

A.5: Development of data diagnostics software for Indus-1 and Indus-2 accelerators

Two separate Data diagnostic applications are developed for Indus-1 and Indus-2 and are deployed on Indus Web Server for diagnosing the data generated by different subsystems. These applications are mainly used for finding out the reasons of partial or full beam loss events occurring in storage rings during regular operation. These web based application are developed using JavaServer Pages (JSP), JavaBeans and SQL database and operate in the intranet environment, over three tier software architecture Any abnormalities (e.g. high radiation, poor vacuum, device trip, device overload, etc) occurred just before beam loss event are searched and reported by this application (Fig. A.5.1).

Abnormalities Observed By Miscellaneous Systems On Beam Loss Event

Time: 2012-10-19 15:03:28.0

Event: Indus-2 Stored Beam Current decreased from 85.84 mA to 1.79 mA

Sr. No.	Time	System Name	Device Name	Abnormality Observed
1	2012-10-19 15:02:55.477	Indus2 RSSS	Beam Loss Monitor 12 Readback	Value more than 0.5
2	2012-10-19 15:03:26.363	INDUS2 RF	RF Strn4 SysInterlock	Alarm
3	2012-10-19 15:03:26.457	INDUS2 RF	RF Strn4 RF Trip	RF Trip

Figure A.5.1: Abnormalities observed by the software

Salient Features of the applications are as follows:

1. The beam loss events within given period of time are searched. The amount of beam loss current is selectable among 0.5 mA, 1 mA, 5 mA and 10 mA.
2. Any abnormalities (e.g. high radiation, poor vacuum, device trip, etc) occurred just before beam loss event are searched and reported by the application.
3. Change in read back and set values of all the magnet power supplies and R. F. System devices/parameters

occurred just before beam loss event, are searched and reported in text and graphical format (Figure A.5.2).



Figure A.5.2: Parameter display at beamloss event

Applications also provide the feature of online downloading of data of all magnet power supplies and R. F. System's devices/parameters in csv formatted zip file for further analysis by the users.

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