IT Project Guidance

Discovery:   
Technical - System Messages to Consider

Version:

0.3

## Purpose

The purpose of this document is to decrease delivery risk by improving task planning by providing a prepared list of default notifications to better plan the tasks needed to develop, maintain and operate them.

## Synopsis

Several relatively standard system messages intended for system users are required to be considered, developed and delivered.

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## Background

Systems require notifying users as to changes that may affect them to permit them to take an action if they so choose.

Note:  
Messages are transmitted between devices over networks, retrieved/*pull*ed by recipient User when they are ready to view the message -- whereas Notifications are *push*ed to Subscribed Users within the same system. This document is about Messages that are transmitted beyond the system, across networks, as well as also be viewed within the system, but are not Notifications.

## Types

Messages can be developed as User to User, or User to Group members messages, or a mix of both.

Messages can also be developed as System to User or System to Group members, or a mix of both.

This document is about the later, referred to as “System Messages”.

## Channel

The preferred channel for System Messages is email due to its low cost and umbiquous availability amongst users, and low to no cost. Other options exist – SMS, for example – but incur higher costs.

## Security

Messages that are sent outside of a system, across public networks, are considered to be insecure due to being non-confidential and therefore its integrity unproven.   
Messages may *never* contain confidential or personal information.

While a Message cannot contain confidential information, they can contain buttons that link to endpoints in a system that require authentication first before rendering the confidential information to the user within the system, in an audited manner.

## Message Attributes

A Message generally has a number of common attributes some of which are listed below.

#### Security Classification

In government agencies, the security classification of a message is an essential aspect of an email, transmitting information to the reader as to whether they are even permitted to open the message.

#### Type

A message can be Informative (containing no Actions) or Active, containing buttons that link to server based endpoints that progress paused workflows).

#### Importance

The attribute is traditional and while acknowledging that the value is arbitrary, believe it should not be removed.

#### Recipient, CC, BCC

Messages can be addressed to Users, Groups.

Without implementation care, Addressing Groups can lead to new Users being bombarded with all previous messages addressed to the group.

The general solution is for the service to develop individual messages for each member of a Group as it is processed.

Note:  
Delivered is not the same as Opened and Read so there is no guarantee they have read the message or not.

#### Subject & Body

The Subject summarises the purpose of the message.

The Body contains the Rich media-embedded text of the message.

Note:  
Whereas User to User or Group Messages are not localised, System messages require localisation, which is relatively difficult to solve with current development stacks.   
  
A relatively common approach but not perfect way to address this is to develop localised Resources that are referenced via ReferenceKeys as the Subject and Body of the notification.

#### Attachments

Messages may contain attachments. In a system, these may be generated PDF reports generated asynchronously, for example.

#### Delivered

A message should be marked as delivered when all Recipients have received the message.

#### Read

A flag can be set on the individual message when it is opened.   
It should be able to be reset to Unread if the end user wishes to.

# Message Types

Messages are sent within system and externally, via Email or similar private channel.

Messages can be organised to some extent into the following categories:

* System Availability & Feature Changes
* User Identity Changes
* User Status Changes
* User Onboarding Advice
* Group Membership & Status Changes
* Resource Membership & Status Changes
* User [Group|Resource] Role Changes

## System Availability & Feature Changes

### System will be Unavailable

When a system will be taken offline for maintenance it is customary to let people know ahead of time the reason, when, and how long it is expected to last, what are the positive outcomes of the change.

Delivery: limit to internal only – do not send out an email notification.

Note:  
consider removing the message from users’ messages, whether seen or not, although there is an argument to not remove the message, as this might be erasing unique information about the features delivered.

### System Feature Release

When a new feature is released, it should be celebrated and made known.

Note:  
It’s remains one of the most powerful ways to promote the value of the system to maintain current users while attracting new ones.

### System Feature Pending Removal

When a feature is slated for removal, it should be explained why, and when the functionality will no longer be made available to Users.

### System Feature Removal

When a feature is removed, it should be again explained why.

System Terms & Conditions Changed

Users must be notified that T&Cs have been updated.

Note:  
In web apps this can be developed as Requirement the next time they sign in.

System Data Policy Changed

The same applies for Privacy

System Privacy Policy Changed

## Tenancy Messages

In a SaaS dominated world, it is recommended that new systems are developed to host multiple tenancies, using a common datastore.

Note:   
it is a common belief but logical error to view a Tenancy requires sperate datastores for each tenancy.

### Tenancy Disabled

A whole tenancy within a system can be disabled. In a commercial application this might be because a subscription is an arrears.

### Tenancy Expiring

If no user has signed into a Tenancy in a long time, it is logical to expire the agency, giving warning to users who are accountable for it.

### Tenancy Expired

If the Tenancy Expiring Message did not elicit action, after a configurable delay the tenancy should be expired.

Note:  
An expired tenancy can be retrieved at a later date if so desired.

## User Identity Messages

### Different Device

User has signed in from a different Device than from any previously known Devices known for the User.

Note:  
This message should be suppressed for when a User first signs in.

### User Password Credential Changed

When a system authenticates users using a 3rd party Identity Provider (IdP), the processes of managing User credentials is unknown to the business system, so the system will not know about these changes, and cannot issue a message.

This condition applies only if the System is handling an in-system username/password credential storage approach for at least some of its users. In which case the system can know about a password change, and send out a notification to the end user asking them if that is something they are aware of, and if not to Change their Password.

### User Phone Number Credential Changed

The same conditions apply if a User’s phone number -- used for Two Factor Authentication (2FA) – is changed.

## User Status Messages

### Welcome

Message emailed to new Users when their record is developed within the User table.

### User Disabled

Message when a System Operator or Monitoring Security Specialist disables a User.

### User Expiring

A User should not be made permanent. A known key security risk is Accounts that people have forgotten, and their credentials discovered. Hence, they should be retired after a reasonable duration (e.g.: after a year of inactivity).

A notification should be sent to the Manager of the User that the User’s account belongs to let them know to extend the User’s contract.

A notification should be sent to the User to let them know.

### User Expired

If no action was taken when a User was notified that their account was expiring, then the user account’s status is expired.

Message sent when a User has not used the system for a configurable duration of time.

## Onboarding Messages

When a new user is onboarded, it is common practice to send them information to help them learn how to use the system.

* **Documentation and Assistance**: where to find a general high level Service Description of its purpose and benefits, a FAQ, Documentation, User Forum, Support, Contact

**Improvement**: how to rate, comment on, raise issues, and/or desired changes to improve the service.

* **Preferences**: How to configure a person’s personal system profile.
* **Groups**: How to interact with others via Groups
* **Resources**: How to collaborate with others on Resource development.

The above advice is generally sent out with intervals (e.g., a week) in between each

A common naïve approach is to send out advice at a cadence, although this can lead to users are receiving advice on Resources 5 weeks after they signed up -- which is way too late.

An alternate approach is to send out Congratulatory messages when they’ve tried a feature, using the message to also provide advice on advanced aspects of the feature they may not have yet considered and discovered.

If they have not tried the feature, the advice should be sent out without a congratulations, just some encouragement to try the feature.

## Group & Resource Messages

Users can have Roles within Groups or Resources.

For example, a User can be Accountable, Responsible, Consulted, Informed, Guest or simple be a Member of a Group. A User’s Group Membership Role in turn permits what Roles a User can have with the Resources that belong to the Group.

For example, a User can be the Creator or be invited by another to be a Collaborator, Reviewer, Approver, Maintainer of the Resource.

Note:  
All Roles are just logical groupings of Permissions specific to the Group or Resource entity type in question.

### Group|Resource Disabled

Message when a Group Manager or Group Accountable disables the group. It is sent out to impacted Group members.

Note:  
Group Members who are neither Informed or Consulted or Responsible may not be informed via Message.

### User|Resource Group Expiring

A Group should not be a permanent structure and should expire unless Extended.   
A configurable duration of time before it expires a notification should be sent out Group Managers and Accountable members asking alerting them to the impeding expiry of the group.

### User|Resource Group Expired

If no action is taken when a User Group Expiring notification is sent out the Group expires naturally.

### [Group|Resource] Status Change

A message can be sent out to members when the status of the Group or Resource change.

Note:  
It should be a user preference as to whether a person wants to be notified or not.

### [Group|Resource] Membership Change

A message can be sent out when a user accepts an invitation to join the group in a new Role.

Note:  
It should be a user preference as to whether a person wants to be notified or not.

## Role Messages

### [Group|Resource] Role Invitation

Message sent from a permitted User to another User to take on a Role.  
The message should list or link to the Role’s Responsibilities and Permissions.

The message should contain a link to a workflow that logs the acceptance of the version of the Responsibilities, associates the User to the Role, and directs them to a target view (e.g., Authenticated User’s Desktop).

### [Group|Resource] Role Invitation Accepted / Role Allocated

Message to signal to a User that they have accepted a Role and its Responsibilities, in return for its Permissions.

### [Group|Resource] Role Expiring

Message sent to a User a configurable duration of time before the date and time when a Role is disabled.

### [Group|Resource] Role Extension Request

Message sent by a User to an admin Role to request an extension of a Role by a specific duration.

### [Group|Resource] Role Extended

If the request is accepted, A Message is sent out to the user signalling that both the Role’s status flag and end date is changed.

### [Group|Resource] Role Expired

When a Role has expired and been disabled, a message is sent to the user informing them of this fact, and instructions to send a Role Extension Request message.

### [Group|Resource] Role Permissions have Changed (Role Added)

When an existing Role is changed by adding or removing Permissions, a notification is sent out to all users with that Role.

### [Group|Resource] Role Permissions have Changed (Role Remove)

When an existing Role is changed by adding or removing Permissions, a notification is sent out to all users with that Role.

Note:  
an issue to consider with this direction is that Permission can be added without the User accepting the Obligations that come with the new Permission.

## Custom Messages

Logical modules within a parent system may develop additional System Messages, noting that System Roles require localisation, which is a non-trivial task to solve for.

Appendices

Appendix A - Document Information

### Author & Contributors

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### Versions

* 1. Initial Draft
  2. Reorganising
  3. Added Tenancy and details

### Images

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### Tables

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### References

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### Review Distribution

The document was distributed for review as below:

|  |  |
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| Sandy Britain, Enterprise Architect |  |
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### Audience

The document is technical in nature, but parts are expected to be read and/or validated by a non-technical audience.

### Structure

Where possible, the document structure is guided by either ISO-\* standards or best practice.

### Diagrams

Diagrams are developed for a wide audience. Unless specifically for a technical audience, where the use of industry standard diagram types (ArchiMate, UML, C4), is appropriate, diagrams are developed as simple “box & line” monochrome diagrams.

### Terms

Refer to the project’s Glossary.

##### IT

: acronym for Information, using Technology to automate and facilitate its management.

##### ICT

: acronym for Information & Communication Technology, the domain of defining Information elements and using technology to automate their communication between entities. IT is a subset of ICT.