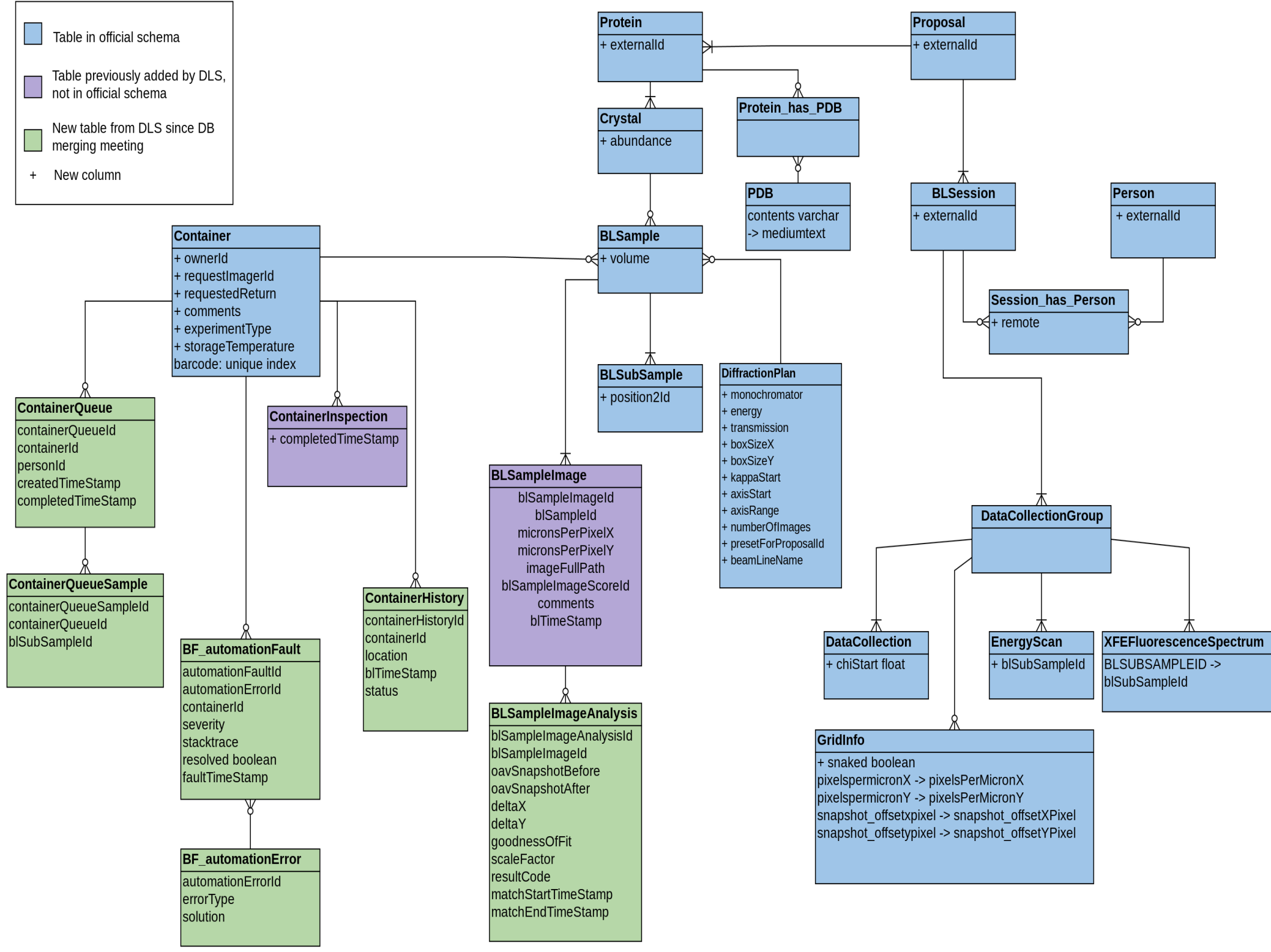
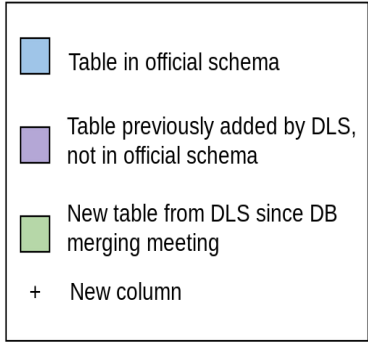


# Diamond ISPyB Schema Changes



# Crystal Imaging – New Columns

- DiffractionPlan (11 cols)
- Container (6 cols)
- ContainerInspection (1 col)

# Crystal Imaging - DiffractionPlan

```
ADD monochromator varchar(8) COMMENT 'DMM or DCM',  
ADD energy float COMMENT 'eV',  
ADD transmission float COMMENT 'Decimal fraction in range [0,1]',  
ADD boxSizeX float COMMENT 'microns',  
ADD boxSizeY float COMMENT 'microns',  
ADD kappaStart float COMMENT 'degrees',  
ADD axisStart float COMMENT 'degrees',  
ADD axisRange float COMMENT 'degrees',  
ADD numberOfImages mediumint COMMENT 'The number of images requested',  
ADD presetForProposalId int(10) unsigned COMMENT 'Indicates this plan is available to all sessions  
on given proposal',  
ADD beamLineName varchar(45) COMMENT 'Indicates this plan is available to all sessions on given  
beamline',  
ADD CONSTRAINT DiffractionPlan_ibfk1 FOREIGN KEY (presetForProposalId) REFERENCES  
Proposal (proposalId)
```

# Crystal Imaging - Container

```
ADD ownerId int(10) unsigned NULL DEFAULT NULL,  
ADD CONSTRAINT Container_ibfk5 FOREIGN KEY (ownerId),  
REFERENCES Person (personId)  
  
ADD requestedImagerId int(11) unsigned,  
ADD CONSTRAINT Container_ibfk7 FOREIGN KEY  
(requestedImagerId) REFERENCES Imager (imagerId),  
ADD requestedReturn boolean DEFAULT False COMMENT 'True for  
requesting return, False means container will be disposed',  
ADD comments varchar(255),  
ADD experimentType varchar(20),  
ADD storageTemperature float
```

# Crystal Imaging - ContainerInspection

```
`containerInspectionId` int(11) unsigned NOT NULL AUTO_INCREMENT,  
`containerId` int(11) unsigned NOT NULL,  
`inspectionTypeId` int(11) unsigned NOT NULL,  
`imagerId` int(11) unsigned DEFAULT NULL,  
`temperature` float DEFAULT NULL,  
`blTimeStamp` datetime DEFAULT NULL,  
`scheduleComponentId` int(11) unsigned DEFAULT NULL,  
`state` varchar(20) DEFAULT NULL,  
`priority` smallint(6) DEFAULT NULL,  
`manual` tinyint(1) DEFAULT NULL,  
`scheduledTimeStamp` datetime DEFAULT NULL,  
`completedTimeStamp` datetime DEFAULT NULL -- NEW column
```

# Crystal Imaging – Drop Images

- Table : BLSampleImage (not new)
- Table : BLSampleImageAnalysis (new)
- Table : BLSampleImageMeasurement (not live)

# BLSampleImage (not new)

**`blSampleImageId`** int(11) unsigned NOT NULL AUTO\_INCREMENT,  
**`blSampleId`** int(11) unsigned NOT NULL,  
**`micronsPerPixelX`** float DEFAULT NULL,  
**`micronsPerPixelY`** float DEFAULT NULL,  
**`imageFullPath`** varchar(255) DEFAULT NULL,  
**`blSampleImageScoreId`** int(11) DEFAULT NULL,  
**`comments`** varchar(255) DEFAULT NULL,  
**`blTimeStamp`** datetime DEFAULT NULL,  
**`containerInspectionId`** int(11) unsigned DEFAULT NULL,  
**`modifiedTimeStamp`** datetime DEFAULT NULL



# BLSampleImageAnalysis

```
`blSampleImageAnalysisId` int(11) unsigned NOT NULL AUTO_INCREMENT,  
`blSampleImageId` int(11) unsigned DEFAULT NULL,  
`oavSnapshotBefore` varchar(255) DEFAULT NULL,  
`oavSnapshotAfter` varchar(255) DEFAULT NULL,  
`deltaX` int(11) DEFAULT NULL,  
`deltaY` int(11) DEFAULT NULL,  
`goodnessOfFit` float DEFAULT NULL,  
`scaleFactor` float DEFAULT NULL,  
`resultCode` varchar(15) DEFAULT NULL,  
`matchStartTimeStamp` timestamp NULL DEFAULT CURRENT_TIMESTAMP,  
`matchEndTimeStamp` timestamp NULL DEFAULT NULL
```

# Crystal Imaging – Container Tables

- Table : ContainerHistory (new)
- Table : ContainerQueue (new)
- Table : ContainerQueueSample (new)

# ContainerHistory

**`containerHistoryId`** int(11) unsigned NOT NULL AUTO\_INCREMENT,  
**`containerId`** int(10) unsigned DEFAULT NULL,  
**`location`** varchar(45) DEFAULT NULL,  
**`blTimeStamp`** timestamp NOT NULL DEFAULT CURRENT\_TIMESTAMP,  
**`status`** varchar(45) DEFAULT NULL,

# ContainerQueue

**`containerQueueId`** int(11) unsigned NOT NULL AUTO\_INCREMENT,  
**`containerId`** int(10) unsigned DEFAULT NULL,  
**`personId`** int(10) unsigned DEFAULT NULL,  
**`createdTimeStamp`** timestamp NOT NULL DEFAULT CURRENT\_TIMESTAMP,  
**`completedTimeStamp`** timestamp NULL DEFAULT NULL

# ContainerQueueSample

**`containerQueueSampleId`** int(11) unsigned  
NOT NULL AUTO\_INCREMENT,

**`containerQueueId`** int(11) unsigned DEFAULT  
NULL,

**`blSubSampleId`** int(11) unsigned DEFAULT  
NULL

# Automation Fault Tables

- Table : BF\_automationFault (new)
- Table : BF\_automationError (new)

# BF\_automationFault

**`automationFaultId`** int(10) unsigned NOT NULL  
AUTO\_INCREMENT,  
**`automationErrorId`** int(10) unsigned DEFAULT NULL,  
**`containerId`** int(10) unsigned DEFAULT NULL,  
**`severity`** enum('1','2','3') DEFAULT NULL,  
**`stacktrace`** text,  
**`resolved`** tinyint(1) DEFAULT NULL,  
**`faultTimeStamp`** timestamp NOT NULL DEFAULT  
CURRENT\_TIMESTAMP

# BF\_automationError

**`automationErrorId`** int(10) unsigned NOT  
NULL AUTO\_INCREMENT,  
**`errorType`** varchar(40) NOT NULL,  
**`solution`** text



# Misc columns

- **Crystal**: abundance float
- **BLSample**: volume float
- **BLSubSample**: position2Id int(11) unsigned
- **PDB**: contents varchar → mediumtext; (approx 16MB)
- **Session\_has\_Person**: remote boolean
- **DataCollection**: chiStart float
- **EnergyScan**: blSubSampleId int(11) unsigned
- **GridInfo**: snaked boolean

# GUID columns

- **Proposal** : externalId binary(16)
- **BLSession** : externalId binary(16)
- **Person** : externalId binary(16)
- **Protein** : externalId binary(16)

# GUID columns – hex function

```
[ispyb]> select hex(externalId) from Person where  
personId = 52828;
```

```
+-----+
```

```
| hex(externalId) |
```

```
+-----+
```

```
| 67EA046EB4704F80BB4A9559D619EF6B |
```

```
+-----+
```

```
1 row in set (0.00 sec)
```

# Proposed: ContainerType

**containerTypeId** int(11) unsigned auto\_increment NOT NULL PRIMARY KEY,  
**`name`** varchar(45) NOT NULL COMMENT 'Short name',  
**fullName** varchar(45) NOT NULL COMMENT 'Full name including manufacturer',  
**capacity** smallint unsigned COMMENT 'Total n.o. drops',  
**wellsPerRow** tinyint unsigned,  
**dropsPerWellX** tinyint unsigned, **dropsPerWellY** tinyint unsigned,  
**dropHeight** float COMMENT '0.0 - 1.0 percentage of well height',  
**dropWidth** float COMMENT '0.0 - 1.0 percentage of well width',  
**dropOffsetX** float COMMENT '0.0 - 1.0 percentage offset from top-left corner of well',  
**dropOffsetY** float COMMENT '0.0 - 1.0 percentage offset from top-left corner of well',  
**wellDrop** smallint COMMENT 'Number of the drop which is the well (i.e. reservoir)'

# Proposed: BeamCalendar

**beamCalendarId** int(10) unsigned NOT NULL  
AUTO\_INCREMENT PRIMARY KEY,

**run** varchar(7) NOT NULL, – e.g. '2016-04', same as the run  
column in v\_run

**beamStatus** varchar(24) NOT NULL, – e.g. 'User Mode', 'UM  
Special Beam', 'Start up/Machine dev', 'Shutdown', ...

**startDate** datetime NOT NULL,

**endDate** datetime NOT NULL

Also: BLSession.beamCalendarId FK

Also: BeamCalendar apId(10) unsigned – see next slide

# Not yet proposed: AP

- **apId** int(10) unsigned auto\_increment primary key
- **apNumber** int(10) unsigned
- **startTime** datetime
- **endTime** datetime

# Proposed:

## BLSampleImageMeasurement

**blSampleImageMeasurementId** int(11) unsigned  
auto\_increment NOT NULL,

**blSampleImageId** int(11) unsigned NOT NULL,

**blSubSampleId** int(11) unsigned,

**startPosX** double,

**startPosY** double,

**endPosX** double,

**endPosY** double,

**blTimeStamp** datetime