Healthcare Coalition
Melody, Abby, Caroline, Sam, Elijah
Virginia based healthcare coalition

- Serves ~1 million people
  - Hospitals
  - Long-term care facilities
  - Public health
  - Emergency management

- Coordinates partner response activities during disasters
  - COVID-19 pandemic

http://nspa1.org/
Incident Command System (ICS) Form

<table>
<thead>
<tr>
<th>Date Submitted:</th>
<th>PPE Request Form – COVID19</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Page 1 of 2 Version 04-20-2020</td>
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</tbody>
</table>

**I. REQUESTING AGENCY POINT OF CONTACT - Please Type all Answers**
1. Requestor’s Name (Please Print) | 2. Title | 3. Requestor’s Phone No. |
4. Hospital Name - System (If requesting for entire hospital system, which facilities does this include?) | 5. Requestor’s E-Mail Address |
6. DELIVERY Address (Include any special instructions, such as if there is a loading dock, or a 24/7 number needs to be called, etc.) | 7. 24/7 Contact Name and Phone number for delivery issues |

**II. REQUEST SPECIFICS - Please Type all Answers**
7. Order (Please complete all fields)

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Kind</th>
<th>Brand</th>
<th>When will you run out of your current supply? (estimated)</th>
<th>Detailed Item Description: (Vital characteristics, brand, specs, experience, size, etc.)</th>
<th>Date Needed, pending availability</th>
</tr>
</thead>
<tbody>
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</table>

8. If resources request has been fulfilled regionally, please explain how

9. [ ] The resource CANNOT be fulfilled locally

10. [ ] The resource CANNOT be fulfilled regionally
### III. Additional COVID-19 Related Questions – ALL QUESTIONS ARE REQUIRED AND MUST BE FILLED OUT TO THE BEST OF YOUR ABILITY

11. As of the request date, what is your current supply of each of the items, in individual units, you requested?

12. For each item you requested, how many do you use each day when caring for emergent and urgent patients?

13. Are the items requested being used for emergent or urgent care only?

14. What conservation measures have you put into place?

15. Have you cancelled elective surgeries and/or non-urgent outpatient appointments (if applicable)?
General Solution

Requestor:

- Open a ticket & submit
- Check ticket status
- Request ticket updates
- Avoid login feature
General **Solution**

**Director capabilities:**
- Escalate ticket
- Delete/close tickets

**All staff:**
- Login
- View all tickets
- Assign priority
- Communicate to client
- Assign tickets to staff
Ticketing systems

- Document client requests and interactions
- Provide better organization, communication, and accessibility between client and staff
- Monitor ticket statuses in real-time
- Tickets are usually ordered by priority so that the most urgent tickets are resolved more quickly
- Records of tickets are stored in a database unless deleted
Opening a new ticket with **osTicket**

Near Southwest Preparedness Alliance

*Dedicated to enhancing regional preparedness and response to disaster.*

In order to streamline support requests and better serve you, we utilize a support ticket system. Every support request is assigned a unique ticket number which you can use to track the progress and responses online. For your reference we provide complete archives and history of all your support requests. A valid email address is required to submit a ticket.
Hi Melody,

An access link request for ticket #799067 has been submitted on your behalf for the helpdesk at https://128.220.221.23/osTicket.

Follow the link below to check the status of the ticket #799067.

https://128.220.221.23/osTicket/view.php?auth=p1x2aaaapgaaaaa3UO1os0%2F%7E3AI%7D3D

If you did not make the request, please delete and disregard this email. Your account is still secure and no one has been given access to the ticket. Someone could have mistakenly entered your email address.

--
Near Southwest Preparedness Alliance
Hi Admin,

New ticket #762095 created

From: Melody
Department: Support

To view or respond to the ticket, please [login] to the support ticket system.

Your friendly Customer Support System

Powered by [osTicket]
Checking ticket status

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Staff log in
### Staff view of tickets

The image shows a screenshot of a staff view of tickets in a help desk system. The interface includes a dashboard view with tabs for Dashboard, Users, Tasks, Tickets, and Knowledgebase. The Tickets tab is opened, displaying a list of tickets with columns for Ticket ID, Last Updated, Subject, From, Priority, and Assigned To.

- **Ticket ID** includes entries like 030177, 0762085, etc.
- **Last Updated** shows dates and times, for example, 2/22/21 3:38 PM.
- **Subject** contains various entries, such as 'hello', 'subject', 'tits', etc.
- **From** includes names like 'test', 'Melody', 'Abby', etc.
- **Priority** ranges from Low to High.
- **Assigned To** lists names like 'NSPA Support', 'NSPA Support', etc.

The system is color-coded to distinguish between different statuses and priorities. The interface also includes options for sorting and filtering tickets.
**Ticket #493380**

**Status:** Open  
**User:** Test  
**Priority:** Low  
**Department:** Maintenance  
**Create Date:** 2/18/21 1:05 PM  
**Assigned To:** — Unassigned —  
**SLA Plan:** Default SLA  
**Due Date:** 2/22/21 1:05 PM  
**Help Topic:** Feedback  
**Last Message:** 2/18/21 1:05 PM  
**Last Response:**

### Request specifics

<table>
<thead>
<tr>
<th>Quantity</th>
<th>—Empty—</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kind</td>
<td>—Empty—</td>
</tr>
<tr>
<td>Brand</td>
<td>—Empty—</td>
</tr>
</tbody>
</table>

**When will you run out of your current supply? (estimated):** —Empty—

**Detailed item description (vital characteristics, brand, specs, experience, size, etc.):** —Empty—

**Date needed, pending availability:** —Empty—

**If resources request has been fulfilled regionally, please explain how:** —Empty—

**The resource CANNOT be fulfilled locally:** No

**The resource CANNOT be fulfilled regionally:** No

**As of the request date, what is your current supply of each of the items, in individual units, you requested?** —Empty—

**For each item you requested, how many do you use each day when caring for emergent and urgent patients?** —Empty—

**Are the items requested being used for emergent or urgent care only?** —Empty—

**What conservation measures have you put into place?** —Empty—

**Have you cancelled elective surgeries and/or non-urgent outpatient appointments (if applicable)?** —Empty—

---

**Ticket Thread (1)**  
**Tasks**
Communicating to requestor
Lots of PHPs!
Designing it From **Scratch**

![Form Image]

Welcome to The Main Event!!!

- Name: 
- Email: 
- Priority: 
- Time: 

[Request]

---

Welcome to The Requests Page!

<table>
<thead>
<tr>
<th>Name</th>
<th>Priority</th>
<th>Time</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caroline Hoerner</td>
<td>UNSET</td>
<td>2021-04-29 23:20:43.125</td>
<td><a href="mailto:choerner@gmail.com">choerner@gmail.com</a></td>
</tr>
</tbody>
</table>

[See Full Request]
Tradeoff: osTicket vs Scratch

**osTicket**

**Pros**
- Provides a more immediate product that fulfills what we need
- Is already implemented for us

**Cons**
- Less flexible (already implemented)
- Troubleshooting is problematic
- The log in function is difficult to remove
- Several pre-existing PHP files
- Limited documentation

**Scratch**

**Pros**
- Flexibility
- Not finished on week 1
- Valuable learning/prof. experiences

**Cons**
- Time consuming
- API/Library Sleuthing
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Development Stages

**Basic DB and UI structure & client functionality**
Request creation & visualization, check request status, email receipts

**Develop staff functionality**
Staff login, categorizing & editing requests, tabs for new/open/closed requests
*Minimum viable product ready*

**Receive feedback**

**Feedback adjustments & new features**
Adjust form fields, reorganize staff request tabs
Implement 'escalate request', search feature, pdf's, password reset

**Receive feedback**

**Fine-tuning code, stress-testing, documenting software and code.**
*Finished Product*
Database Design
Software Design: Client-Server Architecture
Client-Server Architecture Examples:

**Searching Requests:**

*Request*
Staff selects request attribute & searches with a keyword
Get Request made to server

*Response*
Server performs DB queries
Server loads a list of requests containing the keyword

**Submitting Requests:**

*Request*
Client fills out form fields & submits
Post Request made to server

*Response*
Server validates submission and stores request in database
Server confirms submission; sends email receipt to client
Notable APIs

- SendGrid
- PDFBox®
- Puppeteer
Sendgrid - Emails

- Free plan - 100 emails/day
- Request submission receipts
- Password reset

Dynamic Templates: Drag & Drop Programming

Order Confirmed!
Below is the information for your request.

Request ID: [{{id}}]

Client information:
[{{name}}]
[{{email}}]
[{{phone}}]
[{{proofID}}]
[{{id}}]
Order Confirmed!

Below is the information for your request.

Request ID: ITLmN3THWA

Client Information:
Samuel Morgan
samuel.thorogood@gmail.com
7817075464
2AM
2900 N Calvert St.

View Request Status

Unsubscribe - Unsubscribe Preferences
Puppeteer - Stress Testing

▸ Test storage limitations

```javascript
const puppeteer = require('puppeteer');

(async () => {

    const browser = await puppeteer.launch({headless: true});
    const page = await browser.newPage();
    await page.goto('http://rain16.cnds.jhu.edu/nspa/requestform');

    // start filling in fields
    await page.type('#name', 'Sam Horrigan')
    await page.type('#title', 'Mr.')
    await page.type('#phone', '7817077070')
    await page.type('#hospital', 'JHH')
    await page.type('#email', 'samueldhorrigan@gmail.com')
    await page.type('#facility_address', '2900 N Calvert St.')
    await page.type('#facility_city', 'Baltimore')
    await page.type('#facility_state', 'MD')
    await page.type('#facility_zip', '21218')
    await page.type('#special_shipping_instructions', 'fast')
    await page.type('#facility_type', 'house')

x10,000
```
Issues We Faced

- Rain3 killed by PDFBox
  - Permissions were unintentionally rewritten when attempting PDF download
- Database changes
- Cookie structure enabled external log in
Our Servers

Local changes - Master branch

Development server - Rain16

Production server - Rain2
Demo
Considerations before going Live

- Privacy Policy
The **Future** of Our System

- Copyright
- Documentation
  - JavaDoc
  - Database schema and tables
  - Installation and Database backups
- Doc for NSPA
Questions?
Thanks!