# SCRAM

## Secure Cyber Risk Aggregation and Measurement

Internet Policy Research Initiative
Massachusetts Institute of Technology

# **Backgrounder:**
# Running the computation

# **Backgrounder:**
Keys / encryption / decryption

# Decision: Key holder?


Key holder and data provider

- **Step 1: Generate keys**
  - Login
  - Create key
  - Secure with password
  - Store on server or locally
- **Step 2: Encrypt and upload data**
  - Login (if time delayed)
  - Upload data into browser
  - Encrypt and send to MIT
- **Step 3: Decrypt the result**
  - Login (if time delayed)
  - Enter password to use private key to decrypt results

Data provider only

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# Suggestion on holding keys

Our computation can be done in one sitting, so I suggest we make everyone a keyholder and go through it together

# Step 1: Generating the keys

| | |
|---|---|
| You are a Key Holder | Perform Keyholder Role |
| You are entering data | Enter Data |

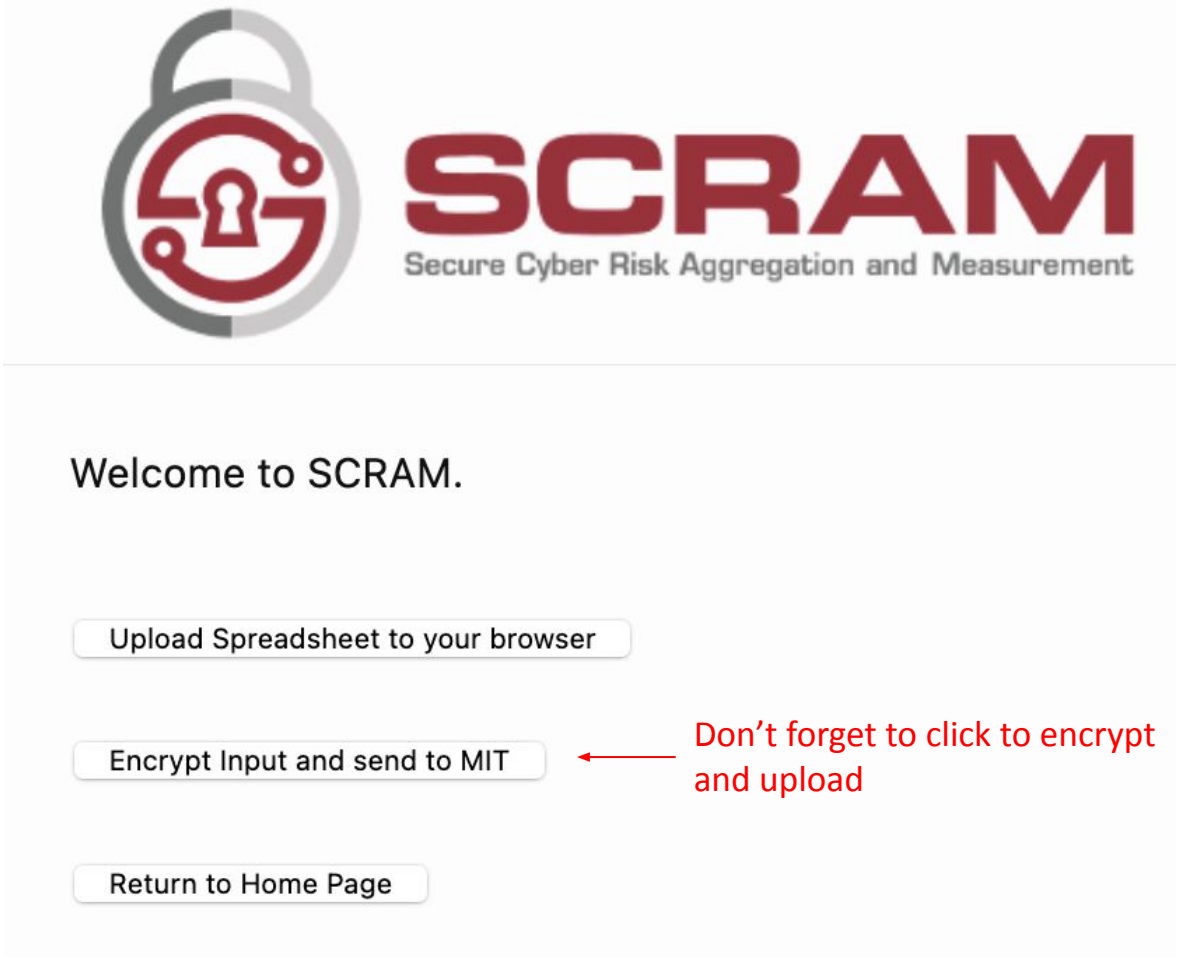
- Start by clicking on “Perform Keyholder Role”
- Put in a strong password that is used to encrypt your private key for storage
- Select where to store the key (MIT server or your hard drive). If you choose the local option, make sure to put it in a place you will be able to find it again easily. Otherwise, we cannot decrypt any of the the results


Click “Generate Key” to complete

# Step 2: Uploading and encrypting the data

| | |
|---|---|
| You are a Key Holder | Perform Keyholder Role |
| You are entering data | Enter Data |

- There are two important steps here
  - **Part 1:**
    Upload the spreadsheet into the browser
  - **Part 2:**
    Encrypt input and send to MIT

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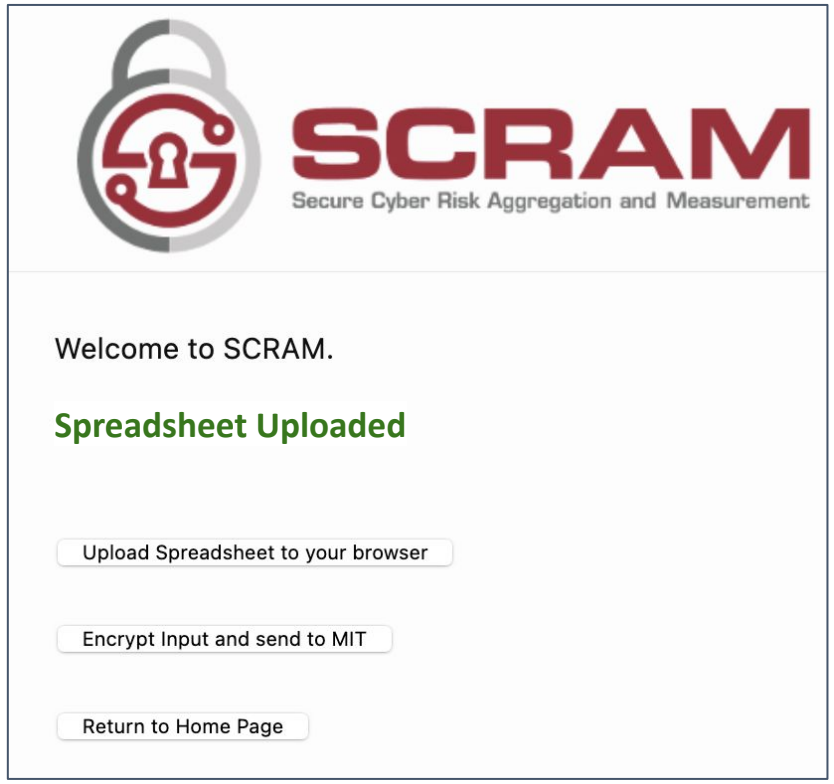
# Step 2: Confirmations

**Confirmation Part 1: Data in browser**




**Confirmation Part 2: Data uploaded**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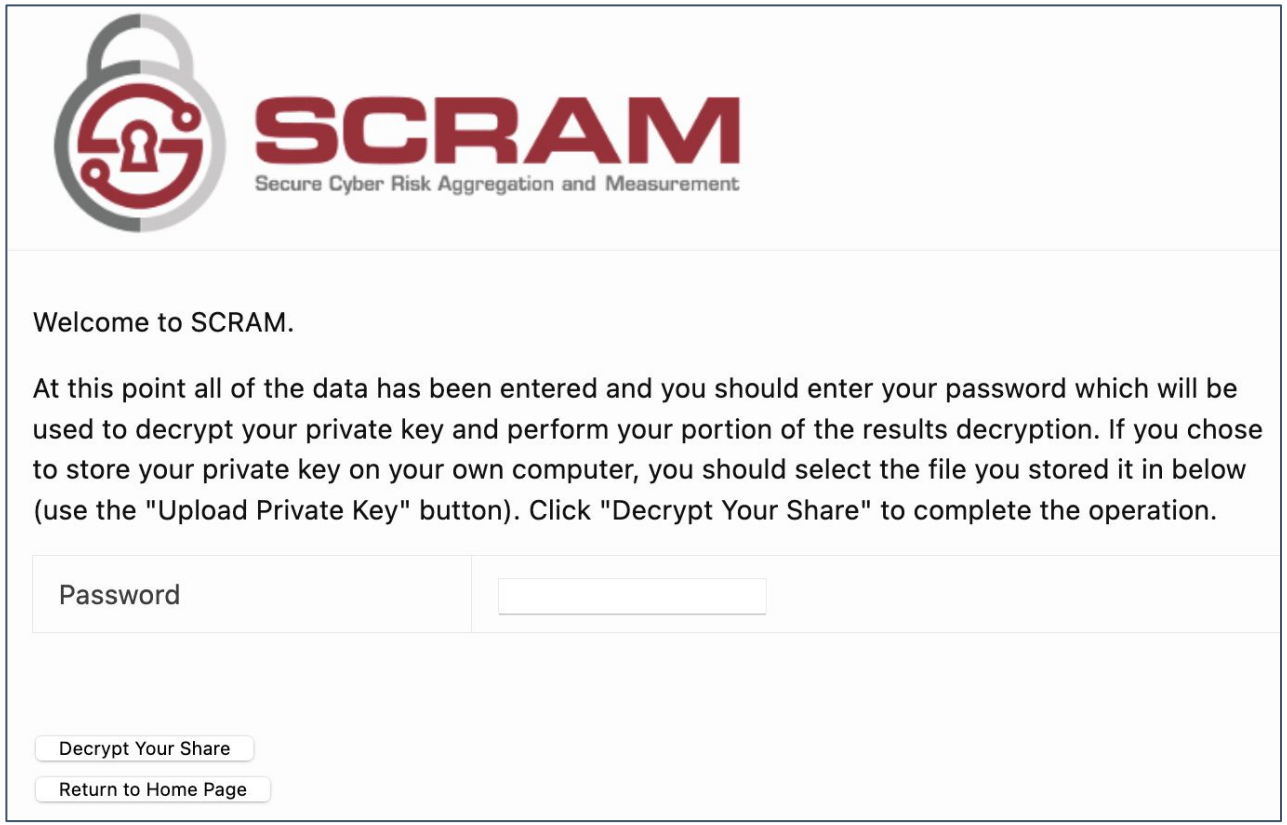
# Step 3: Decrypting the results

| | |
|---|---|
| You are a Key Holder | Perform Keyholder Role |
| You are entering data | Enter Data |

- Put in the password to decrypt your private key and then click “Decrypt Your Share” to perform the partial decryption of the result and send it to be combined with others

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# Credentials
# (Let us know how you want to receive them)

# Thank you