## GENI Aggregate GMOC Turn-up Process

### Flowchart

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**Notes:**
- The process begins with the Aggregate Operator/Racks Team initiating the turn-up process.
- The Emergency Stop Contact Info is collected and used to create a GMOC Master Turn-up Ticket.
- The ticket is assigned to the GMOC Service Desk for further action.
- The GMOC Service Desk creates a maintenance ticket and notifies GENI-Ops about mesoscale connectivity.
- The GMOC Systems verify the data submission and set it back to service.

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GENI Aggregate GMOC Turn-up Process

1. Initial GMOC Contact

1.1. Create GMOC Master Turn-up Ticket

Aggregate operator, GENI racks team, or GPO contacts GMOC when aggregate/rack is ready to be turned up - usually after a GENI rack arrives at a site or aggregate/OpenFlow infrastructure is installed. GMOC Service Desk creates a master ticket for turning up a GENI aggregate. Individual sub-task tickets are created for various parts of the process: (emergency stop contact info, mesoscale data-plane connectivity and testing, GMOC data submission/monitoring, emergency stop test, etc.). The master ticket stays open until all the sub-tasks have been completed.

- Racks team, aggregate operator, and GPO are notified of opened/closed master ticket.

2. Emergency Stop Contact Info

2.1. Sub-task for Emergency Stop Contacts

Sub-task ticket is created for GMOC SST (specialized support technician) to work with the aggregate operator, racks team, or site rack operator to gather contact information for the emergency stop. Organization, PoP, and contacts data is entered into the GMOC-DB.

The following information should be collected:

The GMOC emergency stop contact list should consist of two contacts with an email and a phone number for each GENI aggregate:

1. **Primary Emergency Stop Contact** -- an initial contact or list to receive notification of an emergency stop request. For GENI racks, this can be a site mailing list. For GENI regionals, this may also be a NOC (provided they are aware of the emergency stop process found on the GMOC website: [http://gmoc.gmoc.iu.edu](http://gmoc.gmoc.iu.edu)).
2. **Escalation Emergency Stop Contact** -- a personal, long-lived contact to receive escalation notifications of emergency stop requests.

- This sub-task ticket is closed and master updated when this is completed.
- New sub-task ticket is opened to track mesoscale data-plane connectivity/testing.
3. Mesoscale Data-plane Connectivity/Testing

3.1. Mesoscale Connectivity and Testing
   - GENI aggregate should work with GPO and/or GMOC for mesoscale data-plane connectivity.

3.2. Coordinate Mesoscale Connectivity
   Below are the steps for aggregate operator and/or racks teams to follow to coordinate mesoscale connection(s).

   1. Coordinate with the GPO to set up upstream mesoscale connections
      - Before actually establishing a connection, open a GMOC ticket to track data-plane connection and testing
      - Coordinate with the GMOC on the date for connection and testing
      - Coordinate data-plane connectivity testing with the GPO and the GMOC using a GMOC ticket

   2. Provision a port for downstream campus resources, and add a test point to that port for data-plane connectivity testing

   3. Coordinate any other data-plane connections with the GPO and other rack teams
      - Before actually establishing an additional remote connection, open a GMOC tracking ticket
      - Coordinate with the GMOC on the date for connection and testing
      - Coordinate data-plane connectivity testing with rack teams, the GPO, and the GMOC using a GMOC ticket

3.3. Scheduled Maintenance Ticket
   Standard GMOC scheduled maintenance ticket with a note about a new GENI aggregate/rack being connected to the mesoscale.

3.4. Notify GENI-Ops about Mesoscale Connectivity
   Standard maintenance completed notification goes out to the GENI-Ops list with a note that a campus, rack, or regional is now connected to the mesoscale (does not mean rack is in production)

   - This sub-task ticket is closed and master updated when this is completed.
   - New sub-task ticket is opened and assigned to GMOC systems team to begin GMOC data submission/monitoring setup.
4. Setup GMOC Data Submission & Monitoring

4.1. Collect Necessary Information
After mesoscale connectivity is completed, a GENI site or racks team should contact GMOC with "Measurement API Secret" in hash for creating data submission site credentials. Site needs to also provide the following:

1. Site name (gpolab, UEN, InstaGENI-Northwestern, etc.).
2. POP name and address (if not already in the database).
3. POP operator organization (if not the same as the site organization).

GMOC Service Desk creates a ticket to assign to GMOC systems engineer to complete site credentials creation and verify proper GMOC Data submission from the site.

4.2. Sub-task for GMOC Data Submission
New sub-task ticket is opened and assigned to GMOC systems team to begin GMOC data submission/monitoring setup. Measurement API secret hash and "site name" will need to be provided by the aggregate operator or racks team to create an account and begin GMOC data submission.

- Create POP in the GMOC-DB if one does not exist already.
- Create site credentials for GMOC data submission.
- Provide following to aggregate operator for use in the GMOC data submission config (example):

  SITENAME: InstaGENI-Northwestern
  ORGNAME: urn:publicid:IDN+gmoc.geni.net+organization+Northwestern
  POPNAME: urn:publicid:IDN+gmoc.geni.net+pop+Northwestern

- GMOC systems team works with the aggregate operator or rack team contact to get data submission/monitoring up and running.
- Adds aggregate host name to GMOC reporting tool for biweekly operations reports.

5. Verify/Complete

5.1. Systems/SD Verifies Data Submission
GMOC systems verifies that all data submission, monitoring, and reporting data is being received, turns ticket back over to service desk as “completed.”

- GENI racks are expected to send data for two aggregates. GMOC should verify that data is being received for both aggregates and shows up in GMOC-DB.
  - For ExoGENI, we should expect both: FOAM and ORCA
  - For InstaGENI we should expect both: FOAM and ProtoGENI

GMOC service desk closes the data submission sub-task ticket. Reviews any remaining sub-tasks and closes the master turn-up ticket.

- Aggregate operator, racks team, and GPO are notified of ticket closing and completion.