IBM TRIRIGA Application Platform
Version 3.3

Post Upgrade Maintenance Specification
Note
Before using this information and the product it supports, read the information in “Notices” on page 19.

This edition applies to version 3, release 3, modification 0 of IBM® TRIRIGA® Application Platform and to all subsequent releases and modifications until otherwise indicated in new editions.

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About This Guide

This document provides scripts to accomplish an upgrade that removes unused columns from the IBS_SPEC and IBS_SPEC_ASSIGNMENTS tables in the IBM® TRIRIGA® database. These tables are the two largest and most used tables in the IBM TRIRIGA system. Removing unused columns from these tables reduces the storage space required.

Intended Audience

This guide supports system administrator personnel who are certified Database Administrators (DBAs).

Prerequisites

This guide assumes the reader has a basic understanding of IBM TRIRIGA Application Platform and the fundamental concepts required to operate the Web-based IBM TRIRIGA system.

Support

IBM Software Support provides assistance with product defects, answering FAQs, and performing rediscovery. View the IBM Software Support site at www.ibm.com/support.
1. Upgrade Process

Depending on the size of your database, this upgrade could take as long as 8 hours to complete. This is the reason IBM TRIRIGA has provided a separate upgrade process. The IBM TRIRIGA system will still function properly without applying this upgrade; however, you need to apply this upgrade. The process described in this document breaks the upgrade into two steps, which allows the work to be done on separate days.

When you perform the upgrade, keep the following requirements in mind:

- The upgrade scripts in this document can only be run after your upgrade to IBM TRIRIGA Application Platform 3.1 or later. After the scripts complete, you can use the database only with IBM TRIRIGA Application Platform 3.1 or later.
- Make sure no IBM TRIRIGA application instances are connected to the database before you start this upgrade. Stop the services and applications at their server.
- This upgrade MUST be performed by a certified DBA.

The overall goal of this upgrade is to remove unused columns from the IBS_SPEC and IBS_SPEC_ASSIGNMENTS tables. The following table lists the columns that the scripts will remove.

<table>
<thead>
<tr>
<th>Table</th>
<th>Columns That Will Be Removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBS_SPEC</td>
<td>PROPERTY_ID, LOCKED_BY, COMPANY_ID, MIN_REQD_COMPLETE, SPECIFIER_ID, SPECIFIER_FIRST_NAME, SPECIFIER_LAST_NAME, TYPICAL_SPEC_ID, APPROVAL_HISTORY, OBJECT_COLOR, WF_TEMPLATE_ID, WF_NAME, CHANGE_SYSTEM_FLAG, HIDE_TAB</td>
</tr>
<tr>
<td>IBS_SPEC_ASSIGNMENTS</td>
<td>PROPERTY_ID, UPDATED_DATE</td>
</tr>
</tbody>
</table>
The upgrade process is the same for each table on each environment (Oracle or MSSQL). This process was selected for speed of upgrade.

### Upgrade Process Steps

**Step 1** Create a temporary table with the same columns as the table being updated, but without the columns to be removed.

**Step 2** Copy all rows from the original table to the temporary table.

**Step 3** Drop the original table. This removes any indexes that were on the original table.

**Step 4** Rename the temporary table to the original table name.

**Step 5** Create new indexes on the new table.

The remaining chapters in this guide provide scripts to perform the upgrade. You can copy the appropriate scripts from this guide:

- [Oracle IBS SPEC script](#)
- [Oracle IBS SPEC ASSIGNMENTS script](#)
- [Microsoft SQL Server IBS SPEC script](#)
- [Microsoft SQL Server IBS SPEC ASSIGNMENTS script](#)
2. Oracle IBS_SPEC Script

Run the following script on an Oracle system. It removes the unused columns described above. You can copy this script from this document.

Replace the string $data_data_tblspace$ with your data tablespace name. It may be something like TRIDATA_DATA.

Replace the string $data_index_tblspace$ with your index tablespace name. It may be something like TRIDATA_INDX.

While creating indexes, Oracle requires a continuous block of free memory. This may require that you extend the size of your index tablespace.

CREATE TABLE IBS_SPEC_TMP
(
    PROJECT_ID NUMBER(20)  NOT NULL,
    SPEC_ID NUMBER(20)  NOT NULL,
    REVISION NUMBER(10)  NOT NULL,
    SPEC_TEMPLATE_ID NUMBER(20)  NOT NULL,
    TYPE_NAME VARCHAR2(100)  NULL,
    STATUS VARCHAR2(1)  NOT NULL,
    SPEC_NUMBER VARCHAR2(300)  NULL,
    SPEC_NAME VARCHAR2(100)  NULL,
    DESCRIPTION VARCHAR2(300)  NULL,
    PUBLISHED_DATE DATE  NULL,
    UOM_TYPE_CODE NUMBER(4)  NULL,
    UOM VARCHAR2(100)  NULL,
    SPEC_CLASS_TYPE NUMBER(5) DEFAULT 1 NULL,
    OBJECT_ID NUMBER(20)  NOT NULL,
    ROOT_FLG NUMBER(1) DEFAULT 0 NULL,
    CREATED_BY NUMBER(10)  NULL,
    CREATED_DATE DATE DEFAULT sysdate NULL,
    UPDATED_BY NUMBER(10)  NULL,
    UPDATED_DATE TIMESTAMP(6)  NULL,
    OBJECT_STATE VARCHAR2(100)  NULL,
    LOCATION_ID NUMBER(20) DEFAULT 0 NULL,
    ORGANIZATION_ID NUMBER(20) DEFAULT 0 NULL,
    GEOGRAPHY_ID NUMBER(20) DEFAULT 0 NULL,
    QTY NUMBER(16,4) DEFAULT 0.00 NULL,
    ROLLUP_FIELDS_FLAG NUMBER(1) DEFAULT 0 NULL,
    SCHEDULABLE NUMBER(1) DEFAULT 0 NULL,
    DELETED_FLAG NUMBER(1) DEFAULT 0 NULL,
    OBJECT_PATH VARCHAR2(500)  NULL,
    AUDIT_FLAG NUMBER(1) DEFAULT 0 NULL,
    AUDIT_LEVEL VARCHAR2(20)  NULL,
    AUDIT_COMMENT_FLAG NUMBER(1) DEFAULT 0 NULL,
    AUDIT_SIGN_FLAG NUMBER(1) DEFAULT 0 NULL,
    IMAGE_MAP VARCHAR2(400)  NULL,
    CONTROL_NUMBER VARCHAR2(200)  NULL,
    PRICE NUMBER(16,4) DEFAULT 0.00 NULL,
    TEMPLATE_VERSION NUMBER(10) DEFAULT 0 NOT NULL,
    SYSTEM_FLAG NUMBER(1) DEFAULT 0 NULL,
    SHOW_TAB_ID NUMBER(10) DEFAULT 0 NULL,
RESERVABLE_FLAG NUMBER(1) DEFAULT 0 NULL,
GU_ID NUMBER(20) DEFAULT 0 NULL,
CONVERSION_GROUP VARCHAR2(100) NULL,
EXCHANGE_DATE DATE NULL,
SYSTEM_STATE NUMBER(4) NULL
)

TABLESPACE $data_data_tblspace$

LOGGING
NOCACHE
NOPARALLEL;

INSERT INTO IBS_SPEC_TMP
(
PROJECT_ID,
SPEC_ID,
REVISION,
SPEC_TEMPLATE_ID,
TYPE_NAME,
STATUS,
SPEC_NUMBER,
SPEC_NAME,
DESCRIPTION,
PUBLISHED_DATE,
UOM_TYPE_CODE,
UOM,
SPEC_CLASS_TYPE,
OBJECT_ID,
ROOT_FLG,
CREATED_BY,
CREATED_DATE,
UPDATED_BY,
UPDATED_DATE,
OBJECT_STATE,
LOCATION_ID,
ORGANIZATION_ID,
GEOGRAPHY_ID,
QTY,
ROLLUP_FIELDS_FLAG,
SCHEDULABLE,
DELETED_FLAG,
OBJECT_PATH,
AUDIT_FLAG,
AUDIT_LEVEL,
AUDIT_COMMENT_FLAG,
AUDIT_SIGN_FLAG,

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(SELECT
  PROJECT_ID,
  SPEC_ID,
  REVISION,
  SPEC_TEMPLATE_ID,
  TYPE_NAME,
  STATUS,
  SPEC_NUMBER,
  SPEC_NAME,
  DESCRIPTION,
  PUBLISHED_DATE,
  UOM_TYPE_CODE,
  UOM,
  SPEC_CLASS_TYPE,
  OBJECT_ID,
  ROOT_FLG,
  CREATED_BY,
  CREATED_DATE,
  UPDATED_BY,
  UPDATED_DATE,
  OBJECT_STATE,
  LOCATION_ID,
  ORGANIZATION_ID,
  GEOGRAPHY_ID,
  QTY,
  ROLLUP_FIELDS_FLAG,
  SCHEDULABLE,
  DELETED_FLAG,
  OBJECT_PATH,
  AUDIT_FLAG,
  AUDIT_LEVEL,
  AUDIT_COMMENT_FLAG,
  AUDIT_SIGN_FLAG,
  IMAGE_MAP,
  CONTROL_NUMBER,
  PRICE,
  TEMPLATE_VERSION,
  SYSTEM_FLAG,
  SHOW_TAB_ID,
  RESERVABLE_FLAG,
  GUI_ID,
  CONVERSION_GROUP,
  EXCHANGE_DATE,
  SYSTEM_STATE
FROM IBS_SPEC);
DROP TABLE IBS_SPEC;

ALTER TABLE IBS_SPEC_TMP RENAME TO IBS_SPEC;

ALTER TABLE IBS_SPEC ADD (CONSTRAINT PK_IBS_SPEC PRIMARY KEY (SPEC_ID, REVISION) USING INDEX TABLESPACE $data_index_tblspace$ PCTFREE 10 INITRANS 2 MAXTRANS 255 STORAGE (INITIAL 200M MINEXTENTS 1 MAXEXTENTS 2147483645 PCTINCREASE 0)));

CREATE INDEX IDX04_IBS_SPEC ON IBS_SPEC (SPEC_TEMPLATE_ID, SPEC_NAME, OBJECT_ID, SPEC_ID) LOGGING TABLESPACE $data_index_tblspace$ PCTFREE 10 INITRANS 2 MAXTRANS 255 STORAGE (INITIAL 200M MINEXTENTS 1 MAXEXTENTS 2147483645 PCTINCREASE 0 BUFFER_POOL DEFAULT ) NOPARALLEL;

CREATE INDEX IDX06_IBS_SPEC ON IBS_SPEC (SPEC_CLASS_TYPE, ROOT_FLG, SPEC_ID) NOLOGGING TABLESPACE $data_index_tblspace$ PCTFREE 10 INITRANS 2 MAXTRANS 255 STORAGE (INITIAL 200M MINEXTENTS 1 MAXEXTENTS 2147483645 PCTINCREASE 0 BUFFER_POOL DEFAULT ) NOPARALLEL;

CREATE INDEX IDX07_IBS_SPEC ON IBS_SPEC (OBJECT_PATH) NOLOGGING
TABLESPACE $data_index_tblspace$
PCTFREE 10
INITRANS 2
MAXTRANS 255
STORAGE (  
  INITIAL 200M  
  MINEXTENTS 1  
  MAXEXTENTS 2147483645  
  PCTINCREASE 0  
  BUFFER_POOL DEFAULT  
  )
NOPARALLEL;

CREATE INDEX SPEC_TMPL_STATE_GEO_ORG ON IBS_SPEC
(SPEC_TEMPLATE_ID, OBJECT_STATE, GEOGRAPHY_ID, ORGANIZATION_ID)
LOGGING
TABLESPACE $data_index_tblspace$
PCTFREE 10
INITRANS 2
MAXTRANS 255
STORAGE (  
  INITIAL 200M  
  MINEXTENTS 1  
  MAXEXTENTS 2147483645  
  PCTINCREASE 0  
  BUFFER_POOL DEFAULT  
  )
NOPARALLEL;

CREATE INDEX PERF01_IBS_SPEC ON IBS_SPEC
(SPEC_TEMPLATE_ID, SPEC_ID, PROJECT_ID)
LOGGING
TABLESPACE $data_index_tblspace$
PCTFREE 10
INITRANS 2
MAXTRANS 255
STORAGE (  
  INITIAL 200M  
  MINEXTENTS 1  
  MAXEXTENTS 2147483645  
  PCTINCREASE 0  
  BUFFER_POOL DEFAULT  
  )
NOPARALLEL;

CREATE UNIQUE INDEX PERF02_IBS_SPEC ON IBS_SPEC
(SPEC_ID, OBJECT_ID, SPEC_NAME)
LOGGING
TABLESPACE $data_index_tblspace$
PCTFREE 10
INITRANS 2
MAXTRANS 255
STORAGE (  
  INITIAL 200M  
  MINEXTENTS 1  
  MAXEXTENTS 2147483645  
  PCTINCREASE 0  
  BUFFER_POOL DEFAULT  
  )
NOPARALLEL;
CREATE UNIQUE INDEX PERF03_IBS_SPEC ON IBS_SPEC
(SPEC_ID, SYSTEM_STATE)
LOGGING

TABLESPACE $data_index_tblspace$
  PCTFREE 10
  INITRANS 2
  MAXTRANS 255
  STORAGE (
    INITIAL 200M
    MINEXTENTS 1
    MAXEXTENTS 2147483645
    PCTINCREASE 0
    BUFFER_POOL DEFAULT
  )

NOPARALLEL;

CREATE  INDEX PERF04_IBS_SPEC ON IBS_SPEC
(SPEC_NAME, TYPE_NAME, SPEC_CLASS_TYPE)
LOGGING

TABLESPACE $data_index_tblspace$
  PCTFREE 10
  INITRANS 10
  MAXTRANS 255
  STORAGE (
    INITIAL 200M
    MINEXTENTS 1
    MAXEXTENTS 2147483645
    PCTINCREASE 0
    BUFFER_POOL DEFAULT
  )

NOPARALLEL;

CREATE  INDEX PERF05_IBS_SPEC ON IBS_SPEC
(SPEC_ID, SPEC_TEMPLATE_ID)
LOGGING

TABLESPACE $data_index_tblspace$
  PCTFREE 10
  INITRANS 10
  MAXTRANS 255
  STORAGE (
    INITIAL 200M
    MINEXTENTS 1
    MAXEXTENTS 2147483645
    PCTINCREASE 0
    BUFFER_POOL DEFAULT
  )

NOPARALLEL;

COMMIT;
3. Oracle IBS_SPEC_ASSIGNMENTS Script

Run the following script on an Oracle system. It removes the unused columns described above. You can copy this script from this document.

Replace the string $data_data_tblspace$ with your data tablespace name. It may be something like TRIDATA_DATA.

Replace the string $data_index_tblspace$ with your index tablespace name. It may be something like TRIDATA_INDEX.

While creating indexes, Oracle requires a continuous block of free memory. This may require that you extend the size of your index tablespace.

```
CREATE TABLE IBS_SPEC_ASSIGNMENTS_TMP
  ( SPEC_ID NUMBER(20,0),
    SPEC_CLASS_TYPE NUMBER(5,0) DEFAULT 1,
    ASS_SPEC_ID NUMBER(20,0),
    ASS_SPEC_CLASS_TYPE NUMBER(5,0) DEFAULT 1,
    ASS_TYPE VARCHAR2(100 BYTE),
    SPEC_TEMPLATE_ID NUMBER(20,0),
    ASS_SPEC_TEMPLATE_ID NUMBER(20,0),
    DEPENDENT_FLAG NUMBER(1,0) DEFAULT 0
  ) TABLESPACE $data_data_tblspace$
PCTFREE 10
INITTRANS 10
MAXTRANS 255
STORAGE
  ( INITIAL 2000M
    NEXT 200M
    MINEXTENTS 1
    MAXEXTENTS 2147483645
    PCTINCREASE 10
    FREELISTS 2
    FREELIST GROUPS 1
    BUFFER_POOL DEFAULT
  )
LOGGING;

INSERT INTO IBS_SPEC_ASSIGNMENTS_TMP
  ( SPEC_ID,
    SPEC_CLASS_TYPE,
    ASS_SPEC_ID,
    ASS_SPEC_CLASS_TYPE,
    ASS_TYPE,
    SPEC_TEMPLATE_ID,
    ASS_SPEC_TEMPLATE_ID,
    DEPENDENT_FLAG
  )
  (SELECT SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
     ASS_SPEC_ID,
     SPEC_ID,
     SPEC_CLASS_TYPE,
ASS_SPEC_CLASS_TYPE,
ASS_TYPE,
SPEC_TEMPLATE_ID,
ASS_SPEC_TEMPLATE_ID,
DEPENDENT_FLAG FROM IBS_SPEC_ASSIGNMENTS);

DROP TABLE IBS_SPEC_ASSIGNMENTS;

ALTER TABLE IBS_SPEC_ASSIGNMENTS_TMP RENAME TO IBS_SPEC_ASSIGNMENTS;

ALTER TABLE IBS_SPEC_ASSIGNMENTS ADD

CONSTRAINT PK_IBS_SPEC_ASSIGNMENTS PRIMARY KEY (SPEC_ID, ASS_SPEC_ID,
ASS_TYPE)

USING INDEX

TABLESPACE $data_index_tblspace$
PCTFREE 10
INITRANS 10
MAXTRANS 255
COMPUTE STATISTICS

STORAGE

(INITIAL 1000M
NEXT 100M
MINEXTENTS 1
MAXEXTENTS 2147483645
PCTINCREASE 10
FREELISTS 2
FREELIST_GROUPS 1
BUFFER_POOL DEFAULT
)

CREATE INDEX ASS_CTYP_TMPL_SPID ON IBS_SPEC_ASSIGNMENTS (ASS_SPEC_ID,
ASS_TYPE, SPEC_CLASS_TYPE, SPEC_TEMPLATE_ID, SPEC_ID)

LOGGING

TABLESPACE $data_index_tblspace$
PCTFREE 10
INITRANS 10
MAXTRANS 255
COMPUTE STATISTICS

STORAGE

(INITIAL 1000M
NEXT 100M
MINEXTENTS 1
MAXEXTENTS 2147483645
PCTINCREASE 10
FREELISTS 2
FREELIST_GROUPS 1
BUFFER_POOL DEFAULT
)

CREATE INDEX IDX03_IBS_SPEC_ASSIGN ON IBS_SPEC_ASSIGNMENTS (SPEC_ID,
ASS_TYPE, ASS_SPEC_CLASS_TYPE, ASS_SPEC_TEMPLATE_ID)

LOGGING

TABLESPACE $data_index_tblspace$
PCTFREE 10
INITRANS 10
MAXTRANS 255
COMPUTE STATISTICS
CREATE INDEX PERF01_IBS_SPEC_ASSIGNMENTS ON IBS_SPEC_ASSIGNMENTS
(ASS_SPEC_ID, SPEC_ID)
LOGGING
TABLESPACE $data_index_tblspace$
PCTFREE 10
INITRANS 10
MAXTRANS 255
COMPUTE STATISTICS
STORAGE
( INITIAL 1000M
  NEXT 100M
  MINEXTENTS 1
  MAXEXTENTS 2147483645
  PCTINCREASE 10
  FREELISTS 2
  FREELIST GROUPS 1
  BUFFER_POOL DEFAULT
);
4. MSSQL IBS_SPEC Script

Run the following script on an MSSQL system. It removes the unused columns described above. You can copy this script from this document. Run this script from Microsoft SQL Server Management Studio.

```sql
CREATE TABLE [IBS_SPEC_TMP] (  [PROJECT_ID] [numeric](20)  NOT NULL,  [SPEC_ID] [numeric](20)  NOT NULL,  [REVISION] [numeric](10)  NOT NULL,  [SPEC_TEMPLATE_ID] [numeric](20)  NOT NULL,  [TYPE_NAME] [varchar] (100) COLLATE SQL_Latin1_General_CP1_CS_AS  NULL,  [STATUS] [varchar] (1) COLLATE SQL_Latin1_General_CP1_CS_AS  NOT NULL,  [SPEC_NUMBER] [varchar] (300) COLLATE SQL_Latin1_General_CP1_CS_AS  NULL,  [SPEC_NAME] [varchar] (100) COLLATE SQL_Latin1_General_CP1_CS_AS  NULL,  [DESCRIPTION] [varchar] (300) COLLATE SQL_Latin1_General_CP1_CS_AS  NULL,  [PUBLISHED_DATE] [datetime]  NULL,  [UOM_TYPE_CODE] [numeric](4)  NULL,  [UOM] [varchar] (100) COLLATE SQL_Latin1_General_CP1_CS_AS  NULL,  [SPEC_CLASS_TYPE] [numeric](5) DEFAULT (1) NULL,  [OBJECT_ID] [numeric](20)  NOT NULL,  [ROOT_FLG] [numeric](1) DEFAULT (0) NULL,  [CREATED_DATE] [datetime] DEFAULT (getdate()) NULL,  [UPDATED_DATE] [datetime] NULL,  [OBJECT_STATE] [varchar] (100) COLLATE SQL_Latin1_General_CP1_CS_AS NULL,  [LOCATION_ID] [numeric](20) DEFAULT (0) NULL,  [ORGANIZATION_ID] [numeric](20) DEFAULT (0) NULL,  [GEOGRAPHY_ID] [numeric](20) DEFAULT (0) NULL,  [QTY] [numeric](16, 4) DEFAULT (0.00) NULL,  [ROLLUP_FIELDS_FLAG] [numeric](1) DEFAULT (0) NULL,  [SCHEDULABLE] [numeric](1) DEFAULT (0) NULL,  [DELETED_FLAG] [numeric](1) DEFAULT (0) NULL,  [OBJECT_PATH] [varchar] (500) COLLATE SQL_Latin1_General_CP1_CS_AS  NULL,  [AUDIT_FLAG] [numeric](1) DEFAULT (0) NULL,  [AUDIT_COMMENT_FLAG] [numeric](1) DEFAULT (0) NULL,  [IMAGE_MAP] [varchar] (400) COLLATE SQL_Latin1_General_CP1_CS_AS  NULL,  [CONTROL_NUMBER] [varchar] (200) COLLATE SQL_Latin1_General_CP1_CS_AS NULL,  [PRICE] [numeric](16, 4) DEFAULT (0.00) NULL,  [TEMPLATE_VERSION] [numeric](10) DEFAULT (0) NOT NULL,  [SYSTEM_FLAG] [numeric](1) DEFAULT (0) NULL,  [SHOW_TAB_ID] [numeric](10) DEFAULT (0) NULL,  [RESERVABLE_FLAG] [numeric](1) DEFAULT (0) NULL,  [GUI_ID] [numeric](20) DEFAULT (0) NULL,  [CONVERSION_GROUP] [varchar] (100) COLLATE SQL_Latin1_General_CP1_CS_AS NULL,  [EXCHANGE_DATE] [datetime]  NULL,  [SYSTEM_STATE] [numeric](4)  NULL
)
GO
```
INSERT INTO IBS_SPEC_TMP
(
    PROJECT_ID,
    SPEC_ID,
    REVISION,
    SPEC_TEMPLATE_ID,
    TYPE_NAME,
    STATUS,
    SPEC_NUMBER,
    SPEC_NAME,
    DESCRIPTION,
    PUBLISHED_DATE,
    UOM_TYPE_CODE,
    UOM,
    SPEC_CLASS_TYPE,
    OBJECT_ID,
    ROOT_FLG,
    CREATED_BY,
    CREATED_DATE,
    UPDATED_BY,
    UPDATED_DATE,
    OBJECT_STATE,
    LOCATION_ID,
    ORGANIZATION_ID,
    GEOGRAPHY_ID,
    QTY,
    ROLLUP_FIELDS_FLAG,
    SCHEDULABLE,
    DELETED_FLAG,
    OBJECT_PATH,
    AUDIT_FLAG,
    AUDIT_LEVEL,
    AUDIT_COMMENT_FLAG,
    AUDIT_SIGN_FLAG,
    IMAGE_MAP,
    CONTROL_NUMBER,
    PRICE,
    TEMPLATE_VERSION,
    SYSTEM_FLAG,
    SHOW_TAB_ID,
    RESERVABLE_FLAG,
    GUI_ID,
    CONVERSION_GROUP,
    EXCHANGE_DATE,
    SYSTEM_STATE
)
(SELECT
    PROJECT_ID,
    SPEC_ID,
    REVISION,
    SPEC_TEMPLATE_ID,
    TYPE_NAME,
    STATUS,
    SPEC_NUMBER,
    SPEC_NAME,
    DESCRIPTION,
DROP TABLE IBS_SPEC
GO
EXEC sp_rename 'IBS_SPEC_TMP', 'IBS_SPEC'
GO
ALTER TABLE [IBS_SPEC] ADD
    CONSTRAINT [PK_IBS_SPEC] PRIMARY KEY CLUSTERED ([SPEC_ID], [REVISION])
GO
CREATE INDEX [IDX04_IBS_SPEC] ON [IBS_SPEC] ([SPEC_TEMPLATE_ID], [SPEC_NAME], [OBJECT_ID], [SPEC_ID])
GO
CREATE INDEX [IDX06_IBS_SPEC] ON [IBS_SPEC] ([SPEC_CLASS_TYPE], [ROOT_FLG], [SPEC_ID])
GO
CREATE INDEX [IDX07_IBS_SPEC] ON [IBS_SPEC] ([OBJECT_PATH])
GO
CREATE INDEX [PERF01_IBS_SPEC] ON [IBS_SPEC] ([SPEC_TEMPLATE_ID], [SPEC_ID], [PROJECT_ID])
GO

CREATE INDEX [PERF02_IBS_SPEC] ON [IBS_SPEC] ([SPEC_ID], [OBJECT_ID], [SPEC_NAME])
GO

CREATE INDEX [PERF03_IBS_SPEC] ON [IBS_SPEC] ([SPEC_ID], [SYSTEM_STATE])
GO

CREATE INDEX [PERF04_IBS_SPEC] ON [IBS_SPEC] ([SPEC_NAME], [TYPE_NAME], [SPEC_CLASS_TYPE])
GO

CREATE INDEX [PERF05_IBS_SPEC] ON [IBS_SPEC] ([SPEC_ID], [SPEC_TEMPLATE_ID])
GO

CREATE INDEX [SPEC_TMPL_STATE_GEO_ORG] ON [IBS_SPEC] ([SPEC_TEMPLATE_ID], [OBJECT_STATE], [GEOGRAPHY_ID], [ORGANIZATION_ID])
GO
5. **MSSQL IBS_SPEC_ASSIGNMENTS Script**

Run the following script on an MSSQL system. It removes the unused columns described above. You can copy this script from this document. Run this script from Microsoft SQL Server Management Studio.

```sql
CREATE TABLE [IBS_SPEC_ASSIGNMENTS_TMP] (  
    [SPEC_ID] [numeric](20)  NOT NULL,  
    [SPEC_CLASS_TYPE] [numeric](5) DEFAULT (1) NULL,  
    [ASS_SPEC_ID] [numeric](20)  NOT NULL,  
    [ASS_SPEC_CLASS_TYPE] [numeric](5) DEFAULT (1) NULL,  
    [ASS_TYPE] [varchar] (100) COLLATE SQL_Latin1_General_CP1_CS_AS  NOT NULL,  
    [SPEC_TEMPLATE_ID] [numeric](20)  NULL,  
    [ASS_SPEC_TEMPLATE_ID] [numeric](20)  NULL,  
    [DEPENDENT_FLAG] [numeric](1) DEFAULT (0) NULL
)  
GO

INSERT INTO IBS_SPEC_ASSIGNMENTS_TMP  
(  
    SPEC_ID,  
    SPEC_CLASS_TYPE,  
    ASS_SPEC_ID,  
    ASS_SPEC_CLASS_TYPE,  
    ASS_TYPE,  
    SPEC_TEMPLATE_ID,  
    ASS_SPEC_TEMPLATE_ID,  
    DEPENDENT_FLAG
)  
(SELECT SPEC_ID,  
     SPEC_CLASS_TYPE,  
     ASS_SPEC_ID,  
     ASS_SPEC_CLASS_TYPE,  
     ASS_TYPE,  
     SPEC_TEMPLATE_ID,  
     ASS_SPEC_TEMPLATE_ID,  
     DEPENDENT_FLAG
)  
FROM IBS_SPEC_ASSIGNMENTS  
GO

DROP TABLE IBS_SPEC_ASSIGNMENTS  
GO

EXEC sp_rename 'IBS_SPEC_ASSIGNMENTS_TMP', 'IBS_SPEC_ASSIGNMENTS'  
GO

ALTER TABLE [IBS_SPEC_ASSIGNMENTS] ADD  
    CONSTRAINT [PK_IBS_SPEC_ASSIGNMENTS] PRIMARY KEY CLUSTERED ([SPEC_ID],  
    [ASS_SPEC_ID], [ASS_TYPE])  
GO
```
CREATE INDEX [ASS_CTYP_TMPL_SPID] ON [IBS_SPEC_ASSIGNMENTS] ([ASS_SPEC_ID], [ASS_TYPE], [SPEC_CLASS_TYPE], [SPEC_TEMPLATE_ID], [SPEC_ID])
GO

CREATE INDEX [IDX03_IBS_SPEC_ASSIGN] ON [IBS_SPEC_ASSIGNMENTS] ([SPEC_ID], [ASS_TYPE], [ASS_SPEC_CLASS_TYPE], [ASS_SPEC_TEMPLATE_ID])
GO

CREATE INDEX [PERF01_IBS_SPEC_ASSIGNMENTS] ON [IBS_SPEC_ASSIGNMENTS] ([ASS_SPEC_ID], [SPEC_ID])
GO
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