

This UML class diagram illustrates the relationships between various entities in a system. The entities are represented as classes with their attributes and methods. Relationships are shown as directed associations with multiplicity and role names.

**Entities and Attributes:**

- Broadcast**: body (text), created\_at (datetime), id (integer PK), medium (string (255)), mission\_id (integer FK), recipient\_selection (string (255)), send\_errors (text), source (string (255)), subject (string (255)), updated\_at (datetime), uuid (string), which\_phone (string (255)).
- BroadcastAddressing**: addressee\_id (integer FK), addressee\_type (string (255)), broadcast\_id (integer FK), created\_at (datetime), id (integer PK), updated\_at (datetime), uuid (string).
- UserGroup**: created\_at (datetime), id (integer PK), mission\_id (integer FK), name (string (255)), updated\_at (datetime), uuid (string).
- UserGroupAssignment**: created\_at (datetime), id (integer PK), updated\_at (datetime), user\_group\_id (integer FK), user\_id (integer FK), uuid (string).
- Whitelisting**: created\_at (datetime), id (integer PK), updated\_at (datetime), user\_id (integer FK), uuid (string), whitelistable\_id (integer FK), whitelistable\_type (string (255)).
- Assignment**: created\_at (datetime), id (integer PK), mission\_id (integer FK), role (string (255)), updated\_at (datetime), user\_id (integer FK), uuid (string).
- FormForwarding**: created\_at (datetime), form\_id (integer FK), id (integer PK), recipient\_id (integer FK), recipient\_type (string (255)), updated\_at (datetime), uuid (string).
- Operation**: created\_at (datetime), creator\_id (integer FK), description (string (255)), id (integer PK), job\_class (string (255)), job\_completed\_at (datetime), job\_error\_report (text), job\_failed\_at (datetime), job\_id (string (255)), job\_outcome\_url (string (255)), job\_started\_at (datetime), provider\_job\_id (string (255)), updated\_at (datetime), uuid (string).
- Response**: checked\_out\_at (datetime), checked\_out\_by\_id (integer FK), created\_at (datetime), form\_id (integer FK), id (integer PK), incomplete (boolean), mission\_id (integer FK), odk\_hash (string (255)), reviewed (boolean), reviewer\_id (integer FK), reviewer\_notes (text), shortcode (string (255)), source (string (255)), updated\_at (datetime), user\_id (integer FK), uuid (string).
- Mission**: compact\_name (string (255)), created\_at (datetime), id (integer PK), locked (boolean), name (string (255)), shortcode (string (255)), updated\_at (datetime), uuid (string).
- Form**: access\_level (string (255)), allow\_incomplete (boolean), authenticate\_sms (boolean), created\_at (datetime), current\_version\_id (integer FK), downloads (integer), id (integer PK), is\_standard (boolean), mission\_id (integer FK), name (string (255)), original\_id (integer FK), pub\_changed\_at (datetime), published (boolean), responses\_count (integer), root\_id (integer), sms\_relay (boolean), smsable (boolean), standard\_copy (boolean), updated\_at (datetime), upgrade\_needed (boolean), uuid (string).
- Sms::Message**: adapter\_name (string (255)), auth\_failed (boolean), body (text), broadcast\_id (integer), created\_at (datetime), from (string (255)), id (integer PK), mission\_id (integer FK), reply\_to\_id (integer), sent\_at (datetime), to (string (255)), type (string (255)), updated\_at (datetime), user\_id (integer FK), uuid (string).
- FormVersion**: code (string (255)), created\_at (datetime), form\_id (integer FK), id (integer PK), is\_current (boolean), sequence (integer), updated\_at (datetime), uuid (string).
- OptionNode**: ancestry (string (255)), ancestry\_depth (integer), created\_at (datetime), id (integer PK), is\_standard (boolean), mission\_id (integer FK), option\_id (integer FK), option\_set\_id (integer FK), original\_id (integer FK), rank (integer), sequence (integer), standard\_copy (boolean), updated\_at (datetime), uuid (string).
- OptionSet**: allow\_coordinates (boolean), created\_at (datetime), geographic (boolean), id (integer PK), is\_standard (boolean), level\_names (text), mission\_id (integer FK), name (string (255)), original\_id (integer FK), root\_node\_id (integer FK), sms\_guide\_formatting (string (255)), standard\_copy (boolean), updated\_at (datetime), uuid (string).
- Report::Report**: aggregation\_name (string (255)), bar\_style (string (255)), created\_at (datetime), creator\_id (integer FK), disagg\_qing\_id (integer FK), display\_type (string (255)), filter (text), form\_id (integer), group\_by\_tag (boolean), id (integer PK), mission\_id (integer FK), name (string (255)), percent\_type (string (255)), question\_labels (string (255)), question\_order (string (255)), text\_responses (string (255)), type (string (255)), unique\_rows (boolean), unreviewed (boolean), updated\_at (datetime), viewed\_at (datetime), view\_count (integer).
- Tag**: created\_at (datetime), id (integer PK), mission\_id (integer FK), name (string (64)), updated\_at (datetime), uuid (string).
- Report::OptionSetChoice**: id (integer PK), option\_set\_id (integer FK), report\_report\_id (integer FK), uuid (string).
- Report::Calculation**: attrib1\_name (string (255)), created\_at (datetime), id (integer PK), question1\_id (integer FK), rank (integer), report\_report\_id (integer FK), type (string (255)), updated\_at (datetime), uuid (string).
- Formitem**: ancestry (string (255)), ancestry\_depth (integer), created\_at (datetime), form\_id (integer FK), group\_hint\_translations (jsonb), group\_name\_translations (jsonb), hidden (boolean), id (integer PK), mission\_id (integer FK), question\_id (integer FK), rank (integer), repeatable (boolean), required (boolean), type (string (255)), updated\_at (datetime), uuid (string).
- Answer**: created\_at (datetime), date\_value (date), datetime\_value (datetime), delta (boolean), id (integer PK), inst\_num (integer), latitude (decimal (8,6)), longitude (decimal (9,6)), option\_id (integer FK), questioning\_id (integer FK), response\_id (integer FK), time\_value (time), uid (string), value (text).
- Condition**: created\_at (datetime), id (integer PK), mission\_id (integer FK), op (string (255)), option\_node\_id (integer FK), questioning\_id (integer FK), ref\_qing\_id (integer FK), updated\_at (datetime), uid (string), value (string (255)).
- Setting**: allow\_unauthenticated\_submissions (boolean), created\_at (datetime), default\_outgoing\_sms\_adapter (string (255)), frontincloud\_api\_key (string (255)), id (integer PK), incoming\_sms\_numbers (text), incoming\_sms\_token (string (255)), mission\_id (integer FK), override\_code (string (255)), preferred\_locales (string (255)), timezone (string (255)), twilio\_account\_sid (string (255)), twilio\_auth\_token (string (255)), twilio\_phone\_number (string (255)), updated\_at (datetime), uuid (string).
- Option**: canonical\_name (string (255)), created\_at (datetime), id (integer PK), latitude (decimal (8,6)), longitude (decimal (9,6)), mission\_id (integer FK), name\_translations (jsonb), updated\_at (datetime), uuid (string).
- Tagging**: created\_at (datetime), id (integer PK), question\_id (integer FK), tag\_id (integer FK), updated\_at (datetime), uuid (string).

**Relationships:**

- Broadcast** has many-to-many relationships with **Addressee**, **UserGroup**, **User**, **Whitelistable**, and **Recipient**.
- BroadcastAddressing** has many-to-many relationships with **Broadcast**, **UserGroup**, **User**, **Whitelisting**, and **Recipient**.
- UserGroup** has many-to-many relationships with **Broadcast**, **UserGroupAssignment**, **User**, **Whitelisting**, and **Assignment**.
- UserGroupAssignment** has many-to-many relationships with **UserGroup**, **User**, **Whitelisting**, and **Assignment**.
- Whitelisting** has many-to-many relationships with **UserGroup**, **UserGroupAssignment**, **User**, and **Assignment**.
- Assignment** has many-to-many relationships with **UserGroup**, **UserGroupAssignment**, **User**, and **FormForwarding**.
- FormForwarding** has many-to-many relationships with **Assignment**, **User**, and **Operation**.
- Operation** has many-to-many relationships with **FormForwarding**, **User**, and **Response**.
- Response** has many-to-many relationships with **Operation**, **User**, and **Form**.
- Mission** has many-to-many relationships with **Form**, **Formitem**, **Question**, **OptionSet**, **Report::Report**, **Tag**, and **Tagging**.
- Form** has many-to-many relationships with **Mission**, **Formitem**, **Question**, **OptionSet**, **Report::Report**, **Tag**, and **Tagging**.
- Formitem** has many-to-many relationships with **Form**, **Question**, **OptionSet**, **Report::Report**, **Tag**, and **Tagging**.
- Question** has many-to-many relationships with **Formitem**, **OptionSet**, **Report::Report**, **Tag**, and **Tagging**.
- OptionSet** has many-to-many relationships with **Question**, **Report::Report**, **Tag**, and **Tagging**.
- Report::Report** has many-to-many relationships with **OptionSet**, **Report::OptionSetChoice**, **Report::Calculation**, **Tag**, and **Tagging**.
- Report::OptionSetChoice** has many-to-many relationships with **Report::Report** and **Report::Calculation**.
- Report::Calculation** has many-to-many relationships with **Report::OptionSetChoice** and **Tagging**.
- Tag** has many-to-many relationships with **Report::Report**, **Report::OptionSetChoice**, **Report::Calculation**, and **Tagging**.
- Tagging** has many-to-many relationships with **Report::Calculation** and **Tag**.

