

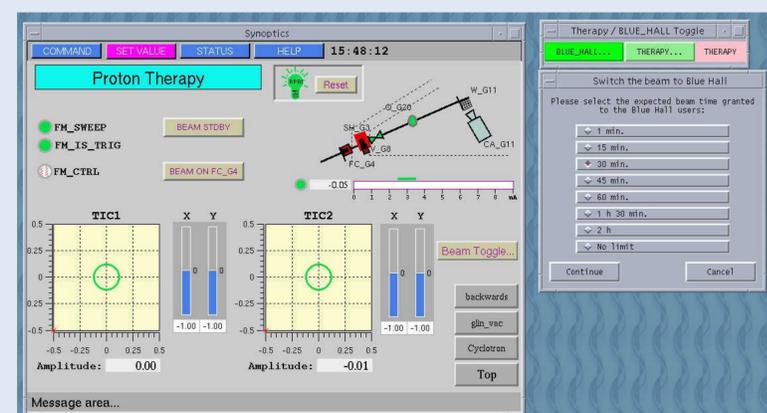
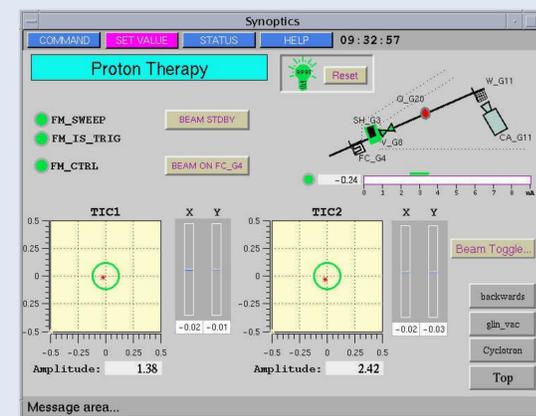
# Beam Sharing between the Therapy Treatment and a Secondary User

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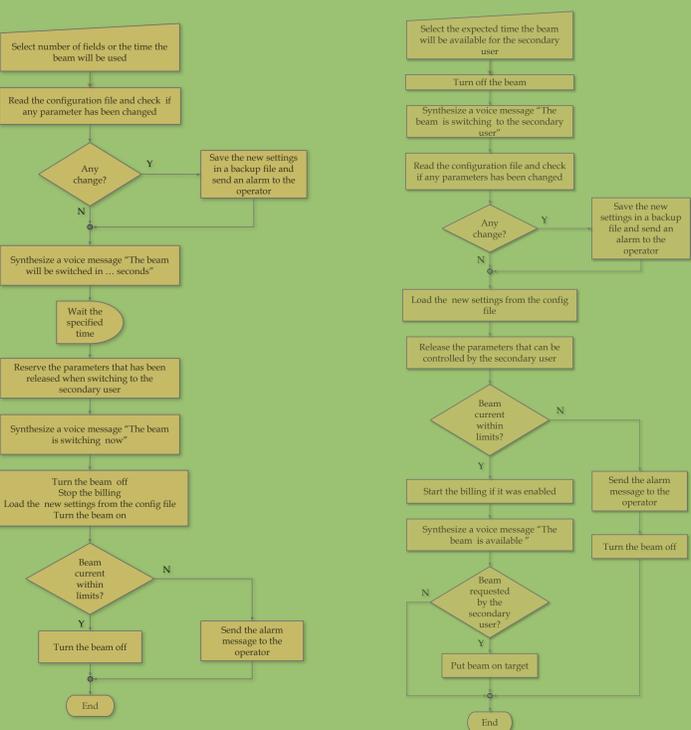
## Overview

The 180 MeV proton beam from the cyclotron at The Svedberg Laboratory is primarily used for patient treatment. Because of the fact that the proton beam is needed only during a small fraction of time scheduled for the treatment, there is a possibility to divert the beam to another location to be used by a secondary user. The therapy personnel (primary user) control the beam switching process after an initial set-up which is done by the cyclotron operator. They have an interface that allows controlling the accelerator and the beam line in all aspects needed for performing the treatment. The cyclotron operator is involved only if any problem occurs. The secondary user has its own interface that allows a limited access to the accelerators control system. With this interface it is possible to start and stop the beam when it is not used for the therapy, grant access to the experimental hall and monitor the beam properties.

## Therapy operator's interface



## Beam switching algorithms



Secondary user → therapy

Therapy → secondary user

## The main features:

- The initial set-up of the beam sharing is done by cyclotron's operator.
- The beam switching is made by the primary user.
- All actions performed by the primary and secondary users are logged.
- The alarms are sent via SMS and a local paging system to the alphanumeric pagers.
- The time for which the secondary user is charged is calculated automatically.

## The benefits:

- Effective utilization of the beam time.
- Both the therapy personnel and the secondary user are "in charge" of their beam time slots.
- The cyclotron operator is "free" after the initial beam sharing set-up.

## Secondary user's interface

