Responder: Notification Acknowledgement
Android Phone Application

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Notification Acknowledgement Android Phone Application

• **Background**
  - GPM uses an email and text based notification system for sending messages and alerts about spacecraft and ground system health
  - Standard phone messaging applications provided a bad and difficult experience for viewing and responding to messages
  - A phone based application was wanted to give a better, simpler, and faster viewing and responding experience
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- Example of GPM’s Notification System

![Diagram showing the connection between different systems and the on-call cell phone(s) through SMS Gateway.](image)
Design and Development Plan

- Iterative and Cyclical Approach
  - Requirements Gathering
  - Feasibility Research
  - Coding
  - Testing

- Agile Design methodology
  - Short development time
  - Informal planning and design
  - Focus on working product over documentation

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Objectives

- Create a simple way of responding to GPM’s notification system
- Show the status of a notification message in its lifecycle
- Make the job for the on-call personnel easier
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- Notification Lifecycle
  1. Message Generated
  2. Message Sent
  3. Acknowledged
     - Notifications escalate up a call tree if not acknowledged
  4. Acknowledged Received
     - Notification ends once it has been acknowledged

![Diagram showing the notification lifecycle](image_url)
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- **Simple Intuitive User Interface**
  - Navigation and interactive response similar to standard email/messaging applications
  - Easy manipulation of multiple messages at once
  - Quick and simple acknowledgments
  - Effectively displays different information about multiple messages
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- Home Screen/Message List
  - Scrollable list of messages with summary preview
  - Manipulate multiple messages with long press
  - Multiple indicators of message status
  - Single click opens up detail message view
• Message List Item Design
  ▪ State of the message is shown via icons and background colors
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- **Detail Message View**
  - Navigate here by single press on list item
  - Shows the full message as it was received
  - Shows where the message came from
  - Shows when the message was received
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- Configurable and Flexible
  - Client side configuration makes it easy to change notification architecture
  - Receive and process messages from different senders
  - Receive messages from different notification groups
  - Change phone notification settings based on type of message and/or state of the message
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• Configuration
  ▪ User based settings allow for flexibility and adaptability to different notification architectures
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- General Settings
  - Configure message filter for different phone numbers or email addresses
  - Configure for different ID indicators
  - Configure Auto Delete function
  - Turn logging on or off
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- Notification Settings
  - Turn on or off phone notifications
  - Set different sounds for Notification messages vs Acknowledgement Received messages
  - Choose which level of the call tree triggers a phone notification
Notification Architectures (Client Side)

- Responder settings allow for configuration to occur on the User/Client not just the Server side
- Multiple clients can have different configurations to assure the correct person is being notified

<table>
<thead>
<tr>
<th>Multi-client Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Client</strong></td>
</tr>
<tr>
<td>Primary</td>
</tr>
<tr>
<td>Backup</td>
</tr>
<tr>
<td>Everyone Else</td>
</tr>
</tbody>
</table>
• Notification Architecture (Server Side)
  - Simplified call tree configuration with Responder
  - Less need to make changes to server side rules for changes in notification architecture
  - Can send all notifications and all acknowledgement received to all phones and let user decide when and how to get notified.
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Complex Server Configuration

Simple Server Configuration
• Future work
  - Ability to upload configuration file to quicken setup after install or update
  - Add a Library section for viewing and searching fault or error codes