Release Notes

1Generalise

Version 1.3.0
15 March 2018

Contents

1 Introduction

1.1 Scope

The purpose of the Release Note is to document the new functionality provided by the release and any known issues or limitations. The release notes will also record any administrative instructions that are specific to this release and not recorded elsewhere. The release notes describe changes since version 1.2.4.1.

1.2 Purpose of Release

The purpose of this release is to provide fixes to a number of important bugs and to upgrade dependencies to be compatible with the current release of 1SMS.

1.3 System Requirements

1.3.1 Server Platforms

This version of 1Generalise is supported on the following server platforms.

Windows Server 2012 R2

Application Server	Java
Oracle WebLogic Server 12c (12.1.3)	Oracle Java JDK 1.7.0_80 (64-bit)

Common components (required with any application server):

- Microsoft Visual C++ 2013 runtime (may be downloaded from https://www.microsoft.com/en-us/download/details.aspx?id=40784)

Red Hat Enterprise Linux 6.7 (64-bit)

Application Server	Java
Oracle WebLogic Server 12c (12.1.3)	Oracle Java JDK 1.7.0_80 (64-bit)

1.3.2 Client Platform

This version of 1Generalise is supported with the following browser clients:

- Microsoft Internet Explorer version 10 or version 11 in IE 10 document compatibility mode
- Chrome version 46
- Mozilla Firefox version 41

Other browser clients may be used, but support requests will only be progressed if the issue can be replicated on a supported browser.

1.3.3   Oracle Database Platforms

This version of 1Generalise is supported on all operating systems listed in section 1.3.1, with the following database platforms for both the **1Generalise repository** and as a **spatial data source**:

Database	Restrictions
Oracle Database 11g R2 (Any Edition)	none
Oracle Database 12c R1 (Any Edition)	none

1.3.4   1Spatial Software

All required 1Spatial Software is included in the 1Generalise release. This includes the compatible version of the 1SMS Installer which is required when installing 1Generalise on a supported version of WebLogic Application Server. The table below shows the version that is compatible with this 1Integrate release:

Application Server	Installer
Oracle WebLogic Server 12.1.3	1SMS Installer 1.1.132

1.4   Dependencies

This release uses Gothic 5.54.

This release depends on 1Integrate 1.6.5, updated from 1.3.2. See the 1Integrate release notes for further details.

1.5   Compatibility

The SOAP web service is compatible with version 1.0.110 to 1.2.11.

The REST web service is compatible with versions 1.0.100 to 1.2.11.

1.5.1 Builtin Functions and Operations

1.5.1.1 Separator Character

1Generalise was inconsistent about whether to use a comma or a pipe as a separator in string parameters. This has been standardised to require a pipe or vertical bar character '|'. Flowlines and profiles will need to be edited to convert commas used as list separators in parameters into pipe characters.

The class name list parameter of the following operations now requires a pipe separated list of classes:

- create_building_partitions
- create_partition
- create_outer_partitions
- create_partition_polygons
- form_amalgamating_bridges
- merge_small_partitions
- snap_area

In the system flowline, the following parameters are affected:

- PartitioningClasses
- NationalClasses
- ImpassableClasses
- AttributesMustMatch

1.5.1.2 Partitioning

Partitioning Builtins Require Partitioning Classes Parameter

The "create_dynamic_partition" and "create_partition_polygons" builtin operations require an additional parameter which specifies the partitioning classes. The "Create Partition Polygons.xml", "Create Dynamic Partition.xml" and "Merge Small Partitions.xml" algorithm actions in the system flowline have been updated to provide the new parameter value. Each algorithm calls the modified partition builtin operations with an additional parameter using the "get_parameter_value" builtin function to retrieve the "PartitioningClasses" value from the 1Generalise parameters. Previously the algorithm used the "PartitioningClasses" parameter but it was not passed in through the builtin operation. As a general principle, 1Generalise expects parameter values to be passed to builtin functions and operations when it is practical to do so.

Create Outer Partitions Builtin Requires a Geometry

The "create_outer_partitions" builtin which takes bounding box parameters has been removed. The "create_outer_partition_geom" builtin has been renamed to "create_outer_partitions". This creates the outer partitions within the specified geometry. The existing "Create Outer Partition.xml" action (which uses the geometry version) is unchanged except the name of the builtin. It is possible to use a rectangle based on parameter values by concatenating a Well-Known Text string and converting it to a geometry. Typically, the job extent is used and retrieved using the "get_job_extent" builtin function. It is not normally necessary to provide parameters OuterPartitionXZMin etc. However, it is still possible to use those if required to generate a Well Known Text description of a polygon to pass to the updated "create_outer_paritions" builtin operation.

Create_national_load_partitions Builtin Operation Removed

The "create_national_load_partitions" builtin has been removed. It was impractical to use this higher-level function because too much was happening without any feedback. This was replaced a long time ago by separate builtins:

- create_partition_polygons
- amalgamate_partitions
- merge_small_partitions
- create_outer_partitions

Amalgamate_national_load_partitions Builtin Operation Renamed

The "amalgamate_national_load_partitions" builtin has been renamed "amalgamate_partitions".

1.5.1.3   Other

The "ignore" builtin has been removed; this was a short-term workaround that has been replaced by the equivalence framework.

The "convert_wkt" builtin function has been removed. 1Integrate provides a builtin function named "create_geometry_from_wkt", which has identical behaviour to convert_wkt.

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2 Release details

2.1 New Functionality in this release

2.1.1 Dual Carriageway Collapse

Dual Carriageway Collapse is a significant new algorithm for 1Generalise. This is an initial implementation, which can automate much of the process but may not give perfect results in more complicated situations. Functionality is provided through a number of new builtins:

2.1.1.1 Identify Candidate Pairs

```
dcc_identify_candidate_pairs(dcc_road_obj, collapsible_attr, paired_to_ref,
                        attrs_must_match, max_separation, min_length)
```

A builtin operation that finds nearby dual carriageways that are candidates for pairing and collapsing. All candidates for pairing are linked via a reference.

Argument	Description
dcc_road_obj	A topologically structured dual carriageway road object.
collapsible_attr	The name of an attribute that marks a road as collapsible. This attribute must be defined – either in the flowline schema or source data schema.
paired_to_ref	The name of a reference that connects a road to its candidate pairs. This attribute must be defined in the flowline schema.
attrs_must_match	A pipe-separated list of names of attributes whose values must be equal for a pair to be collapsed.
max_separation	The maximum separation between roads in a pair for them to be collapsed.
min_length	The minimum length of a road for it to be collapsed.

2.1.1.2 Filter Candidate Pairs

```
dcc_filter_candidate_pairs(dcc_road_obj, paired_to_ref, max_separation,
                        max_distance_from_ends)
```

A builtin operation to filter the candidate pairs retaining those that are a pair with dcc_road_obj. It is a pair with dcc_road_obj if:

- Each end of this road, when projected onto the geometry of the paired road is within max_distance_from_ends of the nearest end of the paired road and vice-versa.
- This road and the paired road are within max_separation of each other.

Argument	Description
dcc_road_obj	A topologically structured dual carriageway road object.
paired_to_ref	The name of a reference that connects a road to its candidate pairs. This attribute must be defined in the flowline schema.
max_separation	The maximum separation between roads in a pair for them to be collapsed.
max_distance_from_ends	The maximum distance from the ends of the paired road to the position projected from the ends of this road to allow a match.

2.1.1.3 Split Candidate Pairs

```
dcc_split_candidate_pairs(dcc_road_obj, paired_to_ref, max_dist_to_split,
                    max_distance_from_ends, attrs_to_null)
```

A builtin operation to split candidate pairs referenced from this road at a position near the end of this road. This ensures roads are an appropriate length to replace them with a centreline.

Argument	Description
dcc_road_obj	A topologically structured dual carriageway road object.
paired_to_ref	The name of a reference that connects a road to its candidate pairs. This attribute must be defined in the flowline schema.
max_dist_to_split	The maximum distance from this road to the split position on the paired road.
max_distance_from_ends	The maximum distance from the ends of the paired road to the position projected from the ends of this road to allow a match.
attrs_to_null	A pipe-separated list of the names of attributes that should be set to null on all parts when a road is split.

2.1.1.4 Match Simple Pairs

```
dcc_match_simple_pairs(dcc_road_obj, paired_to_ref, matched_attr_name)
```

A builtin operation to match a dual carriageway road to a candidate pair of there is only a single candidate.

Argument	Description
dcc_road_obj	A topologically structured dual carriageway road object.
paired_to_ref	The name of a reference that connects a road to its candidate pairs. This attribute must be defined in the flowline schema.
matched_attr_name	The name of a Boolean attribute that will be set True if a road is matched in a pair.

2.1.1.5 Match Ambiguous Pairs

```
dcc_match_ambiguous_pairs(dcc_road_obj, paired_to_ref, matched_attr_name)
```

A builtin operation to match a dual carriageway road from a list of two or more potential candidates. This assumes that the match simple pairs has been run. It finds any matched roads that this road is connected to and then finds the roads connected to its matching pair, which are also candidate pairs of this road. It matches this road with the closest of these candidate roads.

Argument	Description
dcc_road_obj	A topologically structured dual carriageway road object.
paired_to_ref	The name of a reference that connects a road to its candidate pairs. This attribute must be defined in the flowline schema.
matched_attr_name	The name of a Boolean attribute that will be set True if a road is matched in a pair.

2.1.1.6 Create Centreline

```
dcc_create_centreline(dcc_road_obj, paired_to_ref, collapsed_from_ref,
                  matched_attr_name, attrs_to_null)
```

A builtin operation to match a dual carriageway road from a list of two or more potential candidates. This assumes that the match simple pairs has been run. It finds any matched roads that this road is connected to and

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then finds the roads connected to its matching pair, which are also candidate pairs of this road. It matches this road with the closest of these candidate roads.

Argument	Description
dcc_road_obj	A topologically structured dual carriageway road object.
paired_to_ref	The name of a reference that connects a road to its candidate pairs. This attribute must be defined in the flowline schema.
collapsed_from_ref	The name of a reference that connects a centreline to the dual carriageways from which it was created. This attribute must be defined in the flowline schema.
attrs_to_null	A pipe-separated list of the names of attributes that should be set to null on all parts when a road is split.
matched_attr_name	The name of a Boolean attribute that will be set True if a road is matched in a pair.

2.1.1.7   Reconnect Roads to Centreline

```
dcc_reconnect_to_centreline(dcc_centreline_obj, paired_to_ref, collapsed_to_ref)
```

A builtin operation to reconnects to the centreline roads that are connected to the matched roads from which this centreline was created. The matched roads are deleted.

Argument	Description
dcc_road_obj	A topologically structured dual carriageway road object.
paired_to_ref	The name of a reference that connects a road to its candidate pairs. This attribute must be defined in the flowline schema.
collapsed_to_ref	The name of a reference that connects dual carriageways to their centreline (the reference pair with the collapsed from reference). This attribute must be defined in the flowline schema.

2.1.2   Miscellaneous

2.1.2.1   Set Attributes to Null

```
set_null_attributes(object, attrList)
```

A new builtin operation to set a number of attributes to null.

Argument	Description
object	A Gothic object.
attrList	A pipe-separated list of attribute names, which is typically a parameter. If a named attribute does not exist in the provided object, an exception will be thrown.

2.1.2.2   Make Network Fully Noded

```
split_at_junctions(object, classList)
```

A builtin function to split a topologically structured line feature into separate parts based on interactions with other features. The return value is a potentially complex line geometry, where the geometry of "object" has

been split at each node shared with another object in one of the specified classes. Typically, this is used to split a network (e.g. water, road) at each interaction point with objects in classes of the same network. This data preparation is required by some 1Generalise algorithms where the source data is not guaranteed to be fully noded.

Argument	Description
object	A topologically structured Gothic object with a line geometry.
classList	A pipe-separated list of class names.

2.1.3 1Integrate

1Generalise has gained some enhancements from the underlying 1Integrate platform. These are described in more detail in the 1Integrate Release Notes. Changes include:

- New builtin function vertices to return the vertices of a geometry as a multi-point.
- New builtin function segments to return geometry segments as a multi-line.
- New builtin function to calculate Jaro-Winkler similarity between strings.
- New builtin function to return hotspot geometry from within an action.
- New builtin: set_topology_edge_drag_mode to control the behaviour of topology edges when topology nodes are moved.
- New builtin: to_timestamp which converts a date or date/time string into the date/time type
- New built-in function to get inner rings of a polygon.
- Admin UI cache viewer: Many improvements including highlighting the hotspot location of non-conformances
- Admin UI session page has more detailed session timing report.
- Schema context selection is kept in sync between Rules and Actions authoring tabs.
- Templates used within a rule or action show the location of the template and a hyperlink to it.
- Hyperlinks from Data store task on session page, back to the Data store page.
- Add built-in function description as tooltip when browsing list of built-in functions.
- In Open Data task, grey out classes where there were no features read.

2.1.4 New Functionality by Release

1.3.0	
MSGEN-1343	A logout button has been added to the "smart" UI.
1.2.11	
	No new enhancements.
1.2.10	
	No new enhancements.
1.2.9	
MSGEN-1568	The Oracle data store supports selecting a savepoint within a workspace. When a generaliseRegion SOAP request specifies a sourceInfo with both workspace and savepoint defined, the savepoint will be selected when the connection underlying the classification is of type Oracle data store. Previously, this worked only with the Contextual data store.
1.2.8	
	No new enhancements.
1.2.7	
	No new enhancements.

1.2.6	
MSGEN-1545	Sort schemas in classification and profile data stores.
MSGEN-1554	Reinstate `create_building_partitions` and snap_features builtins. These are unsupported demonstration capabilities.
1.2.5	
MSGEN-1491	New builtin operation `split_at_junctions` that makes a network fully noded as required by some 1Generalise algorithms.
MSGEN-1499	New builtin function `set_null_attributes` that sets one or more attribute values to null, allowing the attribute names to be parameterized.
MSGEN-1455	A new capability to collapse dual carriageways. This is an initial evaluation release and is not yet capable of dealing with all situations in complex models.
1.2.4	
MSGEN-1495	Adding support for Oracle 12cR1 database
1.2.1	
MSINT-587	New Cache Viewer available for any task: Can step through state of each task, improved UI for seeing non-conformances and selecting features. The Cache Viewer is available from the Sessions tab in the admin UI.
MSINT-300	Configurable styling of cache viewer
MSINT-636	Session description button to document contents of session including details of all rules and actions run.
MSINT-596	New timings summary page for session
MSINT-587	New errors summary page for session
1.1.105	
MSINT-629	Switch to garbage collection of the session data cache. This means that paused sessions can be deleted via the API or UI immediately, without having to stop each one.
MSGEN-1437	Add generalise_monitor role with read only access to the job map screen
1.1.104	
MSGEN-1389	Remove grid parameters from WebLogic installation files included in the release
MSCOMMON-497	Remove JDK selection from the installer and update the supported JDK check. All servers will use the JDK configured when the domain was created.
MSVALIDATE-515	Remove the need to install a Gothic DAM. It is no longer possible to view results of previous steps while a job is being processed. It may be possible to configure the command line installer to use an external DAM, but that configuration is no longer supported.
1.1.102	
MSGEN-1243	Extend the 1Generalise Algorithm for snapping Landcover features (or any area features) to handle impassable classes - a feature should not be extended if it interacts with a feature of one of these classes.
MSGEN-1244	Extend the snap areas algorithm to process features that overlap the calculated extension geometry. Where a feature is within the extension geometry it should be deleted. When a line crosses the extension geometry or an area overlaps the extension geometry, the portion within the extension geometry should be deleted (the geometry set to the difference). Points that lie on the boundary of the extension area and lines that are wholly or partly on the boundary of the extension area but not inside it will not be chopped or deleted.

2.2 Bugs Fixed in this release

1.3.0	
MSGEN-1577	Simplification retries generate intersecting edges The simplification retry operations – e.g. "process_douglas_peucker_simplification_retries" – applies a number of strategies in order to try to achieve good results: 1. Retry the original simplification in case modifications to nearby features allow it to succeed. 2. Simplify the edge that failed, and then find all other edges that intersect the result, then validate the result. This can achieve a better result when two edges are approximately parallel. 3. Split the edge into half and simplify each half independently. If a half-edge intersects no other nodes or edges and the result does not change topological relationships with any nodes or isolated edges, the result is used. If simplifying the half-edge would break topology, the algorithm is applied recursively to bisect the half-edge. Intersecting edges were created because strategy #2, the intersecting edge simplifier, relies on the topology engine to determine whether the result is valid. Crossing edges are valid unless an "edges split edges" rule is defined. The reported session used only a "share nodes" rule, so crossing edges are considered valid. An edges split edges rule is recommended for most uses of 1Generalise. However, the simplification failures processor has been changed to exclude the intersecting edge simplifier if there is no edges split edges rule. The recursive simplifier will generate a valid result.
MSGEN-1343	The logout button in the 1Generalise admin interface now works if the user logged in via the "smart" UI.
MSGEN-1340	It is no longer possible to reproduce a session hanging if the pause button is pressed as it is starting. This was fixed in a recent update to 1Integrate.
1.2.7	
ADVKARTO-3379	Complete the short edge removal fixes started in release 1.2.5.
1.2.6	
ADVKARTO-3437	Further fixes to special cases in buildings short edge removal.
1.2.5	
ADVKARTO-3379	The short edge removal algorithm has been enhanced to achieve greater simplification of areas with inner rings where short edge removal on one of the rings generated self-intersections.
MSGEN-1548	The session documenter (the 📄 icon in the admin interface Session Tasks page) now shows a summary of the session.
1.2.4	
MSVALIDATE-592	'ORA-20156: there are active sessions using the workspace' when running sessions with a datastore with JNDI connection
1.2.3	
MSGEN-1479	The classification UI does not display any class mappings. The mappings are there, they can be seen in the admin interface, and jobs can be run. The bug was introduced in v1.2.2, when the GML datastore was added.
1.2.2	
MSGEN-1475	DataStore transaction timeout when reading datastore details, change from 120 seconds to 300 seconds. (any longer timeout indicates database connection problems).
1.2.1	

MSGEN-1416	The 1Generalise installer was modified to prompts for the JMS schema name. This makes it possible to run several 1Generalise Interfaces on the same repository, as long as each Interface uses a separate JMS schema. 1Generalise no longer uses Last Logging Resource for handling transactions.
1.1.105	
MSGEN-1436	Fix a bug introduced in version 1.1.104 that prevents restoring action templates in 1Generalise.
1.1.104	
MSGEN-1317	Prevent building_stellate_short_edges from producing sharp angles
MSGEN-1391	Fix a bug where buffering partitions for National Load child job creation could fail, reporting "MultiPolygon cannot be cast to Polygon"
MSGEN-1395	Fix a bug where line features that extend a very short distance outside the partition boundary were not written to the target dataset.
MSGEN-1397	Buildings with spikes Output from the buildings subflow resulted in 'triangular' buildings or obvious spikes. A number of scenarios have been resolved: • Where one source building touches another at an angle • Where one generalised building touches another at an angle • Where a source building is not square; i.e. has angular sides within the building outline • Some other rare cases
MSGEN-1399	Resolve rare cases where building simplification generated spikes (short_edge_removal and stellate_short_edges)
MSGEN-1400	Fix a bug where building_remove_short_edges sometimes generated an error: "failed to invoke building_remove_short_edges Caused by: Lines do not intersect"
MSGEN-1410	Ensure that the ms-generalise-client application includes all required dependent jars (a regression introduced in version 1.1.100).
MSGEN-1413	ScalingGeometryCombiner fails with INVALGEOMTYPE. The problem was that it includes a workaround for generation of invalid areas. This failed when we ended up with an invalid geometry that wasn't an area. It has been fixed by verifying the result is an area.
1.1.103	
MSGEN-1396	Reading from a datastore using an Oracle datastore through JNDI fails
1.1.102	
MSGEN-1267	Snap areas fails when the snapping should produce a very thin polygon
MSGEN-1268	Snap Area fails when the area touches the line it needs to snap to
MSGEN-1386	In very rare cases building simplification enters an infinite loop, resulting in an out of memory error
MSGEN-1387	1Generalise does not run jobs on a SOA domain
1.1.101	
MSGEN-1295	When loading an existing classification into the classification UI, filter on attributes which contain several values with space in it could become corrupted, and will need fixing manually. Manual fix: edit all filter rules that use values with space in it, check that they appear correctly and fix those which are wrong.
MSGEN-1265	Snap areas misses some space at some corners

2.2.1 1Integrate

1Generalise has gained some fixed from the underlying 1Integrate platform. These are described in more detail in the 1Integrate Release Notes. Fixes include:

- A number of fixes to the admin UI cache viewer.
- When building topology, very narrow rings are no longer removed from some faces.
- Fix a regression in topology structuring of polygons with self-touching outer rings.
- Sum and product values of some data types ignore anything beyond the second parameter.
- Boundary builtin now succeeds for mixed type multi-part geometries instead of returning null.
- Remove_spikes() will remove all spikes from line geometries.
- Detect additional geometry self-intersections in rare cases.
- Fix bug: updating node on edge dangling within face fails with 'Failure during node set geometry - unknown error'
- Fix bug: Topology error when moving edge causes zero width ring.
- Fix bug: Job continues to show as running when reaching java.lang.OutOfMemoryError: Java heap space.
- Fix bug: Running multiple sessions in parallel can cause error: "Unhandled Exception… DAMDBATTACHED".
- Fix bug: Running sessions can cause error: "ORA-00001: unique constraint (*.UNQ_TASK_RESULT_0) violated".
- Fix bug: Running sessions can cause error: "Unhandled Exception… MSG: Space Storage not in operation".
- Fix bug: Non-selected attributes set to NULL when committing a subset of attributes for non-Oracle data stores.
- Fix bug: Grid communication error: "Failed to initialize NIO selector" due to garbage collector not releasing files.
- Fix bug: Deadlock when deleting sessions in parallel.

2.3 Known Issues and Unresolved Bugs

ID	Description
MSGEN-1556	Build topology creates spikes that result in commit errors.
MSGEN-1470	National Load child Jobs queuing When other nodes are free.
	When a session is pause, it is tied to the node on which it started. It can be resumed on any node that has access to the cache, i.e. is on the same server. Since 1Generalise 1.2.1, if the session is stopped and restarted, it can run on any node on the grid.
MSGEN-1425	When parameters are changed in the flowline, profiles using the flowline do not update to include the changes.
MSGEN-1393	MSGEN-1393: Syntax error in parameter definition causes the profile UI to silently abort the edit
MSGEN-1327	MSGEN-1327: Develop the capabilities of the integrated Map Viewer, to make it easier to analyse the generalisation results.
MSGEN-1315	MSGEN-1315: Short-edge-removal not removing all short edges, leaving some buildings outlines not fully simplified.
MSGEN-1234	MSGEN-1234: Real attributes in Flowline classes not working.
	A temporary workaround is to declare the parameter as string and use the conversion built-in functions to convert between real and strings.
MSGEN-908	MSGEN-908: Map Viewer is not available when job extent is defined by a polygon.

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3 Installation

Follow the instructions in the 1Spatial Management Suite Installation Guide.

4 1Spatial Product Assistance

If assistance is required while deploying this release, contact either your Distributor or 1Spatial Support.

To contact 1Spatial Support, please visit our website: http://www.1spatial.com/services/support

Maximise the value of this release with 1Spatial foundation and advanced training courses. For training enquiries please contact your Account Manager or email training@1spatial.com

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