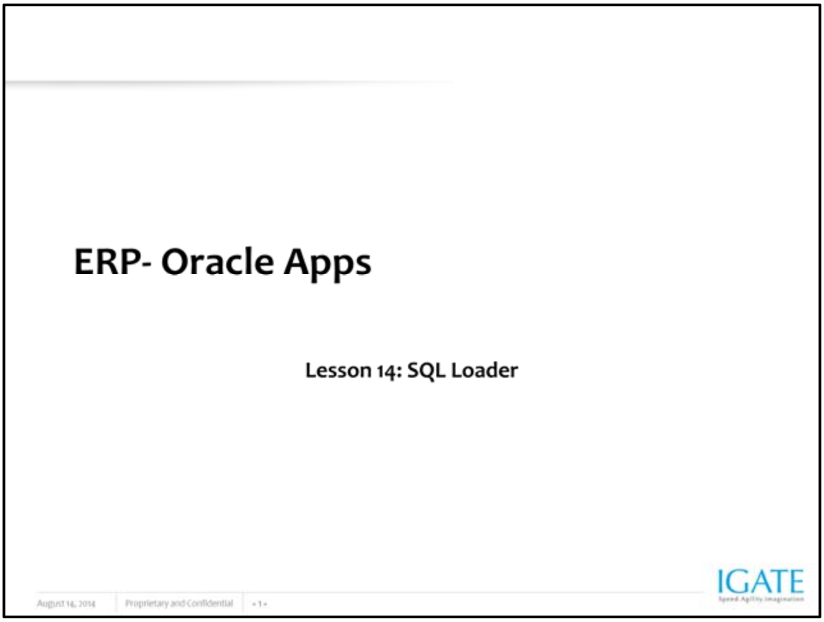

ERP- Oracle Apps

Lesson 14: SQL Loader

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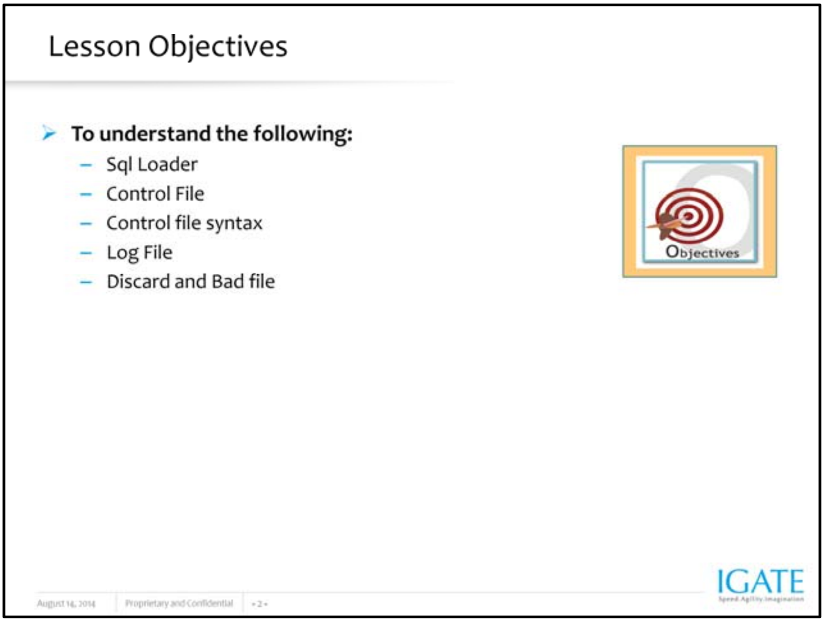
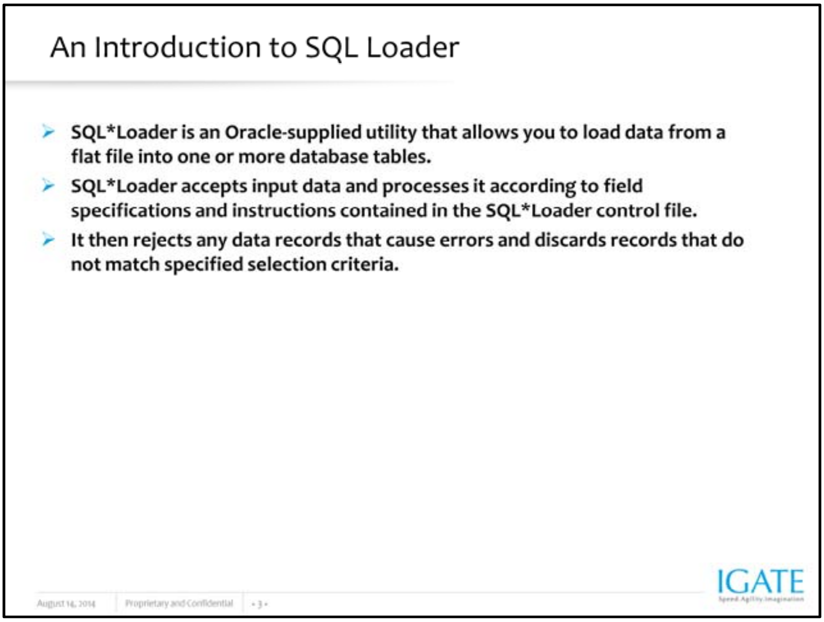


Lesson Objectives

- **To understand the following:**
  - Sql Loader
  - Control File
  - Control file syntax
  - Log File
  - Discard and Bad file

Objectives



An Introduction to SQL Loader

- SQL*Loader is an Oracle-supplied utility that allows you to load data from a flat file into one or more database tables.
- SQL*Loader accepts input data and processes it according to field specifications and instructions contained in the SQL*Loader control file.
- It then rejects any data records that cause errors and discards records that do not match specified selection criteria.

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SQL*Loader allows the insertion, appendage, or replacement of records from a sequential text file

SQL*Loader is executed from the operating system prompt, not the SQL prompt.

There must be at least one input file specified for SQL*Loader: The control file

Optionally the raw data may be placed in a separate file.

Output files include:

Error Log File

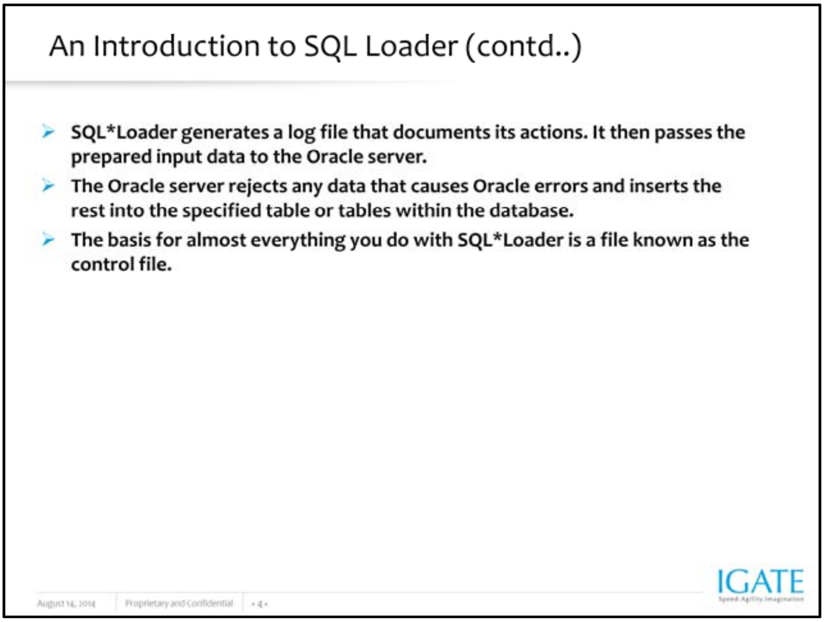
Bad File (Rejected records - Optional)

Discard File (Does not meet when clause Optional)

Accessing SQL*Loader

```
$ sqlldr keyword=value [, keyword=value]
```

Warning: SID is a reserved word in the SQL*Loader



An Introduction to SQL Loader (contd..)

- SQL*Loader generates a log file that documents its actions. It then passes the prepared input data to the Oracle server.
- The Oracle server rejects any data that causes Oracle errors and inserts the rest into the specified table or tables within the database.
- The basis for almost everything you do with SQL*Loader is a file known as the control file.

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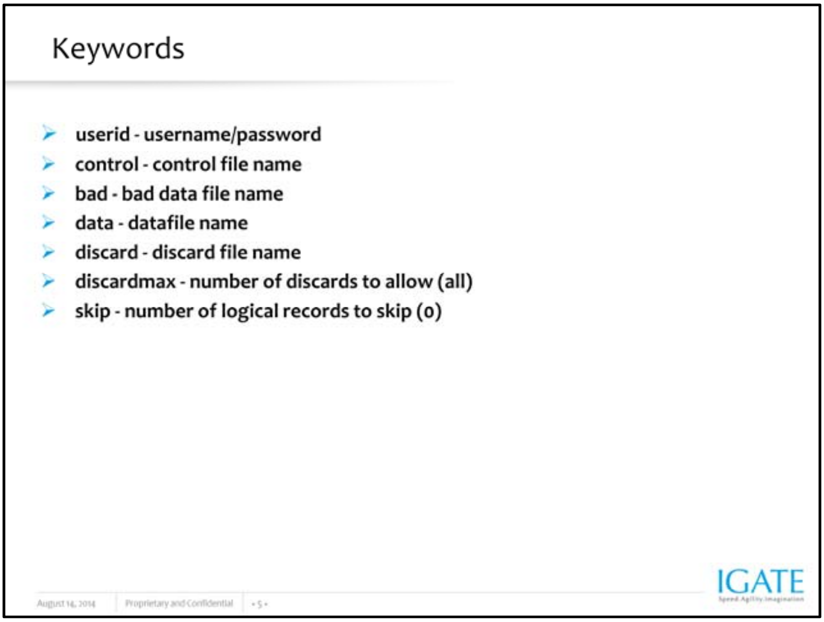

Keywords

- userid - username/password
- control - control file name
- bad - bad data file name
- data - datafile name
- discard - discard file name
- discardmax - number of discards to allow (all)
- skip - number of logical records to skip (0)

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If the values are specified in the above order, the keywords are not necessary

If the values are specified out of sequence, the keywords must be used.

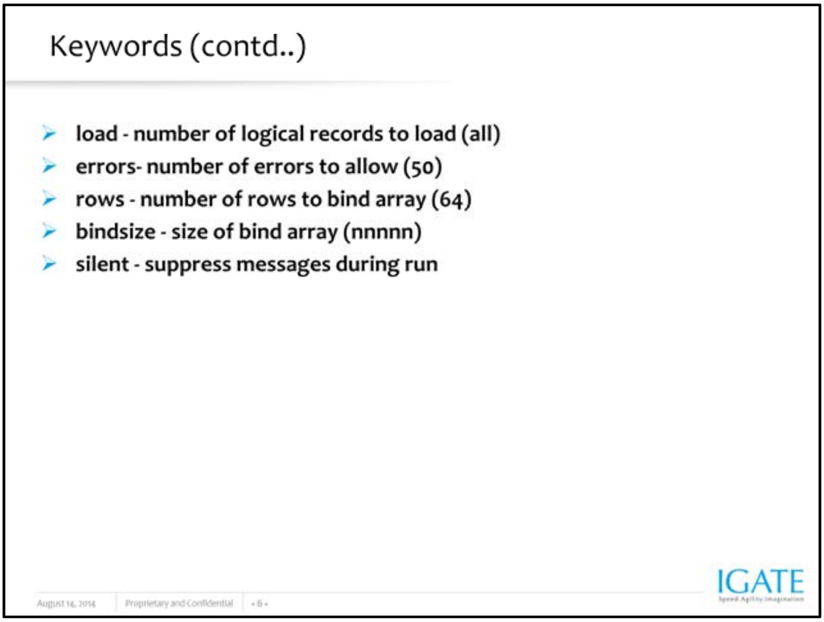
Delimiters are either commas or spaces

Any values not specified in the control line will either use the default value or
be prompted for

Examples

```
Orca: sqlldr scott/tiger c.ctl l.log b.bad d.dat d.dis
 5 0 2000 999
```

```
Orca: sqlldr skip=1000,userid=scott/tiger,log=l.log,
control=c.ctl,bad=b.dat
```



Keywords (contd..)

- load - number of logical records to load (all)
- errors- number of errors to allow (50)
- rows - number of rows to bind array (64)
- bindsize - size of bind array (nnnnn)
- silent - suppress messages during run

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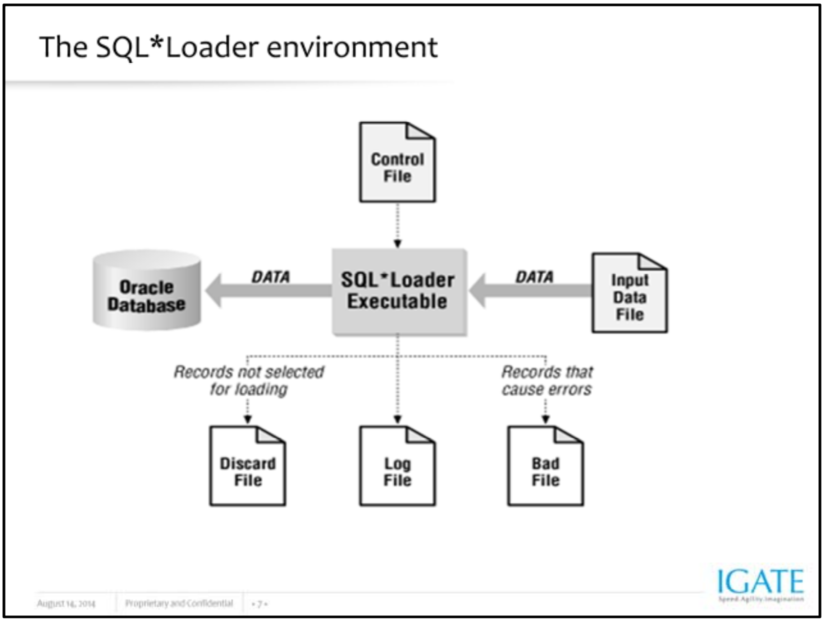

The SQL*Loader environment

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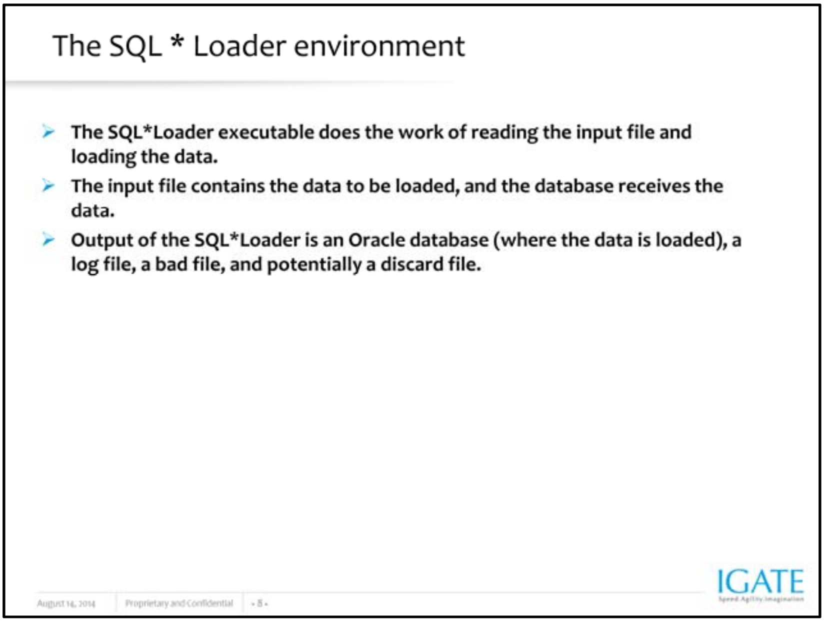

The SQL * Loader environment

- The SQL*Loader executable does the work of reading the input file and loading the data.
- The input file contains the data to be loaded, and the database receives the data.
- Output of the SQL*Loader is an Oracle database (where the data is loaded), a log file, a bad file, and potentially a discard file.

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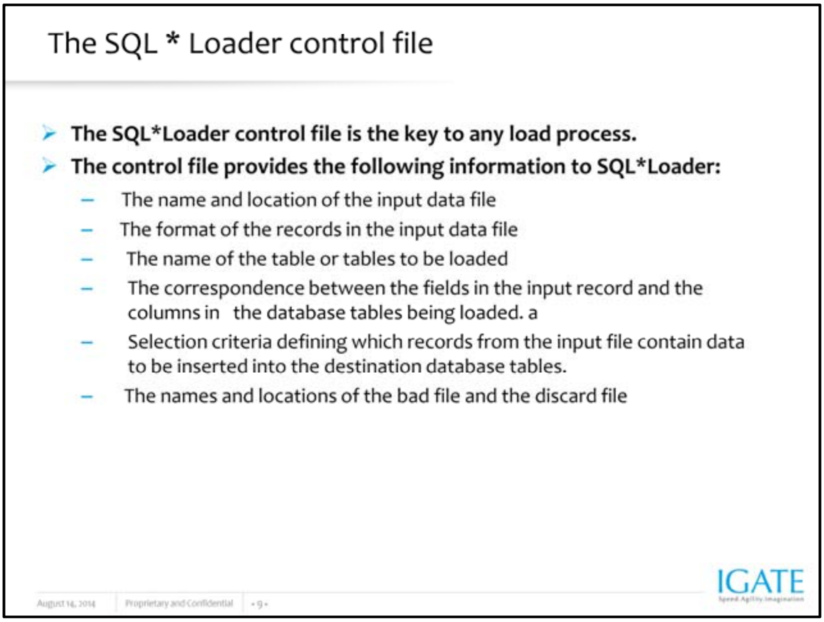

The SQL * Loader control file

- The SQL*Loader control file is the key to any load process.
- The control file provides the following information to SQL*Loader:
  - The name and location of the input data file
  - The format of the records in the input data file
  - The name of the table or tables to be loaded
  - The correspondence between the fields in the input record and the columns in the database tables being loaded. a
  - Selection criteria defining which records from the input file contain data to be inserted into the destination database tables.
  - The names and locations of the bad file and the discard file

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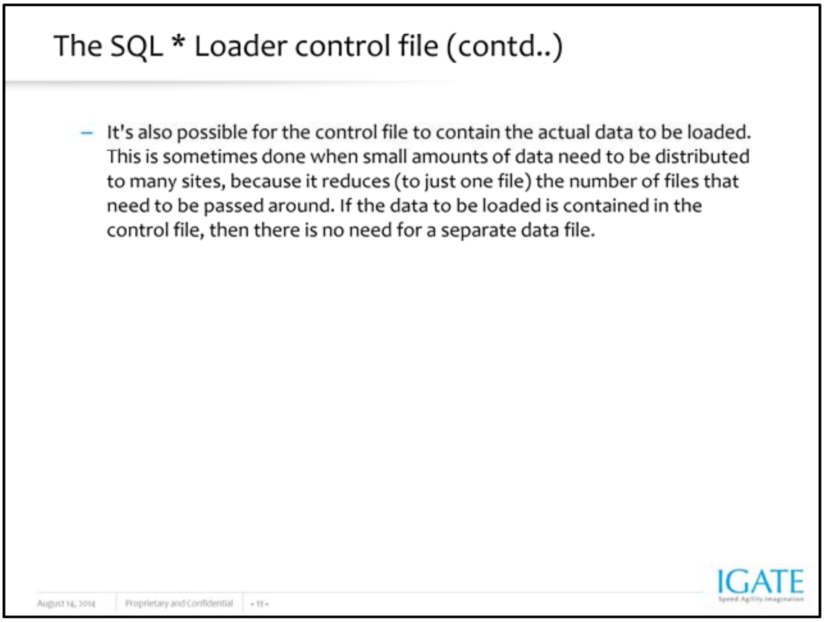
Control files are created via the system text editor.
Control file commands are “free field”
Control file commands may be in upper or lowercase
Comments can be inserted by preceding them with a double dash (--)
SQL*Loader keywords can be enclosed in quotes if you want to use them as table or column names.

```
OPTIONS (options)
 LOAD [DATA]
   [{INFILE | INDDN} {filename | *}
   [STREAM | RECORD | FIXED len |
   BLOCKSIZE size] | VARIABLE [len] ]
   [{BADFILE | BADDN }  filename]
   [{DISCARDFILE | DISCARDDN } filename]
   [{DISCARDS | DISCARDMAX} n]

   [{INDDN | INFILE} . . .] [APPEND | REPLACE | INSERT]
   [RECLEN n]
   [{CONCATENATE n |
     CONTINUEIF {[THIS | NEXT] (start [:end])
    | LAST}
      operator {‘char-str’ | x’hex-str’} } ]
```

```
INTO TABLE tablename
   [APPEND | REPLACE | INSERT]
   [WHEN field-condition [AND
   field-condition ...]]
   [FIELDS [delimiter-spec]]
  (column-name
   {RECNUM | CONSTANT value |
   SEQUENCE ({n | MAX | COUNT}
   [, increment] ) |
   [POSITION ({start[:end] | * [+n] } ) ]
   datatype-spec
   [NULLIF field condition]
   [DEFAULTIF field-condition]}
   [, ...] )
  [INTO TABLE]   [BEGINDATA data ]
```



The SQL * Loader control file (contd..)

- It's also possible for the control file to contain the actual data to be loaded. This is sometimes done when small amounts of data need to be distributed to many sites, because it reduces (to just one file) the number of files that need to be passed around. If the data to be loaded is contained in the control file, then there is no need for a separate data file.

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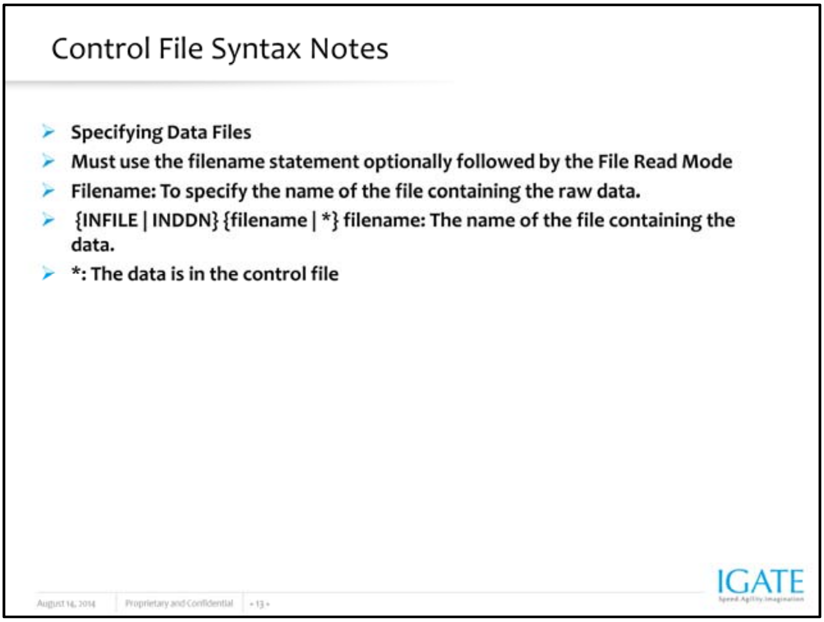
```
Ex:-  LOAD DATA  INFILE * INTO TABLE dept   FIELDS
TERMINATED BY ','
    OPTIONALLY ENCLOSED BY '"'
    (deptno, dname, loc)
    BEGINDATA
     12,RESEARCH,"SARATOGA"
     10,ACCOUNTING,"CLEVELAND"
     11,"ART","SALEM"
      13,FINANCE,"BOSTON"
```

Options: LOAD, SKIP, ERRORS, BINSIZE, SILENT
 Example OPTIONS (SKIP=100, LOAD=200)

 Field Condition:
 {(start [:end]) | column name } operator
 {'char string' | X'hex byte string'}
 Example: NAME = 'Bill Collector'

```
 Datatype Spec:
  CHAR [(length)] [delimiter spec]
  DATE [(length)] [mask] [delimiter spec]
  VARCHAR [(length)]
  SMALLINT
  DOUBLE
  GRAPHIC [EXTERNAL] [(length)]
  {INTEGER | FLOAT | DECIMAL} EXTERNAL [(length)]
  INTEGER [(length)]
  FLOAT [(length)]
  DECIMAL (digits [,precision])
  VARGRAPHIC [(length)]
Delimiter Spec:
  [TERMINATED [BY] {WHITESPACE | [X] ‘char’}]
  [[OPTIONALLY] ENCLOSED [BY] [X] ‘char’]
```



Control File Syntax Notes

- Specifying Data Files
- Must use the filename statement optionally followed by the File Read Mode
- Filename: To specify the name of the file containing the raw data.
- {INFILE | INDDN} {filename | *} filename: The name of the file containing the data.
- *: The data is in the control file

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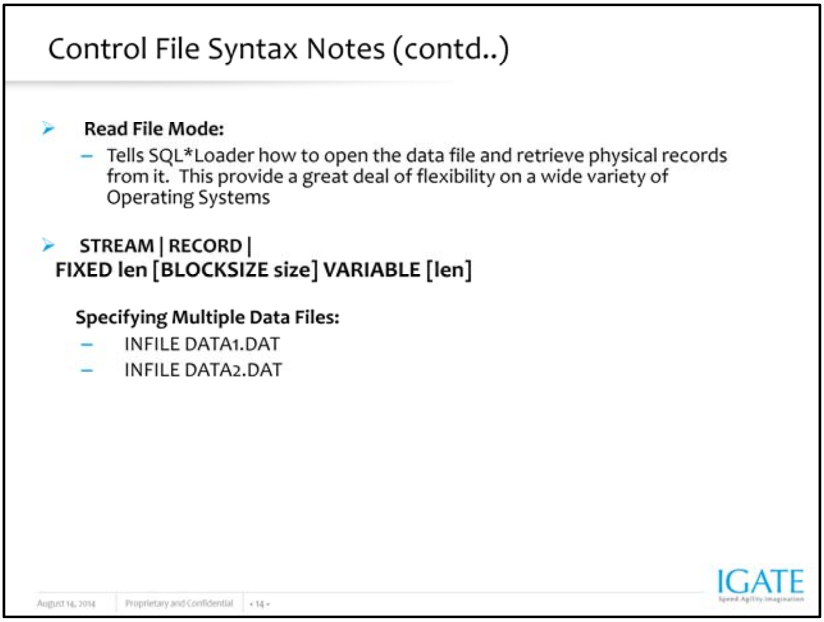
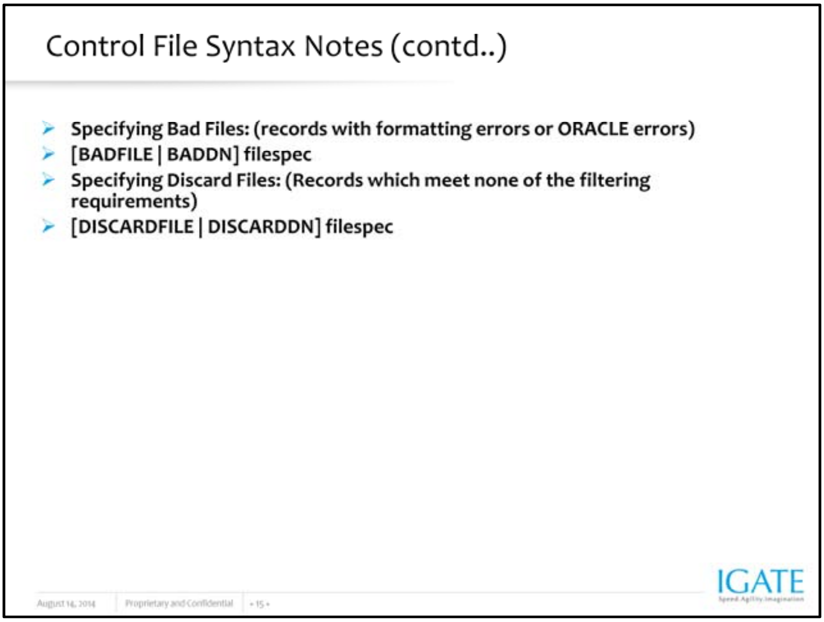


Control File Syntax Notes (contd..)

- **Read File Mode:**
  - Tells SQL*Loader how to open the data file and retrieve physical records from it. This provide a great deal of flexibility on a wide variety of Operating Systems
- **STREAM | RECORD | FIXED len [BLOCKSIZE size] VARIABLE [len]**

Specifying Multiple Data Files:

- INFILE DATA1.DAT
- INFILE DATA2.DAT



Control File Syntax Notes (contd..)

- **Specifying Bad Files: (records with formatting errors or ORACLE errors)**
- **[BADFILE | BADDN] filespec**
- **Specifying Discard Files: (Records which meet none of the filtering requirements)**
- **[DISCARDFILE | DISCARDDN] filespec**

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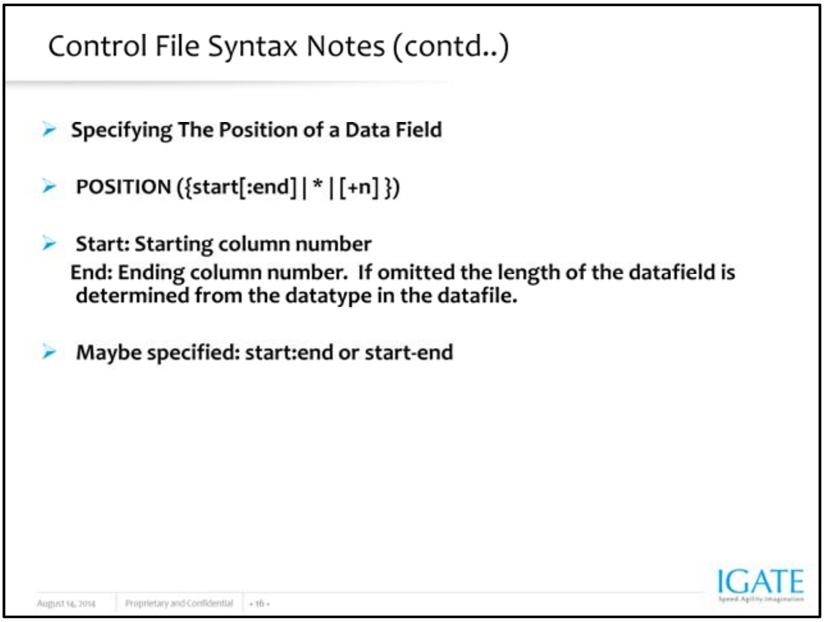

Control File Syntax Notes (contd..)

- Specifying The Position of a Data Field
- POSITION ({start[:end] | * | [+n] })
- Start: Starting column number
  End: Ending column number. If omitted the length of the datafield is determined from the datatype in the datafile.
- Maybe specified: start:end or start-end

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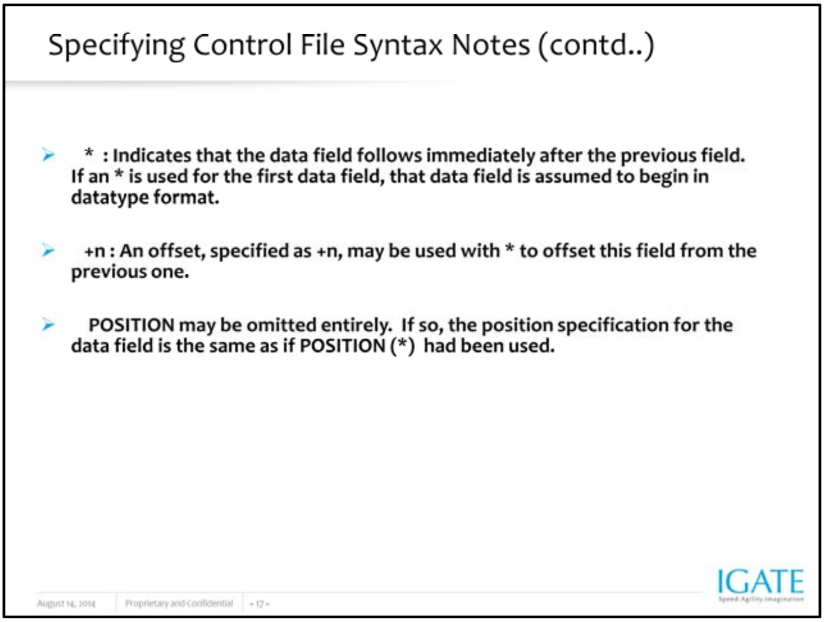

Specifying Control File Syntax Notes (contd..)

- * : Indicates that the data field follows immediately after the previous field. If an * is used for the first data field, that data field is assumed to begin in datatype format.
- +n : An offset, specified as +n, may be used with * to offset this field from the previous one.
- POSITION may be omitted entirely. If so, the position specification for the data field is the same as if POSITION (*) had been used.

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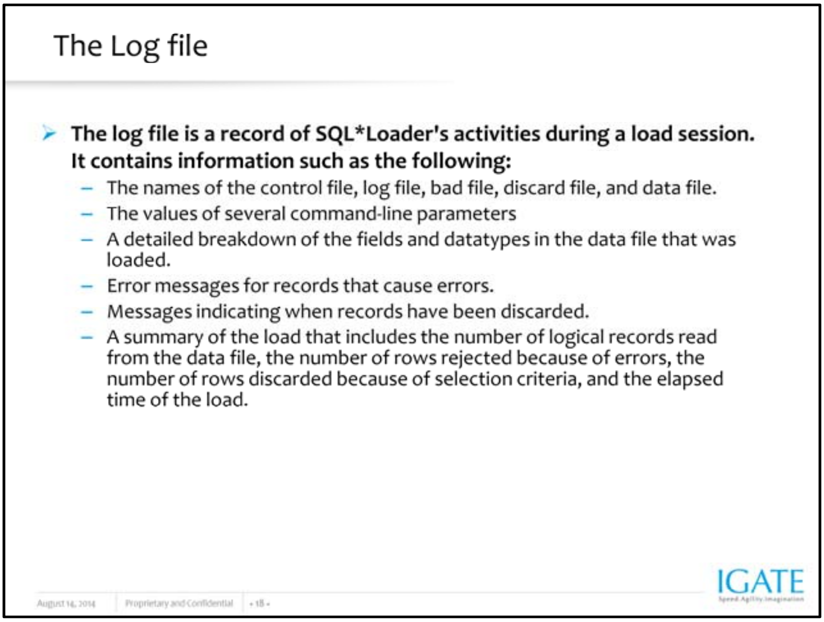
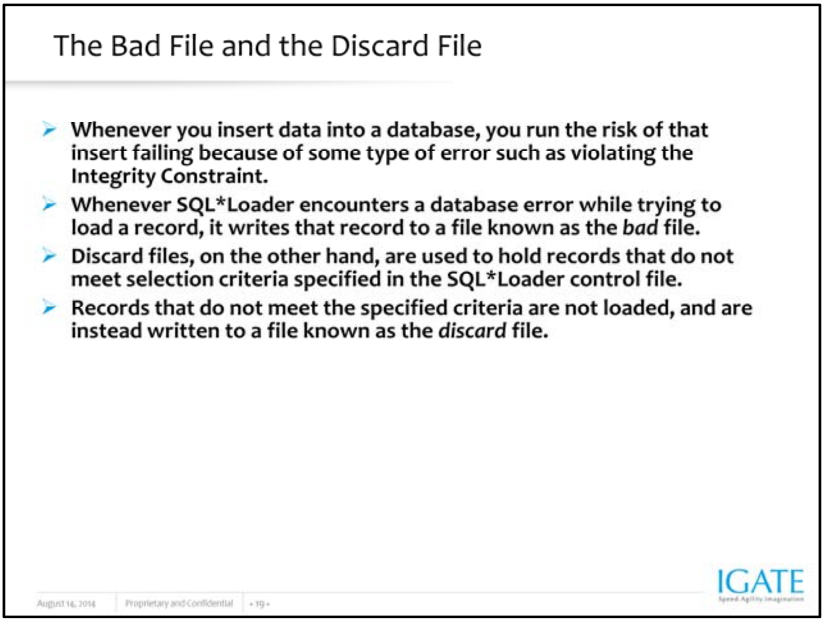
Examples:

```
 SITEID  POSITION(*) SMALLINT
 SITELOC POSITION(*) INTEGER
 ENAME POSITION (1:20) CHAR
 EMPNO POSITION (22-26) INTEGER EXTERNAL
 ALLOW POSITION (*+2) INTEGER EXTERNAL TERMINATED
BY “/”
```



The Log file

- **The log file is a record of SQL*Loader's activities during a load session. It contains information such as the following:**
  - The names of the control file, log file, bad file, discard file, and data file.
  - The values of several command-line parameters
  - A detailed breakdown of the fields and datatypes in the data file that was loaded.
  - Error messages for records that cause errors.
  - Messages indicating when records have been discarded.
  - A summary of the load that includes the number of logical records read from the data file, the number of rows rejected because of errors, the number of rows discarded because of selection criteria, and the elapsed time of the load.



The Bad File and the Discard File

- Whenever you insert data into a database, you run the risk of that insert failing because of some type of error such as violating the Integrity Constraint.
- Whenever SQL*Loader encounters a database error while trying to load a record, it writes that record to a file known as the *bad* file.
- Discard files, on the other hand, are used to hold records that do not meet selection criteria specified in the SQL*Loader control file.
- Records that do not meet the specified criteria are not loaded, and are instead written to a file known as the *discard* file.

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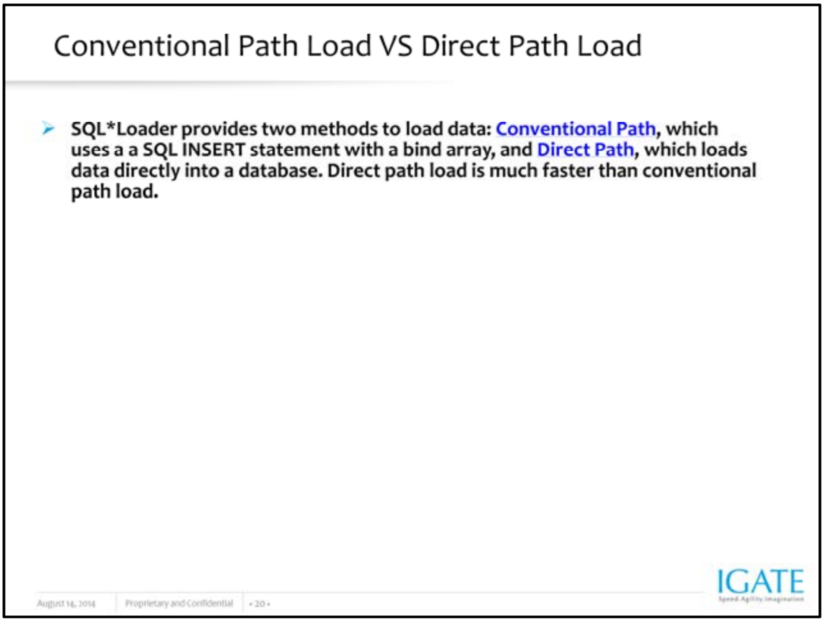

Conventional Path Load VS Direct Path Load

- **SQL*Loader provides two methods to load data: Conventional Path, which uses a a SQL INSERT statement with a bind array, and Direct Path, which loads data directly into a database. Direct path load is much faster than conventional path load.**

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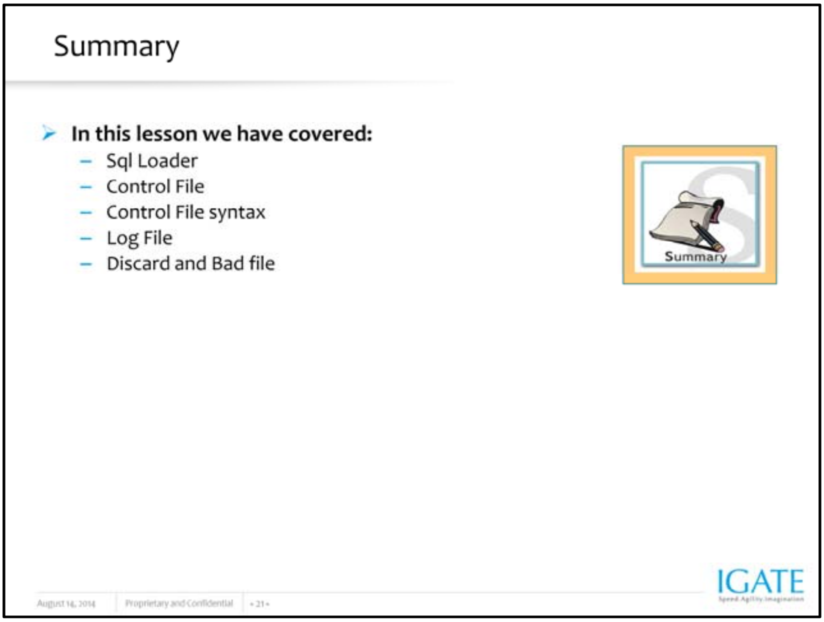

Summary

- In this lesson we have covered:
  - Sql Loader
  - Control File
  - Control File syntax
  - Log File
  - Discard and Bad file

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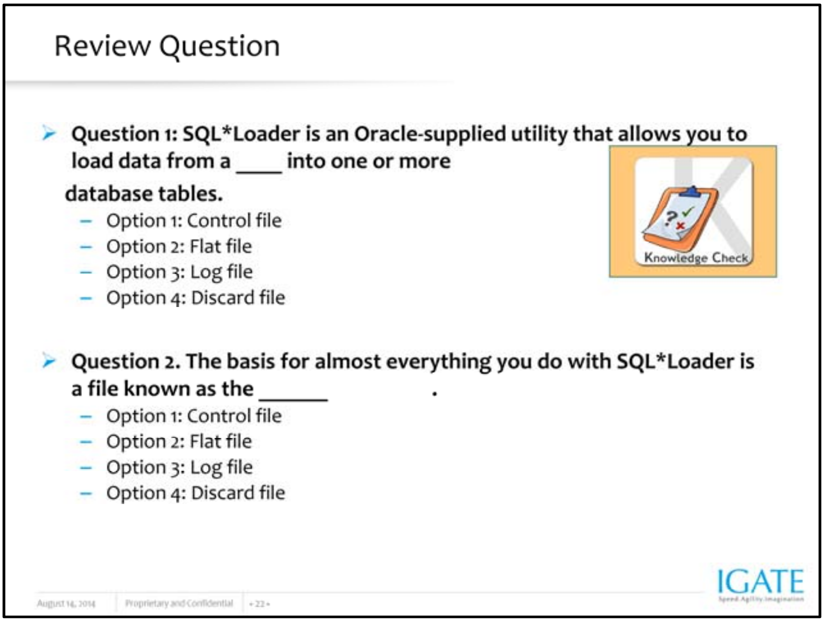

Review Question

- **Question 1: SQL*Loader is an Oracle-supplied utility that allows you to load data from a ____ into one or more database tables.**
  - Option 1: Control file
  - Option 2: Flat file
  - Option 3: Log file
  - Option 4: Discard file

Knowledge Check

- **Question 2. The basis for almost everything you do with SQL*Loader is a file known as the ______ .**
  - Option 1: Control file
  - Option 2: Flat file
  - Option 3: Log file
  - Option 4: Discard file

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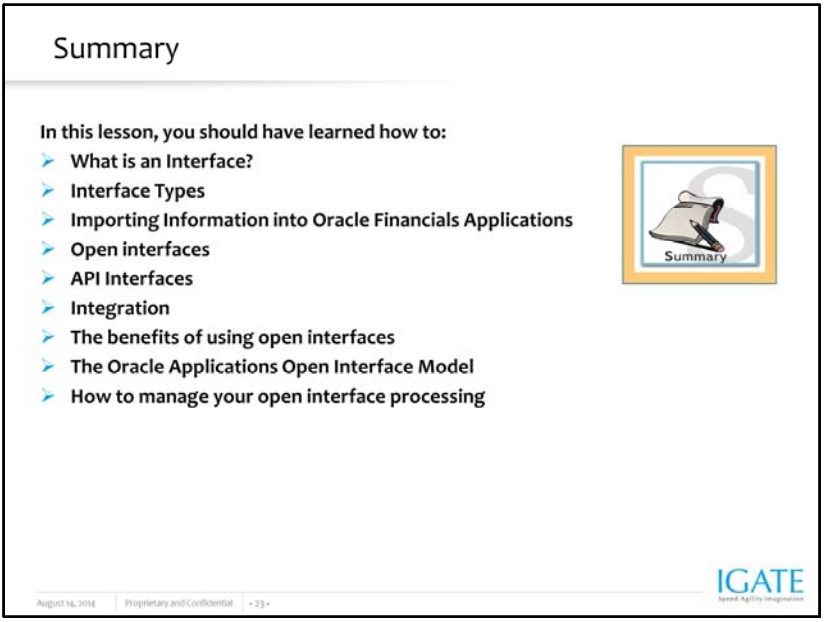

Summary

In this lesson, you should have learned how to:

- What is an Interface?
- Interface Types
- Importing Information into Oracle Financials Applications
- Open interfaces
- API Interfaces
- Integration
- The benefits of using open interfaces
- The Oracle Applications Open Interface Model
- How to manage your open interface processing

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