where, for some reason the actual Service being invoked may not be directly or easily addressable by the Client.

Examples of where a Portal Service would be used are:

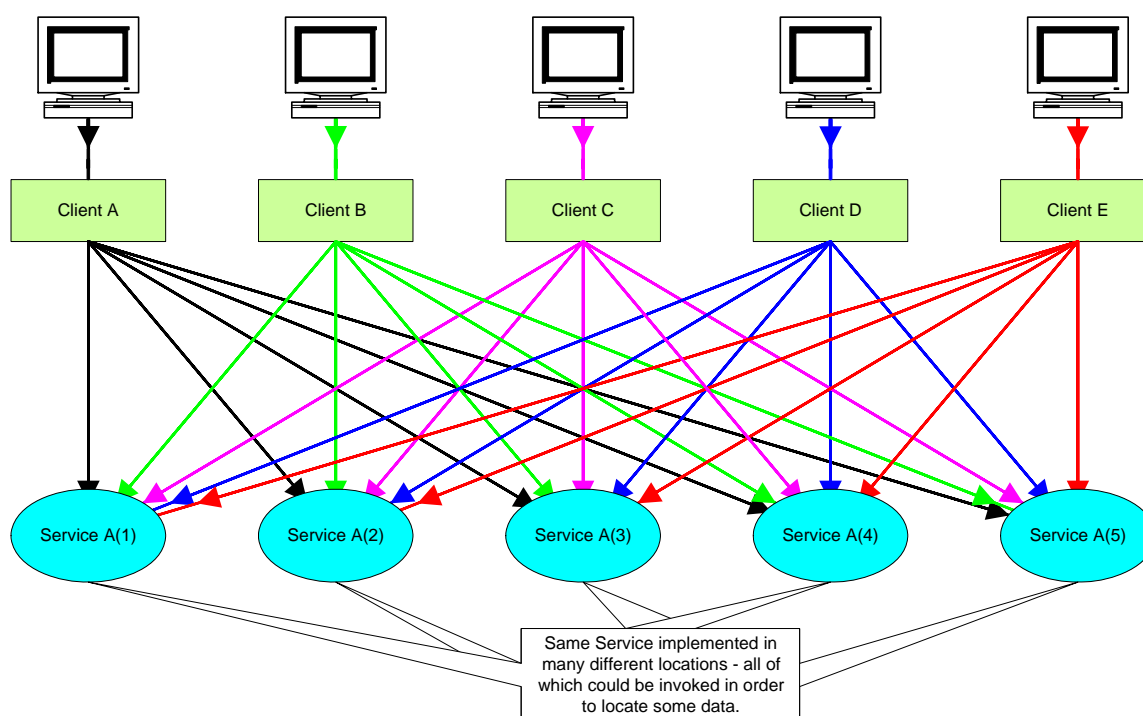
Data may be stored in a number of different data repositories and, for any particular Retrieval Operation, the actual location of the requested data is unknown therefore all possible repositories may need to be searched to find the data. Rather than each Client having to manage the complexity of orchestrating multiple Request / Response interactions a single Portal Service acts as an intermediary so that the complexity is hidden from the Client.

Or: *The Service to be invoked has a non-standard interface i.e. one that does not conform to the published messaging standard for the environment. Rather than re-implement the Service and duplicate functionality an intermediate Service is provided to provide a standard interface*

Or: *The actual data source is restricted or sensitive so only a highly controlled view of it is to be revealed to the Client. In this case the intermediate Portal Service is the gateway to the existing services that imposes the necessary restrictions and the existing services can be reused without re-engineering them and impacting any other Clients.*

The first scenario is of particular interest within the Home Condition Report environment because of the existence of many Home Condition Report Registration Organisations each of whom may contain a particular Home Condition Report. Consequently when a Client, such as a Mortgage Lender, wants to retrieve a given Home Condition Report they potentially have to access many locations.

This gives a many-to-many relationship between the Client and the Server that looks like this:



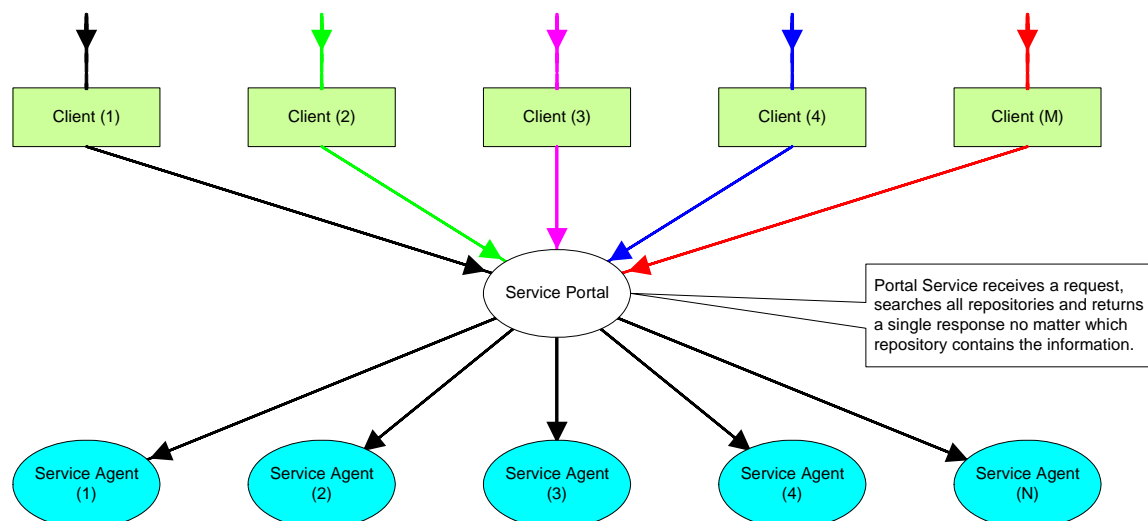
In this topology there is a great deal of complexity because every Client needs to know the location of every possible Service and may need to invoke all the services in order to find a particular piece

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of data. In this case the total number of possible connections is the product of the Clients and Services (Clients x Services).

In addition each Client needs to know all the details necessary to invoke each Service and any change to the environment needs to be reported to every Client.

So, by using a portal service to hide the complexity, the topology transforms to the following:



It should be seen that the Portal Service significantly simplifies the design and the maximum number of possible connection paths is now the Clients plus Agents. Each Service now only has to reveal itself to one Client (the Portal Service) and each Client only as to invoke one Service (also the Portal Service).

The following table summarises the advantages and disadvantages of using a Portal Service compared to not using one, comparing key issues related to implementing, managing and using the two different approaches in a Many-To-Many Client-Server environment.

For each issue a rating is provided to indicate whether the approach helps to solve the issue (Green), makes it more difficult to resolve (Red) or has no impact (Yellow).

Issue	Direct Client-Service Interaction	Portal Service
Adding new Data Providers	Each data repository – e.g. a new Home Condition Report Registration Organisation – must provide access details to all Operating Entities that may need to access their reports. A large number of notifications and configuration updates need to be made.	When additional data sources – such as Home Condition Report Registration repositories are introduced. There is still only the need for a single point of update.
Extensibility	Every Client must be able to recognise the physical location of every Server and have sufficient detail in order to talk to the relevant Server.	Physical location of each data server – or even that there is more than one – is hidden from the client. A single service is always accessed no matter how many data repositories may exist in the future.

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Issue	Direct Client-Service Interaction		Portal Service
Availability of Service	Multiple points of update whenever configuration changes occur so availability of a service is uncertain if configuration changes are not co-ordinated successfully.	—	Single point of update whenever configuration changes occur so change is more easily managed and availability is more predictable across multiple clients.
Ease of Use	Not at all straightforward to use	—	Straightforward to use as there is only a single point of contact.
Cost of Entry	Each Client incurs the cost of implementing the more complex service before they can enter the market. Organisations with few IT resources will find it difficult to start-up.	—	Lower cost of entry for new clients because the high cost of implementation is avoided.
Flexibility	Multiple points of update whenever new data providers are introduced. Administrative errors may lead to some Clients not being aware of the new data provider is operational.	—	Single point of update so once a new data provider is configured their data is available to all clients of the Portal Service.
Manageability	Each Client has to manage a local equivalent of the Portal Service so provides its own management processes.	—	Requires a single organisation to be responsible for publishing the service and managing any data required for running the service.
Development	Each client must develop their own version equivalent of the Portal Service to orchestrate access to the distributed data repositories. So each development team must understand the complexity of performing multiple requests and orchestrating all the responses – significantly more technical knowledge is required by the client.	—	Provides a much simpler and, hence, easier to implement design. Only developed once then made available to all Clients enabling significant re-use. There is still however some work that needs to be done to interface to new services.
Deployment	Multiple clients could require multiple deployment strategies and implementations.	—	Provides a single access point and hides the complexities of where the data is actually stored. Having a single access point provides all the benefits of the Service Oriented Approach.

Appendix B. DATA VALIDATION

The environment surrounding the Home Condition Report Register is a highly distributed and decoupled environment with many different commercial organisations providing services that may be invoked – in some cases anonymously – from many other services.

Consequently the environment should be regarded as low-trust and the onus is on the recipient of any message or data to ensure that what they receive is both valid and correct.

Data validation consists of:

- Ensuring that the message conforms to the structural definition constraints declared in the appropriate XML Schema Definition file. That is:
 - All mandatory fields are populated
 - Cardinality constraints are enforced
 - Only known data-item “tag names” are present – proprietary extensions to the messages are not allowed.
- Checking that all “enumerated” fields only contain values from the appropriate domain.
- Ensuring that any data-items containing references (or foreign keys) are valid e.g. the Home Condition Report contains a reference to the Home Inspector that prepared the report so need to check that the Home Inspector is a currently practicing and valid Home Inspector by checking against the Home Inspector Register.

Other optional data validation checks could be made e.g. recalculating the RD/SAP Energy Rating to ensure that it is correctly derived from the data collected but this type of validation is more correctly regarded as “Home Inspector Quality Assurance” and should be carried out at the point that the Home Inspector or Home Condition Report undergoes a Quality Assurance Spot-Check by the Certification Scheme.

Appendix C. ERROR HANDLING

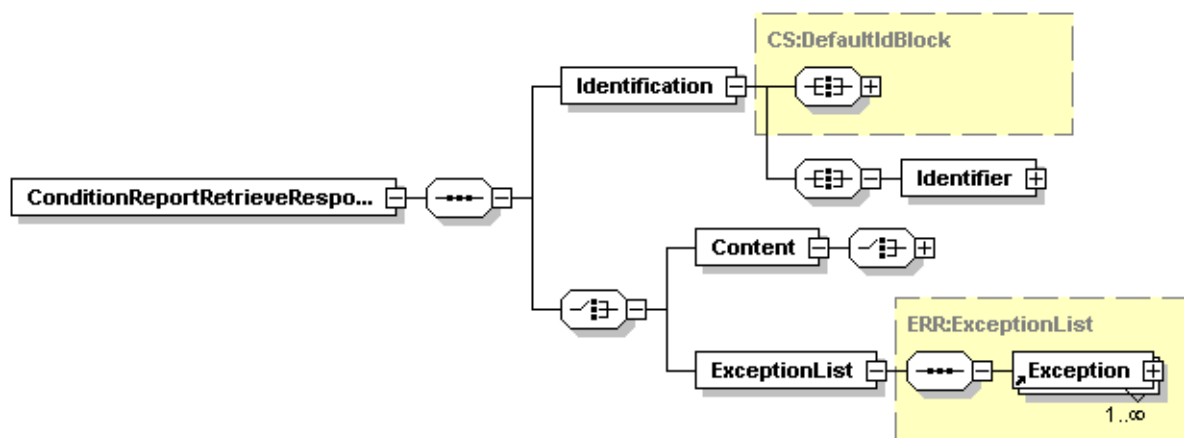
There are two significant types of exception that can occur in any application, which are:

- Platform or infrastructure level exceptions that indicate that there is something wrong with the environment itself such as a badly formed message, a service not being available, authentication failure etc.
- Application level or business level errors that indicate that there was something wrong with the individual operation being performed or the service that what was being requested.

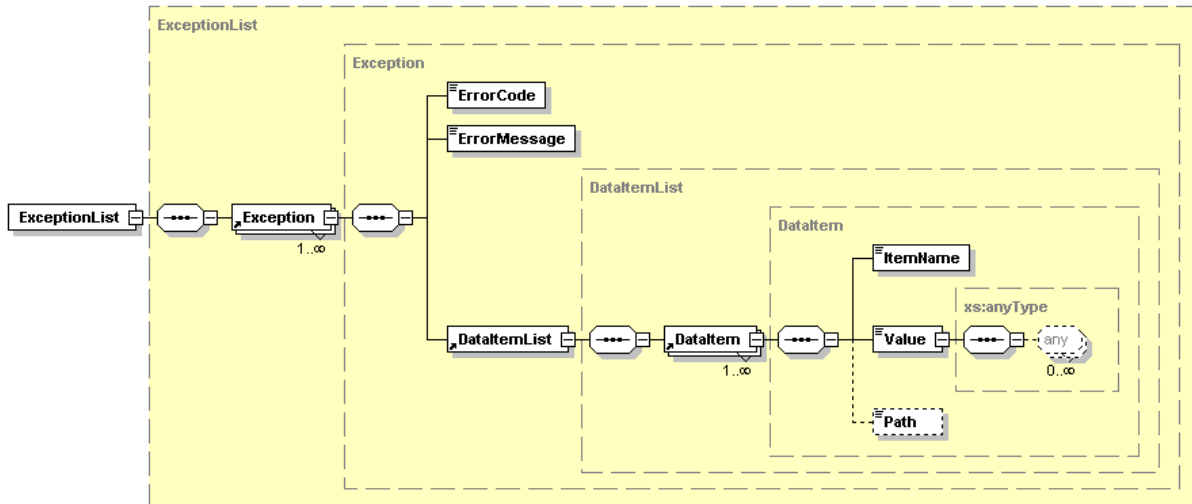
The first type of exception can be considered a “Fatal” exception that when encountered abort any further processing. They are generally raised and processed by the infrastructure components and are outside the scope of the exceptions discussed here.

The second type of exception however can generally be corrected by the individual user. More significantly, however, in any given request there may be multiple errors that should all be reported back to the client in a single response.

Consequently application exceptions are returned to the client as part of the response instead of a normal “Content” block of data so the message will look something like the following (which is a standard “Retrieve” type message pattern):



As shown, the response contains a choice between a “Content” block and an “Exception List” block and the Exception List contains one or more Exceptions. The Exceptions Handling XSD data model is defined as:



An Exception List is a set of 1 or more Exceptions with each Exception containing an Error Code, Error Message and a list of Data-Items to which the error relates.

The **Error Code** is a numeric code that uniquely identifies each distinct error condition that may be raised by a particular service. It is the intention that error conditions that are common across multiple services should have the same error code e.g. the “Invalid Date” error should have the same Error Code no matter where it is raised from.

The **Error Message** is then a text string of the particular error to be reported back to the client. The same Error Code can have multiple Error Messages depending on the context.

For example a standard message pattern for reporting an invalid date may be “[Data Value] is not a valid date for [Field Name] – [Reason]” which might then be realised as “01-Jan-1999 is not a valid date for Reporting Date”

As well as the Error Code and Error Message the individual **Data-Items** that caused the error to be raised are also returned in the message in order to provide the context of the error.

Each Data-Item consists of the Data-Item Name, the value assigned to the Data-Item and an optional Path identifying the individual Data-Item if there is more than one occurrence of the Data-Item within the input message.

For example in the “invalid date” example the Data-Item details returned would be “Reporting Date” and “01-Jan-1999”.

An example of an Exception List would therefore look something like this:

```

<ExceptionList>
  <Exception>
    <ErrorCode>0001</ErrorCode>
    <ErrorMessage>"01-Jan-1999 is not a valid date for Home-Condition-Report Completion-
Date"</ErrorMessage>
    <DataItemList>
      <DataItem>
        <ItemName>Completion-Date</ItemName>
        <Value>01-Jan-1999</Value>
        <!-- path is not required because there is only one Completion-Date in the HCR --
      >
    </DataItemList>
  </Exception>
  <Exception>
    <ErrorCode>0002</ErrorCode>
    <ErrorMessage>Completion-Date must not be earlier than Inspection-Date</ErrorMessage>
    <DataItemList>
      <DataItem>
        <ItemName>Completion-Date</ItemName>
        <Value>01-Jan-1999</Value>
    </DataItemList>
  </Exception>
</ExceptionList>
  
```

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```
</DataItem>
<DataItem>
  <ItemName>Inspection-Date</ItemName>
  <Value>02-Jan-2006</Value>
</DataItem>
</DataItemList>
</Exception>
</ExceptionList>
```

Note: The same data-item – in this case Completion-Date – can appear more than once in the Exception List because a single invalid data-item may give rise to multiple error conditions. This is a natural side-effect of continuing with validation after an error is encountered rather than simply returning a failure on the first error encountered.

Appendix D. GLOSSARY & ACRONYMS

The Glossary contains the terms and acronyms used within this document whose definitions and meanings are defined elsewhere.

Term	Meaning	Defined In
Certification Scheme	An organisation responsible for certifying that a Home Inspector is qualified, "fit & proper" and insured to carry out a home inspection and complete a Home Condition Report.	Housing Act 2004
Database of Record	In a distributed and replicated environment the Database of Record is the repository designated as the definitive copy of data that is regarded as authoritative in the case where any doubt is expressed over the authenticity of the data. It is also the point from which any replicated copies can be restored from.	
Functional Role	A named group of users that perform a set role within a given environment with responsibility for carrying out a pre-defined set of operations.	Business Processes
Home Condition Report		Housing Act 2004
Home Condition Report Register	The archive of all registered (i.e. authentic) Home Condition Reports as described in the Housing Act 2004 and subsequent legislation.	Housing Act 2004
Home Condition Report Registrar	An organisation or person authorised to register a Home Condition Report in the Home Condition Report Register.	Business Processes
Home Information Pack	A collection of documents compiled by the Seller or their agent prior to marketing the Property. Part of the Home Information Pack is the Home Condition Report.	Housing Act 2004
Home Inspector	A person that has been certified by a Certification Scheme as being able to carry out a home inspection and produce a Home Condition Report.	Housing Act 2004
Registered User	A known user that needs to be pre-registered to perform a particular Functional Role and can invoke the restricted services authorised for that role.	Business Processes
Unregistered User	Any anonymous consumer such as the Property Seller, potential Property Buyer, Estate agents, HIP Providers and Conveyancers who have a regulated right to access the Home Condition Report without have to pre-register their identity or be authenticated.	Business Processes
Unique Property Reference Number	Unique Property Reference Number that uniquely identifies every distinct "saleable" property in England & Wales. This includes flats within building, multiple houses on shared land etc.	BS7666
Local Home Condition Report Register	<p>A local sub-set of the Home Condition Report Register maintained by the Home Condition Report Registrar as a repository of all the Home Condition Reports that it has lodged.</p> <p>The reports stored in the local Home Condition Report Register are exactly the same as those in the central Home Condition Report Register and are regarded as an authentic copy of the registered Home Condition Report.</p> <p>The local Home Condition Report Register is outside the direct control of the Home Condition Report Register Operator.</p>	Business Processes
Address		BS7666

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Home Condition Report Register Operator	The organisation managing the Home Condition Report Register and providing associated services on behalf of ODPM. The subject of this document.	Business Processes
Energy Performance Certificate	<p>The EU Directive requires that a valid Energy Performance Certificate (or Energy Assessment or "energy report") be produced that rates the energy efficiency of a property.</p> <p>The Home Condition Report will contain an Energy Performance Certificate that will enable compliance with this requirement of the EU Directive.</p>	EU Directive 2002/91/EC

Acronym	Meaning
URL	Universal Resource Locator
XML	Extensible Mark-up Language
XSD	XML Schema Definition
ODPM	Office of the Deputy Prime Minister
PDF	Portable Document Format
HCR	Home Condition Report
HI	Home Inspector
CS	Certification Scheme
UPRN	Unique Property Reference Number

Appendix E. RELATED DOCUMENTS

This section provides a list of related documents that may provide more detail or clarification to do with the contents of this document. This is purely for information and none of these documents are prerequisites to understanding this document.

Where the reference is a publicly available document then the reference is a hyperlink to the actual document.

Ref	Document Title or Link	Publisher / Author
1	Business Processes Model 0.6.doc – swim-lane diagrams of all the significant processes of interest to the Home Information Pack Programme.	ODPM – [REDACTED]
2	BS7666 Address Details XML schema – documents and XSD describing the British Standard for Address Details.	e-GU – [REDACTED]
3	BS7666 Address Data Examples (PISCES) – some examples of the BS7666 standard published by PISCES.	PISCES
4	Home Condition Report High-Level Data Model – high level overview of the detailed Home Condition Report UML Data Model.	ODPM – [REDACTED]
5	Home Condition Report UML Data Model – structured data model providing detailed descriptions of the underlying data used to generate the Home Condition Report.	ODPM – [REDACTED]
6	HCR Mandatory & Preferred Text	ODPM – [REDACTED]