Data Extraction

PRDF
- GL1P Scalers
- Bunch Numbers
- Scaler Events
- Trigger Scalers
- Time Stamp
- ATP Number

WCM/DCCT
- Individual bunch populations, blue and yellow beams
- Total beam ion population (bunched + not bunched)
- Time stamp

BPM
- Beam position (x,y) for blue and yellow beams at sector 7 and 8

Cleaning Data

PRDF
- Synchronize network time stamps from ATPs
- Separate data into bunches, and bunch integrate
- Sum scalers down to single time stamps

WCM/DCCT
- Data is ready to use, ensure synchronization to PRDF time stamp

BPM
- Data is ready to use, ensure synchronization to time stamps

Correlation and Calculation

PRDF
- Calculate scaler rates
- Correct scaler rates for live-time fluctuation (use clock-scaler if available, scaler-events if not)
- Calculate systematic, statistical errors associated with constant-beam-position scaler rates
- Correlate beam displacement & rates, fit distribution for beam width

WCM/DCCT
- Calculate corrected beam populations using WCM/DCCT

BPM
- Use BPM data to identify absolute time for constant-beam-position-steps

Systematic Corrections

Simulation
- Hourglass effect / Crossing Angle

PRDF
- Use time synchronization to correct for rate losses due to ion loss in real time
- BBC Efficiency (trigger acceptance + vertex correction)

WCM/DCCT
- Rate correction (overall correction done, but correlation is better)

BPM
- Use average RMS of fluctuation of beam position about each step average to assign systematic
- Additional systematics from magnet current
- Discussion with Angelika – is BPM data even viable, or should we use programmed step values? (Try both, compare results)