SMS Extender Data Policy

LAST UPDATED: 2 November 2015

VERSION 2.0

Contents

This policy applies to all Student Management System (SMS) data that a school and their SMS provider agrees to transfer into our SMS Extender.

1   Document Purpose

This Data Policy covers the technical details for the secure transfer of data from Student Management Systems (**SMS**) to the N4L's SMS Extender (**SE**).

2   Overview

The SE can accept data in either our standard format or an agreed SMS-specific format.

The transfer of data from an SMS to the SE must be transmitted over an HTTPS POST operation, where a combination of authentication and validation rules will be applied upon delivery (prior to processing). Which rules are available for any implementation may be determined by the capabilities of the source SMS software.
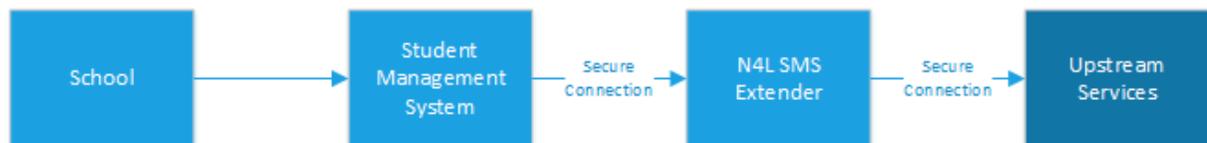
3   Data Requirements

In order for SMS data to be processed, data payloads must contain a minimum set of fields in order to provide sufficient school and user information for upstream systems, these minimum fields are outlined in section 3.1 below. Where possible SMS providers are encouraged to provide as many as possible of the recommended fields listed in section 3.2 below, in order to enhance the number of supported 3rd party system and experience for end users.

3.1   Mandatory Fields

School	Staff	Student	Group
MOE Id	First Name	First Name	Id
Name	Last Name	Last Name	Name
Groups*	Gender	Gender	
Teachers*	Date of Birth ***	Date of Birth	
Students*	Groups**	Groups**	
	Teacher Registration	Enrolment Date	

		Number ***		
		Year Level		
		NSN		

* = Collection of one or more child objects.

** = Groups includes Subjects, Classes, Departments and General Groups e.g Sporting/Cultural Groups.

*** = Either a Date of Birth OR Teacher Registration Number must be specified

Data transfers which do not contain all mandatory fields will be excluded from further processing and any partial records will not be transferred to any connected services.

3.2   Recommended Additional Fields

School	Staff	Student	Group
	Preferred Name	Preferred Name	
	Enrolment Date	Email Address	
	Email Address	Leaving Date	
	Leaving Date		
	Role		

* = Collection of one or more child objects.

3.3   Data Accuracy
Accuracy of SMS data is the responsibility of the school. The integrity and functionality of upstream systems provisioned using the SE will be affected if data in the SMS is incorrect or incomplete. SMS vendors are encouraged to reduce the possibility of data entry errors by providing the ability for users of their SMS to select pre-determined values for the required fields where appropriate.

3.4   Data Schema
To aid the transfer of data between the SMS and the SE, a standardised data format has been developed by us in JavaScript Object Notation (JSON). Where our standard format is not adequate or possible to be implemented an agreed custom SMS-specific format can be used. Our standard data format and example can be found in the Appendix at the end of this document.

4   Data Transport Options

Along with the required transport mechanism there are a number of authentication and validation options available when transferring data to the SE the purpose of which is to both ensure the security of the data transfer, and the integrity of the data received.

The required and optional mechanisms are set out below. Each SMS provider has control over which options are chosen to be enabled or disabled based on the requirements and capabilities of their systems. The recommended approach is to make use of at least one of the optional security features for each implementation.

HTTPS Endpoint (required)
The endpoint format will take the form: https://smssync.n4l.co.nz/sync/<version>/<provider> where <provider> is a unique identifier for each SMS provider - this will be confirmed at time of initial setup. All communications will be over an HTTPS connection.

IP Address Restrictions (required)
Source IP addresses can be specified in order to restrict the origin of SMS data transmission. These must be supplied to us in CIDR notation format. eg 131.203.200.98/28.

HTTP Basic Authentication (required)
A username and password can be required during the SMS data transmission, supplied using standard HTTP Basic authentication. Username and Password values will need to be supplied to us and passwords will be stored in hashed format (not cleartext).

Time Window Restrictions (optional)
In order to restrict data transmission to certain hours of the day, these can be supplied to us in the following format HH:mm-HH:mm (24-hour time format). Any requests made outside these times will be rejected.

PGP Encryption (optional)
The SMS data payload can be encrypted prior to transmission using PGP encryption. This must be applied to the entire body of the request using PGP public keys issued by us (Dev and Production environments will require separate keys).

Checksum (optional)
A checksum of the payload body can also be supplied to verify the integrity of the message. The checksum value can be calculated by:
- Appending a pre-shared Salt (supplied by us) to the request body.
- Generating a hash of the above content. Hashing algorithms supported are MD5, SHA-1, SHA-256, SHA-384, SHA-512.
- Output must be in HEX format.

In the case where a checksum is used in combination with encryption, the checksum must be calculated against the pre-encrypted request body.

Custom
Other custom validation or authentication methods can be implemented if required by an SMS vendor, however, there may be a cost associated with this implementation.

5   Change Process

We reserve the right to make changes to this policy. All changes will be made in consultation with SMS Providers and are expected to be focused on improving efficiency of the operations or to expand system capabilities or security. We will provide at least 6 weeks' notice to SMS Providers prior to making any changes to this policy.

6   Versioning and Backwards Compatibility

The SE will provide backwards compatibility for a period of 6 months after any software upgrades. This will apply to both data formats and security mechanisms implemented for connectivity by an SMS system.
SE versioning will be provided by a variation of the endpoint URI used as a destination for SMS data transfers, e.g.
- Version 1: https://smssync.n4l.co.nz/sync/v1/smssystem/
- Version 1.2: https://smssync.n4l.co.nz/sync/v1.2/smssystem/

Appendix: N4L Standard Data Format

N4L Standard Data Format - JSON Schema

```json
{
 "$schema": "http://json-schema.org/draft-04/schema#",
 "id": "https://smssync.n4l.co.nz/schema#",
 "type": "object",
 "properties": {
  "smsIdentifier": {
   "id": "https://smssync.n4l.co.nz/schema#/smsIdentifier",
   "type": "string"
  },
  "date": {
   "id": "https://smssync.n4l.co.nz/schema#/date",
   "type": "string"
  },
  "syncType": {
   "id": "https://smssync.n4l.co.nz/schema#/syncType",
   "type": "string"
  },
  "schools": {
   "id": "https://smssync.n4l.co.nz/schema#/schools",
   "type": "array",
   "items": {
    "id": "https://smssync.n4l.co.nz/schema#/schools/0",
    "type": "object",
    "properties": {
     "moeId": {
      "id": "https://smssync.n4l.co.nz/schema#/schools/0/moeId",
      "type": "string"
     },
     "name": {
      "id": "https://smssync.n4l.co.nz/schema#/schools/0/name",
      "type": "string"
     },
     "groups": {
      "id": "https://smssync.n4l.co.nz/schema#/schools/0/groups",
      "type": "array",
      "items": [{
       "id": "https://smssync.n4l.co.nz/schema#/schools/0/groups/0",
       "type": "object",
       "properties": {
        "id": {
         "id": "https://smssync.n4l.co.nz/schema#/schools/0/groups/0/id",
         "type": "string"
        },
        "name": {
         "id": "https://smssync.n4l.co.nz/schema#/schools/0/groups/0/name",
         "type": "string"
```

```
    }
   }
  }]
 },
 "staff": {
  "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff",
  "type": "array",
  "items": [{
   "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0",
   "type": "object",
   "properties": {
    "registrationNumber": {
     "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/registrationNumber",
     "type": "string"
    },
    "role": {
     "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/role",
     "type": "string"
    },
    "firstName": {
     "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/firstName",
     "type": "string"
    },
    "lastName": {
     "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/lastName",
     "type": "string"
    },
    "preferredName": {
     "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/preferredName",
     "type": "string"
    },
    "gender": {
     "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/gender",
     "type": "string"
    },
    "dateOfBirth": {
     "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/dateOfBirth",
     "type": "string"
    },
    "enrolmentDate": {
     "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/enrolmentDate",
     "type": "string"
    },
    "leavingDate": {
     "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/leavingDate",
     "type": "string"
    },
    "emailAddress": {
     "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/emailAddress",
```

```
      "type": "string"
     },
     "groups": {
      "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/groups",
      "type": "array",
      "items": [{
       "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/groups/0",
       "type": "object",
       "properties": {
        "id": {
         "id": "https://smssync.n4l.co.nz/schema#/schools/0/staff/0/groups/0/id",
         "type": "string"
        }
       }
      }]
     }
    }
   }]
  },
  "students": {
   "id": "https://smssync.n4l.co.nz/schema#/schools/0/students",
   "type": "array",
   "items": {
    "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0",
    "type": "object",
    "properties": {
     "nsn": {
      "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/nsn",
      "type": "string"
     },
     "firstName": {
      "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/firstName",
      "type": "string"
     },
     "lastName": {
      "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/lastName",
      "type": "string"
     },
     "preferredName": {
      "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/preferredName",
      "type": "string"
     },
     "gender": {
      "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/gender",
      "type": "string"
     },
     "dateOfBirth": {
      "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/dateOfBirth",
      "type": "string"
```

```
      },
      "yearLevel": {
       "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/yearLevel",
       "type": "string"
      },
      "enrolmentDate": {
       "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/enrolmentDate",
       "type": "string"
      },
      "leavingDate": {
       "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/leavingDate",
       "type": "string"
      },
      "emailAddress": {
       "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/emailAddress",
       "type": "string"
      },
      "groups": {
       "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/groups",
       "type": "array",
       "items": [{
        "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/groups/0",
        "type": "object",
        "properties": {
         "id": {
          "id": "https://smssync.n4l.co.nz/schema#/schools/0/students/0/groups/0/id",
          "type": "string"
         }
        }
       }]
      }
     }
    }
   }
  }
 }
}
```

N4L Standard Data Format - Example

```
{
 "smsIdentifier": "SMS System v1.0",
 "date": "2015-10-02T22:42:00Z",
 "syncType": "full",
 "schools": [{
  "moeId": "0001",
  "name": "Auckland Test School",
  "groups": [{
   "id": "9ENG",
   "name": "English"
  },
  {
   "id": "9HG1",
   "name": "Hamish's Test Markbook"
  },
  {
   "id": "9MAT",
   "name": "Maths"
  },
  {
   "id": "9SCI",
   "name": "Science"
  },
  {
   "id": "ACCTS",
   "name": "Accounts"
  }],
  "staff": [{
   "registrationNumber": "100000",
   "role": "teachingStaff",
   "firstName": "Jeffrey",
   "lastName": "Smith",
   "preferredName": "Jeff Smith",
   "gender": "m",
   "dateOfBirth": "1970-10-11",
   "enrolmentDate": "2010-01-01",
   "emailAddress": "jeff@aucklandtest.school.nz",
   "groups": [{
    "id": "9ENG"
   },
   {
    "id": "9MAT"
   },
   {
    "id": "9SCI"
   }]
```

```
    },
    {
     "role": "nonTeachingStaff",
     "firstName": "David",
     "lastName": "Jones",
     "preferredName": "David Jones",
     "gender": "m",
     "dateOfBirth": "1965-01-22",
     "enrolmentDate": "2012-06-01",
     "emailAddress": "david@aucklandtest.school.nz",
     "groups": [{
      "id": "ACCTS"
     }]
    }],
    "students": [{
     "nsn": "0000003001",
     "firstName": "Claire",
     "lastName": "Davis",
     "preferredName": "Claire Davis",
     "gender": "f",
     "dateOfBirth": "1998-02-10",
     "yearLevel": "12",
     "enrolmentDate": "2015-01-01",
     "leavingDate": "2015-06-01",
     "emailAddress": "claire@aucklandtest.school.nz",
     "groups": [{
      "id": "9ENG"
     },
     {
      "id": "9MAT"
     }]
    }]
}
```

N4L Standard Data Format - Data Definitions

General Notes

- Dates must be in YYYY-MM-DD format (e.g. 2015-10-31)
- Timestamps must be UTC in ISO 8601 format (e.g. 2014-09-13T22:42:00Z)
- For Full updates, any User or Group not present in the dataset will be removed from the IAM database.

N4L Data Model

Property Name	Required	Description	Valid Options
smsIdentifier	N	SMS-generated identifier for the source of the data.	-
date	N	SMS-generated timestamp for this dataset (UTC).	-
syncType	Y	The type of sync that this dataset contains. **Full**: contains all records for the School - remove all not supplied. **Partial**: perform an update or create for the supplied records (cannot remove).	full partial
schools	Y	One or more schools contained in this dataset.	-

N4L Data Model - School Object

Property Name	Required	Description	Valid Options
moeId	Y	Moe ID of the School	-
name	Y	Name of the School	-
groups	Y	All Groups for this School. (Optional for partial updates).	-
Staff	Y	All Staff users for this School. (Optional for partial updates).	-
students	Y	All Student users for this School. (Optional for partial updates).	-

N4L Data Model - Group Object

Property Name	Required	Description	Valid Options
id	Y	ID of the Group	-
name	Y	Name of the Group	-

N4L Data Model - Staff Object

Property Name	Required	Description	Valid Options
registrationNumber	Y*	Teacher Registration Number (*required if D.O.B is not supplied).	-
role	Y	Role of this User.	teachingStaff nonTeachingStaff
firstName	Y	First name of this User.	-
lastName	Y	Last name of this User.	-
preferredName	N	Preferred Name of this User. (Created based on FirstName and LastName if not supplied).	-
gender	Y	Gender of this User. (U = unspecified).	m f u
dateOfBirth	Y*	Birth Date of this User (*required if Teacher Registration ID not supplied).	-
enrolmentDate	N	Date this User started at the School.	-
leavingDate	N	Date this User finished up at the School.	-
emailAddress	N	Email address for this User.	-
groups	N	Groups this User is a member of.	-

N4L Data Model - Student Object

Property Name	Required	Description	Valid Options
nsn	Y	National Student Number.	-
firstName	Y	First name of this User.	-
lastName	Y	Last name of this User.	-
preferredName	N	Preferred Name of this User. (Created based on FirstName and LastName if not supplied).	-
gender	Y	Gender of this User. (U = unspecified).	m f u
dateOfBirth	Y	Birth Date of this User (*required if Teacher Registration ID not supplied).	-
yearLevel	Y	Year level of this User.	-
enrolmentDate	N	Date this User started at the School.	-
leavingDate	N	Date this User finished up at the School.	-
emailAddress	N	Email address for this User.	-
groups	N	Groups this User is a member of.	-