
DIM System Requirements (TR2002-223-02)

V0.9

Software Evaluation for DIM Digital Image Management Program

Prepared for:

Base Mapping and Geomatic Services

Ministry of Sustainable Resource Management



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GLOSSARY OF TERMS

| | |
|---------|--|
| DIM | Digital Image Management |
| Vintage | The Vintage is a grouping of raster products in a time period, for example a single flying operation for air photos, for satellite photos there will be a similar time period. |
| OGC | Open GIS Consortium, Inc. |
| IDW | Integrated Data Warehouse |

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1 INTRODUCTION

1.1 Purpose

The purpose of this document is to document the requirements and the systems architecture of the DIM system in the context of evaluating the required software components.

1.2 Audience

The DIM System Requirements document has been written for the Technical Staff within MSRM, the team evaluating the software components and the future implementers of the system.

1.3 Related Documents

The following documents were prepared for the MSRM in previous phases of the DIM program. The documents can be obtained from the Ministry.

1. DIM Current Assessment - Future Direction
2. DIM Migration Strategy
3. DIM Software Evaluation Plan and Selection Criteria
4. Sierra Vetting Report
5. BC In View
6. IDW Statement Of Requirements
7. Level Task Flow
8. Metadata Strategy Final Report
9. Air Photo Metadata Standards

2 HIGH LEVEL REQUIREMENTS

The following tables outline the high level requirements for the DIM system. Where the requirement satisfies an IDW requirement the IDW ID for that requirement is shown.

2.1 General Requirements

| DIM -ID | IDW-ID | Requirement |
|-----------|-----------|---|
| DIM-GEN-1 | PER-1, 3 | All components must log information about usage and performance. |
| DIM-GEN-2 | PRE-2...4 | End-users can customize the view of the application and the data. The view should also be defined by the user type. |
| DIM-GEN-3 | | The system must follow the Client Access Strategy defined by DSS and IMB. |
| DIM-GEN-4 | | The discovery and distribution interfaces must be accessible via the government common portal and share the same look and feel. |
| DIM-GEN-5 | | The system must support monitoring and provide runtime status controls. |
| DIM-GEN-6 | | The system must support distributed search and discovery. |

2.2 Data Administration Requirements

| DIM -ID | IDW-ID | Requirement |
|----------|--------|---|
| DIM-DA-1 | | The system must support creation and management of raster products including digital raster files and metadata. |
| DIM-DA-2 | | The system must support creation and management of vector data for the index maps. |
| DIM-DA-3 | | The system must be able to support the recreation of large Orthomosaic files when tiles are updated. |
| DIM-DA-4 | | The system must support bulk and incremental loads of metadata, raster products and index map data. |
| DIM-DA-5 | ACC-3 | Index map data from other map/feature servers must be accessible from DIM. |

2.3 Discovery Requirements

| DIM -ID | IDW-ID | Requirement |
|-----------|-------------------|---|
| DIM-DIS-1 | PRE-3 ACC-5, 6 | Discovery of raster products must be available via standard interfaces for GIS tools and using a web browser interface. |

| | | |
|-----------|----------|--|
| DIM-DIS-2 | ANA-8 | The End-user can restrict the raster product search using spatial, temporal or metadata filters. |
| DIM-DIS-3 | PRE-3, 5 | An index map should be utilised to allow the user to select an area of interest and to view the coverage of the raster products. |
| DIM-DIS-4 | | Products should be grouped by vintage. |

2.4 Ordering Requirements

| DIM -ID | IDW-ID | Requirement |
|-----------|--------|---|
| DIM-ORD-1 | ECO-1 | End-users can add any DIM products to their shopping cart. |
| DIM-ORD-2 | ECO-7 | End-users can order a subscription to a dataset. |
| DIM-ORD-3 | ECO-5 | End-users can use credit card, direct deposit or other government billing methods to pay for their order. |
| DIM-ORD-4 | | End-users can order products without payment if they are authorized for free access. |
| DIM-ORD-5 | ECO-4 | The system will apply discounts based on the End-users profile. |

2.5 Distribution Requirements

| DIM -ID | IDW-ID | Requirement |
|-----------|----------|---|
| DIM-DST-1 | DST-1, 7 | Distribution of online and offline products must be supported. |
| DIM-DST-2 | DST-3 | File download image file formats must be supported. |
| DIM-DST-3 | DST-3 | Streaming image file formats must be supported. |
| DIM-DST-4 | | Direct access to online products for certain groups of users must be supported. |

2.6 Security & Access Control Requirements

| DIM -ID | IDW-ID | Requirement |
|-----------|-----------|---|
| DIM-SEC-1 | SEC-1 | All components must support single sign-on and a centralized authentication and authorization server. |
| DIM-SEC-2 | SEC-1 | Discovery of raster products and viewing of free products must be available to anonymous users. |
| DIM-SEC-3 | SEC-2 | Access to metadata, raster products and management applications must be restricted to authorized users. |
| DIM-SEC-4 | SEC-2...4 | Management of user and group privileges must be supported by the application |

2.7 Standards Requirements

| DIM -ID | IDW-ID | Requirement |
|-----------|--------|---|
| DIM-STD-1 | | Ministry or Government Standards for systems development or |

| | | |
|-----------|--|--|
| | | software packages should be followed where available. |
| DIM-STD-2 | | The DIM system will follow the following IDW requirements (PRE-1...8, DSC-2...3, SEC-1...5, ACC-1...9, ANA-8, DST-1...8, ECO-1...7, NOT-1...2, PUB-1...4, REP-2, 5, BRA-1, 2, MET-1, 7, PER-1, 3). |
| DIM-STD-3 | | ISO/TC211 Standards for geographic information should be followed where applicable. |
| DIM-STD-4 | | OGC standards for interfaces and geographic information must be followed where applicable. The standards considered should include WFS, WMS, WRS and WCS. |

2.8 Help Requirements

| DIM -ID | IDW-ID | Requirement |
|-----------|--------|--|
| DIM-HLP-1 | | The System must provide context-independent help. |
| DIM-HLP-2 | | The System must provide context-sensitive help. |
| DIM-HLP-3 | | The Administrator must be able to create and change all help text. |

2.9 Reporting Requirements

| DIM -ID | IDW-ID | Requirement |
|-----------|--------|--|
| DIM-RPT-1 | | The order system must provide an interface to a standard reporting tool to allow queries such as sales reports by data provider. |

3 ABSTRACT USE CASES

This section describes the abstract use cases for the DIM system. These use cases are building blocks that can be mapped to a real business use case.

3.1 Actors

3.1.1 Human Actors

| ACTOR | DESCRIPTION |
|-----------------------------|--|
| Security Administrator | The security administrator is responsible for group and privilege management. |
| Account Administrator | The account administrator is responsible for user account and billing account management. |
| Billing Administrator | The billing administrator is responsible for pricing and billing administration. |
| Catalogue Data Technician | The technician uses the DIM system to manage raster products, metadata and index map data. |
| Quality Control Technician | The Quality Control Technician is responsible for checking the quality of new products. |
| End-user | The End-user uses the DIM system to obtain raster products. |
| Spending Authority | A Government employee who has spending authority for a department and can approve spending by other government employees |
| Scan Supplier | Responsible for scanning air photos |
| Shipping Clerk | Responsible for shipping raster products on physical media to end-users |
| Value Added Raster Supplier | Supplies the Ministry with raster products derived from existing government owned ones. Typical raster products include orthophotos, digital terrain models and orthorectified satellite imagery and scanned air photos. |
| Distribution Administrator | The Distribution Administrator controls access to specific product types. |

3.1.2 System Actors

| ACTOR | DESCRIPTION |
|-------------------------------|--|
| DIM Management Application | The management application manages the storage and manipulation of the DIM data. |
| DIM Discovery Application | The discovery application provides interfaces to search for raster products. |
| DIM Order Application | The order application provides interfaces to order and purchase products and associated billing. |
| DIM Profile Application | The profile application provides interfaces for maintaining a profile and preferences. |
| Security System | The Security System maintains all user profiles, credentials, groups and authorization privileges. |
| Raster Processing Application | The Raster Processing Application generates raster products from source data. |

3.2 Image Acquisition

This phase of software evaluation will not look at workflow management software. The proposed image acquisition process documented in the sierra report will be supported by existing software (e.g. Air Photo System) and the new metadata management application that is part of this evaluation.

3.2.1 Produce Value-Added Raster Products

| Use Case Description | |
|------------------------------------|--|
| Name | Produce Value-Added Raster Products |
| Priority | |
| Description | This use case allows an external Value Added Raster Supplier to create a new raster product (e.g. Orthophoto, Stereo Model, Aerotriangulation etc) from an existing raw raster. |
| Actors | <ol style="list-style-type: none"> Value Added Raster Supplier Quality Control Technician |
| Pre-condition | <ol style="list-style-type: none"> The Value Add Raster Supplier must have the privileges to search and create raster products of that type. The raster product and raw digital raster must exist in the DIM system. |
| Flow of Events - Basic Path | |
| Step 1. | The Value Added Raster Supplier orders raster products using use cases in section (3.5). |
| Step 2. | The Value Added Raster Supplier generates value-added raster products from base products. |
| Step 3. | The Value Added Raster Supplier ships new raster products to DIM Quality Assurance. |
| | The Quality Control Technician inspects the new raster products. |
| Step 4. | The Quality Control Technician creates a new raster product using use case (3.3.2.1). |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> The digital raster and the metadata are stored in the DIM system. |

3.3 Raster Data Administration

The use cases in this section describe the management functionality required for raster products and index map data for the DIM System.

3.3.1 Login To Management Application

| Use Case Description | |
|------------------------------------|--|
| Name | Login To Management Application |
| Priority | |
| Description | This use case allows a Catalogue Data Technician to login to the DIM Management Application. |
| Actors | <ol style="list-style-type: none"> 1. Catalogue Data Technician 2. DIM Management Application 3. Security System |
| Pre-condition | 1. The Catalogue Data Technician must have an account in the Security System |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician logs into the DIM Management Application using their id and security credentials ¹ . |
| Step 2. | The DIM Management Application requests the Security System to authenticate and authorize the Catalogue Data Technician. |
| Step 3. | The Security System verifies the Catalogue Data Technician's credentials are valid and that the Catalogue Data Technician is authorized to use the DIM Management Application. |
| Step 4. | The DIM Management Application will allow the Catalogue Data Technician to use the system for the current session. |
| Flow of Events - Alternative Paths | |
| Step 3. | If the Catalogue Data Technician's credentials are invalid or they are not authorized to use the DIM Management Application an exception message will be returned |
| Post-condition | 1. The Catalogue Data Technician will be logged in to the DIM Management Application |

¹ Security credentials would typically be a password but could be a digital certificate.

3.3.2 Raster Product Management

The use cases in this section describe the management of raster products within the DIM system. Some use cases refer to external processes, these are outside the scope of this document.

The raster product management use cases will be restricted to Catalogue Data Technicians.

The Raster Product Management Application will also require functionality similar to those described in 3.4 Raster Discovery.

3.3.2.1 Get Raster Product Types

| Use Case Description | |
|------------------------------------|---|
| Name | Get Raster Product Types |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to get a list of the raster product types that they are authorized to create/search/update/delete. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application Security System |
| Pre-condition | <ol style="list-style-type: none"> The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests a list of raster product types. |
| Step 2. | The DIM Management Application checks the Catalogue Data Technicians authorization for the product types with the Security System. |
| Step 3. | The DIM Management Application returns a list of product types the Catalogue Data Technician is authorized to add instances of. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.3.2.2 Describe Raster Product Type Metadata

| Use Case Description | |
|---|---|
| Name | Describe Raster Product Type Metadata |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to get a description of the metadata for a raster product type. Each raster product type can have different requirements for metadata. The Catalogue Data Technician should request the description of the metadata for a raster product type before creating or updating metadata for a product. |
| Actors | <ol style="list-style-type: none"> 1. Catalogue Data Technician 2. DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. 2. The Catalogue Data Technician must have the privileges to add raster products of that type. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests a description of the data schema of the metadata for a raster product type. |
| Step 2. | The DIM Management Application returns a description of the schema for the raster product type. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |
| Notes | <ol style="list-style-type: none"> 1. The use of XML Schema to describe the metadata is not mandatory. 2. In a web services application the description (probably XML Schema or DTD) will be returned to the Catalogue Data Technician. 3. In a HTML application the description will probably be converted on the server to a HTML form that may contain the existing data and allow the Catalogue Data Technician to input the data. |

3.3.2.3 Create New Raster Product

| Use Case Description | |
|------------------------------------|--|
| Name | Create New Raster Product |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to create a new Raster Product in the DIM Management Application. A Raster Product consists of a digital raster and the related raster metadata. Raster products that do not have a digital raster can also be added to DIM to allow ordering of non-digital raster products or products that have not yet been digitized. The digital raster file can be a raw uncompressed raster or a wavelet-compressed raster. The compression of the raw raster may be done by the raster management system. The metadata for the raster will be specific for each raster product type and will be defined in a metadata schema. The raster metadata contained within the raster file will be used if the Catalogue Data Technician does not specify data from that item. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. The Catalogue Data Technician must have the privileges to add raster products of that type. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests a list of raster product types (3.3.2.1). |
| Step 2. | The Catalogue Data Technician gets a description of the metadata for a raster product type (3.3.2.2). |
| Step 3. | The Catalogue Data Technician requests a new raster product to be created sending the digital raster and the metadata (formatted according to the metadata description). |
| Step 4. | The DIM Management Application extracts any metadata in the raster and updates the request with the additional metadata. |
| Step 5. | The DIM Management Application generates a unique identifier for the new product and adds the raster to the raster store and the metadata to the metadata store. |
| Step 6. | The DIM Management Application sends notification emails to users that have notification rules matching the new product. |
| Flow of Events - Alternative Paths | |
| Step 3. | The Catalogue Data Technician requests a new raster product to be created sending the metadata (formatted according to the metadata description). |
| Post-condition | 1. The digital raster and the metadata are stored in the DIM system. |

3.3.2.4 Bulk Import Raster Products

| Use Case Description | |
|------------------------------------|--|
| Name | Bulk Import Raster Products |
| Priority | |
| Description | This use case allows the Catalogue Data Technician to bulk load raster products from a file into the raster product store. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> The data must not already exist in the system. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests the file to be bulk loaded. |
| Step 2. | The DIM Management Application creates a new raster product (see 3.3.2.3) for each record in the file. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> The new data must be available from the DIM Management Application. |
| Notes | <ol style="list-style-type: none"> The bulk loading of data will be implementation specific with some products requiring the data to be loaded directly into the database and others will use an admin interface. In the case of an admin interface the Catalogue Data Technician will need to login to the admin application. |

3.3.2.5 Incremental Import Raster Products

| Use Case Description | |
|------------------------------------|--|
| Name | Incremental Import Raster Products |
| Priority | |
| Description | This use case allows the Catalogue Data Technician to import raster products from an incremental update file. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> The data must not already exist in the system. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests the incremental file to be loaded. |
| Step 2. | The DIM Management Application creates a new raster product (see 3.3.2.3) for each record in the file. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> The new data must be available from the DIM Management Application. |
| Notes | <ol style="list-style-type: none"> In the case of an admin interface the Catalogue Data Technician will need to login to the admin application. |

3.3.2.6 Search Raster Products

| Use Case Description | |
|------------------------------------|---|
| Name | Search Raster Products |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to search for a raster product of a particular type using a metadata search. |
| Actors | <ol style="list-style-type: none"> 1. Catalogue Data Technician 2. DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. 2. The Catalogue Data Technician must have the privileges to search raster products of that type. 3. The raster product must exist in the DIM system. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests a list of raster product types (3.3.2.1). |
| Step 2. | The Catalogue Data Technician requests to search for a raster product by type. |
| Step 3. | The DIM Management Application returns a description of the data that can be searched for the raster product type. |
| Step 4. | The Catalogue Data Technician requests a raster product search with the metadata. |
| Step 5. | The DIM Management Application searches the metadata store to find matching raster products and return a list of the matching records to the Catalogue Data Technician. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.3.2.7 Update Existing Raster Product

| Use Case Description | |
|---|---|
| Name | Update Existing Raster Product |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to update the metadata or the digital raster associated with a raster product. Updating data will permanently replace the existing metadata or digital raster with the new data. The metadata or the digital raster can be updated independently. |
| Actors | <ol style="list-style-type: none"> 1. Catalogue Data Technician 2. DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. 2. The Catalogue Data Technician must have the privileges to update raster products of that type. 3. The raster product must exist in the DIM system. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician searches (3.3.2.6) for the raster product to be updated. |
| Step 2. | The Catalogue Data Technician requests the current raster metadata for a raster product by id. |
| Step 3. | The DIM Management Application returns the raster product type name and the raster metadata. |
| Step 4. | The Catalogue Data Technician gets a description of the metadata for a raster product type (3.3.2.2). |
| Step 5. | The DIM Management Application returns a schema for the raster product type. |
| Step 6. | The Catalogue Data Technician requests the raster product to be updated sending the digital raster and the metadata (formatted according to the metadata description). |
| Step 7. | The DIM Management Application replaces the raster in the raster store and the metadata in the metadata store. |
| Flow of Events - Alternative Paths | |
| Step 6. | The Catalogue Data Technician requests the raster product to be updated sending the metadata (formatted according to the metadata description). |
| Post-condition | <ol style="list-style-type: none"> 1. The existing digital raster and metadata is replaced by the new data. |

3.3.2.8 Delete Raster Product

| Use Case Description | |
|------------------------------------|---|
| Name | Delete Raster Product |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to delete a raster product from the DIM system. Deleting a raster product will make the digital raster and metadata maintained by the DIM system unavailable. |
| Actors | <ol style="list-style-type: none"> 1. Catalogue Data Technician 2. DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. 2. The Catalogue Data Technician must have the privileges to delete raster products of that type. 3. The raster product must exist in the DIM system. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician searches (3.3.2.6) for the raster product to be deleted. |
| Step 2. | The Catalogue Data Technician selects the raster product from the list and requests the raster product to be deleted by sending the unique id. |
| Step 3. | The system deletes the raster from raster store and the metadata from the metadata store. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The digital raster and the metadata will no longer be accessible in the DIM system. |

3.3.2.9 Manage Links To Affiliated Raster Libraries

| Use Case Description | |
|---|---|
| Name | Manage Links To Affiliated Raster Libraries |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to add/delete or update a link to an affiliated raster library raster database. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. The Catalogue Data Technician must have the privileges to manage affiliated raster library links. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests to manage the links to affiliated raster libraries. |
| Step 2. | The DIM Management Application returns the list of affiliates. |
| Step 3. | The Catalogue Data Technician requests to add or update an affiliate |
| Step 4. | The DIM Management Application returns the current information (for update) and the list of required fields. |
| Step 5. | The Catalogue Data Technician enters the information to link to the affiliate and requests it to be saved. |
| Step 6. | The DIM Management Application saves the affiliate information. |
| Flow of Events - Alternative Paths | |
| Step 4. | The Catalogue Data Technician requests to delete an affiliate |
| Step 5. | The DIM Management Application deletes the affiliate |
| Post-condition | <ol style="list-style-type: none"> The affiliate must be created/updated or deleted. |

3.3.2.10 Update Orthomosaic

| Use Case Description | |
|------------------------------------|--|
| Name | Update Orthomosaic |
| Priority | |
| Description | This use case allows an existing orthomosaic to be updated with a new tile for a small region of the image. This will support quick updates of large 1TB orthomosaic images with new data. |
| Actors | <i>None</i> |
| Pre-condition | <i>None</i> |
| Flow of Events - Basic Path | |
| | <i>To be defined by the ministry based on current practices.</i> |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | |

3.3.2.11 Archive Raster Product

| Use Case Description | |
|------------------------------------|--|
| Name | Archive Raster Product |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to archive a raster product to offline storage. |
| Actors | <ol style="list-style-type: none"> 1. Catalogue Data Technician 2. DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. 2. The Catalogue Data Technician must have the privileges to archive raster products of that type. 3. The raster product must exist in the DIM system. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician searches (3.3.2.6) for the raster product to be archive. |
| Step 2. | The Catalogue Data Technician selects the raster product from the list and requests the raster product to be archived by sending the unique id. |
| Step 3. | The DIM Management Application gets the raster from the raster store and the metadata from the metadata store and packages them for archiving. |
| Step 4. | The DIM Management Application writes the archive package to the archive media and adds a reference to the archive index. |
| Step 5. | The DIM Management Application deletes the raster from the raster store and the metadata from the metadata store. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The digital raster and the metadata will no longer be accessible in the DIM system. 2. The digital raster and the metadata will be safely stored on the external media and added to the archive index. |

3.3.2.12 Backup Raster Product

| Use Case Description | |
|------------------------------------|--|
| Name | Backup Raster Product |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to backup raster products to offline storage. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. The Catalogue Data Technician must have the privileges to backup raster products of that type. The raster product must exist in the DIM system. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician searches (3.3.2.6) for the raster product to be backed-up. |
| Step 2. | The Catalogue Data Technician selects the raster product from the list and requests the raster product to be backed-up by sending the unique id. |
| Step 3. | The DIM Management Application gets the raster from the raster store and the metadata from the metadata store and packages them for backup. |
| Step 4. | The DIM Management Application writes the backup package to the backup media and adds a reference to the backup index. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> The digital raster and the metadata will be safely stored on the external media and added to the backup index. |

3.3.2.13 Restore Raster Product

| Use Case Description | |
|------------------------------------|--|
| Name | Restore Raster Product |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to restore a raster product from backup or archive offline storage. |
| Actors | <ol style="list-style-type: none"> 1. Catalogue Data Technician 2. DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. 2. The Catalogue Data Technician must have the privileges to restore raster products of that type. 3. The raster product must not exist in the DIM system. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician searches for the raster product to restore using the archive or backup index. |
| Step 2. | The Catalogue Data Technician selects the raster product from the list and requests the raster product to be restored by sending the unique id. |
| Step 3. | The DIM Management Application gets the raster and the metadata from the archive or backup media. |
| Step 4. | The DIM Management Application stores the metadata in the metadata store and the raster in the raster store. |
| Flow of Events - Alternative Paths | |
| Step 4. | The DIM Management Application returns an exception message if the raster product was already in the store. |
| Post-condition | <ol style="list-style-type: none"> 1. The digital raster and the metadata will be accessible in the DIM system. |

3.3.3 Index Map Management

The use cases in this section describe the management of index map layers and data within the DIM system.

The index map used for searching of index product contains multiple layers of geographical information that can be overlaid to generate the map raster.

For most layers, the ministry has the geographical information available in other data warehouses. This information will be either accessed via a link to the source information, bulk loaded or replicated into the map data store.

Some layers may require the geographical information to be maintained within the DIM map data store.

The index map management use cases will be restricted to Catalogue Data Technicians.

3.3.3.1 Create Layer

| Use Case Description | |
|------------------------------------|--|
| Name | Create Layer |
| Priority | |
| Description | This use case describes how the Catalogue Data Technician can create a new layer. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> The layer does not exist. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests a new layer to be created. |
| Step 2. | The DIM Management Application creates a new layer. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> If the layer will exist in the DIM Management Application. |
| Notes | <ol style="list-style-type: none"> The creation of layers will be implementation specific with some products requiring the configuration files to be modified and others will use an admin interface. In the case of an admin interface the Catalogue Data Technician will need to login to the admin application. |

3.3.3.2 Link Layer To External Data

| Use Case Description | |
|------------------------------------|---|
| Name | Link Layer To External Data |
| Priority | |
| Description | This use case describes how the Catalogue Data Technician can link a layer to an external geographical data source. This data source could be an external database, web map server or web feature server. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> The layer does not contain any locally managed data or external links. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests a new layer to be created (3.3.3.1). |
| Step 2. | The Catalogue Data Technician requests the layer to be linked to the external data source. |
| Step 3. | The DIM Management Application checks the link is valid. |
| Step 4. | The DIM Management Application links the layer to the external data source. |
| Flow of Events - Alternative Paths | |
| Step 1. | If the layer already exists this step will be skipped. |
| Post-condition | <ol style="list-style-type: none"> The data from the external data source must be available from the DIM Management Application. |
| Notes | <ol style="list-style-type: none"> The linking of data will be implementation specific with some products requiring the configuration files to be modified and others will use an admin interface. In the case of an admin interface the Catalogue Data Technician will need to login to the admin application. |

3.3.3.3 Bulk Import Map Data Into Layer

| Use Case Description | |
|------------------------------------|--|
| Name | Bulk Import Map Data Into Layer |
| Priority | |
| Description | This use case describes how the Catalogue Data Technician can bulk load index map data from a file into the map data store. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application |
| Pre-condition | 1. The layer does not contain any locally managed data or external links. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests a new layer to be created (3.3.3.1). |
| Step 2. | The Catalogue Data Technician requests the file to be loaded into a layer. |
| Step 3. | The DIM Management Application loads the data into the layer. |
| Flow of Events - Alternative Paths | |
| Step 1. | If the layer already exists this step will be skipped. |
| Post-condition | 1. The new data must be available from the DIM Management Application. |
| Notes | <ol style="list-style-type: none"> The bulk loading of data will be implementation specific with some products requiring the data to be loaded directly into the database and others will use an admin interface. In the case of an admin interface the Catalogue Data Technician will need to login to the admin application. |

3.3.3.4 Incremental Import Index Map Data Into Layer

| Use Case Description | |
|------------------------------------|--|
| Name | Incremental Import Index Map Data Into Layer |
| Priority | |
| Description | This use case describes how the Catalogue Data Technician can import index map data from and incremental update file. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> The layer does not have an external link. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests the incremental data to be added to a layer. |
| Step 2. | The DIM Management Application loads data from the incremental file into the layer. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> The new data must be available from the DIM Management Application. |
| Notes | <ol style="list-style-type: none"> In the case of an admin interface the Catalogue Data Technician will need to login to the admin application. |

3.3.3.5 Create Index Map Data

| Use Case Description | |
|------------------------------------|--|
| Name | Create Index Map Data |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to create new data for a layer in the DIM Management Application. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. The Catalogue Data Technician must have the privileges to add map data to the layer. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests the map data to be added to a layer. |
| Step 2. | The DIM Management Application generates a unique identifier for the new map data and adds the data to the map data store for the layer. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> The map data must be available from the DIM Management Application. |

3.3.3.6 Search Index Map Data

| Use Case Description | |
|------------------------------------|---|
| Name | Search Index Map Data |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to search for map data for a layer in the DIM Management Application. The search will allow spatial queries and queries against the properties of the data. |
| Actors | <ol style="list-style-type: none"> 1. Catalogue Data Technician 2. DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. 2. The Catalogue Data Technician must have the privileges to search map data in the layer. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician requests a search for map data using a spatial and/or property query. |
| Step 2. | The DIM Management Application searches for the data using the query and returns a list to the Catalogue Data Technician. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The map data must be available from the DIM Management Application. |

3.3.3.7 Update Index Map Data

| Use Case Description | |
|------------------------------------|--|
| Name | Update Index Map Data |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to update existing data for a layer in the DIM Management Application. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. The Catalogue Data Technician must have the privileges to update map data for the layer. The map data must exist in the DIM Management Application. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician searches (3.3.3.6) for the map data to update. |
| Step 2. | The Catalogue Data Technician requests the map data (identified by id) to be updated with the new values. |
| Step 3. | The DIM Management Application updates the data in the data store. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> The updated map data must be available from the DIM Management Application. |

3.3.3.8 Delete Index Map Data

| Use Case Description | |
|------------------------------------|--|
| Name | Delete Index Map Data |
| Priority | |
| Description | This use case allows an authorized Catalogue Data Technician to delete existing data for a layer from the DIM Management Application. |
| Actors | <ol style="list-style-type: none"> Catalogue Data Technician DIM Management Application |
| Pre-condition | <ol style="list-style-type: none"> The Catalogue Data Technician must be logged in (3.3.1) to the DIM Management Application. The Catalogue Data Technician must have the privileges to delete map data for the layer. The map data must exist in the DIM Management Application. |
| Flow of Events - Basic Path | |
| Step 1. | The Catalogue Data Technician searches (3.3.3.6) for the map data to delete. |
| Step 2. | The Catalogue Data Technician requests the map data (identified by id) to be deleted. |
| Step 3. | The DIM Management Application deletes the data from the data store. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> The updated map data must be available from the DIM Management Application. |

3.4 Raster Discovery

The use cases in this section describe the raster discovery operations available to End-users wishing to access raster products.

The End-user can search for raster products using text searches on metadata and spatial searches or graphically via an Index Map. The End-user will be able to combine each of the search types to refine the query.

Customized views of the search interface for different End-user groups should be supported that would restrict the types of searches that can be performed.

The End-user can access the discovery application using a browser or a GIS tool that supports OGC web services.

3.4.1 Login To Discovery Application

| Use Case Description | |
|------------------------------------|--|
| Name | Login To Discovery Application |
| Priority | |
| Description | This use case allows an End-user to login to the DIM Discovery Application. The End-user can also login using a Guest account. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application 3. Security System |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must have an account in the Security System. 2. The End-user must have a web browser, GIS analysis tool or custom application running. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user logs into the DIM Discovery Application using their id and security credentials ² . |
| Step 2. | The DIM Discovery Application requests the Security System to authenticate and authorize the End-user. |
| Step 3. | The Security System verifies the End-user's credentials are valid and that the End-user is authorized to use the DIM Discovery Application. |
| Step 4. | The DIM Discovery Application will allow the End-user to use the system for the current session. |
| Step 5. | For the browser users the view of the DIM Discovery Application specific to their preferences will be displayed. For Web-services users the user will just be authenticated to use the standard web services interfaces. |
| Flow of Events - Alternative Paths | |
| Step 3. | If the End-user's credentials are invalid or they are not authorized to use the DIM Discovery Application an exception message will be returned. |
| Post-condition | <ol style="list-style-type: none"> 1. The End-user will be logged in to the DIM Discovery Application. |

² Security credentials would typically be a password but could be a digital certificate.

3.4.2 Select Raster Product Type

| Use Case Description | | | | | | | | | | | | |
|--|--|---|--|--|---|-----------------|--------------------------------|---|--------------------------|------------------------------------|--------------|-------------|
| Name | Select Raster Product Type | | | | | | | | | | | |
| Priority | | | | | | | | | | | | |
| Description | <p>This use case allows the End-user to select the type of raster product to search for. This may change the search options available as each type of raster product has different metadata. The choice of product types available to an End-user may be restricted based on their view of the system.</p> <p>The following table summarises the types of raster products available in the DIM system.</p> <table border="1"> <tr> <td>Scanned aerial photos for archive- Black and White, Colour and Infrared</td> </tr> <tr> <td>Scanned aerial photos (stereo-models) for TRIM or other softcopy photogrammetric mapping</td> </tr> <tr> <td>Digital aerial imagery – Monochromatic, Colour or Multi-spectral</td> </tr> <tr> <td>Digital Orthophotos – Black and White, Colour or Multi-spectral</td> </tr> <tr> <td>Digital Mosaics</td> </tr> <tr> <td>Raster versions of vector maps</td> </tr> <tr> <td>Scanned index maps or other scanned vector data</td> </tr> <tr> <td>Digital Satellite Images</td> </tr> <tr> <td>Baseline Thematic Mapping products</td> </tr> <tr> <td>Scanned maps</td> </tr> <tr> <td>Gridded DEM</td> </tr> </table> | Scanned aerial photos for archive- Black and White, Colour and Infrared | Scanned aerial photos (stereo-models) for TRIM or other softcopy photogrammetric mapping | Digital aerial imagery – Monochromatic, Colour or Multi-spectral | Digital Orthophotos – Black and White, Colour or Multi-spectral | Digital Mosaics | Raster versions of vector maps | Scanned index maps or other scanned vector data | Digital Satellite Images | Baseline Thematic Mapping products | Scanned maps | Gridded DEM |
| Scanned aerial photos for archive- Black and White, Colour and Infrared | | | | | | | | | | | | |
| Scanned aerial photos (stereo-models) for TRIM or other softcopy photogrammetric mapping | | | | | | | | | | | | |
| Digital aerial imagery – Monochromatic, Colour or Multi-spectral | | | | | | | | | | | | |
| Digital Orthophotos – Black and White, Colour or Multi-spectral | | | | | | | | | | | | |
| Digital Mosaics | | | | | | | | | | | | |
| Raster versions of vector maps | | | | | | | | | | | | |
| Scanned index maps or other scanned vector data | | | | | | | | | | | | |
| Digital Satellite Images | | | | | | | | | | | | |
| Baseline Thematic Mapping products | | | | | | | | | | | | |
| Scanned maps | | | | | | | | | | | | |
| Gridded DEM | | | | | | | | | | | | |
| Actors | <ol style="list-style-type: none"> End-user DIM Discovery Application | | | | | | | | | | | |
| Pre-condition | <ol style="list-style-type: none"> The End-user must be logged in (3.4.1) to the DIM Discovery Application. | | | | | | | | | | | |
| Flow of Events – Basic Path | | | | | | | | | | | | |
| Step 1. | The End-user requests a list of raster product types. | | | | | | | | | | | |
| Step 2. | The DIM Discovery Application returns the list of raster product types from the End-users profile. | | | | | | | | | | | |
| Step 3. | The End-user selects one of the raster product types. | | | | | | | | | | | |
| Step 4. | The DIM Discovery Application selects the search options based on the raster product type. | | | | | | | | | | | |
| Flow of Events – Alternative Paths | | | | | | | | | | | | |
| | None | | | | | | | | | | | |
| Post-condition | <ol style="list-style-type: none"> The search options should be restricted to those for the raster product type. | | | | | | | | | | | |

3.4.3 Select Raster Product Series

| Use Case Description | |
|------------------------------------|--|
| Name | Select Raster Product Series |
| Priority | |
| Description | This use case allows the End-user to select the series of raster product to search for. The series is a grouping of raster products of the same type, for example Ortho of BC at 1:20000. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must have selected a raster product type (3.4.2). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests a list of raster product series. |
| Step 2. | The DIM Discovery Application returns the list of raster product types from the End-users profile. |
| Step 3. | The End-user selects one of the raster product series. |
| Step 4. | The DIM Discovery Application selects the search options based on the raster product series. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The search options should be restricted to those for the raster product series. |

3.4.4 Select Date Range

| Use Case Description | |
|------------------------------------|---|
| Name | Select Date Range |
| Priority | |
| Description | This use case allows the End-user to select the date range to restrict the results of a raster product search. The date range could be a start and end date, the most recent, the oldest, every month etc. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must have selected a raster product type (3.4.2)/series (3.4.3). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user selects a date range and requests the search to be restricted to that date range. |
| Step 2. | The DIM Discovery Application validates the date range and sets the date range constraint on the search. |
| Step 3. | If the End-user has search results displayed the DIM Discovery Application executes the raster product search using the date range and returns the new raster product list. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The raster product searches must only return products in the date range. |

3.4.5 Navigate Index Map

| Use Case Description | |
|------------------------------------|--|
| Name | Navigate Index Map |
| Priority | |
| Description | <p>This use case allows the End-user to use a graphical index map to select a geographic region that they wish to find raster products for. The index map will have multiple layers of geographic data (i.e. Base Map, Orthomosaic) to help the End-user identify the region.</p> <p>The index map will either be accessible in a web browser or using a desktop GIS tool.</p> |
| Actors | <ol style="list-style-type: none"> End-user DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> The End-user must be logged in (3.4.1) to the DIM Discovery Application. The End-user must have selected a raster product type (3.4.2)/series (3.4.3). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to view the index map. |
| Step 2. | The DIM Discovery Application generates and returns an index map of BC with the default layers visible. |
| Step 3. | The End-user navigates the map using the use cases described in this section. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.4.5.1 Select Visible Layers

| Use Case Description | | | | | | | | | | |
|---|---|--------------|--|---|--------------------|--|----------------------|--------------------------|-------------------------------------|----------------------------------|
| Name | Select Visible Layers | | | | | | | | | |
| Priority | | | | | | | | | | |
| Description | <p>This use case allows an End-user to select which layers on the index map should be displayed, the transparency of each layer and the order of the layers.</p> <p>The following table summarises the layers that can be viewed on the index map. The End-user can select which layers are visible.</p> <table border="1"> <tr> <td>Flight lines</td> </tr> <tr> <td>Air photo centres, footprints and positional uncertainty</td> </tr> <tr> <td>Topographic base map (Base map data will vary based on zoom level i.e. 1:6m, 1:250k, 1:20k)</td> </tr> <tr> <td>Orthophoto mosaics</td> </tr> <tr> <td>Grids (Mapsheet Grids and Satellite Grids)</td> </tr> <tr> <td>Administrative areas</td> </tr> <tr> <td>Polygon area of interest</td> </tr> <tr> <td>Aerotriangulation strips and models</td> </tr> <tr> <td>Aerotriangulation special points</td> </tr> </table> | Flight lines | Air photo centres, footprints and positional uncertainty | Topographic base map (Base map data will vary based on zoom level i.e. 1:6m, 1:250k, 1:20k) | Orthophoto mosaics | Grids (Mapsheet Grids and Satellite Grids) | Administrative areas | Polygon area of interest | Aerotriangulation strips and models | Aerotriangulation special points |
| Flight lines | | | | | | | | | | |
| Air photo centres, footprints and positional uncertainty | | | | | | | | | | |
| Topographic base map (Base map data will vary based on zoom level i.e. 1:6m, 1:250k, 1:20k) | | | | | | | | | | |
| Orthophoto mosaics | | | | | | | | | | |
| Grids (Mapsheet Grids and Satellite Grids) | | | | | | | | | | |
| Administrative areas | | | | | | | | | | |
| Polygon area of interest | | | | | | | | | | |
| Aerotriangulation strips and models | | | | | | | | | | |
| Aerotriangulation special points | | | | | | | | | | |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application | | | | | | | | | |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). | | | | | | | | | |
| Flow of Events - Basic Path | | | | | | | | | | |
| Step 1. | The End-user requests the list of layers available. | | | | | | | | | |
| Step 2. | The DIM Discovery Application returns the list of layers. | | | | | | | | | |
| Step 3. | The End-user (de)selects the layers they wish to be (in)visible, the order and the transparency of the layers and requests the index map to be updated. | | | | | | | | | |
| Step 4. | The DIM Discovery Application updates the index map to display the selected layers. | | | | | | | | | |
| Flow of Events - Alternative Paths | | | | | | | | | | |
| | <i>None</i> | | | | | | | | | |
| Post-condition | <ol style="list-style-type: none"> 1. The selected layers will be displayed on the index map. 2. The deselected layers will be remove from the index map. | | | | | | | | | |

3.4.5.2 Select Legend Visibility

| Use Case Description | |
|------------------------------------|--|
| Name | Select Legend Visibility |
| Priority | |
| Description | This use case allows and end-user to (de)select the visibility of the index map legend. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user (de)selects the visibility of the index map legend. |
| Step 2. | The DIM Discovery Application hides/shows the index map legend. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.4.5.3 Navigate Index Map By Zooming

| Use Case Description | |
|------------------------------------|---|
| Name | Navigate Index Map By Zooming |
| Priority | |
| Description | This use case allows the End-user to zoom and centre the index map. When zooming the End-user can define the centre point of the map using coordinates (selecting with the mouse) or by a selected area of interest. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). 3. The index map must not be at the maximum/minimum zoom level. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests the index map to be zoomed (in or out) by a certain percentage centred at a defined point. |
| Step 2. | The DIM Discovery Application will generate a new index map at the specified zoom centred on the new point. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the raster is at minimum or maximum zoom the DIM Discovery Application will just centre the raster on the new point. |
| Post-condition | <ol style="list-style-type: none"> 1. The new index map must contain the same layers as before the zoom. |

3.4.5.4 Navigate Index Map By Panning

| Use Case Description | |
|------------------------------------|--|
| Name | Navigate Index Map By Panning |
| Priority | |
| Description | This use case allows the End-user to pan the index map. When panning if the area is outside the bounding box for the whole index map the raster will be repositioned to line up with the edge of the bounding box. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests the index map to be panned by a specified distance and direction. |
| Step 2. | The DIM Discovery Application will generate a new index map at the location specified by the distance and direction. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the raster is outside the bounding box for the whole index map the DIM Discovery Application will be reposition the raster to line up with the edge of the bounding box. |
| Post-condition | <ol style="list-style-type: none"> 1. The new index map must contain the same layers as before the pan. |

3.4.5.5 Navigate Index Map By Coordinates

| Use Case Description | |
|------------------------------------|--|
| Name | Navigate Index Map By Coordinates |
| Priority | |
| Description | This use case allows an End-user to centre the map at specified coordinates. |
| Actors | <ol style="list-style-type: none"> End-user DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> The End-user must be logged in (3.4.1) to the DIM Discovery Application. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user selects the option to re-centre the map. |
| Step 2. | The DIM Discovery Application returns a description of the coordinate reference systems that can be used. |
| Step 3. | The End-user sends a request to centre the map on specified coordinates. |
| Step 4. | The DIM Discovery Application will generate a new index map at the centred on the specified coordinates. |
| Flow of Events - Alternative Paths | |
| Step 4. | If the coordinates were outside the bounding box for the whole index map data an exception message will be returned to the End-user. |
| Post-condition | <ol style="list-style-type: none"> The new index map must contain the same layers as before. |

3.4.5.6 Navigate Index Map By An Address Search

| Use Case Description | |
|------------------------------------|--|
| Name | Navigate Index Map By An Address Search |
| Priority | |
| Description | This use case allows an End-user to search for a location using the civic (street) address. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests an address search. |
| Step 2. | The DIM Discovery Application returns a description of the address search fields. |
| Step 3. | The End-user sends a request to search for addresses with the search data. |
| Step 4. | The DIM Discovery Application searches for the address and returns a list of all possible matches. |
| Step 5. | The End-user selects the address and requests the location of the index map to be centred on the address. |
| Step 6. | The DIM Discovery Application will generate a new index map at the centred on the address with an appropriate zoom. |
| Flow of Events - Alternative Paths | |
| Step 4. | If no matches were found an exception message will be returned to the End-user. |
| Post-condition | <ol style="list-style-type: none"> 1. The new index map must contain the same layers as before with the addition of the address as a point. |

3.4.5.7 Navigate Index Map By Map Sheet ID

| Use Case Description | |
|------------------------------------|--|
| Name | Navigate Index Map By Map Sheet ID |
| Priority | |
| Description | This use case allows an End-user to navigate the index map by entering the map sheet id (1:20 000, 1:50 000). The index map will display the whole of the map sheet. |
| Actors | <ol style="list-style-type: none"> End-user DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> The End-user must be logged in (3.4.1) to the DIM Discovery Application. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to navigate the map to the specified map sheet id. |
| Step 2. | The DIM Discovery Application loads the coordinates for the map sheet. |
| Step 3. | The DIM Discovery Application will generate a new index map covering the entire map sheet. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the map sheet id was invalid an exception message will be returned to the End-user. |
| Post-condition | <ol style="list-style-type: none"> The new index map must contain the same layers as before. |

3.4.5.8 Navigate Index Map By Air Photo Roll/Frame

| Use Case Description | |
|------------------------------------|--|
| Name | Navigate Index Map By Air Photo Roll/Frame |
| Priority | |
| Description | This use case allows an End-user to navigate the index map by entering an air photo roll and optionally frame number. The index map will be set to cover the bounding box around the roll or the individual frame. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user enters a roll and optionally the frame number and requests to navigate to the specified area. |
| Step 2. | The DIM Discovery Application searches the air photos and loads the bounding box for the selected roll or individual frame. |
| Step 3. | The DIM Discovery Application will generate a new index map covering the entire roll or frame. |
| Flow of Events - Alternative Paths | |
| Step 3. | If the roll or frame number was not found an exception message will be returned to the End-user. |
| Post-condition | <ol style="list-style-type: none"> 1. The new index map must contain the same layers as before. |

3.4.5.9 Navigate Index Map By Air Photo Vintage

| Use Case Description | |
|------------------------------------|--|
| Name | Navigate Index Map By Air Photo Vintage |
| Priority | |
| Description | This use case allows an End-user to navigate the index map by entering air photo vintage (operation) number, the user can specify a date range and select the vintage from the list returned. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user enters a year range to search for vintages. |
| Step 2. | The DIM Discovery Application searches the air photos and returns a list of all the operations in the date range with a description. |
| Step 3. | The End-user selects one of the vintages and requests the map to be updated. |
| Step 4. | The DIM Discovery Application will generate a new index map covering the entire vintage with the photo centres displayed. |
| Flow of Events - Alternative Paths | |
| Step 1. | The End-user enters the air photo vintage (operation) number to navigate to and request the map to be updated (skip to step 4). |
| Step 4. | If the vintage number was not found an exception message will be returned to the End-user. |
| Post-condition | <ol style="list-style-type: none"> 1. The new index map must contain the same layers as before plus the photo centre layer. |

3.4.5.10 Navigate Index Map By Satellite Sensor Scene

| Use Case Description | |
|------------------------------------|--|
| Name | Navigate Index Map By Satellite Sensor Scene |
| Priority | |
| Description | This use case allows an End-user to navigate the index map by selecting the satellite sensor scene grid type and entering the scene id (will be specific to the grid selected). |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to navigate by satellite sensor scene. |
| Step 2. | The DIM Discovery Application returns a list of grids types (i.e. IRS) and the data required to identify a scene. |
| Step 3. | The End-user selects a grid type and requests to navigate using that grid to the specified scene id. |
| Step 4. | The DIM Discovery Application loads the coordinates for the scene. |
| Step 5. | The DIM Discovery Application will generate a new index map covering the entire scene. |
| Flow of Events - Alternative Paths | |
| Step 4. | If the scene id was invalid an exception message will be returned to the End-user. |
| Post-condition | <ol style="list-style-type: none"> 1. The new index map must contain the same layers as before. |

3.4.5.11 Navigate Index Map By Named Feature

| Use Case Description | |
|------------------------------------|--|
| Name | Navigate Index Map By Named Feature |
| Priority | |
| Description | This use case allows an End-user to navigate the index map by entering a feature name (i.e. Blue Lake) from which to load the coordinates for the index map. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to search for a feature with a specified name. |
| Step 2. | The DIM Discovery Application searches the feature database and returns a list of possible matches. |
| Step 3. | The End-user selects a feature and requests the index map to be moved to display the feature. |
| Step 4. | The DIM Discovery Application will generate a new index map covering the extents of the feature. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The new index map must contain the same layers as before with the addition of the named feature extent displayed. |

3.4.5.12 Navigate Index Map By Administrative Area

| Use Case Description | |
|------------------------------------|--|
| Name | Navigate Index Map By Administrative Area |
| Priority | |
| Description | This use case allows an End-user to navigate the index map by entering an administrative area name from which to load the coordinates for the index map. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to search for an administrative area by name. |
| Step 2. | The DIM Discovery Application searches the administrative areas and returns the possible matches. |
| Step 3. | The End-user selects an administrative area and requests the index map to be moved to display the area. |
| Step 3. | The DIM Discovery Application will generate a new index map covering the extents of the administrative area. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The new index map must contain the same layers as before with the addition of the administrative area boundary displayed. |

3.4.5.13 Navigate Index Map By Legal Lot

| Use Case Description | |
|------------------------------------|--|
| Name | Navigate Index Map By Legal Lot |
| Priority | |
| Description | This use case allows an End-user to navigate the index map by searching for a legal lot by lot number from which to load the coordinates for the index map. |
| Actors | <ol style="list-style-type: none"> End-user DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> The End-user must be logged in (3.4.1) to the DIM Discovery Application. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to search for a legal lot by lot number. |
| Step 2. | The DIM Discovery Application searches the legal lots and returns the match. |
| Step 3. | The End-user selects a legal lot and requests the index map to be moved to display the area. |
| Step 4. | The DIM Discovery Application will generate a new index map covering the extents of the legal lot. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the lot could not be found an exception message will be returned. |
| Post-condition | <ol style="list-style-type: none"> The new index map must contain the same layers as before with the addition of the administrative area extent displayed. |

3.4.5.14 Navigate Index Map By Aerotriangulation Block

| Use Case Description | |
|------------------------------------|--|
| Name | Navigate Index Map By Aerotriangulation Block |
| Priority | |
| Description | This use case allows an End-user to navigate the index map by searching for an aerotriangulation block from which to load the coordinates for the index map. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to search for an aerotriangulation block by AT block id. |
| Step 2. | The DIM Discovery Application searches the aerotriangulation blocks and returns the possible match. |
| Step 3. | The End-user selects an aerotriangulation block and requests the index map to be moved to display the area. |
| Step 4. | The DIM Discovery Application will generate a new index map covering the extents of the aerotriangulation block. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the block could not be found an exception message will be returned. |
| Post-condition | <ol style="list-style-type: none"> 1. The new index map must contain the same layers as before with the addition of the aerotriangulation block extent displayed. |

3.4.5.14.1 Navigate Index Map By Aerotriangulation Model

| Use Case Description | |
|---|---|
| Name | Navigate Index Map By Aerotriangulation Model |
| Priority | |
| Description | This use case allows an End-user to navigate the index map by searching for an aerotriangulation model from which to load the coordinates for the index map. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). 3. The index map must have been navigated by aerotriangulation block. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to search for an aerotriangulation model within the current aerotriangulation block. |
| Step 2. | The DIM Discovery Application searches the aerotriangulation models and returns the possible matches. |
| Step 3. | The End-user selects an aerotriangulation model and requests the index map to be moved to display the area. |
| Step 4. | The DIM Discovery Application will generate a new index map covering the extents of the aerotriangulation model. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The new index map must contain the same layers as before with the addition of the aerotriangulation model extent displayed. |

3.4.5.15 Navigate Index Map By Saved Map View

| Use Case Description | |
|------------------------------------|---|
| Name | Navigate Index Map By Saved Map View |
| Priority | |
| Description | This use case allows an End-user to navigate the index map by loading a saved index with the zoom extent and layers from the named saved map view. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). 3. The End-user must have a saved map view. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to view the list of saved map views. |
| Step 2. | The DIM Discovery Application loads the list of map views and returns them to the End-user. |
| Step 3. | The End-user selects one saved map view and requests to navigate to that view. |
| Step 4. | The DIM Discovery Application sets the extent of the map to the saved map view. |
| Step 5. | The DIM Discovery Application sets the visible layers to the saved map layers. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The new index map must be zoomed to the saved extent and the saved layers must be visible. |

3.4.5.15.1 Navigate Index Map By Aerotriangulation Model

| Use Case Description | |
|---|---|
| Name | Navigate Index Map By Aerotriangulation Model |
| Priority | |
| Description | This use case allows an End-user to navigate the index map by searching for an aerotriangulation model from which to load the coordinates for the index map. |
| Actors | <ol style="list-style-type: none"> 3. End-user 4. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 4. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 5. The End-user must be navigating using the index map (3.4.5). 6. The index map must have been navigated by aerotriangulation block. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to search for an aerotriangulation model within the current aerotriangulation block. |
| Step 2. | The DIM Discovery Application searches the aerotriangulation models and returns the possible matches. |
| Step 3. | The End-user selects an aerotriangulation model and requests the index map to be moved to display the area. |
| Step 4. | The DIM Discovery Application will generate a new index map covering the extents of the aerotriangulation model. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 2. The new index map must contain the same layers as before with the addition of the aerotriangulation model extent displayed. |

3.4.5.16 Save Current Map View

| Use Case Description | |
|------------------------------------|--|
| Name | Save Current Map View |
| Priority | |
| Description | This use case allows an End-user to save the current index map view including zoom extent and selected layers. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). 3. The End-user must not have a saved map view with the same name. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to save the current map view. |
| Step 2. | The DIM Discovery application requests a name to save the view as. |
| Step 3. | The End-user requests the map to be saved with a specified name. |
| Step 4. | The DIM Discovery Application saves |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The map view is saved with the zoom extent and the layers. |

3.4.5.16.1 Navigate Index Map By Aerotriangulation Model

| Use Case Description | |
|---|---|
| Name | Navigate Index Map By Aerotriangulation Model |
| Priority | |
| Description | This use case allows an End-user to navigate the index map by searching for an aerotriangulation model from which to load the coordinates for the index map. |
| Actors | 5. End-user 6. DIM Discovery Application |
| Pre-condition | 7. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 8. The End-user must be navigating using the index map (3.4.5). 9. The index map must have been navigated by aerotriangulation block. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to search for an aerotriangulation model within the current aerotriangulation block. |
| Step 2. | The DIM Discovery Application searches the aerotriangulation models and returns the possible matches. |
| Step 3. | The End-user selects an aerotriangulation model and requests the index map to be moved to display the area. |
| Step 4. | The DIM Discovery Application will generate a new index map covering the extents of the aerotriangulation model. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | 3. The new index map must contain the same layers as before with the addition of the aerotriangulation model extent displayed. |

3.4.6 Define Area Of Interest

| Use Case Description | |
|---|---|
| Name | Define Area Of Interest |
| Priority | |
| Description | This use case allows an End-user to define an area of interest that will be used to search for raster products. If an area of interest is not explicitly defined then the bounding box of the index map will be used as the area of interest. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events – Basic Path | |
| Step 1. | The End-user defines a Shape to be used as an area of interest and the spatial operation to apply to the shape and the raster products. |
| Step 2. | The DIM Discovery Application validates the shape and sets the area of interest with spatial operation constraint on the search. |
| Step 3. | If the End-user has search results displayed the DIM Discovery Application executes the raster product search applying the spatial operation to the area of interest and returns the new raster product list. |
| Flow of Events – Alternative Paths | |
| Step 1a. | The End-user defines a buffer around the shape to be added to the area of interest. |
| Post-condition | <i>None</i> |
| Notes | <ol style="list-style-type: none"> 1. The area of interest can be a point, line, polygon or union of shapes. 2. The area of interest can be expanded to include a buffer around the shapes (i.e. Search all raster products within 2km of a River). |

3.4.6.1 Draw Area Of Interest

| Use Case Description | |
|------------------------------------|--|
| Name | Draw Area Of Interest |
| Priority | |
| Description | This use case allows an End-user to draw an area on interest on the index map and use the extent as an area of interest for the search. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user draws a shape on the index map. |
| Step 2. | The DIM Discovery Application sets the shape to be the current area of interest. |
| Step 3. | The End-user requests the shape to be used for an area of interest search (see 3.4.6 Define Area Of Interest). |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.4.6.2 Upload Area Of Interest

| Use Case Description | |
|------------------------------------|--|
| Name | Upload Area Of Interest |
| Priority | |
| Description | This use case allows an End-user to load an area of interest from a file and use the extent as an area of interest for the search. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user loads a file and requests the shape to be loaded from the file. |
| Step 2. | The DIM Discovery Application loads the shape information into the index map. |
| Step 3. | The End-user requests the shape to be used for an area of interest search (see 3.4.6 Define Area Of Interest). |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.4.6.3 Edit Area Of Interest

| Use Case Description | |
|------------------------------------|---|
| Name | Edit Area Of Interest |
| Priority | |
| Description | This use case allows an End-user to edit the current area of interest by modifying the shape on the index map. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must have defined a current area of interest. 3. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user edits the shape by adding/removing vertices or creating unions. |
| Step 2. | The DIM Discovery Application updates the shape on the index map. |
| Step 3. | The End-user requests the shape to be used for an area of interest search (see 3.4.6 Define Area Of Interest). |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.4.6.4 Save Area Of Interest

| Use Case Description | |
|------------------------------------|---|
| Name | Save Area Of Interest |
| Priority | |
| Description | This use case allows an End-user to save the current area of interest. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must have defined a current area of interest. 3. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to save the current area of interest and provides a unique name. |
| Step 2. | The DIM Discovery Application saves the shape information with the specified name. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the name already exists the DIM Discovery Application asks the end-user if they want to overwrite the existing area of interest. |
| Post-condition | <i>None</i> |

3.4.6.5 Load Saved Area Of Interest

| Use Case Description | |
|------------------------------------|--|
| Name | Load Saved Area Of Interest |
| Priority | |
| Description | This use case allows an End-user to load a saved area of interest from the DIM system. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to load a saved area of interest using a partial name search. |
| Step 2. | The DIM Discovery Application searches the saved area of interests for the user and returns the list of matching saved area of interests. |
| Step 3. | The End-user selects one of the areas of interests and requests it to be loaded. |
| Step 4. | The DIM Discovery Application loads the shape for the area of interest and sets the shape to be the current area of interest. |
| Step 5. | The End-user requests the shape to be used for an area of interest search (see 3.4.6 Define Area Of Interest). |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.4.6.6 Use Navigation Target As Area Of Interest

| Use Case Description | |
|------------------------------------|---|
| Name | Use Navigation Target As Area Of Interest |
| Priority | |
| Description | This use case allows an End-user to use the target of their latest navigation (e.g. lake name, lot id, mapsheet id etc) as the extent for an area of interest search. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). 3. The End-user must have navigated using use cases 3.4.5.6-3.4.5.14. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to search for air photos. |
| Step 2. | The DIM Discovery Application sets the extent of the navigation item (e.g. lake or lot polygon) to be used as the area of interest (see 3.4.6 Define Area Of Interest). |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.4.6.7 Use Current Map View As Area Of Interest

| Use Case Description | |
|------------------------------------|--|
| Name | Use Current Map View As Area Of Interest |
| Priority | |
| Description | This use case allows an End-user to use the bounding box of the current map view as an area of interest for the search. This is the default search if the user does not have a specific navigation target or area of interest defined. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to search for air photos. |
| Step 2. | The DIM Discovery Application sets the bounding box of the current index map view to be used as the area of interest (see 3.4.6 Define Area Of Interest). |
| Flow of Events - Alternative Paths | |
| Step 1. | The End-user requests to search for air photos using the current index map view as the area of interest. This will force any other navigation target to be ignored. |
| Post-condition | <i>None</i> |

3.4.6.8 Use System-Defined Spatial Extent(s) As Area Of Interest

| Use Case Description | |
|------------------------------------|--|
| Name | Use System-Defined Spatial Extent(s) As Area Of Interest |
| Priority | |
| Description | The use case allows an End-user to select one or more polygons (i.e. mapsheet, legal lot, feature etc) to be used as the area of interest. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user selects one or more polygons on the index map requests to search for air photos. |
| Step 2. | The DIM Discovery Application creates a union shape from all the selected polygons and sets this to be used as the area of interest (see 3.4.6 Define Area Of Interest). |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.4.7 Define Advanced Metadata Filter

| Use Case Description | | | | | | | | | | | | | | | |
|------------------------------------|--|----------|-------------|---------------|---------------------------------------|---------------|--|--------------|-------------------------------------|-------|-----------------------------|-----------|--|------------|----------------------------------|
| Name | Define Advanced Metadata Filter | | | | | | | | | | | | | | |
| Priority | | | | | | | | | | | | | | | |
| Description | <p>This use case allows an End-user to define an advanced metadata filter to be applied to a raster product search with fields specific to the raster product type. If the metadata was not available for some of the potential results that filter should be removed from the search and the end-user notified.</p> <p>The following table lists examples of the raster metadata that can be used as a filter.</p> <table border="1"> <thead> <tr> <th>Metadata</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Emulsion type</td> <td>The type of emulsion used on the film</td> </tr> <tr> <td>Photo quality</td> <td>The quality of the photo (i.e. excess cloud cover, excess base fog, excess smoke/haze, excess crab, short forward overlap, low sun angle, verticality off)</td> </tr> <tr> <td>Focal length</td> <td>The focal length of the camera lens</td> </tr> <tr> <td>Scale</td> <td>The scale of the photograph</td> </tr> <tr> <td>Date/time</td> <td>The date and time the photograph was taken</td> </tr> <tr> <td>Resolution</td> <td>The resolution of the photograph</td> </tr> </tbody> </table> | Metadata | Description | Emulsion type | The type of emulsion used on the film | Photo quality | The quality of the photo (i.e. excess cloud cover, excess base fog, excess smoke/haze, excess crab, short forward overlap, low sun angle, verticality off) | Focal length | The focal length of the camera lens | Scale | The scale of the photograph | Date/time | The date and time the photograph was taken | Resolution | The resolution of the photograph |
| Metadata | Description | | | | | | | | | | | | | | |
| Emulsion type | The type of emulsion used on the film | | | | | | | | | | | | | | |
| Photo quality | The quality of the photo (i.e. excess cloud cover, excess base fog, excess smoke/haze, excess crab, short forward overlap, low sun angle, verticality off) | | | | | | | | | | | | | | |
| Focal length | The focal length of the camera lens | | | | | | | | | | | | | | |
| Scale | The scale of the photograph | | | | | | | | | | | | | | |
| Date/time | The date and time the photograph was taken | | | | | | | | | | | | | | |
| Resolution | The resolution of the photograph | | | | | | | | | | | | | | |
| Actors | <ol style="list-style-type: none"> End-user DIM Discovery Application | | | | | | | | | | | | | | |
| Pre-condition | <ol style="list-style-type: none"> The End-user must be logged in (3.4.1) to the DIM Discovery Application. | | | | | | | | | | | | | | |
| Flow of Events – Basic Path | | | | | | | | | | | | | | | |
| Step 1. | The End-user requests to add a metadata filter. | | | | | | | | | | | | | | |
| Step 2. | The DIM Discovery Application returns a description of the metadata that can be used as a filter for the raster product type. | | | | | | | | | | | | | | |
| Step 3. | The End-user defines a metadata filter and requests the filter to be added to the search. | | | | | | | | | | | | | | |
| Step 4. | The DIM Discovery Application validates the filter and sets the filter for the search. | | | | | | | | | | | | | | |
| Step 5. | If the End-user has search results displayed the DIM Discovery Application executes the raster product search applying the filter to the metadata and returns the new raster product list and displays product extents or centres on the index map. | | | | | | | | | | | | | | |
| Flow of Events – Alternative Paths | | | | | | | | | | | | | | | |
| Step 4. | The DIM Discovery Application removes filters where metadata is not available and notifies the end-user of the change. | | | | | | | | | | | | | | |
| Post-condition | None | | | | | | | | | | | | | | |

3.4.8 Search Raster Products

| Use Case Description | | | | | | | | | | | |
|------------------------------------|--|------|-------------|-------------------|--|-------------------|---|------------------|--|-------------------------|---|
| Name | Search Raster Products | | | | | | | | | | |
| Priority | | | | | | | | | | | |
| Description | <p>This use case allows the End-user to search the raster products using the spatial, temporal and metadata filters defined by the user. The search will return the list of vintages that contain matching products, displaying the emulsion type, nominal photo scale, name, ID, focal length and the raster library name (vintage information will vary based on the product type). The most recent vintage will be selected and the index map will contain the photo centres of each product for that vintage.</p> <p>The system will search all affiliated raster libraries using a distributed search.</p> <p>The End-user can optionally specify advanced search options.</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Complete coverage</td> <td>Excludes vintages that do not completely cover the area of interest.</td> </tr> <tr> <td>Latest and Oldest</td> <td>Return latest and oldest vintages only.</td> </tr> <tr> <td>Minimum coverage</td> <td>Select the minimum number of air photos that cover the area.</td> </tr> <tr> <td>Minimum stereo coverage</td> <td>Select the minimum number of air photos with 60% overlap that cover the area.</td> </tr> </tbody> </table> | Name | Description | Complete coverage | Excludes vintages that do not completely cover the area of interest. | Latest and Oldest | Return latest and oldest vintages only. | Minimum coverage | Select the minimum number of air photos that cover the area. | Minimum stereo coverage | Select the minimum number of air photos with 60% overlap that cover the area. |
| Name | Description | | | | | | | | | | |
| Complete coverage | Excludes vintages that do not completely cover the area of interest. | | | | | | | | | | |
| Latest and Oldest | Return latest and oldest vintages only. | | | | | | | | | | |
| Minimum coverage | Select the minimum number of air photos that cover the area. | | | | | | | | | | |
| Minimum stereo coverage | Select the minimum number of air photos with 60% overlap that cover the area. | | | | | | | | | | |
| Actors | <ol style="list-style-type: none"> End-user DIM Discovery Application | | | | | | | | | | |
| Pre-condition | <ol style="list-style-type: none"> The End-user must be logged in (3.4.1) to the DIM Discovery Application. | | | | | | | | | | |
| Flow of Events - Basic Path | | | | | | | | | | | |
| Step 1. | The End-user optionally defines the search filters (See other use cases in section 3.4 for the search operations). | | | | | | | | | | |
| Step 2. | The End-user requests a search for raster products using the search filter. | | | | | | | | | | |
| Step 3. | The DIM Discovery Application searches the raster products applying the search filter and options then returns the list of matching products grouped by vintage. | | | | | | | | | | |
| Flow of Events - Alternative Paths | | | | | | | | | | | |
| Step 1a. | The End-user adds one of the search options from the list above to the search. | | | | | | | | | | |
| Step 3. | The DIM Discovery Application returns an index map with the matching raster products as layers. | | | | | | | | | | |
| Post-condition | None | | | | | | | | | | |

3.4.9 Control Visibility Of Vintage List

| Use Case Description | |
|------------------------------------|---|
| Name | Control Visibility Of Vintage List |
| Priority | |
| Description | This use case allows the End-user to view the list of Vintages for the raster products returned from a search. By default the vintage list will be displayed. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must be navigating using the index map (3.4.5). 3. The End-user must have searched for raster products (3.4.8). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to (de) select the vintage list for the results of a search. |
| Step 2. | The DIM Discovery Application groups the results of the search and returns a list of vintages with the vintage metadata. |
| Flow of Events - Alternative Paths | |
| Step 2. | The DIM Discovery Application removes the vintage list from the display. |
| Post-condition | <i>None</i> |

3.4.10 Control Visibility Of Vintages

| Use Case Description | |
|---|---|
| Name | Control Visibility Of Vintages |
| Priority | |
| Description | This use case allows the End-user to select which vintages should be visible on the index map or the raster product result list. The user can then select raster products that were taken on the same day (time period). |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must have searched for raster products (3.4.8). 3. The vintage list must be displayed. 4. The End-user must be navigating using the index map (3.4.5). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user (de)selects the vintages from the vintage list that are to be (not)displayed and requests the raster product list to be viewed. |
| Step 2. | The DIM Discovery Application selects the raster products in the selected vintages then returns the new list of raster products. |
| Flow of Events - Alternative Paths | |
| Step 2. | The DIM Discovery Application returns an index map with the matching raster products as layers. |
| Post-condition | <ol style="list-style-type: none"> 1. Only the selected vintages should be displayed on the index map or product list. |

3.4.11 Control Visibility Of Raster Products

| Use Case Description | | | | | | | | | | | |
|------------------------------------|---|------|-------------|------|--|---------------|---|------------------|---|--------------|---|
| Name | Control Visibility Of Raster Products | | | | | | | | | | |
| Priority | | | | | | | | | | | |
| Description | <p>This use case allows the End-user to control the way the raster products in the selected vintages are displayed. The following table summarises the representations possible, more than one representation can be displayed. The default is the photo centre. Different vintages will be displayed in different colours.</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>None</td> <td>The products are not shown on the index map.</td> </tr> <tr> <td>Photo centres</td> <td>Display the photo centres for each product.</td> </tr> <tr> <td>Photo footprints</td> <td>Display the footprint and the positional uncertainty for each product</td> </tr> <tr> <td>Flight lines</td> <td>Display the flight line for each vintage.</td> </tr> </tbody> </table> | Name | Description | None | The products are not shown on the index map. | Photo centres | Display the photo centres for each product. | Photo footprints | Display the footprint and the positional uncertainty for each product | Flight lines | Display the flight line for each vintage. |
| Name | Description | | | | | | | | | | |
| None | The products are not shown on the index map. | | | | | | | | | | |
| Photo centres | Display the photo centres for each product. | | | | | | | | | | |
| Photo footprints | Display the footprint and the positional uncertainty for each product | | | | | | | | | | |
| Flight lines | Display the flight line for each vintage. | | | | | | | | | | |
| Actors | <ol style="list-style-type: none"> End-user DIM Discovery Application | | | | | | | | | | |
| Pre-condition | <ol style="list-style-type: none"> The End-user must be logged in (3.4.1) to the DIM Discovery Application. The End-user must have searched for raster products (3.4.8). The vintage list must be displayed. The End-user must be navigating using the index map (3.4.5). | | | | | | | | | | |
| Flow of Events - Basic Path | | | | | | | | | | | |
| Step 1. | The End-user (de)selects the product representation to be (not)displayed and requests the raster product list to be viewed. | | | | | | | | | | |
| Step 2. | The DIM Discovery Application updates the index map to display the products using the required representation. | | | | | | | | | | |
| Flow of Events - Alternative Paths | | | | | | | | | | | |
| | <i>None</i> | | | | | | | | | | |
| Post-condition | <ol style="list-style-type: none"> The raster products must be displayed in the style specified. | | | | | | | | | | |

3.4.12 Search Raster Products By Product Id

| Use Case Description | |
|---|--|
| Name | Search Raster Products By Product Id |
| Priority | |
| Description | <p>This use case allows the End-user to search the raster products using the raster product id for a product type (e.g. frame and roll number for air photos) and to directly get a text list of the products without using an index map.</p> <p>For air photos the user can specify the roll and frame number or just the roll number to get a single or multiple products.</p> |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must have selected the raster product type to search for (3.4.2). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to search for raster products by raster product id. |
| Step 2. | The DIM Discovery Application returns the fields required for the raster product id search for the product type. |
| Step 3. | The End-user requests a search for raster products using a raster product id. |
| Step 4. | The DIM Discovery Application searches the raster products using the raster product id and returns the list of matching products. |
| Flow of Events - Alternative Paths | |
| Step 4. | The DIM Discovery Application returns an exception message if the raster product could not be found. |
| Post-condition | <i>None</i> |

3.4.13 Search Raster Products By Vintage

| Use Case Description | |
|------------------------------------|--|
| Name | Search Raster Products By Vintage |
| Priority | |
| Description | This use case allows the End-user to search the raster products using the vintage id for a product type (e.g. air photo operation number) and to directly get a text list of the products without using an index map. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in (3.4.1) to the DIM Discovery Application. 2. The End-user must have selected the raster product type to search for (3.4.2). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to search for raster products by raster vintage id. |
| Step 2. | The DIM Discovery Application returns the fields required for the vintage id search for the product type. |
| Step 3. | The End-user requests a search for raster products using a vintage id. |
| Step 4. | The DIM Discovery Application searches the raster products using the vintage id and returns the list of matching products. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.5 Raster Ordering

These use cases describe the shopping cart and purchasing requirements for the DIM System.

3.5.1 Login To Order Application

| Use Case Description | |
|------------------------------------|--|
| Name | Login To Order Application |
| Priority | |
| Description | This use case allows an End-user to login to the DIM Order Application. If the user is already logged into the DIM Discovery application as a non-guest user they will automatically be logged into the DIM Order Application. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application 3. Security System |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must have an account in the Security System |
| Flow of Events - Basic Path | |
| Step 1. | The End-user logs into the DIM Order Application using their id and security credentials ³ . |
| Step 2. | The DIM Order Application requests the Security System to authenticate and authorize the End-user. |
| Step 3. | The Security System verifies the End-user's credentials are valid and that the End-user is authorized to use the DIM Order Application. |
| Step 4. | The DIM Order Application will allow the End-user to use the system for the current session. |
| Flow of Events - Alternative Paths | |
| Step 3. | If the End-user's credentials are invalid or they are not authorized to use the DIM Order Application an exception message will be returned. |
| Post-condition | <ol style="list-style-type: none"> 1. The End-user will be logged in to the DIM Order Application |
| Note | <ol style="list-style-type: none"> 1. If the End-user is already logged in to the DIM Discovery Application as a user they will automatically be authenticated with the DIM Order Application through single sign on. |

³ Security credentials would typically be a password but could be a digital certificate.

3.5.2 Add Product Subscription To Shopping Cart

| Use Case Description | |
|------------------------------------|---|
| Name | Add Product Subscription To Shopping Cart |
| Priority | |
| Description | This use case allows an End-user to subscribe to a raster product subscription service that will enable them to access those raster products via direct access. |
| Actors | <ol style="list-style-type: none"> End-user DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> The End-user must be logged in to the DIM Order Application. |
| Flow of Events - Basic Path | |
| Step 1. | The user requests a list of subscription products. |
| Step 2. | The DIM Order Application returns a list of subscription products. |
| Step 3. | The user selects the required subscription products and requests them to be added to their shopping cart. |
| Step 4. | The DIM Order Application adds the new subscription products to the shopping cart. |
| Step 5. | The DIM Order Application returns the list of products in the End-users shopping cart (see the 3.5.5 View/Manage Shopping Cart use case). |
| Flow of Events - Alternative Paths | |
| Step 4. | If a subscription product already exists in the shopping cart the quantity is incremented by 1. |
| Post-condition | <ol style="list-style-type: none"> The raster products must be in the shopping cart. |

3.5.3 Add Selected Products To Shopping Cart

| Use Case Description | |
|---|---|
| Name | Add Selected Products to Shopping Cart |
| Priority | |
| Description | <p>This use case allows a user to add the selected raster products for online and offline delivery to their shopping cart. There will be no limit to the number of products that can be added to the shopping cart. The shopping cart can contain products of different types. If selecting an online or subscription product the quantity will always be set to 1.</p> <p>If the product type is available as a subscription the End-user will be given the option to add a subscription to the product instead of the product to the shopping cart. If the user already has a subscription to a product type and they add the product to their shopping cart it will be flagged as a zero cost item.</p> <p>It will be common that the users will add hundreds of products to the shopping cart in one action and the selection of products available will be in the millions (excluding variations).</p> |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application 3. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in to the DIM Order Application. 2. The End-user must have selected at least one product in the DIM Discovery Application. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests a list of raster products to be added to the shopping cart. |
| Step 2. | The DIM Order Application returns the list of products with a field to enter the required quantity and a field to select a subscription, offline format or online format required. The price for the available format will be displayed. |
| Step 3. | The End-user selects the quantity and the delivery format for each raster product and requests them to be added to the shopping cart. |
| Step 4. | The DIM Order Application adds the new raster products to the shopping cart. |
| Step 5. | The DIM Order Application returns the list of raster products in the End-users shopping cart (see the 3.5.5 View/Manage Shopping Cart use case). |
| Flow of Events - Alternative Paths | |
| Step 4. | If a raster product already exists in the shopping cart the quantity is incremented by 1 except for online or subscription products where the new addition will be ignored. |
| Post-condition | 1. The raster products must be in the shopping cart. |

3.5.4 Add Custom Raster Product To Shopping Cart

| Use Case Description | |
|---|--|
| Name | Add Custom Raster Product To Shopping Cart |
| Priority | |
| Description | <p>This use case allows an end-user to add a custom raster product to their shopping cart. Examples of this are things like slope, elevation, aspect where the user defines the grid spacing, origin, extent, classes, projection, etc. and the result is generated on-the-fly.</p> <p>The generation of the raster is described in (3.6.5).</p> |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in to the DIM Order Application. 2. The End-user must have selected at least one product in the DIM Discovery Application. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests a custom raster product to be added to the shopping cart. |
| Step 2. | The DIM Order Application returns the list of configurable properties for the product and the possible formats. |
| Step 3. | The End-user defines the values for the properties and selects the format for each raster product and requests them to be added to the shopping cart. |
| Step 4. | The DIM Order Application adds the new raster products to the shopping cart. |
| Step 5. | The DIM Order Application returns the list of raster products in the End-users shopping cart (see the 3.5.5 View/Manage Shopping Cart use case). |
| Flow of Events - Alternative Paths | |
| Step 4. | If a raster product already exists in the shopping cart the quantity is incremented by 1. |
| Post-condition | <ol style="list-style-type: none"> 1. The raster products must be in the shopping cart. |

3.5.5 View/Manage Shopping Cart

| Use Case Description | |
|------------------------------------|---|
| Name | View Shopping Cart |
| Priority | |
| Description | This use case allows a user to view the list of raster products in their shopping cart and the total cost for the items. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in to the DIM Order Application. 2. The End-user must have at least one product in their shopping cart. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to view the contents of their shopping cart. |
| Step 2. | The DIM Order Application retrieves the list of raster products in the shopping cart. |
| Step 3. | The DIM Order Application generates the cost for each product based on the users profile and generates any discounts. |
| Step 4. | The DIM Order Application calculates the GST and PST |
| Step 4. | <p>The DIM Order Application returns the list of raster products with the following line items.</p> <ul style="list-style-type: none"> • One for each product including raster product id, description, quantity, unit price and extended price. • One for GST • One for PST • One for the shipping costs • One for order processing fees • A total cost for the entire order |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.5.5.1 Remove Raster Products From Shopping Cart

| Use Case Description | |
|------------------------------------|---|
| Name | Remove Raster Products from Shopping Cart |
| Priority | |
| Description | This use case allows a user to remove selected raster products from their shopping cart. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in to the DIM Order Application. 2. The End-user must be viewing the shopping cart (3.5.5). 3. The End-user must have at least one product in their shopping cart. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user selects the raster products to be deleted and requests them to be deleted. |
| Step 2. | The DIM Order Application removes the raster products from the shopping cart. |
| Step 3. | The DIM Order Application displays the updated shopping cart (3.5.5 View/Manage Shopping Cart). |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The raster products must be removed from the shopping cart and the costs updated. |

3.5.5.2 Update Raster Product Quantities In Shopping Cart

| Use Case Description | |
|------------------------------------|---|
| Name | Update Raster Product Quantities In Shopping Cart |
| Priority | |
| Description | This use case allows a user to update the quantities of raster products in their shopping cart. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in to the DIM Order Application. 2. The End-user must be viewing the shopping cart (3.5.5). 3. The End-user must have at least one product in their shopping cart. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user updates the quantities of the raster products to be update and requests them to be updated. |
| Step 2. | The DIM Order Application updates the quantities of the raster products in the shopping cart and recalculates the total cost. |
| Step 3. | The DIM Order Application displays the updated shopping cart (3.5.5 View/Manage Shopping Cart). |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The raster products must be updated in the shopping cart and the total cost must be updated. |

3.5.6 Request Access To Raster Products In Shopping Cart

| Use Case Description | |
|------------------------------------|---|
| Name | Request Access To Raster Products In Shopping Cart |
| Priority | |
| Description | This use case allows a user to request access to the raster products in their shopping cart. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in to the DIM Order Application. 2. The cart only contains online products. 3. The End-user has free access to all products in the cart. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to view the contents of their shopping cart (see the 3.5.5 View/Manage Shopping Cart use case). |
| Step 2. | The End-user requests to purchase the contents of their shopping cart adding any notes pertaining to the order. |
| Step 3. | The DIM Order Application validates the products to check the products are online and that the user has free access. |
| Step 4. | The DIM Order Application creates and posts a new order for fulfillment using the contents of the shopping cart and empties the shopping cart. |
| Flow of Events - Alternative Paths | |
| Step 3. | If the cart contains offline products or the user does not have free access to all the products the End-user will need to follow 3.5.7 Purchase Raster Products In Shopping Cart. |
| Post-condition | <ol style="list-style-type: none"> 1. The shopping cart must be empty. 2. The contents of the order must be in the order system. |

3.5.7 Purchase Raster Products In Shopping Cart

| Use Case Description | |
|---|--|
| Name | Purchase Raster Products In Shopping Cart |
| Priority | |
| Description | This use case allows a user to purchase the raster products in their shopping cart. For offline products the End-user must specify the delivery address. The End-user can select or enter the payment information. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in to the DIM Order Application. 2. The End-user must have at least one product in their shopping cart. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to view the contents of their shopping cart (see the 3.5.5 View/Manage Shopping Cart use case). |
| Step 2. | The End-user requests to purchase the contents of their shopping cart adding any notes pertaining to the order. |
| Step 3. | The DIM Order Application fills in the default shipping information and requests the user to confirm or change the shipping information. |
| Step 4. | The End-user provides the shipping information. |
| Step 5. | The DIM Order Application returns the methods of payment available to the End-user and requests the payment details. |
| Step 6. | The End-user selects the payment method and provides the payment details. |
| Step 7. | The DIM Order Application validates the shipping and payment details. |
| Step 8. | The DIM Order Application creates and posts a new order for fulfillment using the contents of the shopping cart and empties the shopping cart. |
| Flow of Events - Alternative Paths | |
| Step 3. | If the shopping cart only contains online raster products the shipping information is not required. |
| Post-condition | <ol style="list-style-type: none"> 1. The shopping cart must be empty. 2. The contents of the order must be in the order system. |

3.5.8 Spending Authority Approval of Order

| Use Case Description | |
|------------------------------------|---|
| Name | Spending Authority Approval of Order |
| Priority | |
| Description | This use case allows a spending authority to approve or reject an order for the billing group they are the spending authority for. This allows End-users within the government who do not have spending authority create orders and have them approved by their spending authority. |
| Actors | <ol style="list-style-type: none"> 1. Spending Authority 2. DIM Order Application 3. End-user |
| Pre-condition | <ol style="list-style-type: none"> 1. The Spending Authority must be logged in to the DIM Order Application. 2. The Spending Authority must have authority to approve orders for the billing group. |
| Flow of Events - Basic Path | |
| Step 1. | The DIM Order Application sends a message to the spending authority with a link to the order to be approved. |
| Step 2. | The Spending Authority requests to view the contents of the order. |
| Step 3. | The Spending Authority reviews the order and marks the order as approved. |
| Step 4. | The DIM Order Application marks the order as approved and adds the order to the fulfillment workflow. |
| Flow of Events - Alternative Paths | |
| Step 3. | The Spending Authority reviews the order and marks the order as rejected and provides a description of why. |
| Step 4. | The DIM Order application marks the order as rejected and sends a message to the End User with the reason for the rejection. The End-user can modify the order and resubmit if required. |
| Post-condition | <i>None</i> |

3.5.9 View Orders and Shipments

| Use Case Description | |
|------------------------------------|--|
| Name | View Orders and Shipments |
| Priority | |
| Description | This use case allows a user to view the list of their previous orders and the shipments for each order. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in to the DIM Order Application. 2. The End-user must have at least one order |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to view the previous orders. |
| Step 2. | The DIM Order Application returns a filter page with the options to filter by status, order id and date. |
| Step 3. | The End-user defines the filter and requests to view the previous orders. |
| Step 4. | The DIM Order Application retrieves and returns the list of orders and the order status. |
| Step 5. | The End-user selects an order and requests to view the order detail. |
| Step 6. | The DIM Order Application returns the list of raster products in the order including the URL for downloadable products (if within time period). The list will be broken down by shipment flagging those items still to be shipped. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.5.10 Cancel Order

| Use Case Description | |
|------------------------------------|---|
| Name | Cancel |
| Priority | |
| Description | This use case allows an end-user to cancel an order that has not yet been fulfilled. For orders containing online products or subscriptions the order can only be cancelled if the End-user has not viewed/downloaded any of the items. For orders containing offline products the order can only be cancelled if the products have not yet been copied to the media. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in to the DIM Order Application. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to view the contents of their shopping cart (see 3.5.9 View Orders). |
| Step 2. | The End-user selects an order and requests it to be cancelled. |
| Step 3. | The DIM Order Application checks the order has not been fulfilled and requests the cancellation to be confirmed. |
| Step 4. | The End-user confirms the cancellation of the order. |
| Step 5. | The DIM Order Application cancels the order removing it from the order database and the workflow systems. |
| Flow of Events - Alternative Paths | |
| Step 4. | The End-user selects not to cancel the order. |
| Post-condition | <ol style="list-style-type: none"> 1. The order is no longer in the order database. |

3.6 Raster Distribution

The use cases in this section describe the methods of distribution of raster products to End-users. Both online and offline products are covered. The use cases only cover the interaction with the DIM System and do not cover any workflow or business processes.

3.6.1 Ship Online Products

| Use Case Description | |
|------------------------------------|---|
| Name | Ship Online Products |
| Priority | |
| Description | The DIM Order Application performs this use case once an order has been placed. The DIM Order Application will create an online order shipment containing all the online products in the order and notify the End-user of the URLs to access the products. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must have completed an order (3.5.6, 3.5.7). 2. The order must contain online products. 3. The products must not have been shipped. 4. The End-user must have spending authority or a spending authority must approve the order. |
| Flow of Events - Basic Path | |
| Step 1. | The DIM Order Application loads the online orders from the order. |
| Step 2. | Custom raster products are produced using the use case (3.6.5) |
| Step 3. | The DIM Order Application creates a shipping record containing all the online products from the order. |
| Step 4. | The DIM Order Application requests the End-user be billed for the shipment (3.6.4). |
| Step 5. | The DIM Order Application sends a message to the End-user with the URL for each product purchased and the amount the customer has been billed. |
| Flow of Events - Alternative Paths | |
| Step 4. | If the billing fails the End-user will be notified and the shipment put on hold until payment has been received. |
| Post-condition | <i>None</i> |

3.6.2 Online Raster Access

| Use Case Description | |
|------------------------------------|--|
| Name | Direct Online Raster Access |
| Priority | |
| Description | <p>This use case allows an End-user to directly access a raster product via a URL. The End-user will need to be logged in to the system to access the raster.</p> <p>The download for a raster product is either an uncompressed (or loss-less compressed) digital raster or a streamed raster depending on end End-user requirements.</p> |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Discovery Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in to the DIM Discovery Application. 2. The URL must have been generated through the order process. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user connects to the URL. |
| Step 2. | The DIM Discovery Application checks that the End-user is authorized to access the raster product. |
| Step 3. | The DIM Discovery Application returns the raster product to the End-user. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the End-user is not authorized to access the product an exception message will be returned. |
| Post-condition | <i>None</i> |

3.6.3 Ship Offline Products

| Use Case Description | |
|------------------------------------|---|
| Name | Ship Offline Products |
| Priority | |
| Description | This use case allows a Shipping Clerk to process an unfulfilled order, producing the copies of the products on the required media (e.g. diapositive, photographic paper, CD, DVD, Hard Drive) and shipping them to the End-user. Typically all offline products will be shipped in the same shipment but in some cases multiple shipments will occur. After shipment the End-user will be billed for those products |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application 3. Shipping Clerk |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in to the DIM Discovery Application. 2. The order must contain offline products. 3. The order must contain products that have not been shipped. 4. The End-user must have spending authority or a spending authority must approve the order. |
| Flow of Events - Basic Path | |
| Step 1. | The shipping clerk requests the next unfulfilled order for a product type. |
| Step 2. | The DIM Order Application returns the first order containing products of that type that have not yet been added to a shipment. |
| Step 3. | The Shipping Clerk selects the products they will fulfill and requests the shipping labels. |
| Step 4. | The DIM Order Application marks the products as 'in progress' and produces shipping labels. |
| Step 6. | The Shipping Clerk copies the raster products to the physical media. |
| Step 7. | The Shipping Clerk marks each product as 'fulfilled', if not all quantities are produced they can enter the quantity fulfilled. |
| Step 8. | The DIM Order Application adds each product to the offline shipment. |
| Step 9. | The Shipping Clerk ships the goods to the End-user and marks the shipment as complete. |
| Step 10. | The DIM Order Application closes the shipment and if all products in the order have been shipped or marked as unavailable closes the order. |
| Step 11. | The DIM Order Application requests the End-user be billed for the shipment (3.6.4). |
| Step 12. | The DIM Order Application sends a message to the End-user confirming each product purchased and the amount the customer has been billed. |
| Flow of Events - Alternative Paths | |
| Step 6. | If the original product being copied is unavailable or of a too low a quality to be copied the Shipping Clerk will update the item as being unavailable and provide a reason. |
| Step 6a. | The DIM Order Application sends a message to the End-user saying which products were unavailable and why. |
| Step 7a. | The Shipping Clerk updates the price the End-user is to be charged for the product or the delivery costs. |
| Step 8. | If a shipment does not exist for the order the DIM Order Application will first create a new shipment. |
| Step 9. | If all the products in the order have not been produced the products will not be shipped until all products have been produced or marked as unavailable. |
| Step 11. | If the billing fails the End-user will be notified and the shipment put on hold until payment has been received. |
| Post-condition | <i>None</i> |

3.6.4 Bill Customer for Shipment

| Use Case Description | |
|------------------------------------|---|
| Name | Bill Customer for Shipment |
| Priority | |
| Description | <p>The use case creates a billing record for a shipment and bills the End-user for the items in the shipment.</p> <p>The Government Billing Application must support the billing types (Credit/Debit Card, pre-paid accounts and journal voucher billing) required by the DIM system.</p> |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application 3. Government Billing Application |
| Pre-condition | 1. The products being billed must have been shipped to the End-user |
| Flow of Events - Basic Path | |
| Step 1. | The DIM Order Application requests the items in the shipment be billed to the End-user using the payment information specified for the order. |
| Step 2. | The Government Billing Application debits the End-users account for the amount to be billed. |
| Step 3. | The DIM Order Application marks the shipment as 'paid'. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the billing fails an exception message is returned. |
| Post-condition | None |

3.6.5 Create Custom Raster Product

| Use Case Description | |
|------------------------------------|---|
| Name | Create Custom Raster Product |
| Priority | |
| Description | This use case defines how the DIM Order Application creates the raster for a user defined raster product to complete a users order. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application 3. Raster Processing Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user must be logged in to the DIM Order Application. 2. The End-user has added a user defined raster to their shopping cart and proceeded through the checkout. |
| Flow of Events - Basic Path | |
| Step 1. | The DIM Order Application loads the source data and the End-user defined properties for the raster. |
| Step 2. | The DIM Order Application requests the Raster Processing Application to generate a raster from the source data and the End-user defined properties. |
| Step 3. | The Raster Processing Application generates the raster and returns it. |
| Step 4. | The DIM Order Application adds the generated raster to the image store and adds the URL to the item in the order. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.7 End-user Profile Maintenance

The use cases in this section describe the profile maintenance the end user can perform on their profile.

3.7.1 Login To Profile Application

| Use Case Description | |
|------------------------------------|--|
| Name | Login To Profile Application |
| Priority | |
| Description | This use case allows an End-user to login to the DIM Profile Application. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Profile Application 3. Security System |
| Pre-condition | 1. The End-user must have an account in the Security System |
| Flow of Events - Basic Path | |
| Step 1. | The End-user logs into the DIM Profile Application using their id and security credentials ⁴ . |
| Step 2. | The DIM Profile Application requests the Security System to authenticate and authorize the End-user. |
| Step 3. | The Security System verifies the End-user's credentials are valid and that the End-user is authorized to use the DIM Profile Application. |
| Step 4. | The DIM Profile Application will allow the End-user to use the system for the current session. |
| Flow of Events - Alternative Paths | |
| Step 3. | If the End-user's credentials are invalid or they are not authorized to use the DIM Profile Application an exception message will be returned. |
| Post-condition | 1. The End-user will be logged in to the DIM Profile Application. |

⁴ Security credentials would typically be a password but could be a digital certificate.

3.7.2 End-user Registration

| Use Case Description | |
|------------------------------------|--|
| Name | End-user Registration |
| Priority | |
| Description | This use case allows an End-user to register an account with the DIM system and define a profile including payment, shipping and preference information. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Profile Application 3. Security System |
| Pre-condition | 1. The End-user does not already have an account. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to register with the DIM Profile Application providing a user id, password (or other supported credentials) and other basic information. |
| Step 2. | The DIM Profile Application validates the information and creates a new profile. |
| Step 3. | The DIM Profile Application requests a new login account to be created. |
| Step 4. | The Security System creates a new login account and logs the End-user in. |
| Step 5. | The DIM Profile Application sends a confirmation email to the End-user. |
| Step 6. | The End-user adds shipping addresses (see 3.7.5 Add Shipping Address). |
| Step 7. | The End-user adds payment methods (see 3.7.8 Add Payment Method). |
| Flow of Events - Alternative Paths | |
| Step 2. | If the user id is already used on the other information is incorrect and exception message will be returned. |
| Post-condition | 1. The End-user can login using the account. |

3.7.3 Update End-User Profile

| Use Case Description | |
|------------------------------------|---|
| Name | Update End-User Profile |
| Priority | |
| Description | This use case allows an End-user to update their profile. |
| Actors | <ol style="list-style-type: none"> End-user DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> The End-user has an account and is logged into the DIM Profile Application (3.7.1). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to update their profile. |
| Step 2. | The Security System retrieves the current profile information and returns it to the user. |
| Step 3. | The End-user updates the profile and requests it to be saved. |
| Step 4. | The DIM Profile Application validates the profile and updates the profile. |
| Flow of Events - Alternative Paths | |
| Step 4. | If the profile is invalid an exception message will be returned. |
| Post-condition | <i>None</i> |

3.7.4 Update End-User Preferences

| Use Case Description | |
|------------------------------------|---|
| Name | Update End-User Preferences |
| Priority | |
| Description | This use case allows an End-user to update their preferences, which could include, the types of image products they wish to search, the default search view, which layers to show on the index map etc. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user has an account and is logged into the DIM Profile Application (3.7.1). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to update their preferences. |
| Step 2. | The Security System retrieves the current preferences information and returns it to the user with the list of customizable features. |
| Step 3. | The End-user updates the preferences and requests it to be saved. |
| Step 4. | The DIM Profile Application validates the preferences and updates the profile. |
| Flow of Events - Alternative Paths | |
| Step 4. | If the preferences are invalid an exception message will be returned. |
| Post-condition | <i>None</i> |

3.7.5 Add Shipping Address

| Use Case Description | |
|------------------------------------|--|
| Name | Add Shipping Address |
| Priority | |
| Description | This use case allows an End-user to add a shipping address to their profile. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user has an account and is logged into the DIM Profile Application (3.7.1). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to add a new address. |
| Step 2. | The DIM Profile Application validates the address and adds it to the profile. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the address is already in the profile an exception message will be returned. |
| Post-condition | <i>None</i> |

3.7.6 Update Shipping Address

| Use Case Description | |
|------------------------------------|--|
| Name | Update Shipping Address |
| Priority | |
| Description | This use case allows an End-user to update an existing shipping address in their profile. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user has an account and is logged into the DIM Profile Application (3.7.1). 2. The End-user has at least one shipping address. |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to add view the existing addresses. |
| Step 2. | The DIM Profile Application returns a list of shipping addresses for that user. |
| Step 3. | The End-user selects an address and requests to update it. |
| Step 4. | The DIM Profile Application returns the existing address information. |
| Step 5. | The End-user updates the address and requests it to be saved. |
| Step 6. | The DIM Profile Application validates the address and updates it in the profile. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.7.7 Delete Shipping Address

| Use Case Description | |
|------------------------------------|---|
| Name | Delete Shipping Address |
| Priority | |
| Description | This use case allows an End-user to delete a shipping address from their profile. |
| Actors | <ol style="list-style-type: none"> End-user DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> The End-user has an account and is logged into the DIM Profile Application (3.7.1). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests a shipping address to be deleted. |
| Step 2. | The DIM Profile Application requests the deletion to be confirmed. |
| Step 3. | The End-user confirms the deletion. |
| Step 4. | The DIM Profile Application deletes the shipping address from the profile. |
| Flow of Events - Alternative Paths | |
| Step 2. | The End-user cancels the deletion. |
| Post-condition | <i>None</i> |

3.7.8 Add Payment Method

| Use Case Description | |
|------------------------------------|---|
| Name | Add Payment Method |
| Priority | |
| Description | This use case allows an End-user to add a payment method to their profile. |
| Actors | <ol style="list-style-type: none"> End-user DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> The End-user has an account and is logged into the DIM Profile Application (3.7.1). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to add a new payment method with the required details. |
| Step 2. | The DIM Profile Application validates the payment method and adds it to the profile. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.7.9 Delete Payment Method

| Use Case Description | |
|------------------------------------|--|
| Name | Delete Payment Method |
| Priority | |
| Description | This use case allows an End-user to delete a payment method from their profile. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user has an account and is logged into the DIM Profile Application (3.7.1). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests a payment method to be deleted. |
| Step 2. | The DIM Profile Application requests the deletion to be confirmed. |
| Step 3. | The End-user confirms the deletion. |
| Step 4. | The DIM Profile Application deletes the payment from the profile. |
| Flow of Events - Alternative Paths | |
| Step 2. | The End-user cancels the deletion. |
| Post-condition | <i>None</i> |

3.7.10 View Billing Account

| Use Case Description | |
|------------------------------------|--|
| Name | View Billing Account |
| Priority | |
| Description | This use case allows an End-user to view the billing accounts associated with their account. |
| Actors | <ol style="list-style-type: none"> 1. End-user 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 2. The End-user has an account and is logged into the DIM Order Application (3.7.1). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user selects to view the billing accounts. |
| Step 2. | The DIM Order Application retrieves the billing accounts associated with the profile and returns the list. |
| Step 3. | The End-user selects a billing account and requests to view it. |
| Step 4. | The DIM Order Application retrieves the billing account details and list of entries and returns them. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.7.11 Update End-User Notification Rules

| Use Case Description | |
|------------------------------------|--|
| Name | Update End-User Notification Rules |
| Priority | |
| Description | This use case allows an End-user to update their email notification rules by adding or removing a rule. The End-user can be notified when new products are available or when a product has been updated. |
| Actors | <ol style="list-style-type: none"> End-user DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> The End-user has an account and is logged into the DIM Profile Application (3.7.1). |
| Flow of Events - Basic Path | |
| Step 1. | The End-user requests to view their rules. |
| Step 2. | The DIM Profile Application returns the current list of rules. |
| Step 3. | The End-user requests to create delete or update a rule. |
| Step 4. | The DIM Profile Application updates the rules in the End-users profile. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.8 Account & Group Administration

The use cases in this section describe the administration functionality required to manage user accounts and groups.

3.8.1 End-user Accounts

The use cases in this section describe the administration functionality required to manage user accounts and their membership to groups.

3.8.1.1 Create End-user Account

| Use Case Description | |
|------------------------------------|---|
| Name | Create End-user Account |
| Priority | |
| Description | This use case allows the Account Administrator to create a new End-user account. |
| Actors | <ol style="list-style-type: none"> 1. Account Administrator 2. DIM Profile Application 3. Security System |
| Pre-condition | <ol style="list-style-type: none"> 1. The account does not already exist for the user id. 2. The Security Administrator must be logged into the DIM Profile Application as an administrator |
| Flow of Events - Basic Path | |
| Step 1. | The Account Administrator requests to create an account with the DIM Profile Application providing a user id, password (or other supported credentials) and other basic information. |
| Step 2. | The DIM Profile Application validates the information and creates a new profile. |
| Step 3. | The DIM Profile Application requests a new login account to be created. |
| Step 4. | The Security System creates a new login account. |
| Step 5. | The DIM Profile Application sends a confirmation email to the End-user. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The End-user can login using the new account. |

3.8.1.2 View End-user Account

| Use Case Description | |
|------------------------------------|--|
| Name | View End-user Account |
| Priority | |
| Description | This use case allows an Account Administrator to view an End-user account profile. |
| Actors | <ol style="list-style-type: none"> Account Administrator DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> The End-user account exists. The Account Administrator must be logged into the DIM Profile Application as an administrator. |
| Flow of Events - Basic Path | |
| Step 1. | The Account Administrator requests to view the End-user account using the user id or email address. |
| Step 2. | The DIM Profile application retrieves the account profile and returns it. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the account does not exist and exception message will be returned. |
| Post-condition | <i>None</i> |

3.8.1.3 Update End-user Account

| Use Case Description | |
|------------------------------------|--|
| Name | Update End-user Account |
| Priority | |
| Description | This use case allows an Account Administrator to update an End-user account profile. |
| Actors | <ol style="list-style-type: none"> Account Administrator DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> The End-user account exists. The Account Administrator must be logged into the DIM Profile Application as an administrator. |
| Flow of Events - Basic Path | |
| Step 1. | The Account Administrator requests to update the End-user account using the user id or email address. |
| Step 2. | The DIM Profile application retrieves the account profile and returns it. |
| Step 3. | The Account Administrator updates the profile and requests it to be saved. |
| Step 4. | The DIM Profile application validates the profile and updates it. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the account does not exist and exception message will be returned. |
| Step 4. | If the profile is invalid and exception message will be returned. |
| Post-condition | <i>None</i> |

3.8.1.4 Disable End-user Account

| Use Case Description | |
|------------------------------------|--|
| Name | Disable End-user Account |
| Priority | |
| Description | This use case allows an Account Administrator to disable an account so that it can no longer be used. |
| Actors | <ol style="list-style-type: none"> Account Administrator DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> The End-user account exists. The Account Administrator must be logged into the DIM Profile Application as an administrator. |
| Flow of Events - Basic Path | |
| Step 1. | The Account Administrator requests to disable the End-user account using the user id or email address. |
| Step 2. | The DIM Profile Application requests to confirm the disabling of the account. |
| Step 3. | The Account Administrator confirms the disabling of the account. |
| Step 4. | The DIM Profile Application marks the account as disabled. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the account does not exist and exception message will be returned. |
| Step 3. | The Account Administrator cancels the disabling of the account. |
| Post-condition | <ol style="list-style-type: none"> The End-user will no longer be able to login using the account. |

3.8.1.5 Set Tax Rate For Shipping Address

| Use Case Description | |
|------------------------------------|--|
| Name | Set Tax Rate For Shipping Address |
| Priority | |
| Description | This use case allows an Account Administrator to change the tax chargeable to an End-users shipping address. For example a status Indian entitled to a GST exemption can only get the item tax free if it is shipped to an address on an Indian Reserve. |
| Actors | <ol style="list-style-type: none"> 1. Account Administrator 2. DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user account exists. 2. The Account Administrator must be logged into the DIM Profile Application as an administrator. 3. The End-user account has a shipping address. |
| Flow of Events - Basic Path | |
| Step 1. | The Account Administrator requests to get the list of shipping addresses for an End-user by user id. |
| Step 2. | The DIM Profile Application returns a list of shipping addresses for the End-user. |
| Step 3. | The Account Administrator selects a shipping address and requests the tax rate for each of the applicable taxes to be set to a specified percentage. |
| Step 4. | The DIM Profile Application updates the shipping address with the tax rate. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <ol style="list-style-type: none"> 1. The End-user will be charged at that tax rate when shipping goods to that shipping address (or for online deliveries). |

3.8.2 Access Control Group Administration

The use cases in this section describe the functionality required for the administration of access control groups including group creation, assigning privileges and maintaining group membership.

3.8.2.1 Create Access Control Group

| Use Case Description | |
|------------------------------------|--|
| Name | Create Access Control Group |
| Priority | |
| Description | This use case allows a Security Administrator to create a new access control group. |
| Actors | <ol style="list-style-type: none"> Security Administrator Security System |
| Pre-condition | <ol style="list-style-type: none"> The Security Administrator must be logged in to the Security System. |
| Flow of Events - Basic Path | |
| Step 1. | The Security Administrator requests a new group to be created. |
| Step 2. | The Security System creates the new group. |
| Step 3. | The Security Administrator assigns privileges to the group (see 3.8.2.2 Assign Access Control Group Privileges). |
| Flow of Events - Alternative Paths | |
| Step 2. | If the group already exists an exception message will be returned. |
| Post-condition | <i>None</i> |

3.8.2.2 Assign Access Control Group Privileges

| Use Case Description | |
|------------------------------------|--|
| Name | Assign Access Control Group Privileges |
| Priority | |
| Description | This use case allows a Security Administrator to assign privileges to an access control Group. |
| Actors | 1. Security Administrator 2. Security System |
| Pre-condition | 1. The Security Administrator must be logged in to the Security System. |
| Flow of Events - Basic Path | |
| Step 1. | The Security Administrator requests to view a list of all groups. |
| Step 2. | The Security System returns the list of all groups. |
| Step 3. | The Security Administrator selects a group and requests to add a privilege. |
| Step 4. | The Security System validates the privilege and assigns it to the group. |
| Flow of Events - Alternative Paths | |
| Step 4 | If the privilege was invalid or already exists an exception message will be returned. |
| Post-condition | <i>None</i> |

3.8.2.3 View Access Control Group

| Use Case Description | |
|------------------------------------|--|
| Name | View Access Control Group |
| Priority | |
| Description | This use case allows a Security Administrator to view an access control group including membership and privileges. |
| Actors | 1. Security Administrator 2. Security System |
| Pre-condition | 1. The Security Administrator must be logged in to the Security System. |
| Flow of Events - Basic Path | |
| Step 1. | The Security Administrator requests to view a list of all groups. |
| Step 2. | The Security System returns the list of all groups. |
| Step 3. | The Security Administrator selects a group and requests to view it. |
| Step 4. | The Security System retrieves the group, membership and privileges and returns them. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.8.2.4 Update Access Control Group

| Use Case Description | |
|------------------------------------|--|
| Name | Update Access Control Group |
| Priority | |
| Description | This use case allows a Security Administrator to update the basic information about an access control group. |
| Actors | 1. Security Administrator 2. Security System |
| Pre-condition | 1. The Security Administrator must be logged in to the Security System. |
| Flow of Events - Basic Path | |
| Step 1. | The Security Administrator requests to view a list of all groups. |
| Step 2. | The Security System returns the list of all groups. |
| Step 3. | The Security Administrator selects a group and requests to update it. |
| Step 4. | The Security System retrieves the group information returns it. |
| Step 5. | The Security Administrator updates the group information and requests it to be saved. |
| Step 6. | The Security System updates the group information. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.8.2.5 Add End-user To Access Control Group

| Use Case Description | |
|------------------------------------|---|
| Name | Add End-user To Access Control Group |
| Priority | |
| Description | This use case allows a Security Administrator to add an End-user to an access control group. |
| Actors | <ol style="list-style-type: none"> 1. Security Administrator 2. DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user account exists. 2. The Security Administrator must be logged into the DIM Profile Application as an administrator. |
| Flow of Events - Basic Path | |
| Step 1. | The Security Administrator searches for a group. |
| Step 2. | The DIM Profile Application returns a list of groups. |
| Step 3. | The Security Administrator selects the group and requests the End-user to be added. |
| Step 4. | The DIM Profile Application adds the End-user to the group |
| Flow of Events - Alternative Paths | |
| Step 4. | If the account does not exist and exception message will be returned. |
| Post-condition | <ol style="list-style-type: none"> 1. The End-user will have the permissions from the group. |

3.8.2.6 Remove End-user From Access Control Group

| Use Case Description | |
|------------------------------------|---|
| Name | Remove End-user From Access Control Group |
| Priority | |
| Description | This use case allows a Security Administrator to remove an End-user from an access control group. |
| Actors | <ol style="list-style-type: none"> 1. Security Administrator 2. DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user account exists. 2. The Security Administrator must be logged into the DIM Profile Application as an administrator. |
| Flow of Events - Basic Path | |
| Step 1. | The Security Administrator searches for a group. |
| Step 2. | The DIM Profile Application returns a list of groups. |
| Step 3. | The Security Administrator selects the group and requests the End-user to be added. |
| Step 4. | The DIM Profile Application adds the End-user to the group. |
| Flow of Events - Alternative Paths | |
| Step 4. | If the account does not exist and exception message will be returned. |
| Post-condition | <ol style="list-style-type: none"> 1. The End-user will have the permissions from the group. |

3.8.2.7 Delete Access Control Group

| Use Case Description | |
|------------------------------------|--|
| Name | Delete Access Control Group |
| Priority | |
| Description | This use case allows a Security Administrator to delete an access control group. The group can only be deleted if there are no End-users in the group. |
| Actors | <ol style="list-style-type: none"> 1. Security Administrator 2. DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user account exists. |
| Flow of Events - Basic Path | |
| Step 1. | The Security Administrator requests to view a list of all groups. |
| Step 2. | The Security System returns the list of all groups. |
| Step 3. | The Security Administrator selects a group and requests to delete it. |
| Step 4. | The Security System requests the deletion to be confirmed. |
| Step 5. | The Security Administrator confirms the deletion of the group. |
| Step 6. | The Security System deletes the group. |
| Flow of Events - Alternative Paths | |
| Step 4. | If the group has End-user members an exception message will be returned. |
| Step 5. | The Security Administrator cancels the deletion of the group. |
| Post-condition | <ol style="list-style-type: none"> 1. The group no longer exists. |

3.8.3 Price Group Administration

The use cases in this section describe the functionality required for the administration of pricing groups including group creation, assigning discounts and maintaining group membership.

Pricing groups contain discounts for a particular group of End-users.

3.8.3.1 Create Pricing Group

| Use Case Description | |
|------------------------------------|--|
| Name | Create Pricing Group |
| Priority | |
| Description | This use case allows a Billing Administrator to create a new pricing group. |
| Actors | <ol style="list-style-type: none"> 1. Billing Administrator 2. DIM Order Application |
| Pre-condition | 1. The Billing Administrator must be logged in to the DIM Order Application |
| Flow of Events - Basic Path | |
| Step 1. | The Billing Administrator requests a new group to be created. |
| Step 2. | The DIM Order Application creates the new group. |
| Step 3. | The Billing Administrator assigns pricing and discounts to the group (see 3.8.3.2 Assign Pricing Group). |
| Flow of Events - Alternative Paths | |
| Step 2. | If the group already exists an exception message will be returned. |
| Post-condition | <i>None</i> |

3.8.3.2 Assign Pricing Group Discounts

| Use Case Description | |
|------------------------------------|--|
| Name | Assign Pricing Group Discounts |
| Priority | |
| Description | This use case allows a Billing Administrator to assign discounts to a pricing Group. |
| Actors | <ol style="list-style-type: none"> 1. Billing Administrator 2. DIM Order Application |
| Pre-condition | 1. The Billing Administrator must be logged in to the DIM Order Application. |
| Flow of Events - Basic Path | |
| Step 1. | The Security Administrator requests to view a list of all groups. |
| Step 2. | The Security System returns the list of all groups. |
| Step 3. | The Security Administrator selects a group and requests to add a discount rule. |
| Step 4. | The Security System validates the discount rule and assigns it to the group. |
| Flow of Events - Alternative Paths | |
| Step 4 | If the discount or pricing rule was invalid or already exists an exception message will be returned. |
| Post-condition | <i>None</i> |

3.8.3.3 View Pricing Group

| Use Case Description | |
|------------------------------------|--|
| Name | View Pricing Group |
| Priority | |
| Description | This use case allows a Billing Administrator to view a pricing group including membership and discounts rules. |
| Actors | <ol style="list-style-type: none"> 1. Billing Administrator 2. DIM Order Application |
| Pre-condition | 1. The Billing Administrator must be logged in to the DIM Order Application. |
| Flow of Events - Basic Path | |
| Step 1. | The Billing Administrator requests to view a list of all groups. |
| Step 2. | The DIM Order Application returns the list of all groups. |
| Step 3. | The Billing Administrator selects a group and requests to view it. |
| Step 4. | The DIM Order Application retrieves the group, membership and discount rules and returns them. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.8.3.4 Update Pricing Group

| Use Case Description | |
|------------------------------------|--|
| Name | Update Pricing Group |
| Priority | |
| Description | This use case allows a Billing Administrator to update the basic information about a pricing group. |
| Actors | <ol style="list-style-type: none"> 1. Billing Administrator 2. DIM Order Application |
| Pre-condition | 1. The Billing Administrator must be logged in to the DIM Order Application. |
| Flow of Events - Basic Path | |
| Step 1. | The Billing Administrator requests to view a list of all groups. |
| Step 2. | The DIM Order Application returns the list of all groups. |
| Step 3. | The Billing Administrator selects a group and requests to update it. |
| Step 4. | The DIM Order Application retrieves the group information returns it. |
| Step 5. | The Billing Administrator updates the group information and requests it to be saved. |
| Step 6. | The DIM Order Application updates the group information. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.8.3.5 Add End-user To Pricing Group

| Use Case Description | |
|------------------------------------|--|
| Name | Add End-user To Pricing Group |
| Priority | |
| Description | This use case allows a Billing Administrator to add an End-user to a pricing group. |
| Actors | <ol style="list-style-type: none"> 1. Billing Administrator 2. DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user account exists. 2. The Billing Administrator must be logged into the DIM Profile Application as an administrator. |
| Flow of Events - Basic Path | |
| Step 1. | The Billing Administrator searches for a group. |
| Step 2. | The DIM Profile Application returns a list of groups. |
| Step 3. | The Billing Administrator selects the group and requests the End-user to be added. |
| Step 4. | The DIM Profile Application adds the End-user to the group. |
| Flow of Events - Alternative Paths | |
| Step 4. | If the account does not exist and exception message will be returned. |
| Post-condition | <ol style="list-style-type: none"> 1. The End-user will have the permissions from the group. |

3.8.3.6 Remove End-user From Pricing Group

| Use Case Description | |
|------------------------------------|--|
| Name | Remove End-user From Pricing Group |
| Priority | |
| Description | This use case allows a Billing Administrator to remove an End-user from a pricing group. |
| Actors | <ol style="list-style-type: none"> 1. Billing Administrator 2. DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user account exists. 2. The Billing Administrator must be logged into the DIM Profile Application as an administrator. |
| Flow of Events - Basic Path | |
| Step 1. | The Billing Administrator searches for a group. |
| Step 2. | The DIM Profile Application returns a list of groups. |
| Step 3. | The Billing Administrator selects the group and requests the End-user to be added. |
| Step 4. | The DIM Profile Application adds the End-user to the group. |
| Flow of Events - Alternative Paths | |
| Step 4. | If the account does not exist and exception message will be returned. |
| Post-condition | <ol style="list-style-type: none"> 1. The End-user will have the permissions from the group. |

3.8.3.7 Delete Pricing Group

| Use Case Description | |
|------------------------------------|---|
| Name | Delete Pricing Group |
| Priority | |
| Description | This use case allows a Billing Administrator to delete a pricing group. The group can only be deleted if there are no End-users in the group. |
| Actors | <ol style="list-style-type: none"> 1. Billing Administrator 2. DIM Profile Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user account exists. |
| Flow of Events - Basic Path | |
| Step 1. | The Billing Administrator requests to view a list of all groups. |
| Step 2. | The DIM Order Application returns the list of all groups. |
| Step 3. | The Billing Administrator selects a group and requests to delete it. |
| Step 4. | The DIM Order Application requests the deletion to be confirmed. |
| Step 5. | The Billing Administrator confirms the deletion of the group. |
| Step 6. | The DIM Order Application deletes the group. |
| Flow of Events - Alternative Paths | |
| Step 4. | If the group has End-user members an exception message will be returned. |
| Step 5. | The Billing Administrator cancels the deletion of the group. |
| Post-condition | <ol style="list-style-type: none"> 1. The group no longer exists. |

3.8.4 Billing accounts

The use cases in this section describe the functionality required for the administration of billing accounts.

3.8.4.1 Create Billing Account

| Use Case Description | |
|------------------------------------|---|
| Name | Create Billing Account |
| Priority | |
| Description | This use case allows the Billing Administrator to create a new billing account. |
| Actors | <ol style="list-style-type: none"> 1. Billing Administrator 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The account does not already exist. 2. The Billing Administrator must be logged into the DIM Order Application as an administrator. |
| Flow of Events - Basic Path | |
| Step 1. | The Billing Administrator requests to create a billing account with the DIM Order Application providing contact details and method of payment information. |
| Step 2. | The DIM Order Application validates the information and creates a new account. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | <i>None</i> |

3.8.4.2 View Billing Account

| Use Case Description | |
|------------------------------------|--|
| Name | View Billing Account |
| Priority | |
| Description | This use case allows a Billing Administrator to view a billing account profile and billing entries. |
| Actors | <ol style="list-style-type: none"> 1. Billing Administrator 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user account exists. 2. The Billing Administrator must be logged into the DIM Order Application as an administrator. |
| Flow of Events - Basic Path | |
| Step 1. | The Billing Administrator requests to view the billing account using the account id. |
| Step 2. | The DIM order application retrieves the account profile and billing entries and returns them. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the account does not exist and exception message will be returned. |
| Post-condition | <i>None</i> |

3.8.4.3 Adjust Billing Account

| Use Case Description | |
|------------------------------------|--|
| Name | Adjust Billing Account |
| Priority | |
| Description | This use case allows a Billing Administrator to adjust entries in the billing account to correct errors. |
| Actors | <ol style="list-style-type: none"> 1. Billing Administrator 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user account exists. 2. The Billing Administrator must be logged into the DIM Order Application as an administrator. |
| Flow of Events - Basic Path | |
| Step 1. | The Billing Administrator requests to view the billing account using the account id. |
| Step 2. | The DIM Order Application retrieves the account profile and billing entries and returns them. |
| Step 3. | The Billing Administrator selects a billing entry and requests it to be updated. |
| Step 4. | The DIM Order Application validates the request and updates the billing entry. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the account does not exist and exception message will be returned. |
| Step 3. | The Billing Administrator requests a new billing entry to be added. |
| Step 3. | The Billing Administrator selects a billing entry and requests it to be deleted. |
| Post-condition | <i>None</i> |

3.8.4.4 Close Billing Account

| Use Case Description | |
|------------------------------------|--|
| Name | Close Billing Account |
| Priority | |
| Description | This use case allows a Billing Administrator to close a billing account so that no additional purchases can be charged to it. |
| Actors | <ol style="list-style-type: none"> 1. Billing Administrator 2. DIM Order Application |
| Pre-condition | <ol style="list-style-type: none"> 1. The End-user account exists. 2. The Billing Administrator must be logged into the DIM Order Application as an administrator. |
| Flow of Events - Basic Path | |
| Step 1. | The Billing Administrator requests to close the billing account using the account id. |
| Step 2. | The DIM Order Application requests to confirm the closure of an account. |
| Step 3. | The Billing Administrator confirms the closure of the account. |
| Step 4. | The DIM Order Application marks the account as being closed. |
| Flow of Events - Alternative Paths | |
| Step 2. | If the account does not exist and exception message will be returned. |
| Step 3. | The Billing Administrator cancels the closing of the account. |
| Post-condition | <i>None</i> |

3.8.5 Distribution Administration

The use cases in this section describe the functionality required for the administration of raster distribution.

3.8.5.1 Control Access To Online Product Type

| Use Case Description | |
|------------------------------------|--|
| Name | Control Access To Online Product Type |
| Priority | |
| Description | This use case allows the Distribution Administrator to take a product offline, allow pickup only or put a product type back online. |
| Actors | <ol style="list-style-type: none"> 1. Distribution Administrator 2. DIM Management Application |
| Pre-condition | 1. The Distribution Administrator must be logged into the DIM Management Application as an administrator. |
| Flow of Events - Basic Path | |
| Step 1. | The Distribution Administrator requests the list of available product types and series. |
| Step 2. | The DIM Management Application returns the list of product types and series. |
| Step 3. | The Distribution Administrator request to view the current access control for the product type/series. |
| Step 4. | The DIM Management Application returns the access control for the product type/series. |
| Step 5. | The Distribution Administrator sets the access control to be one of take a product offline, allow pickup only or put a product type back online. |
| Step 6. | The DIM Management Application updates the access control for the product type/series. |
| Flow of Events - Alternative Paths | |
| | <i>None</i> |
| Post-condition | 1. The Access control must be updated. |

4 SYSTEM ARCHITECTURE

The DIM system is comprised of five main functions; Raster Acquisition, Raster Management, Raster Discovery, Raster Ordering & Fulfillment and Raster Distribution. Each of these functions will be implemented using interconnected software components. The diagram below shows the flow of information between the functions.

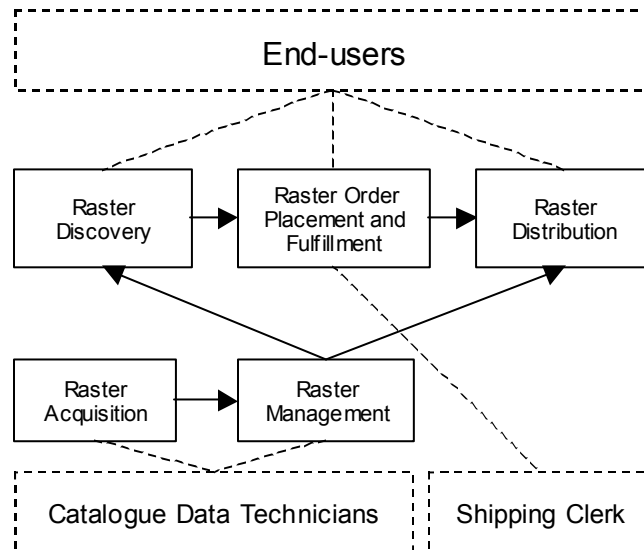


Figure 1 High-level systems architecture

4.1 Raster Acquisition Application

The raster acquisition application provides facilities for the planning, execution, production and scanning of raw and derived raster products. The raster products generated by the acquisition application will be added to the DIM system using the Raster Management Application (4.2).

The acquisition application is outside the scope of this document.

4.2 Raster Management Application

The raster management application provides facilities for the storage and management of raster files and raster metadata. Authorized users will be

able to add/update/delete/search raster files and metadata using a web browser interface and other systems will be able to use a web services interface.

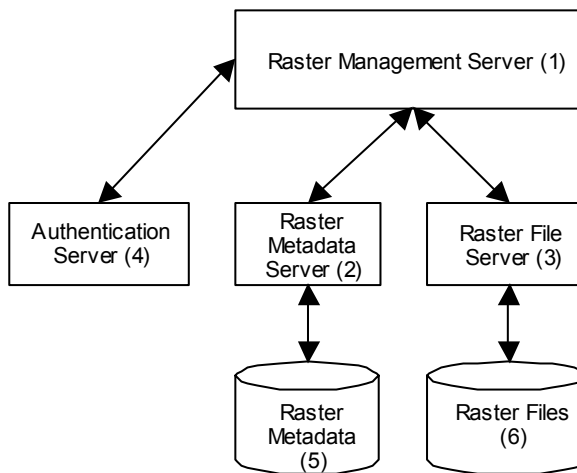


Figure 2 Raster management application architecture

The above diagram shows a logical view of the raster management application. The raster management server (1) provides the combined management interface for raster files and metadata. It will store the metadata using the raster metadata server (2) and the raster files using the raster file server (3). The authentication server (4) will support authentication and authorization for the raster management application. The authentication must be able to use an external authentication engine or database (i.e. LDAP).

A Java API or web service interfaces (OGC Catalogue Service or the Web Registry Service in the future) should be provided to the raster metadata server (2) component to allow integration with the Raster Discovery Applications (4.3). The metadata should be available using in XML format for each type of raster products.

4.3 Raster Discovery Applications

The raster discovery applications will provide facilities for users to navigate an index map to define an area of interest to be used for searching. The index map will display layers generated from vector data (i.e. TRIM base map, admin areas etc), raster layers (i.e. orthomosaic) and dynamic layers (i.e. raster product search result footprints/photo centres). The area of interest can be the extent of the zoomed index map, a feature

selected by clicking on the map or a user-defined area drawn on the index map. The search will use the area of interest with a date range (i.e. latest raster, between two dates etc) or metadata filters (resolution, cloud cover etc) to query the raster metadata to find matching raster products. The raster products found will be grouped by vintage (i.e. flying operation etc) and the user can view the footprints/photo centres for selected vintages on the index map.

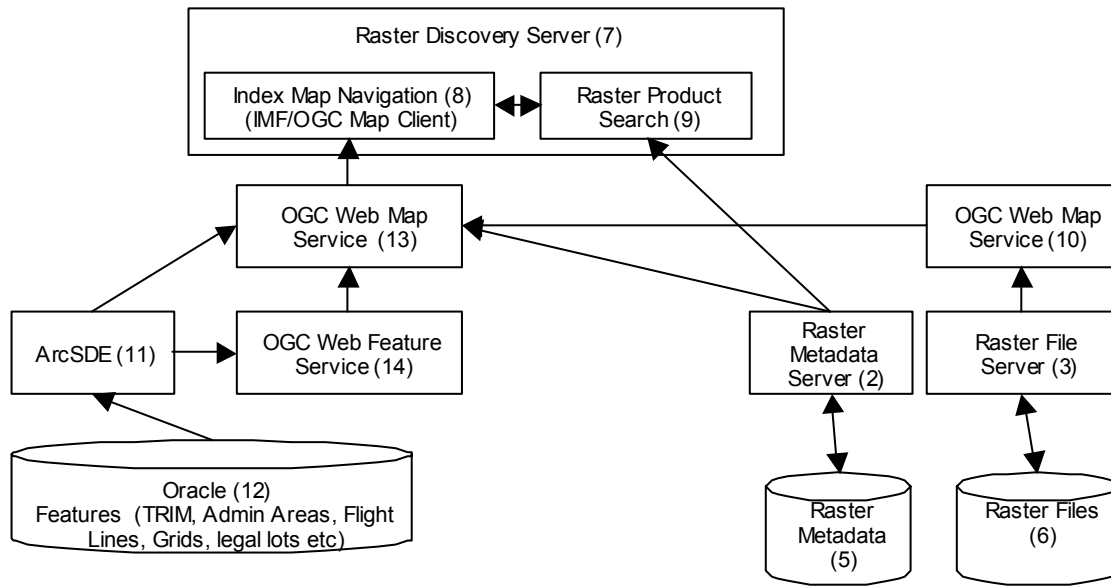


Figure 3 Raster discovery application architecture

The base map of British Columbia (TRIM) along with other feature data are stored in the Ministry Integrated Data Warehouse (IDW) running ArcSDE (11) on Oracle (12). The DIM system will use the IDW as the source of the base map. The Web Map Service (13) can either access the feature layers through ArcSDE (11) or via a Web Feature Service (14) connecting to ArcSDE. The Web Feature Service (in conjunction with the Web Map Service) will be used in the future to display other vector layers on the index map from third parties.

The Web Map Service (13) will cascade the request for raster layers to another Web Map Service (10) connected to the raster file server (3) to access the raster files (6).

The raster product search (9) will use the area of interest defined by the index map navigation (8) and allow the user to define temporal and metadata filters for the search. The raster product search (9) will query the

raster metadata server (2) to return the list of metadata for the matching raster products. The raster product search (9) will request Index Map Navigation (8) to display the footprints/photo centres of the selected vintages, this will request a layer from the Web Map Service (13) that will load the data from the raster metadata server (2). The end-user can select one or more of the raster products and the raster product search (9) will interact with the Raster Order Placement & Fulfillment Application (4.4) to add the raster products to the users shopping cart.

4.4 Raster Order Placement & Fulfillment Application

The raster Order Placement and Fulfillment Application will provide facilities for an end-user to add one more raster products to their shopping cart and purchase the products using credit/debit cards and pre-authorized accounts. The ordering system should provide fulfillment workflow for offline products to allow the Shipping Clerk to process the order.

The raster order system should provide facilities to add customized products to the shopping cart. A customized product could be a Digital Terrain Model that would be generated from the parameters specified by the user. The system would accept the parameters when the product was added to the cart. After the order has been accepted the system would execute a third party application to generate the product that would store the result in the raster management application and provide the link back to the order system. The order system would send the link to the end user to enable them access to the generated raster.

The proponents should propose how their e-commerce application can integrate with the raster products stored in the raster management application. In the future the DIM system will need to integrate with the provincial governments shared ordering and payment service when this becomes available.

The Raster Distribution Application (4.5) should provide facilities to integrate with e-commerce applications to ensure restricted access to end-users that have paid or are authorized to access rasters.

4.5 Raster Distribution Application

The distribution application will provide facilities for an end-user to download a raster file or view a portion of a raster file. The applications should support access control so that only authorized end-users or those that have paid can access the raster files.

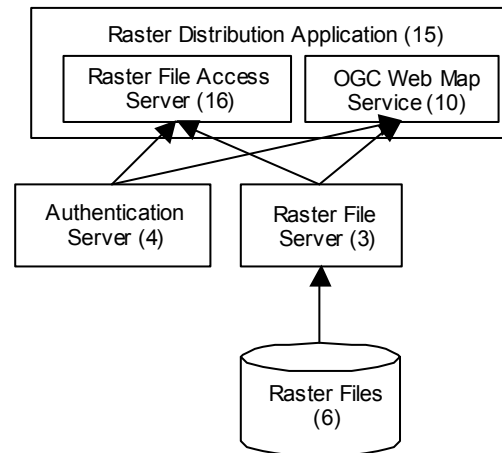


Figure 4 Raster distribution application architecture

The above diagram shows a logical view of the raster distribution application. The software implementation could combine these into a single package and integrate with the raster management application. In addition to a raster file access server (16) a web map service server (10) should be provided to access portions of geo-referenced raster files.

The raster file access server (16) or the Web Map Service server will authenticate the user using the Authentication Server (4) and access the Raster Files (6) via the Raster File Server (3).

5 OGC STANDARDS

5.1 Web Map Service

The Web Map Service WMS from the OGC defines the interfaces to obtain pictorial renderings of maps in a graphical format. The rendering of a map is made up of one or more layers of data displayed using a defined style. A WMS can also be requested to use WFS with a styled layer descriptor as an alternative way of getting the data and performing the styling. The WMS provides a capabilities document that describes the map portrayal options available to the clients.

The WMS specification is the most mature of the OGC specifications, version 1.0 was released in April 2000 and the current version 1.1.1 was released in January 2002. There are approximately 30 companies listed on the OGC web site implementing the WMS specification. WMS is an approved standard for the CGDI initiative.

The index map functionality of the DIM system can be implemented using a WMS server for the portrayal and a web based WMS client for the navigation of the index map. The web based WMS client will need to be extendable to support the full discovery interface features.

5.2 Web Feature Server

The Web Feature Service WFS from the OGC defines the interfaces to maintain and query geographical feature data using GML.

Version 1.0 of the WFS specification was released on September 19, 2002. There are several companies who have implemented the final versions of the specifications and others who have implementations based on the draft specifications and are expected to release versions implementing the final specification soon. The implementations of WFS products are far enough along that they can be considered to be part of the DIM system. WFS is an approved standard for the CGDI initiative.

The WFS server can be used as the source for the index map data and for storing the raster product information. This will provide an abstraction layer between the WMS and the discovery application from the underlying database used. One possibility is that the metadata for the raster products could be stored as features in the WFS and could be searched and maintained using the WFS interface.

5.3 Web Coverage Service

The Web Coverage Service WCS from the OGC defines the interfaces for querying simple coverage data across the web. A simple coverage is defined on some rectangular grid or tessellation of space. The coverage data can be in various formats from GeoTIFF for orthomosaics, DTED for Digital Terrain Elevation Data to a custom XML document.

WCS is currently a discussion paper and there is a debate around whether the current WCS proposal is significantly different from a WMS or WFS. It is unlikely that a RFC for the specification will be released before the end of the year and the final specification would not be expected till mid next year.

The WCS server in DIM would be useful for clients requiring direct access to gridded raster products such as DTMs and orthomosaics where they wish to cut out a rectangular area of interest from the coverage.

5.4 Web Registry Server

The WRS interfaces support “one stop shopping” for the registration, metadata harvesting and descriptor ingest, push and pull update of descriptors, and discovery of OGC Web Service types and instances using HTTP as the distributed computing platform.

The WRS specification has yet to be publicly released, a public (Request for Comments RFC) release is expected in December 2002. In the long term the WRS specification will become an important part of OGC compliant systems but at this stage WRS conforming products will not be ready for the initial implementation of DIM. WRS is being looked at for the next standard for the CGDI initiative.

The WRS server could be used to provide a service to allow components of the DIM system and external client to search for services. This will provide a loose coupling between components that can be easily changed.

The WRS server could also be used as a catalogue of metadata such as for the raster products. The discovery application can search the metadata in this registry to find the raster products.

5.5 Catalogue Interface

The Catalogue Interface from the OGC defines interfaces (z39.50 and COM/CORBA) for querying data descriptions.

The Catalogue Interface implementation specification v1.0 was released mid 1999, since then the successor v1.1 was written in mid 2000 but was never released. A few companies have implemented implementations of the specification but it is not in common use. The z39.50 profile of the catalogue interface is an approved standard for the CGDI initiative.

When the WRS specification is released the catalogue interface specification will more than likely be updated to include the WRS as catalogue interface web services profile.

5.6 Filter Specification

The OGC filter specification defines a query language for querying features using spatial operators on geometric properties and other operators on non-geometric properties. The filter specification is used as the query language for WFS.

Version 1.0 of the WFS specification was released on September 19, 2002. The current specification defines an XML schema for the query language. The OGC is currently working on a specification using XQuery or XPath expressions to define the query. This is being discussed at the next OGC TC.