OpenEMIS Core — Alerts & Messaging System Administrator Guide

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System Administrator Guide

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Part 1: Introduction

The OpenEMIS alerts and messaging systems exist to solve a straightforward problem: important things happen in your school system every day, and the right people do not always find out in time. A student reaches a worrying level of absences. A staff contract is about to expire. A scholarship deadline is two days away. Without a notification layer, each of these events sits silently in a database until someone happens to run a report — often too late for effective action.

This guide covers both the automated Alerts module and the manual School Messaging tool. Together they form the communications layer of OpenEMIS, giving you control over what gets communicated, to whom, when, and how.

What Are Alerts?

Alerts are automatic notifications triggered either by something happening in the system (a student being marked absent, an enrolment being recorded) or by a scheduled scan that runs daily, weekly, or monthly and checks for records approaching critical dates or conditions.

Every alert is governed by one or more **alert rules** that you configure. A rule defines what threshold to check, who receives the notification, what the message says, and whether it is delivered by email, SMS, or both. Once configured, alerts require no ongoing manual attention — they fire on their own as soon as the conditions are met.

The system supports fourteen distinct alert types, covering student welfare, staff management, professional licensing, scholarship workflows, case management, and system administration.

What Is School Messaging?

School Messaging is a manual broadcast tool for institution staff. A teacher, administrator, or principal composes a free-form message, selects the audience (a specific class, grade, programme, or the whole institution), chooses a delivery method (email or SMS), and sends. The message goes out immediately to the resolved recipients.

Unlike alerts, School Messaging is always initiated by a person making a deliberate communication decision. It is the right tool for announcements, event notices, reminders that do not fit a rule template, or any time you need to say something specific to a specific group right now.

How the Two Systems Work Together

Both alerts and school messages share the same delivery infrastructure and the same audit trail. Every notification — whether it fired automatically from a license expiry check or was composed manually by a teacher — is recorded in **Alert Logs** under

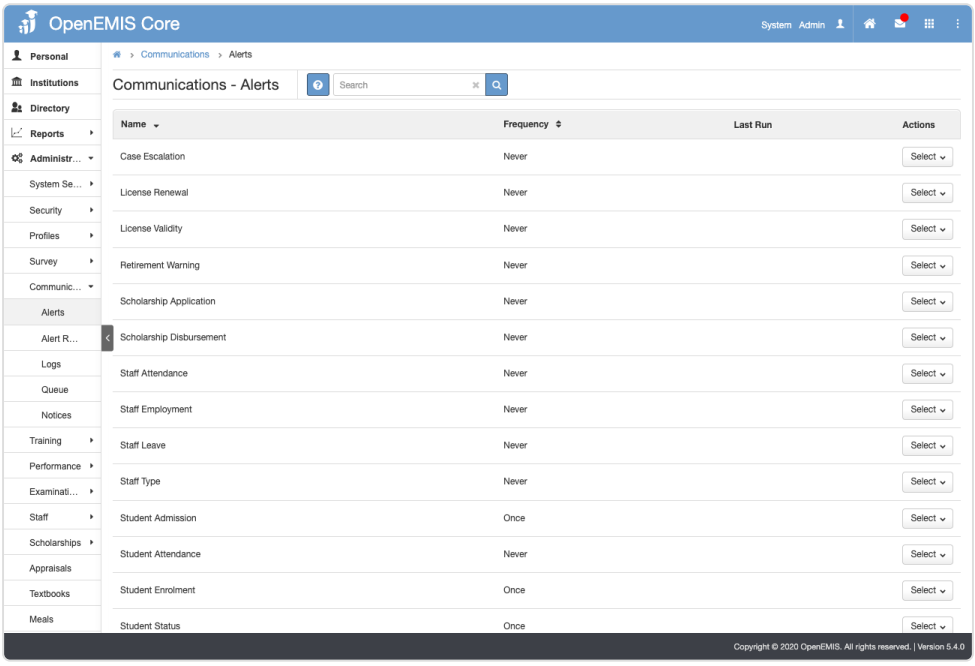
Administration → **Communications** → **Alert Logs**. This gives you a single, unified view of all outbound communications from your OpenEMIS installation.

Delivery for both systems passes through the same `ProcessAlertsQueue` worker, which means the same troubleshooting steps apply when a delivery fails, and the same queue screen shows you the status of pending and failed items for both types of communication.

Part 2: Setting Up Alerts

Before any alert fires, two things must be in place: the alert type must be enabled with a frequency, and at least one alert rule must be created for it. This part walks you through both steps and explains the concept of multiple rules — one of the most powerful and underused features of the system.

The Alerts Screen



alerts-list screenshot

Navigate to **Administration** → **Communications** → **Alerts** to see every alert type registered in the system.

Each row in the list represents one alert type. The key columns are:

Column	What it tells you
Name	The alert type (e.g., “Student Absence”, “Retirement Warning”)
Frequency	How often this alert runs: Never, Once, Daily, Weekly, or Monthly
Status	Whether the alert is currently running or stopped

An alert with frequency **Never** is completely disabled — even if you have configured rules for it, nothing will fire. You must change the frequency to something other than Never before the alert can run.

Frequency options

Option	Behaviour
`Never`	Disabled — no alerts sent under any circumstance
`Once`	Fires once per triggering event, no repeat (used by event-based alerts)
`Daily`	At most once per calendar day
`Weekly`	At most once per 7-day period
`Monthly`	At most once per month

Starting and stopping an alert

To enable a scheduled alert:

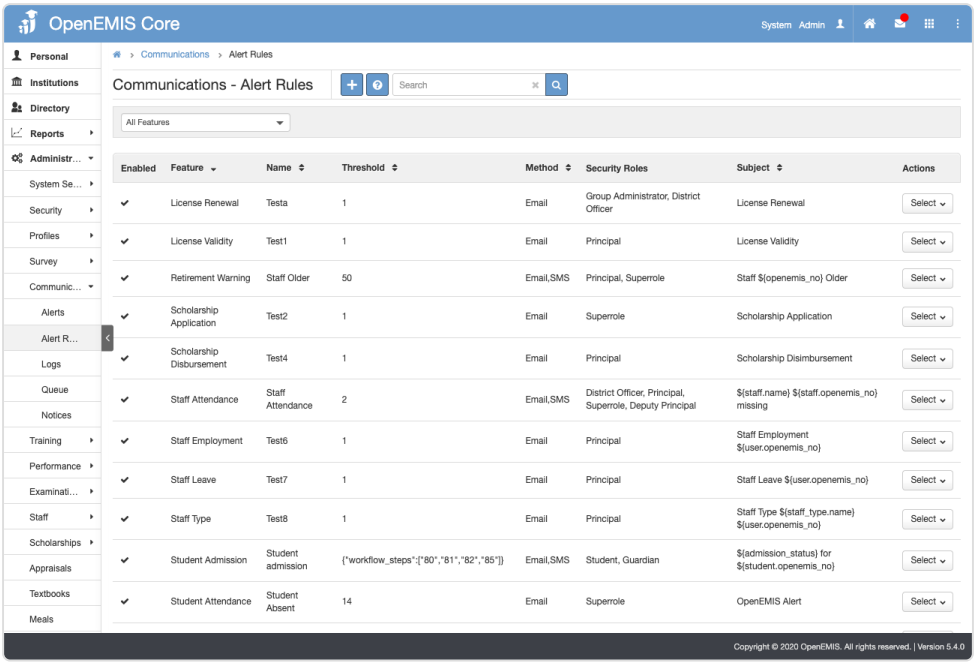
1. Go to **Administration** → **Communications** → **Alerts**
2. Click **View** on the alert you want to enable
3. Confirm the frequency is set to Daily, Weekly, or Monthly (not Never)
4. Click **Start** in the Action Bar

To disable it again, open the alert record and click **Stop**.

> ***Note:*** *Event-based alerts (those with frequency* `Once` *— Student Absence, Student Admission, Student Enrolment, Student Status Change) do not have*

> *Start/Stop controls. They fire automatically when relevant records are saved in the system.*

Alert Rules



alert-rules-list screenshot

Navigate to **Administration** → **Communications** → **Alert Rules** to see all configured rules.

An **alert rule** is the configuration record that tells an alert what to look for, what to say, and who to tell. One alert type can have many rules — see the next section for why this matters.

Each rule record contains:

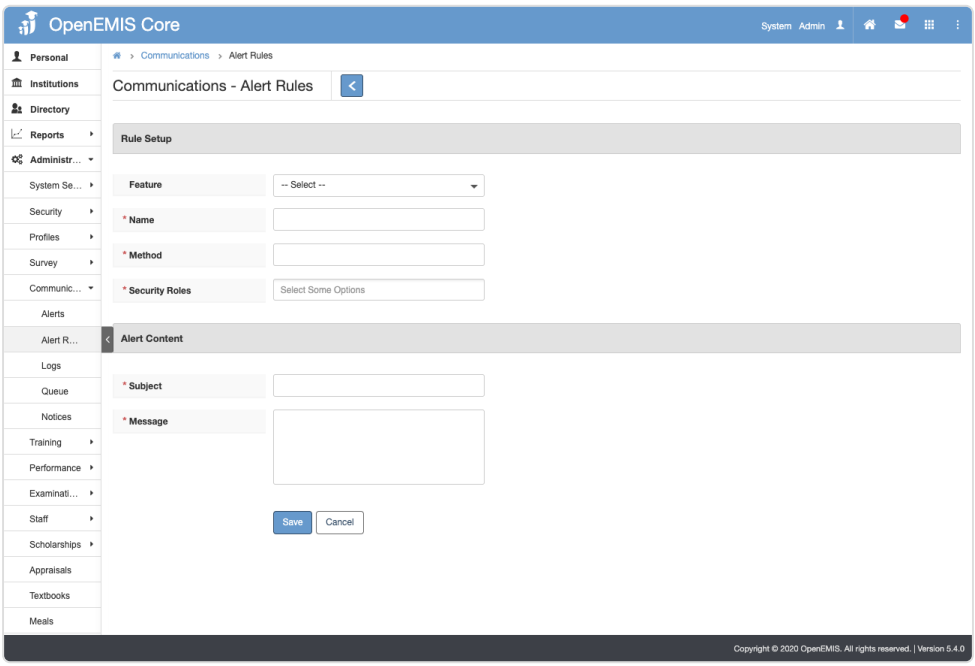
Field	Purpose
Name	A label for this rule — make it descriptive, especially if you have several rules for the same alert type
Feature	Which alert type this rule applies to
Enabled	Yes/No — a disabled rule never executes even if the alert is running

Field	Purpose
Method	Email, SMS, or both
Threshold	The condition that must be met — format varies by alert type
Security Roles	The roles whose members receive this notification
Subject	The email/SMS subject line — supports `${placeholder}` tokens
Message	The notification body — supports `${placeholder}` tokens

Important details about rules

- A **disabled rule** (`Enabled = No`) never executes, regardless of whether the alert is running
- **Placeholder tokens** are case-sensitive: `${student.name}` is not the same as `${Student.Name}`
- If a placeholder value is `NULL` in the database, the token is left as-is in the sent message
- If a placeholder value is an empty string, the token is replaced with a blank

Creating an Alert Rule



alert-rule-add screenshot

1. Go to **Administration** → **Communications** → **Alert Rules**
2. Click **Add** in the toolbar
3. Select the **Feature** (the alert type this rule is for)
4. Fill in the **Rule Setup** section:

Field	Required	Notes
Name	Yes	Use a name that identifies the threshold and audience, e.g., “Retirement Warning — 90 Days”
Enabled	Yes	Set to Yes to activate immediately
Method	Yes	Email, SMS, or both
Threshold	Yes	Format varies by alert type — see Part 3 for each type

Field	Required	Notes
Security Roles	Yes (most alerts)	Roles that receive this notification; not required for Scholarship Application

5. Fill in the **Alert Content** section:

Field	Notes
Subject	Plain text or with `${placeholder}` tokens
Message	Plain text or with `${placeholder}` tokens

6. Click **Save**

To edit an existing rule: click **Edit** in the Action Bar on the target rule. To delete a rule: click **Delete** in the Action Bar and confirm.

The Power of Multiple Rules

You can create as many rules as you need for the same alert type. Each rule is completely independent — it has its own threshold, its own message, its own recipient roles, and its own delivery method. This lets you build layered notification strategies that would be impossible with a single rule.

Rule property	Can differ between rules for the same alert type
Name	Yes
Threshold	Yes — different day windows, different conditions
Subject	Yes — escalating urgency, different language
Message body	Yes — different detail level, different instructions
Security Roles	Yes — narrow audience for early warnings, wider for critical
Method	Yes — Email for early warnings, SMS + Email for critical
Enabled	Yes — disable one rule without affecting others

Example: License Validity — four-layer strategy

Instead of one rule that alerts 30 days before expiry, configure four independent rules:

Rule Name	Threshold	Roles	Method
License Warning — 60 days	`{"value": 60, "license_type": 3, "condition": 1}`	HR Officer	Email
License Warning — 30 days	`{"value": 30, "license_type": 3, "condition": 1}`	HR Officer, Principal	Email
License Warning — 7 days	`{"value": 7, "license_type": 3, "condition": 1}`	HR Officer, Principal, District HR	Email + SMS
License Expired — Follow Up	`{"value": 7, "license_type": 3, "condition": 2}`	HR Officer, Principal, District HR, Ministry	Email

Each rule fires independently. A staff member with a license expiring in 5 days satisfies the 60-day, 30-day, and 7-day rules simultaneously — all three notifications go out on the same day.

Example: Case Escalation — tiered management escalation

Rule Name	Threshold	Roles
Case Inactive — 3 days	`{"value": 3, "workflow_steps": [12]}`	Institution Principal
Case Inactive — 7 days	`{"value": 7, "workflow_steps": [12]}`	Principal, Coordinator
Case Critical — 21 days	`{"value": 21, "workflow_steps": [12]}`	Principal, District, Ministry

A case open for 25 days triggers all three rules every single day until someone updates it.

> ***Best practice:*** *Name your rules clearly — "Retirement Warning — 90 Days" is far more useful than just "Retirement" when you are looking at a list of twelve rules.*

Part 3: Alert Types Reference

This part documents every alert type available in OpenEMIS. Each section is self-contained — you can turn directly to the alert you need without reading the others. For each alert you will find: what it does, when it fires, how to configure the threshold, which placeholders you can use in your message templates, and worked example rules with complete subject lines and message bodies you can use as starting points.

Student Absence

Feature key: `StudentAttendance`

What it does: Notifies teachers and administrators the moment a student's total absence count in the current academic period reaches or exceeds a configured number of days. Chronic absenteeism is one of the strongest early predictors of academic failure — this alert surfaces the problem at the moment the data is recorded, not months later during a report review.

When it fires: Automatically, immediately after an absence record is saved for a student. The system counts the student's total absences in the current academic period and compares to the rule threshold. If the count has just reached or exceeded the threshold, the alert fires. If the student already triggered this alert today, deduplication prevents a repeat.

Frequency: `Once` per event (event-based, not scheduled).

Who receives it: Security roles scoped to the student's institution and class. Class teachers receive it first — they have the closest relationship and are best placed to act. Administrators can be included for escalation.

Threshold format: A single integer — the number of absence days that must be reached.

```
5
```

Value	Meaning
`3`	Early warning — fire after just 3 days missed
`5`	Standard warning — moderate absence level
`10`	Late-stage warning — significant absenteeism
`15`	Critical threshold — near-chronic

Available placeholders:

Placeholder	Value
`${student.name}`	Student's full name
`${student.openemis_no}`	OpenEMIS ID
`${student.first_name}`	First name
`${student.last_name}`	Last name
`${student.email}`	Email address
`${student.date_of_birth}`	Date of birth
`${student.gender}`	Gender
`${institution.name}`	Institution name
`${institution.code}`	Institution code
`${institution.address}`	Institution address
`${institution.telephone}`	Institution telephone
`${institution.email}`	Institution email
`${total_days}`	Total absence days in the current academic period
`${threshold}`	The configured threshold value

Example rules:

Rule 1 — Early warning at 5 days

Field	Value
Name	Early Absence Warning — 5 Days
Feature	StudentAttendance
Enabled	Yes
Method	Email
Threshold	`5`
Security Roles	Class Teacher, Institution Principal

Subject:

```
Attendance Warning: ${student.name} has reached ${total_days}
absences
```

Message body:

```
Dear Colleague,

This is an automated alert from OpenEMIS.

Student ${student.name} (OpenEMIS ID: ${student.openemis_no}) at $
{institution.name}
has now accumulated ${total_days} absence days in the current
academic period,
reaching the alert threshold of ${threshold} days.

Please review the student's attendance record and take the
appropriate action:
- Contact the student's guardian to discuss the absences
- Schedule a meeting if there is an underlying issue
- Document any agreed actions in the student's case record

This notification was triggered automatically when the threshold was
reached.
```

Rule 2 — Critical threshold at 15 days

Field	Value
Name	Critical Absence Warning — 15 Days
Feature	StudentAttendance
Enabled	Yes
Threshold	`15`
Security Roles	Institution Principal, District Coordinator

Subject:

```
CRITICAL: ${student.name} has ${total_days} unexcused absences —
immediate action required
```

Message body:

```
ATTENTION — ACTION REQUIRED

${student.name} (${student.openemis_no}) at ${institution.name} has
now missed
${total_days} days. This exceeds the critical threshold of $
{threshold} days.

This student is at serious risk of academic failure and may require a
formal
intervention, referral, or transfer review.

Please escalate this case immediately.
```

Student Admission

Feature key: `StudentAdmission`

What it does: Notifies responsible staff immediately when a student admission application is created or updated. In many systems, admissions are processed centrally and the receiving school may not know an application has been submitted. This alert ensures the right people are informed the moment an application enters the pipeline.

When it fires: Automatically, immediately after a `StudentAdmission` record is saved (created or updated). There is no threshold check — it fires on every qualifying save event.

Frequency: `Once` per event (event-based).

Who receives it: Security roles resolved globally — no institution filter. Admission decisions are often made at a central, ministry, or district level. Assign the roles appropriate for your deployment.

Threshold format: None — leave the threshold field blank. This alert has no threshold.

Available placeholders:

Placeholder	Value
`${student.name}`	Student's full name
`${student.openemis_no}`	OpenEMIS ID
`${student.first_name}`	First name
`${student.last_name}`	Last name
`${student.email}`	Email address
`${student.date_of_birth}`	Date of birth
`${student.gender}`	Gender
`${institution.name}`	Institution name
`${institution.code}`	Institution code
`${institution.address}`	Institution address
`${institution.telephone}`	Telephone
`${institution.email}`	Institution email

Example rules:

Rule 1 — Email to admissions officer

Field	Value
Name	New Student Admission Received

Field	Value
Feature	StudentAdmission
Enabled	Yes
Method	Email
Threshold	*(leave blank)*
Security Roles	Admissions Officer, Institution Principal

Subject:

```
New Admission Application: ${student.name}
```

Message body:

```
Dear Colleague,

A new student admission application has been submitted in OpenEMIS
and requires your attention.

Student: ${student.name}
OpenEMIS ID: ${student.openemis_no}
Date of Birth: ${student.date_of_birth}
Institution: ${institution.name}

Please log in to OpenEMIS and review the application:
  Administration → Students → Admissions

Ensure all required documents have been submitted and proceed with
the
verification process according to your institution's admissions
policy.

This is an automated notification from OpenEMIS.
```

Rule 2 — SMS to admissions coordinator

Field	Value
Name	Admission — SMS to Coordinator
Feature	StudentAdmission

Field	Value
Enabled	Yes
Method	SMS
Security Roles	Admissions Coordinator

Subject:

```
OpenEMIS: New admission for ${student.name} at ${institution.name}
```

Message body:

```
OpenEMIS ALERT: New admission application from ${student.name} (${student.openemis_no})
at ${institution.name}. Please review in the system.
```

Student Enrolment

Feature key: `StudentEnrolment`

What it does: Notifies teachers and administrators at the receiving institution the moment a student is formally enroled into a class or academic period. When enrolment is processed centrally, the school may not know a student has been assigned until they appear in person. This alert gives them advance notice to prepare.

When it fires: Automatically, immediately after a `StudentEnrolment` record is saved. No threshold check — fires on every enrolment event.

Frequency: `Once` per event (event-based).

Who receives it: Security roles scoped to the receiving institution. Class teachers and institution administrators are the primary audience.

Threshold format: None — not applicable for this alert.

Available placeholders:

Placeholder	Value
`${student.name}`	Student's full name

Placeholder	Value
`${student.openemis_no}`	OpenEMIS ID
`${student.first_name}`	First name
`${student.last_name}`	Last name
`${student.email}`	Email address
`${student.date_of_birth}`	Date of birth
`${student.gender}`	Gender
`${institution.name}`	Institution name
`${institution.code}`	Institution code
`${institution.address}`	Institution address
`${institution.telephone}`	Telephone
`${institution.email}`	Institution email

Example rules:

Rule 1 — Class teacher notification

Field	Value
Name	Student Enrolment — Teacher Notification
Feature	StudentEnrolment
Enabled	Yes
Method	Email
Threshold	*(not applicable)*
Security Roles	Class Teacher

Subject:

```
New Student Enrolment: ${student.name} has been added to your class
```

Message body:

```
Dear Teacher,

A new student has been enroled in your class at ${institution.name}.

Student Details:
  Name: ${student.name}
  OpenEMIS ID: ${student.openemis_no}
  Date of Birth: ${student.date_of_birth}
  Gender: ${student.gender}

Please log in to OpenEMIS to review the student's complete profile
and
update your class records accordingly.

If you have any questions regarding this enrolment, please contact
your institution administrator.

This is an automated notification from OpenEMIS.
```

Rule 2 — Principal awareness

Field	Value
Name	Student Enrolment — Principal Awareness
Feature	StudentEnrolment
Enabled	Yes
Method	Email
Security Roles	Institution Principal

Subject:

```
Enrolment Update: ${student.name} enrolled at ${institution.name}
```

Message body:

```
Dear Principal,

For your records: ${student.name} (${student.openemis_no}) has been
formally enroled at ${institution.name}.

No action is required unless this enrolment is unexpected.
```

```
This is an automated notification from OpenEMIS.
```

Student Status Change

Feature key: `StudentStatus`

What it does: Notifies staff immediately when a student's enrolment status changes — for example from Active to Transferred, Withdrawn, Graduated, or Promoted. Status changes carry downstream consequences: a transferred student must be removed from class lists, a withdrawal may require intervention to prevent dropout, a graduation triggers certification processing. This alert surfaces the change at the moment it is recorded.

When it fires: Automatically, immediately after a student's status field is updated in the system. The threshold determines which specific status transitions trigger the alert.

Frequency: `Once` per event (event-based).

Who receives it: Security roles scoped to the relevant institution. Use separate rules for different transition types to reach the right audience for each.

Threshold format: A JSON object specifying the status transition to watch.

```
{"old_status_id": 1, "new_status_id": 7}
```

Field	Description
`old_status_id`	The status before the change (from `student_statuses` table)
`new_status_id`	The status after the change

To find status IDs in your database:

```
SELECT id, name FROM student_statuses ORDER BY name;
```

Common status values (may vary by deployment):

ID	Status
1	Enrolled / Active
2	Promoted
3	Graduated
4	Transferred
5	Withdrawn
6	Repeated

Omitting both fields matches any status change. Specifying only one field matches any change to or from that status.

Available placeholders:

Placeholder	Value
`${student.name}`	Student's full name
`${student.openemis_no}`	OpenEMIS ID
`${student.first_name}`	First name
`${student.last_name}`	Last name
`${student.email}`	Email address
`${student.date_of_birth}`	Date of birth
`${student.gender}`	Gender
`${institution.name}`	Institution name
`${institution.code}`	Institution code
`${institution.address}`	Institution address
`${institution.telephone}`	Telephone
`${institution.email}`	Institution email

Example rules:

Rule 1 — Withdrawal alert

Field	Value
Name	Student Withdrawal — Administrator Alert
Feature	StudentStatus
Enabled	Yes
Method	Email
Threshold	`{"old_status_id": 1, "new_status_id": 5}`
Security Roles	Institution Administrator, District Coordinator

Subject:

```
Student Withdrawal: ${student.name} has withdrawn from $
{institution.name}
```

Message body:

```
Dear Colleague,

This is to notify you that the following student has been marked as
Withdrawn
in OpenEMIS and requires administrative follow-up.

Student: ${student.name}
OpenEMIS ID: ${student.openemis_no}
Institution: ${institution.name}

Required actions:
1. Remove the student from active class lists
2. Ensure all outstanding records are completed and archived
3. Follow up with the student's guardian to understand the reason for
withdrawal
4. Document the outcome in the student's case record if applicable

Please log in to OpenEMIS to complete the necessary administrative
steps.

This is an automated notification from OpenEMIS.
```

Rule 2 — Transfer alert

Field	Value
Name	Student Transfer — Coordinator Notification
Feature	StudentStatus
Enabled	Yes
Method	Email
Threshold	`{"old_status_id": 1, "new_status_id": 4}`
Security Roles	District Coordinator, Registry Officer

Subject:

```
Transfer Notification: ${student.name} transferred from $
{institution.name}
```

Message body:

```
Dear Coordinator,

Student ${student.name} (${student.openemis_no}) has been transferred
from
${institution.name}.

Please ensure the receiving institution has been notified and that
the student's
academic records have been updated accordingly in OpenEMIS.

This is an automated notification from OpenEMIS.
```

Rule 3 — Graduation alert

Field	Value
Name	Student Graduation — Registry
Feature	StudentStatus
Enabled	Yes
Method	Email
Threshold	`{"old_status_id": 1, "new_status_id": 3}`

Field	Value
Security Roles	Registry Officer

Subject:

```
Graduation Recorded: ${student.name} — ${institution.name}
```

Message body:

```
Student ${student.name} (${student.openemis_no}) has been marked as
Graduated
at ${institution.name}.

Please process the graduation documentation and update the registry
accordingly.
```

Retirement Warning

Feature key: `RetirementWarning`

What it does: Reminds HR officers and management when a staff member's retirement date is approaching. Succession planning in education requires significant lead time — advertising the post, recruiting, interviewing, completing paperwork, onboarding a replacement, and managing knowledge transfer. This alert provides the advance warning needed to start that process before a vacancy appears unexpectedly.

When it fires: On a schedule (Daily, Weekly, or Monthly depending on the rule). The system queries all staff whose retirement date falls within the next configured number of days. Every eligible staff member generates a separate notification.

Frequency: `Monthly` for an early planning window (e.g., 90 days out); `Daily` for a final reminder window (e.g., 30 days out). Using two separate rules at different frequencies is the recommended approach.

Who receives it: Security roles scoped to the staff member's institution — HR officers and administrators responsible for succession planning at that school. A ministry-level HR role can also be included for system-wide oversight.

Threshold format:

```
{"value": 90}
```

Field	Type	Required	Description
`value`	Integer	Yes	Number of days before the retirement date

Threshold	Frequency	Meaning
`{"value": 90}`	Monthly	Fire once when retirement is 90 days away
`{"value": 60}`	Weekly	Fire weekly when retirement is within 60 days
`{"value": 30}`	Daily	Fire daily when retirement is within 30 days
`{"value": 7}`	Daily	Final urgent reminder in the last week

Available placeholders:

Placeholder	Value
`${user.openemis_no}`	Staff OpenEMIS ID
`${user.first_name}`	First name
`${user.last_name}`	Last name
`${user.email}`	Email address
`${user.date_of_birth}`	Date of birth
`${institution.name}`	Institution name
`${institution.code}`	Institution code
`${institution.address}`	Institution address
`${institution.telephone}`	Telephone
`${institution.email}`	Institution email

Placeholder	Value
`${threshold.value}`	Configured day threshold

Example rules:

Rule 1 — 90-day advance notice

Field	Value
Name	Retirement Warning — 90 Days
Feature	RetirementWarning
Enabled	Yes
Method	Email
Threshold	`{"value": 90}`
Security Roles	HR Officer, Institution Principal

Subject:

```
Retirement Notice (90 days): ${user.first_name} ${user.last_name} — ${institution.name}
```

Message body:

```
Dear HR Officer,

This is an advance notice that the following staff member is approaching their
retirement date within the next ${threshold.value} days.

Staff Member: ${user.first_name} ${user.last_name}
OpenEMIS ID: ${user.openemis_no}
Institution: ${institution.name}

Recommended actions at this stage:
- Review the staff member's position and assess succession requirements
- Begin the process of advertising and recruiting for the vacancy
- Plan knowledge transfer activities with the retiring staff member
- Coordinate with the district HR office if required
```

```
Please log in to OpenEMIS for full staff details.

This is an automated notification from OpenEMIS.
```

Rule 2 — 30-day final reminder

Field	Value
Name	Retirement Warning — Final 30 Days
Feature	RetirementWarning
Enabled	Yes
Method	Email
Threshold	`{"value": 30}`
Security Roles	HR Officer, Institution Principal, District HR Director

Subject:

```
REMINDER: ${user.first_name} ${user.last_name} retires within ${threshold.value} days — ${institution.name}
```

Message body:

```
Dear Colleague,

FINAL REMINDER: The following staff member retires within ${threshold.value} days.

Staff Member: ${user.first_name} ${user.last_name} (${user.openemis_no})
Institution: ${institution.name}

Immediate actions required:
1. Confirm the replacement or interim arrangement is in place
2. Complete all HR paperwork and benefits processing
3. Schedule a formal handover session
4. Update the staff records in OpenEMIS once the retirement is finalised

If succession planning has not yet started, escalate immediately to district HR.
```

```
This is an automated notification from OpenEMIS.
```

Staff Employment End

Feature key: `StaffEmployment`

What it does: Warns HR officers and administrators when a staff member's employment contract or institution assignment end date is approaching. Without automated tracking, contract expiry dates must be monitored manually — a process that fails when HR is busy or when there are many contracts. This alert converts passive date tracking into active advance notification.

When it fires: On a schedule. The system queries `institution_staff` records whose employment end date falls within the configured number of days. Every eligible staff record generates a separate notification.

Frequency: `Daily` is recommended. Employment contracts expire on specific dates — daily scanning ensures no end date is missed regardless of when the contract was originally entered.

Who receives it: Security roles scoped to the staff member's institution. The institution's HR officer and administrator are the decision-makers for contract renewal.

Threshold format:

```
{"value": 30}
```

Field	Type	Required	Description
`value`	Integer	Yes	Days before employment end date

Available placeholders:

Placeholder	Value
`${user.openemis_no}`	Staff OpenEMIS ID
`${user.first_name}`	First name
`${user.last_name}`	Last name

Placeholder	Value
`${user.email}`	Email address
`${institution.name}`	Institution name
`${institution.code}`	Institution code
`${institution.address}`	Institution address
`${institution.telephone}`	Telephone
`${institution.email}`	Institution email
`${threshold.value}`	Configured threshold (days)

Example rules:

Rule 1 — 30-day advance notice

Field	Value
Name	Employment End — 30 Day Notice
Feature	StaffEmployment
Enabled	Yes
Method	Email
Threshold	`{"value": 30}`
Security Roles	HR Officer, Institution Principal

Subject:

```
Contract Expiry Notice: ${user.first_name} ${user.last_name} — ends
in ${threshold.value} days
```

Message body:

```
Dear HR Officer,

This is an automated reminder that the following staff member's
employment
contract or assignment at ${institution.name} is due to end within
${threshold.value} days.
```

```
Staff Member: ${user.first_name} ${user.last_name}
OpenEMIS ID: ${user.openemis_no}
Institution: ${institution.name}

Recommended actions:
- Review whether the contract should be renewed, extended, or allowed
to lapse
- If renewing: initiate the renewal process and update the end date
in OpenEMIS
- If not renewing: begin recruitment or interim arrangement planning
- Ensure the staff member is informed of the decision in advance

Please log in to OpenEMIS → Staff → [Staff Member] → Employment to
review
the contract details.

This is an automated notification from OpenEMIS.
```

Rule 2 — 7-day critical alert

Field	Value
Name	Employment End — Critical 7 Days
Feature	StaffEmployment
Enabled	Yes
Method	Email + SMS
Threshold	`{"value": 7}`
Security Roles	HR Officer, Institution Principal, District HR Director

Subject:

```
URGENT — Contract Expiry in 7 Days: ${user.first_name} $
{user.last_name} at ${institution.name}
```

Message body:

```
URGENT ACTION REQUIRED

${user.first_name} ${user.last_name} (${user.openemis_no}) at $
```

```
{institution.name}
has a contract ending in ${threshold.value} days.

If no renewal or replacement is in place, this position will become
vacant in one week.

Please ensure this has been resolved immediately. If this is a known
planned departure, no action is needed — this is a final automated
reminder.

Log in to OpenEMIS to update the contract record.
```

Staff Leave End

Feature key: `StaffLeave`

What it does: Reminds institution administrators a set number of days before a staff member's approved leave period ends. When a staff member is on leave, a substitute is usually in place and the timetable has been adjusted. Without advance warning of the return, the substitute may not be informed, handover tasks go unscheduled, and the returning staff member finds their workspace unprepared.

When it fires: On a schedule. The system queries approved leave records where the end date equals today plus the configured number of days. Only approved leave records are included — pending or rejected applications are ignored.

Frequency: `Daily` is standard. The target date is precise — daily scanning ensures the alert fires on the correct day.

Who receives it: Security roles scoped to the staff member's institution. School administrators and HR officers hold the operational responsibility for scheduling around leave absences.

Threshold format:

```
{"value": 3, "staff_leave_type": 2}
```

Field	Type	Required	Description
`value`	Integer	Yes	Days before leave end date
`staff_leave_type`	Integer	No	

Field	Type	Required	Description
			ID from `staff_leave_types` table — omit to alert for all leave types

To find leave type IDs:

```
SELECT id, name FROM staff_leave_types ORDER BY name;
```

Available placeholders:

Placeholder	Value
`${user.openemis_no}`	Staff OpenEMIS ID
`${user.first_name}`	First name
`${user.last_name}`	Last name
`${user.email}`	Email address
`${institution.name}`	Institution name
`${institution.code}`	Institution code
`${institution.address}`	Institution address
`${institution.telephone}`	Telephone
`${institution.email}`	Institution email
`${threshold.value}`	Configured threshold (days)

Example rules:

Rule 1 — General leave return notice (3 days)

Field	Value
Name	Staff Leave Return — 3 Day Notice
Feature	StaffLeave
Enabled	Yes
Method	Email

Field	Value
Threshold	`{"value": 3}`
Security Roles	Institution Administrator, HR Officer

Subject:

```
Staff Return Notice: ${user.first_name} ${user.last_name} returns in
${threshold.value} days
```

Message body:

```
Dear Administrator,

This is a reminder that the following staff member's leave period is
due to
end in ${threshold.value} days.

Staff Member: ${user.first_name} ${user.last_name}
OpenEMIS ID: ${user.openemis_no}
Institution: ${institution.name}

Actions to complete before the staff member returns:
- Notify the current substitute that their engagement is ending
- Prepare the staff member's timetable and room assignments
- Brief the staff member on any changes that occurred during their
absence
- Update the leave record in OpenEMIS once the return is confirmed

This is an automated notification from OpenEMIS.
```

Rule 2 — Extended leave (maternity/paternity) return notice (14 days)

Field	Value
Name	Maternity Leave Return — 14 Day Notice
Feature	StaffLeave
Enabled	Yes
Method	Email
Threshold	`{"value": 14, "staff_leave_type": 1}`

Field	Value
Security Roles	HR Officer, Institution Principal

Subject:

```
Maternity Leave Ending: ${user.first_name} ${user.last_name} — return
in ${threshold.value} days
```

Message body:

```
Dear HR Officer,

${user.first_name} ${user.last_name} (${user.openemis_no}) is due to
return
from maternity leave in ${threshold.value} days at $
{institution.name}.

For extended leave returns, please ensure the following have been
arranged:
- Formal return-to-work meeting scheduled
- Phased return arrangement confirmed if applicable
- Teaching schedule updated and communicated
- Any statutory rights or benefits reviewed

Please update the leave record in OpenEMIS once the return date is
confirmed
or if the leave period is being extended.

This is an automated notification from OpenEMIS.
```

Staff Type

Feature key: `StaffType`

What it does: Alerts HR and administrators when a staff member on a specific contract type (probationary, temporary, fixed-term) is approaching a review or end-of-type deadline. Probationary and temporary contracts define a review point at which a decision must be made: convert to permanent, extend, or terminate. Without active monitoring, these review points pass silently.

When it fires: On a schedule. The system scans `institution_staff` for records matching the configured staff type and approaching the relevant date within the configured window.

Frequency: `Daily` is standard.

Who receives it: Security roles scoped to the staff member's institution — HR officers and administrators directly responsible for managing that type of contract.

Threshold format:

```
{"value": 30, "staff_type_id": 2}
```

Field	Type	Required	Description
`value`	Integer	Yes	Days before the relevant date
`staff_type_id`	Integer	Yes	ID from `staff_types` table

To find staff type IDs:

```
SELECT id, name FROM staff_types ORDER BY name;
```

Available placeholders:

Placeholder	Value
`${user.openemis_no}`	Staff OpenEMIS ID
`${user.first_name}`	First name
`${user.last_name}`	Last name
`${user.email}`	Email address
`${institution.name}`	Institution name
`${institution.code}`	Institution code
`${institution.address}`	Institution address
`${institution.telephone}`	Telephone
`${institution.email}`	Institution email

Placeholder	Value
`${threshold.value}`	Configured threshold (days)

Example rules:

Rule 1 — Probationary contract review

Field	Value
Name	Probation Review Due — 30 Days
Feature	StaffType
Enabled	Yes
Method	Email
Threshold	`{"value": 30, "staff_type_id": 2}`
Security Roles	HR Officer, Institution Principal

Subject:

```
Probation Review Due: ${user.first_name} ${user.last_name} — $
{threshold.value} days
```

Message body:

```
Dear HR Officer,

A probationary period review is due within ${threshold.value} days
for the
following staff member at ${institution.name}.

Staff Member: ${user.first_name} ${user.last_name}
OpenEMIS ID: ${user.openemis_no}
Institution: ${institution.name}

Actions required:
1. Schedule a formal probation review meeting
2. Assess performance against the criteria set at the start of the
probationary period
3. Document the outcome: confirm permanent appointment, extend
probation, or terminate
4. Update the staff type and employment record in OpenEMIS
```

```
accordingly

Please complete the review before the probationary end date. Failure
to act
may result in automatic contract status changes under local labour
regulations.

This is an automated notification from OpenEMIS.
```

Rule 2 — Temporary contract ending

Field	Value
Name	Temporary Contract End — 14 Days
Feature	StaffType
Enabled	Yes
Method	Email
Threshold	`{"value": 14, "staff_type_id": 3}`
Security Roles	HR Officer, Institution Administrator

Subject:

```
Temporary Contract Ending: ${user.first_name} ${user.last_name} in $
{threshold.value} days
```

Message body:

```
Dear Administrator,

${user.first_name} ${user.last_name} (${user.openemis_no}) is on a
temporary
contract at ${institution.name} that ends in ${threshold.value} days.

Please ensure one of the following actions is taken:
- Issue a contract extension if additional coverage is still required
- Begin recruiting a permanent replacement if applicable
- Arrange a final handover meeting with the staff member
- Update OpenEMIS with the correct end date and status
```

```
This is an automated notification from OpenEMIS.
```

License Validity

Feature key: `LicenseValidity`

What it does: Alerts HR and administrators when a staff member's professional license (teaching certificate, driver's license, first aid certification, or any other tracked credential) is approaching its expiry date or has recently expired. Operating with an expired professional license is a legal and compliance risk for both the individual and the institution. This alert automates the monitoring so no expiry is missed.

When it fires: On a schedule. The system queries `staff_licenses` filtered by the configured license type and applies the expiry window. For each license found, the system then checks `institution_staff` to find all institutions where the staff member is actively assigned. One notification is generated per institution assignment — a staff member assigned to two schools triggers notifications at both.

Frequency: `Daily` is standard. License expiry is not a system event — it is a date sliding closer day by day. Daily scanning with a rolling window keeps every license in the danger zone visible.

Who receives it: Security roles scoped to each institution the staff member is actively assigned to.

Threshold format:

```
{"value": 30, "license_type": 3, "condition": 1}
```

Field	Type	Required	Description
`value`	Integer	Yes	Number of days for the expiry window
`license_type`	Integer	Yes	ID from `license_types` table
`condition`	Integer	Yes	`1` = expiring within `value` days (advance warning) · `2` = expired within the last

Field	Type	Required	Description
			`value` days (post-expiry follow-up)

To find license type IDs:

```
SELECT id, name FROM license_types ORDER BY name;
```

Available placeholders:

Placeholder	Value
`${user.openemis_no}`	Staff OpenEMIS ID
`${user.first_name}`	First name
`${user.last_name}`	Last name
`${user.email}`	Email address
`${institution.name}`	Institution name
`${institution.code}`	Institution code
`${institution.address}`	Institution address
`${institution.telephone}`	Telephone
`${institution.email}`	Institution email
`${license_type.name}`	License type name (e.g., “Teaching Certificate”)
`${license_number}`	License reference number
`${issue_date}`	Date the license was issued
`${expiry_date}`	License expiry date
`${day_difference}`	Days until expiry (positive) or days since expiry (negative)
`${threshold.value}`	Configured threshold (days)

Example rules:

Rule 1 — Teaching certificate expiring in 30 days

Field	Value
Name	Teaching Certificate — 30 Day Expiry Warning
Feature	LicenseValidity
Enabled	Yes
Method	Email
Threshold	`{"value": 30, "license_type": 3, "condition": 1}`
Security Roles	HR Officer, Institution Principal

Subject:

```
License Expiry Warning: ${user.first_name} ${user.last_name} — $
{license_type.name} expires in ${day_difference} days
```

Message body:

```
Dear HR Officer,

This is an automated alert regarding a professional license
approaching its
expiry date at ${institution.name}.

Staff Member: ${user.first_name} ${user.last_name}
OpenEMIS ID: ${user.openemis_no}
License Type: ${license_type.name}
License Number: ${license_number}
Issue Date: ${issue_date}
Expiry Date: ${expiry_date}
Days Until Expiry: ${day_difference}
Institution: ${institution.name}

Action required:
- Contact the staff member immediately to initiate the renewal
process
- Verify what documentation is required by the licensing authority
- Ensure the renewal is submitted well before the expiry date to
avoid a gap in coverage
- Update the license record in OpenEMIS once renewal is confirmed

Failure to renew before expiry may result in the staff member being
```

```
unable
to practise legally.

This is an automated notification from OpenEMIS.
```

Rule 2 — Post-expiry compliance follow-up

Field	Value
Name	Teaching Certificate — Post-Expiry Follow-Up
Feature	LicenseValidity
Enabled	Yes
Method	Email
Threshold	`{"value": 7, "license_type": 3, "condition": 2}`
Security Roles	HR Officer, Institution Principal, District HR Director

Subject:

```
URGENT: Expired License — ${user.first_name} ${user.last_name} at ${institution.name}
```

Message body:

```
URGENT — COMPLIANCE ISSUE

${user.first_name} ${user.last_name} (${user.openemis_no}) holds a ${license_type.name}
(No. ${license_number}) that expired on ${expiry_date} — ${day_difference} days ago.

This staff member may not be authorised to practise until the license is renewed.

Immediate actions:
1. Verify whether the staff member is currently performing duties requiring this license
2. If yes: suspend those duties until the license is renewed
3. Contact the licensing authority to expedite renewal
```

```
4. Document the compliance gap in the staff member's record
5. Update OpenEMIS once the renewed license is received

Please escalate to the district HR office if the renewal cannot be
completed
within 5 working days.

This is an automated notification from OpenEMIS.
```

Rule 3 — Driver's license (different license type)

Field	Value
Name	Driver's License — 14 Day Warning
Feature	LicenseValidity
Enabled	Yes
Method	Email
Threshold	`{"value": 14, "license_type": 5, "condition": 1}`
Security Roles	Transport Coordinator, Institution Administrator

Subject:

```
Driver License Expiry: ${user.first_name} ${user.last_name} — expires
in ${day_difference} days
```

Message body:

```
Dear Transport Coordinator,

${user.first_name} ${user.last_name}'s driver's license (${
{license_number})
expires on ${expiry_date} — in ${day_difference} days.

This staff member operates a school vehicle at ${institution.name}.

Please arrange renewal immediately and update the vehicle assignment
record
in OpenEMIS. The staff member should not operate school vehicles
```

```
after the
license expiry date until a renewed license is confirmed.
```

License Renewal

Feature key: `LicenseRenewal`

What it does: Identifies staff members whose professional license is approaching expiry and who have not yet accumulated enough continuing professional development (CPD) training hours to qualify for renewal. In many education systems, renewing a teaching license requires documented CPD evidence — not just a fee. A staff member may not realise they fall short of the required hours until it is too late to arrange the necessary training. This alert flags the gap proactively.

When it fires: On a schedule, using two-step logic: 1. Find licenses of the configured type expiring within the configured day window 2. For each license found, sum the staff member's training hours in the configured categories within the license validity period 3. If the total is below the required minimum (`threshold.hour`), the alert fires. Staff who already meet the requirement are silently skipped.

Frequency: `Daily` is standard. Training hours balances change as staff complete training — daily scanning automatically stops alerting a staff member once they accumulate sufficient hours.

Who receives it: Security roles scoped to the staff member's institution (via `institution_staff` ASSIGNED status). CPD coordinators and HR officers who can facilitate training access.

Threshold format:

```
{
  "value": 60,
  "license_type": 3,
  "condition": 1,
  "training_categories": [1, 2],
  "hour": 20
}
```

Field	Type	Required	Description
`value`	Integer	Yes	

Field	Type	Required	Description
			Days before license expiry to start checking
`license_type`	Integer	Yes	ID from `license_types` table
`condition`	Integer	Yes	Always `1` for renewal checks (before expiry)
`training_categories`	Array of integers	Yes	IDs from `staff_training_categories` — only trainings in these categories count
`hour`	Integer	Yes	Minimum credit hours required for renewal

To find category IDs:

```
SELECT id, name FROM staff_training_categories ORDER BY name;
```

To find license type IDs:

```
SELECT id, name FROM license_types ORDER BY name;
```

Available placeholders:

Placeholder	Value
`${user.openemis_no}`	Staff OpenEMIS ID
`${user.first_name}`	First name
`${user.last_name}`	Last name
`${user.email}`	Email address
`${institution.name}`	Institution name
`${institution.code}`	Institution code
`${institution.address}`	Institution address
`${institution.telephone}`	Telephone
`${institution.email}`	Institution email

Placeholder	Value
`${license_type.name}`	License type name
`${license_number}`	License reference number
`${issue_date}`	License issue date
`${expiry_date}`	License expiry date
`${day_difference}`	Days until expiry
`${total_credit_hours}`	Total CPD hours accumulated within the license period
`${threshold.hour}`	Required CPD hours as configured in the rule
`${threshold.value}`	Configured day window

Example rules:

Rule 1 — CPD shortfall warning (60 days)

Field	Value
Name	Teaching License Renewal — Insufficient CPD Hours
Feature	LicenseRenewal
Enabled	Yes
Method	Email
Threshold	`{"value": 60, "license_type": 3, "condition": 1, "training_categories": [1, 2], "hour": 20}`
Security Roles	HR Officer, CPD Coordinator

Subject:

```
CPD Hours Shortfall: ${user.first_name} ${user.last_name} — ${license_type.name} at risk
```

Message body:

```
Dear CPD Coordinator,

The following staff member's professional license is expiring in ${day_difference} days,
but they have not yet accumulated the required CPD hours for renewal.

Staff Member: ${user.first_name} ${user.last_name}
OpenEMIS ID: ${user.openemis_no}
Institution: ${institution.name}
License: ${license_type.name} (No. ${license_number})
Issue Date: ${issue_date}
Expiry Date: ${expiry_date}
Days Until Expiry: ${day_difference}

CPD Status:
  Hours Completed (within license period): ${total_credit_hours}
  Hours Required: ${threshold.hour}
  Shortfall: ${total_credit_hours} / ${threshold.hour} hours

Action required:
- Identify suitable CPD courses that count towards the license renewal requirement
- Enrol the staff member in the necessary training as soon as possible
- Ensure training is completed and recorded in OpenEMIS before the license expires
- Confirm that training categories match the licensing authority's requirements

Note: This alert will stop automatically once the staff member's CPD hours
meet the required threshold.

This is an automated notification from OpenEMIS.
```

Rule 2 — Urgent CPD shortfall (14 days)

Field	Value
Name	

Field	Value
	Teaching License Renewal — URGENT (14 days left)
Feature	LicenseRenewal
Enabled	Yes
Method	Email
Threshold	`{"value": 14, "license_type": 3, "condition": 1, "training_categories": [1, 2], "hour": 20}`
Security Roles	HR Officer, CPD Coordinator, Institution Principal, District HR Director

Subject:

```
URGENT — License Renewal at Risk: ${user.first_name} ${user.last_name} — ${day_difference} days remaining
```

Message body:

```
URGENT — IMMEDIATE ACTION REQUIRED

${user.first_name} ${user.last_name} (${user.openemis_no}) at ${institution.name}
has only ${day_difference} days remaining on their ${license_type.name}
(expires: ${expiry_date}) and has completed only ${total_credit_hours} of the
required ${threshold.hour} CPD hours.

Without the required CPD hours, this license may not be renewable.

Escalation actions:
1. Contact the staff member today to discuss their training status
2. Check whether any completed training has not yet been recorded in OpenEMIS
3. Identify any intensive or online CPD options that can be completed before expiry
4. Contact the licensing authority to understand if a short extension is possible
```

```
5. Document all steps taken in the staff member's record

This alert will clear automatically if the CPD hours are recorded in
OpenEMIS
and meet the required threshold.

This is an automated notification from OpenEMIS.
```

Case Escalation

Feature key: `CaseEscalation`

What it does: Surfaces institution cases — student welfare issues, infrastructure problems, compliance matters, or any tracked incident — that have been sitting in a specific workflow step for longer than a configured number of days without any update. Cases are opened with good intentions but can be forgotten under the weight of daily work. This alert creates accountability by firing daily for every case that has never been touched since it was opened. Once a staff member makes any update to the case, it immediately drops out of the alert.

When it fires: On a schedule. The system queries `institution_cases` and applies three conditions simultaneously: 1. The case is in one of the monitored workflow steps (e.g., the “Open” step) 2. The case has never been updated (`modified IS NULL` and `modified_user_id IS NULL`) 3. The case has been open longer than the configured number of days

Frequency: `Daily` is standard. Staleness is gradual — there is no single moment when a case “becomes” stale. Daily reminders provide intentional, ongoing pressure until someone acts.

Who receives it: Security roles scoped to the case’s institution — the management staff responsible for case oversight at that school.

Threshold format:

```
{"value": 7, "workflow_steps": [12]}
```

Field	Type	Required	Description
`value`	Integer	Yes	

Field	Type	Required	Description
			Cases older than this many days (and unmodified) will be escalated
`workflow_steps`	Array of integers	Yes	IDs from `workflow_steps` table — only cases in these steps are checked

To find the correct workflow step IDs for your Cases workflow:

```
SELECT ws.id, ws.name, w.name AS workflow_name
FROM workflow_steps ws
JOIN workflows w ON w.id = ws.workflow_id
WHERE w.name LIKE '%Case%'
ORDER BY w.name, ws.name;
```

Typical result:

id	name	workflow_name
12	Open	Cases — General
13	In Progress	Cases — General
14	Closed	Cases — General

You would typically monitor only the `Open` step. Including `In Progress` is valid if you want to catch cases that were started but then abandoned.

Available placeholders:

Placeholder	Value
`${case.case_number}`	Case reference number
`${case.title}`	Case title
`${case.description}`	Case description
`${case.created}`	Date and time the case was opened
`${case.status}`	Current workflow step name
`${case.type}`	Case type name

Placeholder	Value
`${case.priority}`	Case priority name
`${days_open}`	Number of days since the case was created
`${assignee.name}`	Full name of the case assignee
`${assignee.first_name}`	Assignee first name
`${assignee.last_name}`	Assignee last name
`${assignee.email}`	Assignee email address
`${institution.name}`	Institution name
`${institution.code}`	Institution code
`${institution.address}`	Institution address
`${institution.telephone}`	Telephone
`${institution.email}`	Institution email
`${threshold.value}`	Configured day threshold

Example rules:

Rule 1 — Standard escalation (7 days)

Field	Value
Name	Case Escalation — 7 Day Inactivity
Feature	CaseEscalation
Enabled	Yes
Method	Email
Threshold	`{"value": 7, "workflow_steps": [12]}`
Security Roles	Institution Principal, Institution Coordinator

Subject:

```
Case Escalation: "${case.title}" — ${days_open} days without action
at ${institution.name}
```

Message body:

```
Dear ${institution.name} Management,

The following case has been open for ${days_open} days with no action
recorded.
This exceeds the escalation threshold of ${threshold.value} days.

Case Details:
  Reference: ${case.case_number}
  Title: ${case.title}
  Type: ${case.type}
  Priority: ${case.priority}
  Status: ${case.status}
  Assigned To: ${assignee.name}
  Date Opened: ${case.created}
  Days Open: ${days_open}

Description:
  ${case.description}

Required action:
- Log in to OpenEMIS and review this case immediately
- Assign it to the appropriate staff member if not yet assigned
- Record an initial assessment or action in the case notes
- Update the case status to reflect current progress

Once any update is made to this case, these escalation alerts will
stop.

This is an automated notification from OpenEMIS.
```

Rule 2 — Critical escalation (21 days, wider audience)

Field	Value
Name	Case Escalation — Critical 21 Days
Feature	CaseEscalation
Enabled	Yes

Field	Value
Method	Email
Threshold	`{"value": 21, "workflow_steps": [12]}`
Security Roles	Institution Principal, District Education Officer, Ministry Case Coordinator

Subject:

```
CRITICAL — Case Unresolved for ${days_open} Days: "${case.title}" at
${institution.name}
```

Message body:

```
ATTENTION — MANAGEMENT ESCALATION

The following case at ${institution.name} has been open for $
{days_open} days
with no recorded action. This requires immediate management
attention.

Case Reference: ${case.case_number}
Title: ${case.title}
Priority: ${case.priority}
Assigned To: ${assignee.name} (${assignee.email})
Days Open Without Action: ${days_open}

This case has now exceeded ${threshold.value} days without any
update. The
district education officer and ministry coordinator have been copied
on this
escalation.

This case must be actioned, escalated, or formally closed
immediately.
Continued inaction will trigger further management review.

Log in to OpenEMIS to access the full case record.

This is an automated notification from OpenEMIS.
```

Rule 3 — Short-tolerance nudge (3 days, Email + SMS)

Field	Value
Name	Priority Case Escalation — 3 Days
Feature	CaseEscalation
Enabled	Yes
Method	Email + SMS
Threshold	`{"value": 3, "workflow_steps": [12]}`
Security Roles	Institution Principal

Subject:

```
Urgent: Case "${case.title}" needs attention — ${days_open} days open
```

Message body:

```
${case.title} (${case.case_number}) at ${institution.name} has been
open
for ${days_open} days without any action.

Type: ${case.type} | Priority: ${case.priority}
Assigned to: ${assignee.name}

Please log in to OpenEMIS and take action on this case today.
```

Scholarship Application

Feature key: `ScholarshipApplication`

What it does: Sends a personal reminder directly to the staff member assigned to review a scholarship application when the scholarship's application close date is approaching and the application is still pending a decision. This is a direct, personal notification — not a broadcast to a group. The assigned reviewer owns the decision, and the alert reinforces that personal accountability.

When it fires: On a schedule. The system finds scholarship applications where the scholarship's close date is within the configured window and the application's

workflow status matches the configured category (typically `PENDING`). Applications that have been approved, rejected, or progressed past the pending stage drop out of the query automatically.

Frequency: `Daily` is standard. Deadlines are fixed — daily reminders in the final window ensure the deadline is not missed.

Who receives it: The notification goes directly to the `email` address of the application's assignee — the specific person assigned to process that application. **This is the only alert that bypasses role-based recipient resolution.** There are no security roles to configure for this alert.

Threshold format:

```
{"value": 7, "condition": 1, "category": "PENDING"}
```

Field	Type	Required	Description
`value`	Integer	Yes	Days before `application_close_date` to start alerting
`condition`	Integer	Yes	`1` = before close date · `2` = after close date (overdue)
`category`	String	Yes	Workflow step category — typically `"PENDING"`

To find workflow step categories in your database:

```
SELECT DISTINCT category FROM workflow_steps WHERE category IS NOT
        NULL ORDER BY category;
```

Common values: `PENDING`, `OPEN`, `CLOSE`, `APPROVED`, `REJECTED`

Available placeholders:

Placeholder	Value
`${assignee.name}`	Full name of the assigned reviewer
`${assignee.first_name}`	First name
`${assignee.last_name}`	Last name

Placeholder	Value
`${assignee.email}`	Email address
`${scholarship.name}`	Scholarship name
`${scholarship.code}`	Scholarship code
`${scholarship.application_close_date}`	Application deadline date
`${scholarship.maximum_award_amount}`	Maximum award value
`${day_difference}`	Days until the close date
`${threshold.value}`	Configured threshold (days)

Example rules:

Rule 1 — 7-day deadline reminder

Field	Value
Name	Scholarship Application — 7 Day Deadline Reminder
Feature	ScholarshipApplication
Enabled	Yes
Method	Email
Threshold	`{"value": 7, "condition": 1, "category": "PENDING"}`
Security Roles	*(not applicable — sent directly to application assignee)*

Subject:

```
Action Required: Scholarship application closing in ${day_difference}
days — ${scholarship.name}
```

Message body:

```
Dear ${assignee.first_name},

You have a scholarship application assigned to you that requires a
```

```
decision
before the application close date.

Scholarship: ${scholarship.name} (${scholarship.code})
Close Date: ${scholarship.application_close_date}
Days Remaining: ${day_difference}
Maximum Award: ${scholarship.maximum_award_amount}

This application is currently pending your review and decision.
Please log in
to OpenEMIS to review the application and take the appropriate
action:
  - Approve the application if it meets all criteria
  - Request additional information if required
  - Reject with documented reasons if the application does not
qualify

Applications not decided before the close date may be automatically
excluded
from consideration.

Please act on this application as soon as possible.

This is an automated notification from OpenEMIS.
```

Rule 2 — 3-day urgent reminder

Field	Value
Name	Scholarship Application — URGENT 3 Days
Feature	ScholarshipApplication
Enabled	Yes
Method	Email
Threshold	`{"value": 3, "condition": 1, "category": "PENDING"}`

Subject:

```
URGENT — ${day_difference} days left to decide: ${scholarship.name}
application
```

Message body:

```
Dear ${assignee.first_name},

URGENT REMINDER: You have ${day_difference} days to make a decision
on the
following scholarship application assigned to you.

Scholarship: ${scholarship.name}
Close Date: ${scholarship.application_close_date}

This application will be past its close date in ${day_difference}
days. If no
decision is recorded in OpenEMIS before that date, the application
may be
excluded automatically.

Please log in to OpenEMIS immediately and process this application.

If you believe this application has been incorrectly assigned to you,
contact your administrator to reassign it before the deadline.

This is an automated notification from OpenEMIS.
```

Rule 3 — Post-close overdue chase

Field	Value
Name	Scholarship Application — Overdue (Post-Close)
Feature	ScholarshipApplication
Enabled	Yes
Method	Email
Threshold	`{"value": 5, "condition": 2, "category": "PENDING"}`

Subject:

```
OVERDUE: Scholarship application past close date — ${scholarship.name}
```

Message body:

```
Dear ${assignee.first_name},

The following scholarship application assigned to you has passed its
close date
and is still pending a decision.

Scholarship: ${scholarship.name}
Close Date: ${scholarship.application_close_date}
Status: Past close date — pending decision

Please log in to OpenEMIS and either process or formally close this
application.
Leaving it in a pending state beyond the close date may affect
reporting
and system integrity.

This is an automated notification from OpenEMIS.
```

Scholarship Disbursement

Feature key: `ScholarshipDisbursement`

What it does: Reminds the scholarship management and finance team when a scheduled scholarship payment disbursement date is approaching or has already passed without being processed. Payment schedules are recorded in OpenEMIS as estimates, but executing the actual payment requires human action. This alert provides a proactive forward-looking reminder and a post-due-date safety check so no disbursement falls through the cracks.

When it fires: On a schedule. The system queries `scholarship_recipient_payment_structure_estimates` and applies the configured date window: upcoming disbursements within `value` days (condition 1), or disbursements that passed `value` days ago (condition 2). Two separate rules — one for each condition — are recommended.

Frequency: `Daily` is standard.

Who receives it: Global roles — no institution filter. Scholarship management is a centralised, ministry-level function. Assign the roles for your central scholarship management team and finance officers.

Threshold format:

```
{"value": 7, "condition": 1}
```

Field	Type	Required	Description
`value`	Integer	Yes	Number of days for the disbursement window
`condition`	Integer	Yes	`1` = disbursement due within `value` days (upcoming) · `2` = disbursement was due `value` days ago (overdue)

Available placeholders:

Placeholder	Value
`${scholarship.name}`	Scholarship name
`${scholarship.code}`	Scholarship code
`${scholarship.application_close_date}`	Application close date (for context)
`${scholarship.maximum_award_amount}`	Maximum award amount
`${estimated_disbursement_date}`	Scheduled disbursement date
`${estimated_amount}`	Estimated payment amount for this disbursement
`${day_difference}`	Days until (positive) or since (negative) disbursement date
`${threshold.value}`	Configured threshold (days)

Example rules:

Rule 1 — 14-day advance planning notice

Field	Value
Name	Scholarship Disbursement — 14 Day Planning Notice

Field	Value
Feature	ScholarshipDisbursement
Enabled	Yes
Method	Email
Threshold	`{"value": 14, "condition": 1}`
Security Roles	Scholarship Finance Officer

Subject:

```
Upcoming Disbursement (${day_difference} days): ${scholarship.name} —
${estimated_amount}
```

Message body:

```
Dear Finance Officer,

This is an advance planning notice for an upcoming scholarship
disbursement.

Scholarship: ${scholarship.name}
Amount: ${estimated_amount}
Due Date: ${estimated_disbursement_date}
Days Until Due: ${day_difference}

Please begin preparing the payment documentation and verify all
recipient
details are up to date in OpenEMIS. No immediate action is required —
this is an advance notice only.

A second reminder will be sent when the disbursement is 7 days away.

This is an automated notification from OpenEMIS.
```

Rule 2 — 7-day action reminder

Field	Value
Name	Scholarship Disbursement — 7 Day Reminder
Feature	ScholarshipDisbursement

Field	Value
Enabled	Yes
Method	Email
Threshold	`{"value": 7, "condition": 1}`
Security Roles	Scholarship Finance Officer, Scholarship Administrator

Subject:

```
Disbursement Due in ${day_difference} Days: ${scholarship.name}
```

Message body:

```
Dear Finance Officer,

A scholarship disbursement is due within ${day_difference} days and
requires
your attention.

Scholarship: ${scholarship.name} (${scholarship.code})
Disbursement Date: ${estimated_disbursement_date}
Estimated Amount: ${estimated_amount}

Actions to complete before the disbursement date:
1. Verify the recipient's banking details are current in the system
2. Prepare and submit the payment instruction through the finance
system
3. Confirm the payment reference and update the disbursement record
in OpenEMIS
4. Notify the recipient of the expected payment date if required

Please log in to OpenEMIS → Scholarships → Disbursements to review
all
upcoming payments.

This is an automated notification from OpenEMIS.
```

Rule 3 — Overdue disbursement alert

Field	Value
Name	Scholarship Disbursement — Overdue Alert
Feature	ScholarshipDisbursement
Enabled	Yes
Method	Email
Threshold	`{"value": 3, "condition": 2}`
Security Roles	Scholarship Finance Officer, Scholarship Administrator, Ministry Scholarship Director

Subject:

```
OVERDUE DISBURSEMENT: ${scholarship.name} — was due ${day_difference}
days ago
```

Message body:

```
ATTENTION — OVERDUE PAYMENT

A scholarship disbursement for ${scholarship.name} (${scholarship.code})
was scheduled for ${estimated_disbursement_date} and has not been
processed.

Estimated Amount: ${estimated_amount}
Days Overdue: ${day_difference}

This payment is overdue. Please take immediate action:
1. Determine why the disbursement was not processed on the due date
2. Process the payment immediately if all conditions are met
3. Contact the recipient to explain any delay
4. Document the reason for the delay in the disbursement record in
OpenEMIS

If there is a systemic issue preventing disbursements from being
processed,
escalate to the ministry scholarship director immediately.
```

```
This is an automated notification from OpenEMIS.
```

System Updates

Feature key: `SystemUpdates`

What it does: Notifies system administrators and IT officers when new OpenEMIS platform updates, version releases, or system-level announcements are available. This is the platform's built-in channel for keeping the technical team informed without requiring them to log in and check manually.

When it fires: On a schedule (default: daily). The system queries for new system update records and sends a notification for each new item since the last run. This is the **only alert type with `Daily` frequency enabled by default** in a fresh OpenEMIS installation — all other alerts default to `Never`.

Frequency: `Daily` is the recommended and default setting.

Who receives it: Global roles — no institution filter. System updates concern the entire platform. Assign roles for system administrators and IT infrastructure officers.

Threshold format: None — no threshold required. The alert fires whenever new system update records exist.

Available placeholders:

Placeholder	Value
`${update.title}`	Title of the system update
`${update.description}`	Description of the update
`${update.version}`	Version number if applicable
`${update.date}`	Release or announcement date

> ***Note:*** *The exact placeholder set depends on the `system_updates` table structure in your deployment. Verify available fields before crafting templates.*

Example rules:

Rule 1 — Standard system update notification

Field	Value
Name	OpenEMIS System Update Notification
Feature	SystemUpdates
Enabled	Yes
Method	Email
Threshold	*(not applicable)*
Security Roles	System Administrator, IT Officer

Subject:

```
OpenEMIS Update Available: ${update.title}
```

Message body:

```
Dear System Administrator,

A new OpenEMIS system update has been released and is available for
your review.

Update: ${update.title}
Version: ${update.version}
Date: ${update.date}

Details:
${update.description}

Recommended actions:
- Review the update notes for any configuration changes required
- Plan and apply any necessary migrations or patches during a
maintenance window
- Communicate relevant feature changes to school administrators and
staff
- Update the deployment documentation if required

For full release notes and technical details, please log in to the
OpenEMIS
administration panel.
```

```
This is an automated notification from OpenEMIS.
```

Rule 2 — SMS for immediate awareness

Field	Value
Name	OpenEMIS Critical Update — SMS Alert
Feature	SystemUpdates
Enabled	Yes
Method	SMS
Security Roles	System Administrator

Subject:

```
OpenEMIS update: ${update.title} — see email for details
```

Message body:

```
OpenEMIS ALERT: New system update available — ${update.title}.
Check your email for full details.
```

Staff Attendance — Not Implemented

Feature key: `StaffAttendance` | **Process:** `AlertStaffAbsence`

This alert is **not yet implemented**. The `alerts` table contains a row for `StaffAttendance` and the alert is visible in the OpenEMIS Alerts management screen, but:

- No processing command has been built
- The frequency is locked to `Never` and cannot be changed in the UI
- Any alert rules created for this feature will not execute

Planned purpose: When implemented, this alert would monitor staff attendance records for absences above a configured threshold and notify school administrators and HR officers so they can follow up. It would be the staff-side equivalent of the Student Absence alert.

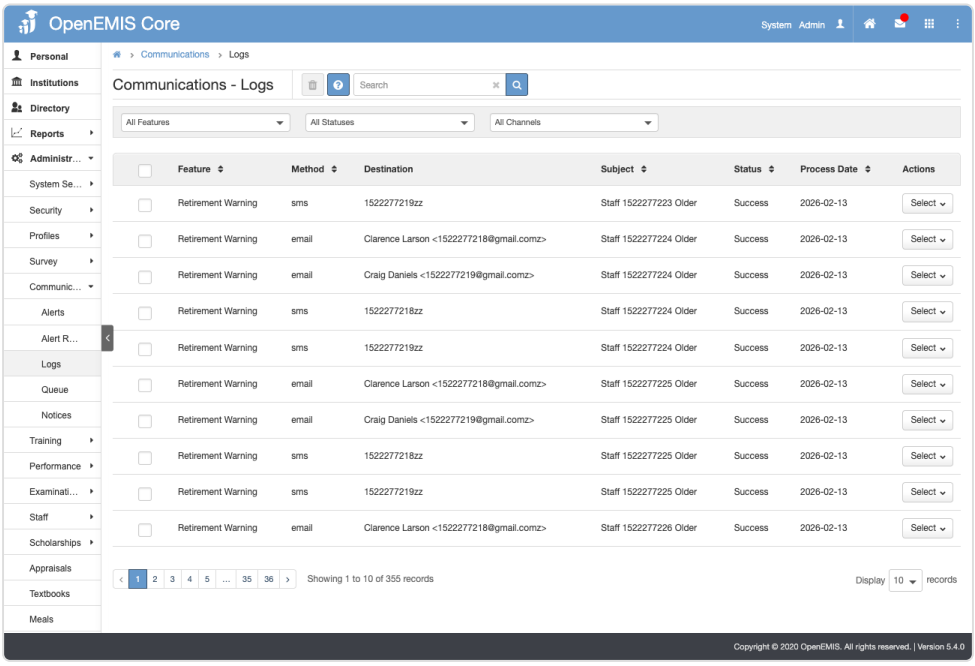
Workaround until implementation: - Use manual reports: **Reports** → **Staff** → **Attendance** - Schedule periodic report exports reviewed by HR - Use the Case Escalation alert as a follow-up mechanism when absences are recorded as cases

If you require this functionality urgently, raise a ticket with your OpenEMIS support contact referencing the `StaffAttendance` / `AlertStaffAbsence` feature key.

Part 4: Monitoring & Delivery

Once alerts are configured and running, OpenEMIS provides two screens for monitoring what the system is doing: Alert Logs (the permanent audit trail) and Alert Queue (the live delivery pipeline). Between these two screens you can verify whether alerts are firing, confirm whether messages were delivered, and diagnose problems when something goes wrong.

Alert Logs



alert-logs screenshot

Navigate to **Administration** → **Communications** → **Alert Logs** to view the complete audit trail of every notification the system has sent.

Every alert that fires — whether triggered by a data save event or a scheduled scan — creates a log entry here. School Messaging deliveries are also recorded in Alert Logs, making this a single point of truth for all outbound communications.

What each column means

Column	Description
Alert Type	Feature name (e.g., `StudentAttendance`, `LicenseValidity`, `Messaging`)
Channel	`email` or `sms`
Recipient	Email address or phone number the notification was sent to
Subject	Resolved subject line (placeholders already replaced with actual values)
Status	Success or Failed
Created	When the log entry was created

Viewing a log record

1. Go to **Administration** → **Communications** → **Alert Logs**
2. Click **View** in the Action Bar on any row to see the full message body and delivery details

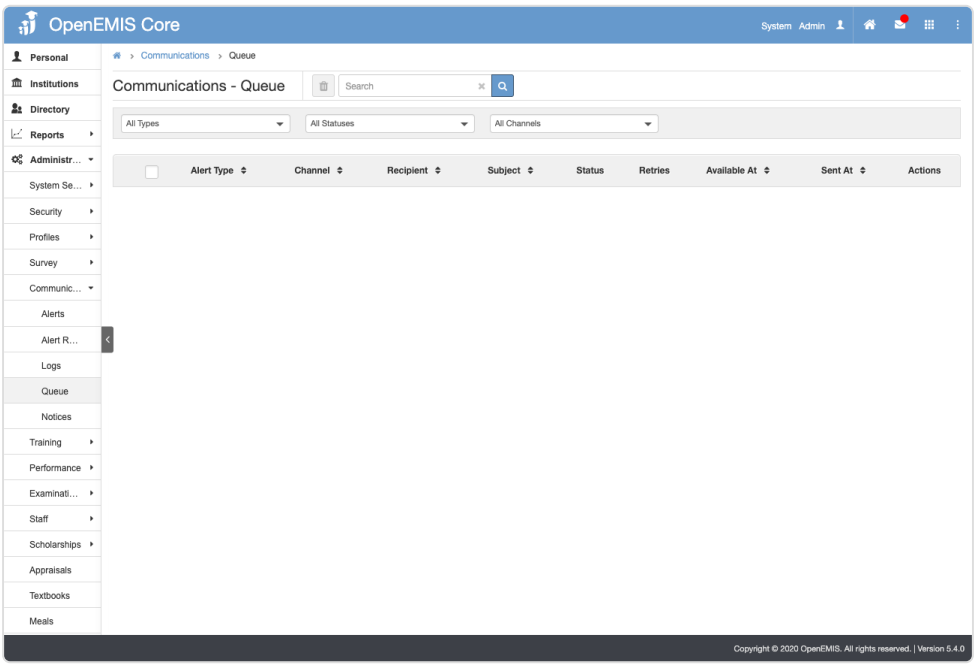
Deleting log records

To delete a single record: click **Delete** in the Action Bar and confirm.

To delete many records at once (for example, after a misconfigured rule fires thousands of unwanted alerts):

1. Use the **checkbox column** to select rows (or the header checkbox to select all visible)
2. Click **Delete Selected** in the toolbar
3. Confirm — all selected records are removed in one operation

Alert Queue



alert-queue screenshot

Navigate to **Administration** → **Communications** → **Alert Queue** to see the live delivery pipeline.

The queue is where notifications wait before being picked up by the `ProcessAlertsQueue` delivery worker. When an alert fires, one row is inserted into the queue per recipient per channel. The worker then processes each row, sends the email or SMS, and updates the row status.

Queue columns

Column	Description
Alert Type	Feature name
Channel	`email` or `sms`
Recipient	Email address or phone number
Subject	Resolved subject (placeholders replaced)
Status	`0` = Pending · `1` = Sent · `-1` = Failed
Retry Count	Number of delivery attempts made

Column	Description
Available At	Earliest time this item can be processed
Created	When the alert command queued this item

Queue status lifecycle

```
[Queued: status=0]
       ↓
ProcessAlertsQueue worker picks up the row
       ↓
   Success → status=1 (Sent) · logged to Alert Logs
   Failure → status=-1 (Failed) · retry_count++
              if retry_count >= max → permanently failed
```

Viewing a queued item

1. Go to **Administration** → **Communications** → **Alert Queue**
2. Filter by status to see only pending or failed items
3. Click **View** in the Action Bar to see the full message body

Mass deleting queue records

Use this if a misconfigured rule fired and you want to prevent erroneous notifications from being delivered before the worker picks them up:

1. Select records using the checkbox column
2. Click **Delete Selected** in the toolbar and confirm

> ***Tip:*** *Act quickly — the* `ProcessAlertsQueue` *worker runs frequently. If items have already been picked up and are* `status=1`*, deleting the queue row does not recall the already-sent email or SMS.*

Delivery Troubleshooting

Alert fired but no email was received

1. Check **Alert Queue** — is there a row with `status=0` (pending) or `status=-1` (failed)?
2. **Pending:** the `ProcessAlertsQueue` worker may not be running — check with your server team
3. **Failed:** check `retry_count` — if at maximum, delivery permanently failed; check the mail server configuration in `api/config/alerts.php`
4. **No queue row at all:** the command found no matching records, or the threshold was not met — run the command manually to check:

```
php artisan alerts:<command> --user_id=1 --rule_id=X --
        process_id=0
```

Alert rule is enabled but never fires

- Confirm the alert **frequency** is not `Never` in **Administration** → **Communications** → **Alerts**
- Confirm the rule has `Enabled = Yes`
- Confirm at least one **Security Role** is assigned (except for Scholarship Application, which uses direct assignee delivery)
- Confirm the threshold JSON is valid and matches actual data in the database

Workflow alert not firing

- Verify the destination workflow step has a **Security Role** assigned
- Verify the record assignee has a **preferred email** on their profile (User Overview → Edit → Contact)
- The first (Open) workflow step never triggers a workflow alert — this is by design

Duplicate alerts in the queue

- Check for multiple enabled rules for the same feature with overlapping thresholds

- Check `system_processes` for duplicate checksum entries from today — deduplication should prevent re-runs
- For event-based alerts: verify the triggering save event is not firing multiple times

Mass delete not removing all selected records

- Ensure your role has full access permissions, not view-only
- Select records individually rather than using “select all” if the list spans multiple pages

---

Part 5: School Messaging

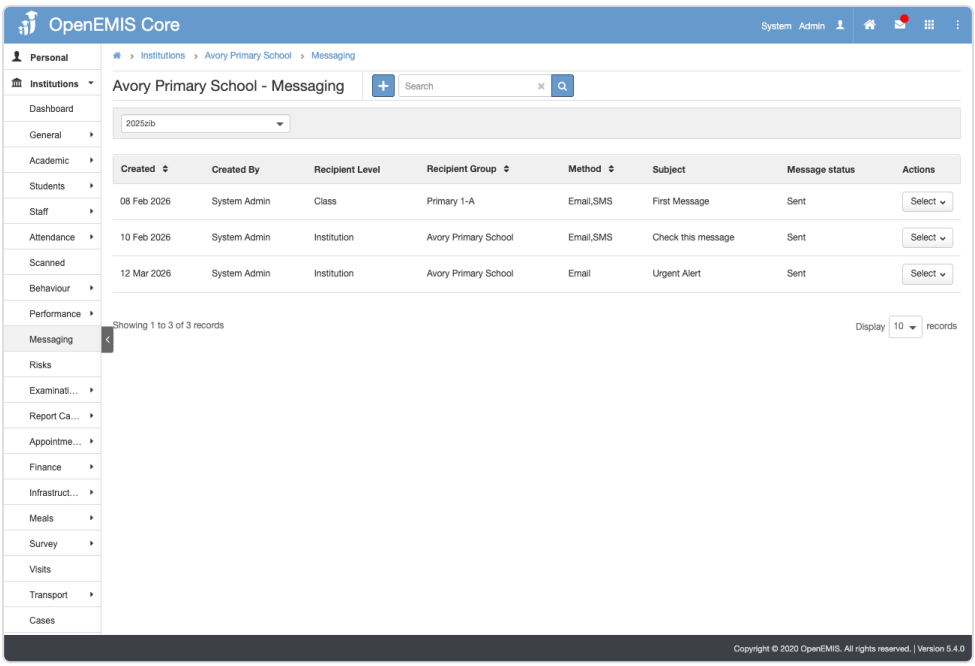
School Messaging gives institution staff the ability to compose and send targeted messages to specific groups — a class, a grade, a programme, or the whole institution — without needing to use external email or SMS tools. This part explains how to use it.

What Is School Messaging?

School Messaging is a manual broadcast tool. A staff member with the appropriate permissions composes a message in OpenEMIS, selects their audience, and clicks Send. The message is delivered by email, SMS, or both to every resolved recipient in the selected group.

Unlike the automated Alerts system, School Messaging is always initiated by a person making a deliberate decision to communicate. It is the right tool for field trip notices, school closure announcements, homework reminders, event invitations, or any time you need to say something specific to a specific group right now.

The Messaging Screen



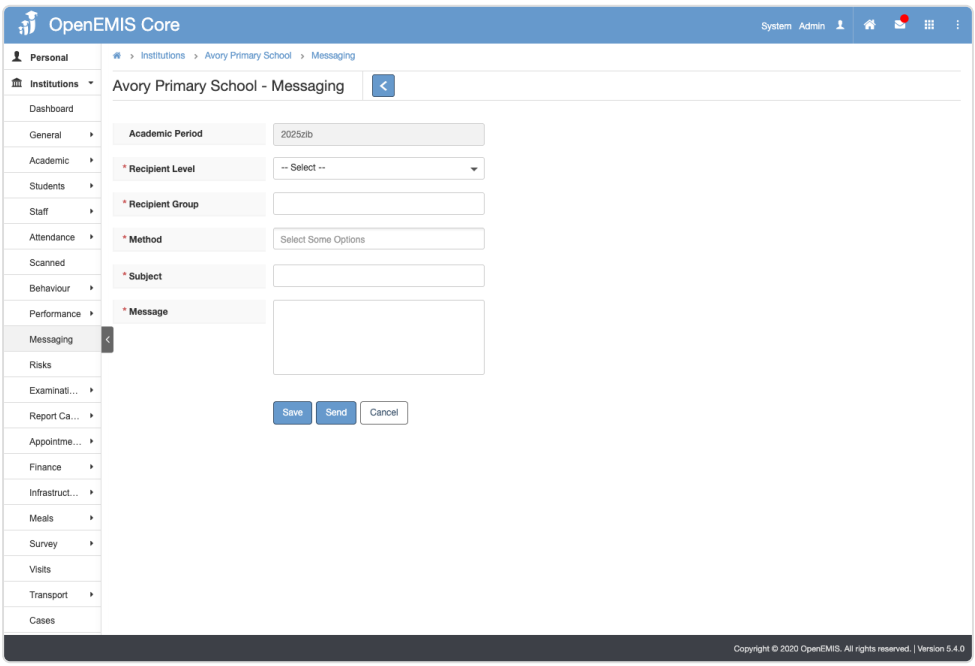
messaging-list screenshot

Navigate to **Institution** → **Communications** → **Messaging** from the institution's main page.

The index lists all messages created within the current institution — both drafts and sent messages.

Column	Description
Subject	Message subject line
Recipient Level	Institution / Programme / Grade / Class / Subject
Status	Draft or Sent
Created	Date created
Created By	Staff member who composed the message

Composing a Message



messaging-compose screenshot

Step 1 — Open the compose form

1. Go to **Institution** → **Communications** → **Messaging**
2. Click **Add** in the toolbar

Step 2 — Fill in the message fields

Field	Required	Description
Academic Period	Yes	Scopes the recipient group to the selected academic year
Recipient Level	Yes	Choose: Institution, Programme, Grade, Class, or Subject
Recipient Group	Yes	Appears after selecting Level — the specific group (e.g., “Grade 5”, “Class 5A”, “Mathematics”)
Security Role	Yes	Who within the group receives the message (e.g., Student, Guardian, Class Teacher) — multi-select

Field	Required	Description
Method	Yes	Email, SMS, or both
Subject	Yes	Message subject line (plain text)
Message	Yes	Full message body (plain text)

> ***Important:*** *The Recipient Group and Security Role dropdowns are cascading — they reload when you change the Recipient Level. Always select Recipient Level first, then Recipient Group, then Security Role.*

Step 3 — Save as draft or send immediately

Button	Action
Save	Saves the message as a Draft — no delivery occurs. You can return to edit and send later.
Send	Saves and immediately delivers the message to all resolved recipients.

> ***Once sent, a message cannot be edited or resent.*** *If you need to send a correction, compose a new message.*

Recipient Levels Explained

The Recipient Level controls the scope of the message — who is eligible to receive it.

Level	Who receives it	When to use
Institution	All staff with selected roles at the institution	School-wide announcements to all staff
Programme	Students (and their guardians) in a specific programme	Programme-specific notices
Grade	Students (and their guardians) in a specific grade	Grade-level announcements

Level	Who receives it	When to use
Class	Students (and their guardians) in a specific class	Class teacher to class parents and students
Subject	Students (and their guardians) in a specific subject	Subject teacher to subject group

> ***Note:*** *For Programme and Grade levels, only two roles are available: Student and Guardian. For Institution, Class, and Subject levels, all security roles assigned at the institution are available (plus Guardian).*

How recipients are resolved

When you click Send, the system resolves the actual recipient list in two steps:

1. **Role matching** — the system finds all users who hold the selected security roles within the chosen scope (e.g., all guardians of students in Class 5A)
2. **Contact filtering** — for Email: only users with a non-null email address are included. For SMS: only users with a non-null mobile number are included.

Recipients are de-duplicated — if a guardian is a parent of two students in the same class, they receive only one message.

If no recipients are found, you will see one of these messages: - *"Failed to send: No Recipients Found."* — no users match the selected role/group combination - *"Failed to send: No Recipients With Contacts Found."* — users exist but have no email or mobile number on their profile

Draft vs Send

A message in Draft status has been saved but not delivered. You can edit a draft at any time — change the recipient level, group, roles, method, subject, or body — then either save again or send.

A message in Sent status has been delivered. The Edit button is removed from the action bar. The record in Alert Logs shows the individual delivery entries for each recipient.

The lifecycle is one-way: Draft → Sent. There is no way to unsend a message or revert a sent message to Draft.

How School Messaging Differs From Alerts

Feature	Alerts	School Messaging
Triggered by	Rules + thresholds / data events	A person composing a message
Content	Template with `${placeholder}` tokens	Free-form subject and body
Frequency	Can repeat (Daily/Weekly/Monthly)	Sends once — cannot be resent
Scope	System-wide or per institution	Always within one institution
Recipients	Resolved automatically by security role	Chosen by the sender (level → group → role)
Logs	Alert Logs + Alert Queue	Alert Logs (type: Messaging)
Use case	Automated compliance and deadline reminders	Teacher announcement, parent notice, urgent event

Practical examples

Example 1 — Class teacher announcing a field trip

Field	Value
Recipient Level	Class
Recipient Group	Grade 7 — Class 7B
Security Role	Guardian

Field	Value
Method	Email
Subject	Field Trip Notice: Grade 7B — National Museum, 15 April
Message	Dear Parent/Guardian, This is to inform you that Grade 7B will be attending a field trip to the National Museum on Wednesday 15 April. Students should arrive at school by 7:30 AM. Please ensure the consent form is signed and returned by 10 April. Contact the school office if you have questions.

Example 2 — Principal sending a school closure notice to all staff

Field	Value
Recipient Level	Institution
Recipient Group	*(the institution itself)*
Security Role	All staff roles
Method	Email + SMS
Subject	School Closed — Public Holiday 18 April
Message	Dear Staff, Please note that the school will be closed on Friday 18 April in observance of the public holiday. Normal operations resume on Monday 21 April.

Example 3 — Subject teacher contacting students directly

Field	Value
Recipient Level	Subject
Recipient Group	Mathematics — Grade 9
Security Role	Student
Method	Email
Subject	Homework reminder: Chapter 5 exercises due Monday

Field	Value
Message	Dear Students, This is a reminder that Chapter 5 exercises (pages 87–92) are due on Monday. Please ensure all work is completed and submitted at the start of class.

Common failure reasons

Error message	Cause	Fix
“No Recipients Found”	No users match the selected role/group combination	Verify the Recipient Group has enrolled students or assigned staff with the selected role
“No Recipients With Contacts Found”	Users exist but have no email or mobile number	Ask users to add contact information under User Overview → Edit → Contact
“Message Already Sent”	Attempting to send an already-sent message	A sent message cannot be resent — compose a new one
“Validation or Save Error”	Required field missing or invalid	Ensure all required fields are filled, including Security Role selection

Permissions

Access to Messaging is controlled by security role permissions. Configure at **Administration → Security → Roles → Institution → Communications → Messaging**.

Permission	Access
Full access	Compose, save drafts, send, view, delete
View only	Browse and view messages; cannot compose or send
No access	Messaging tab not visible

Part 6: Technical Reference

This part is aimed at developers and technically confident administrators who need to understand the internal architecture, run commands manually, look up the complete threshold field reference, or verify that a fresh installation is correctly configured.

Architecture Overview

All alert processing has been ported from CakePHP daemon shells to clean Laravel artisan commands located in `api/app/Console/Commands/Alerts/`.

The base class `AlertCommandBase` provides a template-method pattern. Every alert command must implement two abstract methods: - `getPendingItems()` — queries the database for records that meet the rule's threshold - `fillPlaceholders()` — replaces `${token}` values in subject and message templates with actual data

The `runFeatureAlert()` method in the base class orchestrates the full flow: fetch rule → fetch items → resolve recipients → insert delivery rows into `alerts_queue` → update `system_processes`.

```
CakePHP afterSave  ──────────▶
AlertLogsTable::triggerLaravelAlertFromCakePHP()
                                          │
                                          ▼
                                  artisan command dispatched
```

```
                                        │
CheckAndQueueAlerts (cron) ──────►      ▼
                                AlertCommandBase::handle()
                                        │
                                ┌───────┴────────┐
                                │                │
                        getPendingItems()  resolveRecipients()
                                │                │
                                └────────┬───────┘
                                         │
                                alerts_queue rows inserted
                                         │
                                ProcessAlertsQueue sends email/SMS
```

Two dispatch paths

Path	Trigger	Alert types
Event-based	CakePHP model `afterSave` → `AlertLogsTable::triggerLaravelAlertFromCakePHP()`	StudentAbsence, StudentAdmission, StudentEnrolment, StudentStatusChange
Scheduled	`alerts:check-and-queue` (cron, runs hourly)	RetirementWarning, StaffEmployment, StaffLeave, StaffType, SystemUpdates, CaseEscalation, LicenseValidity, LicenseRenewal, ScholarshipApplication, ScholarshipDisbursement

Three command maps

When adding a new alert command, three places must be updated:

1. **`AlertLogsTable::triggerAlertCommand()`** (CakePHP) — `plugins/Alert/src/Model/Table/AlertLogsTable.php` — maps `process_name` to artisan command for event-based alerts dispatched from CakePHP
2. **`CheckAndQueueAlerts::queueAlertCommand()`** (Laravel) — `api/app/Console/Commands/CheckAndQueueAlerts.php` — maps `process_name` to artisan command for scheduled alerts only

3. **`AlertTriggerService::triggerAlertCommand()`** (Laravel) — `api/app/Services/AlertTriggerService.php` — maps process names for event-based commands triggered from the Laravel side

Command Inventory

Testing any alert directly

You can run any alert command directly inside Docker, bypassing the scheduler:

```
docker exec poe-application /bin/sh -c \
  "cd /var/www/html/emis/core/api && php artisan alerts:<command-
        name> \
   --user_id=1 --rule_id=<alert_rules.id> --process_id=0"
```

Then verify results:

```
-- Check what was queued:
SELECT * FROM alerts_queue ORDER BY created DESC LIMIT 20;

-- Check the process record:
SELECT * FROM system_processes ORDER BY created DESC LIMIT 5;
```

Running the scheduler

The scheduler runs all due scheduled alerts:

```
php artisan alerts:check-and-queue --user_id=1 --sync
```

Force-run all immediately (useful for testing):

```
php artisan alerts:check-and-queue --user_id=1 --force --sync
```

Event-based commands

Command	File	Feature / Process	Trigge
`alerts:student-absence`	`AlertStudentAbsenceCommand.php`	`StudentAttendance` / `AlertStudentAbsence`	`Inst`

Command	File	Feature / Process	Trigge
`alerts:student-admission`	`AlertStudentAdmissionCommand.php`	`StudentAdmission` / `AlertStudentAdmission`	`Stud`
`alerts:student-enrolment`	`AlertStudentEnrolmentCommand.php`	`StudentEnrolment` / `AlertStudentEnrolment`	`Stud`
`alerts:student-status-change`	`AlertStudentStatusChangeCommand.php`	`StudentStatus` / `AlertStudentStatus`	Stude

Test student-absence:

```
php artisan alerts:student-absence \
  --user_id=1 --rule_id=<id> --process_id=0 \
  --student_id=<id> --academic_period_id=<id>
```

Test student-admission:

```
php artisan alerts:student-admission --user_id=1 --rule_id=<id> --
        process_id=0
```

Test student-enrolment:

```
php artisan alerts:student-enrolment --user_id=1 --rule_id=<id> --
        process_id=0
```

Test student-status-change:

```
php artisan alerts:student-status-change --user_id=1 --rule_id=<id>
        --process_id=0
```

Scheduled commands

Command	File	Feature / Process
`alerts:retirement-warning`	`AlertRetirementWarningCommand.php`	`RetirementWarning` / `AlertRetirementWarnin`
`alerts:staff-employment`	`AlertStaffEmploymentCommand.php`	`StaffEmployment` / `AlertStaffEmployment`
`alerts:staff-leave`	`AlertStaffLeaveCommand.php`	`StaffLeave` / `AlertStaf`

Command	File	Feature / Process
`alerts:staff-type`	`AlertStaffTypeCommand.php`	`StaffType` / `AlertStaff`
`alerts:system-updates`	`AlertSystemUpdatesCommand.php`	`SystemUpdates` / `AlertSystemUpdates`
`alerts:case-escalation`	`AlertCaseEscalationCommand.php`	`CaseEscalation` / `AlertCaseEscalation`
`alerts:license-validity`	`AlertLicenseValidityCommand.php`	`LicenseValidity` / `AlertLicenseValidity`
`alerts:license-renewal`	`AlertLicenseRenewalCommand.php`	`LicenseRenewal` / `AlertLicenseRenewal`
`alerts:scholarship-application`	`AlertScholarshipApplicationCommand.php`	`ScholarshipApplicatio` `AlertScholarshipAppli`
`alerts:scholarship-disbursement`	`AlertScholarshipDisbursementCommand.php`	`ScholarshipDisburseme` `AlertScholarshipDisbu`

All scheduled commands use the same test syntax:

```
php artisan alerts:<command> --user_id=1 --rule_id=<id> --
        process_id=0
```

Threshold Field Reference

This section summarises every threshold field across all alert types. For worked examples and context, see the individual alert type sections in Part 3.

Threshold formats at a glance

Alert	Feature Key	Format	Example
Student Absence	`StudentAttendance`	Integer	`5`
Student Admission	`StudentAdmission`	None	*(not used)*
Student Enrolment	`StudentEnrolment`	None	*(not used)*

Alert	Feature Key	Format	Example
Student Status Change	`StudentStatus`	JSON — status transition	`{"old_status_id": 1, "new_status_id": 5}`
Retirement Warning	`RetirementWarning`	JSON — days window	`{"value": 90}`
Staff Employment End	`StaffEmployment`	JSON — days window	`{"value": 30}`
Staff Leave End	`StaffLeave`	JSON — days + leave type	`{"value": 3, "staff_leave_type": 2}`
Staff Type	`StaffType`	JSON — days + staff type	`{"value": 30, "staff_type_id": 2}`
License Validity	`LicenseValidity`	JSON — days + type + condition	`{"value": 30, "license_type": 3, "condition": 1}`
License Renewal	`LicenseRenewal`	JSON — days + type + condition + CPD	`{"value": 60, "license_type": 3, "condition": 1, "training_categories": [1,2], "hour": 20}`
Scholarship Application	`ScholarshipApplication`	JSON — days + condition + category	`{"value": 7, "condition": 1, "category": "PENDING"}`
Scholarship Disbursement	`ScholarshipDisbursement`	JSON — days + condition	`{"value": 7, "condition": 1}`
Case Escalation	`CaseEscalation`	JSON — days +	

Alert	Feature Key	Format	Example
		workflow steps	`{"value": 7, "workflow_steps": [12]}`
System Updates	`SystemUpdates`	None	*(not used)*

`condition` field — direction of date check

Used by: LicenseValidity, LicenseRenewal, ScholarshipApplication, ScholarshipDisbursement

Value	Direction	SQL pattern	Use case
`1`	Before date	`DATEDIFF(target_date, NOW()) BETWEEN 0 AND value`	Advance warning
`2`	After date	`DATEDIFF(NOW(), target_date) BETWEEN 0 AND value`	Post-date follow-up

`workflow_steps` field — CaseEscalation

Must be an array of `workflow_steps.id` values from your database. IDs are deployment-specific — always query before configuring:

```
SELECT ws.id, ws.name, w.name AS workflow
FROM workflow_steps ws
JOIN workflows w ON w.id = ws.workflow_id
ORDER BY w.name, ws.name;
```

Multiple step IDs can be included: `[12, 13]` monitors both “Open” and “In Progress” steps.

`training_categories` field — LicenseRenewal

An array of training category IDs. Only training records in these categories count towards the CPD hour requirement. Must be an array even for a single category: `[1]` not `1`.

Validation rules

- JSON must be valid — invalid JSON causes the rule to be silently skipped
- Integer IDs must exist in the database — a non-existent `license_type` or `staff_type_id` means no records will match
- `training_categories` must be an array
- `workflow_steps` must be an array
- `value` must be a positive integer
- `hour` must be a positive integer — a value of `0` would alert all staff regardless of CPD

Activation Checklist

To activate any scheduled alert from scratch:

1. **Set the frequency** in the `alerts` table via **Administration** → **Communications** → **Alerts**:
    - Change from `Never` to `Daily`, `Weekly`, or `Monthly`
2. **Create an alert rule** via **Administration** → **Communications** → **Alert Rules** → **Add**:
    - `feature` = feature name exactly as listed (e.g., `CaseEscalation`, `LicenseValidity`)
    - `enabled` = Yes
    - `threshold` = valid JSON per the format for that command
    - `subject` / `message` = templates using `${placeholder}` tokens
    - `security_roles` = assign the recipient roles
    - `name` = a descriptive name — use a name that identifies the threshold and audience
3. **Run the scheduler** (cron calls this hourly in production):

    ```
    php artisan alerts:check-and-queue --user_id=1 --sync
    ```

    Or force-run all immediately for testing:

    ```
    php artisan alerts:check-and-queue --user_id=1 --force --sync
    ```

4. **Check the results**:

```sql
SELECT * FROM alerts_queue ORDER BY created DESC LIMIT 20;
SELECT * FROM system_processes ORDER BY created DESC LIMIT 5;
```

Appendix

Placeholder Reference

All placeholders for all alert types, in one table. Tokens use the format `${token}` and are replaced at send time. Tokens are case-sensitive.

Behaviour rules

Situation	Result
Database value is `NULL`	Token left as-is in the sent message
Database value is empty string	Token replaced with blank
Token not available for this alert type	Token left as-is

Student tokens

Token	Value	Alert types
`${student.name}`	Full name	StudentAttendance, StudentAdmission, StudentEnrolment, StudentStatus
`${student.openemis_no}`	OpenEMIS ID	StudentAttendance, StudentAdmission, StudentEnrolment, StudentStatus
`${student.first_name}`	First name	StudentAttendance, StudentAdmission, StudentEnrolment, StudentStatus
`${student.last_name}`	Last name	StudentAttendance, StudentAdmission, StudentEnrolment, StudentStatus

Token	Value	Alert types
`${student.email}`	Email address	StudentAttendance, StudentAdmission, StudentEnrolment, StudentStatus
`${student.date_of_birth}`	Date of birth	StudentAttendance, StudentAdmission, StudentEnrolment, StudentStatus
`${student.gender}`	Gender	StudentAttendance, StudentAdmission, StudentEnrolment, StudentStatus
`${total_days}`	Total absence days (current period)	StudentAttendance only
`${threshold}`	Configured threshold value	StudentAttendance only

Staff / User tokens

Token	Value	Alert types
`${user.openemis_no}`	OpenEMIS ID	RetirementWarning, StaffEmployment, StaffLeave, StaffType, LicenseValidity, LicenseRenewal
`${user.first_name}`	First name	RetirementWarning, StaffEmployment, StaffLeave, StaffType, LicenseValidity, LicenseRenewal
`${user.last_name}`	Last name	RetirementWarning, StaffEmployment, StaffLeave, StaffType, LicenseValidity, LicenseRenewal
`${user.email}`	Email address	RetirementWarning, StaffEmployment, StaffLeave, StaffType, LicenseValidity, LicenseRenewal
`${user.date_of_birth}`	Date of birth	RetirementWarning

Institution tokens

Token	Value	Alert types
`${institution.name}`	Institution name	All alerts with institution scope
`${institution.code}`	Institution code	All alerts with institution scope
`${institution.address}`	Institution address	All alerts with institution scope
`${institution.telephone}`	Telephone	All alerts with institution scope
`${institution.email}`	Institution email	All alerts with institution scope

Threshold tokens

Token	Value	Alert types
`${threshold.value}`	Configured day threshold	RetirementWarning, StaffEmployment, StaffLeave, StaffType, LicenseValidity, LicenseRenewal, CaseEscalation, ScholarshipDisbursement
`${threshold.hour}`	Required CPD hours	LicenseRenewal only

License tokens

Token	Value	Alert types
`${license_type.name}`	License type name	LicenseValidity, LicenseRenewal
`${license_number}`	License reference number	LicenseValidity, LicenseRenewal
`${issue_date}`	License issue date	LicenseValidity, LicenseRenewal
`${expiry_date}`	License expiry date	LicenseValidity, LicenseRenewal
`${day_difference}`		

Token	Value	Alert types
	Days until/since expiry or date	LicenseValidity, LicenseRenewal, ScholarshipApplication, ScholarshipDisbursement
`${total_credit_hours}`	Total CPD hours accumulated	LicenseRenewal only

Case tokens

Token	Value	Alert types
`${case.case_number}`	Case reference number	CaseEscalation
`${case.title}`	Case title	CaseEscalation
`${case.description}`	Case description	CaseEscalation
`${case.created}`	Date the case was opened	CaseEscalation
`${case.status}`	Current workflow step name	CaseEscalation
`${case.type}`	Case type	CaseEscalation
`${case.priority}`	Case priority	CaseEscalation
`${days_open}`	Days since case creation	CaseEscalation
`${assignee.name}`	Assignee full name	CaseEscalation, ScholarshipApplication
`${assignee.first_name}`	Assignee first name	CaseEscalation, ScholarshipApplication
`${assignee.last_name}`	Assignee last name	CaseEscalation, ScholarshipApplication
`${assignee.email}`	Assignee email	CaseEscalation, ScholarshipApplication

Scholarship tokens

Token	Value	Alert types
`${scholarship.name}`	Scholarship name	ScholarshipApplication, ScholarshipDisbursement
`${scholarship.code}`	Scholarship code	ScholarshipApplication, ScholarshipDisbursement
`${scholarship.application_close_date}`	Application deadline	ScholarshipApplication, ScholarshipDisbursement
`${scholarship.maximum_award_amount}`	Maximum award amount	ScholarshipApplication, ScholarshipDisbursement
`${estimated_disbursement_date}`	Scheduled disbursement date	ScholarshipDisbursement only
`${estimated_amount}`	Payment amount for this disbursement	ScholarshipDisbursement only

System update tokens

Token	Value	Alert types
`${update.title}`	Update title	SystemUpdates
`${update.description}`	Update description	SystemUpdates
`${update.version}`	Version number	SystemUpdates
`${update.date}`	Release date	SystemUpdates

Quick SQL Lookups

Use these queries to find the IDs you need when configuring alert rule thresholds. Run them against your database before filling in threshold JSON.

Student statuses (for StudentStatus threshold)

```sql
SELECT id, name FROM student_statuses ORDER BY name;
```

Staff leave types (for StaffLeave threshold)

```sql
SELECT id, name FROM staff_leave_types ORDER BY name;
```

Staff types (for StaffType threshold)

```sql
SELECT id, name FROM staff_types ORDER BY name;
```

License types (for LicenseValidity and LicenseRenewal thresholds)

```sql
SELECT id, name FROM license_types ORDER BY name;
```

Training categories (for LicenseRenewal threshold)

```sql
SELECT id, name FROM staff_training_categories ORDER BY name;
```

Workflow steps — all (for CaseEscalation threshold)

```sql
SELECT ws.id, ws.name, w.name AS workflow
FROM workflow_steps ws
JOIN workflows w ON w.id = ws.workflow_id
ORDER BY w.name, ws.name;
```

Workflow steps — Cases only

```sql
SELECT ws.id, ws.name, w.name AS workflow_name
FROM workflow_steps ws
JOIN workflows w ON w.id = ws.workflow_id
WHERE w.name LIKE '%Case%'
ORDER BY w.name, ws.name;
```

Workflow step categories (for ScholarshipApplication threshold)

```sql
SELECT DISTINCT category FROM workflow_steps WHERE category IS NOT
        NULL ORDER BY category;
```

Alert rules by feature (to find rule IDs for testing)

```sql
SELECT id, name, feature, enabled FROM alert_rules ORDER BY feature,
        name;
```

Recent alert queue items

```sql
SELECT * FROM alerts_queue ORDER BY created DESC LIMIT 20;
```

Failed queue items

```sql
SELECT * FROM alerts_queue WHERE status = -1 ORDER BY created DESC;
```

Recent alert logs

```sql
SELECT * FROM alert_logs ORDER BY created DESC LIMIT 50;
```