Boomi Interview Questions and Answers

Integration, Cloud & other required concepts IQ

1) What is integration?

ANS) Integration is the process of combining the software or hardware components or both into an overall system.

2) What is data integration?

ANS) Data Integration is the process of Technical and Business process used to combine data from disparate sources into meaningful and valuable information.

(OR)

Data Integration is the combination of heterogeneous data from different sources into a single queriable schema so as to get a unified view of data.

Need of DI: Data Integration provides the mechanism to integrate these data from different sources into a single queriable schema.

Example: Sharing Information, Merger of Business and Finding Correlation.

3) Types of integration (B-B, Application) - SAS Integration, On-Premises Integration?

ANS) B-B Integration: Integrating the data/system across two or more organizations.

It describes the commerce transactions between businesses such as: Manufacture and a wholesale or wholesaler and a retailer.

Example: Trading Partner Process shape will describe.

Application Integration: Integrating the data/system within a single organization.

Example: SAP & Database Integration

4) What is an ETL & Supported tools for ETL?

ANS) ETL is the process of data warehouse, it is responsible to pulling the data from the sources, perform operations and placing the data into the data warehouse.

E- Extract: Get/Pull the data from source.

T-Transform: Do the manipulations. Apply business rules or spilt the data by column etc., and

L-Load: Place the data into the data warehouse/target system.

Supported tools are:

1. Informatica Power center.

2. Talend

3. Pentaho kettle etc...

5) What is cloud?

ANS) Generally, Cloud means: "The storage of data online in the cloud".

High Volume of data, Mass Storage.

No dependency on size of data.

6) What is a cloud computing & deployment models of cloud?

ANS) it means, maintaining the resources (CPU, Storage) over the internet.

It provides the several of computing resources from servers and storage to a variety of enterprise applications like Email, Voice, and Backup, all delivered over the internet.

It is a service based Application Program Interface – API.

An organization could use the private cloud or public cloud or both.

There are 3 different deployment models available.

1. Private Cloud
2. Public Cloud
3. Hybrid Cloud

Public cloud: Renting a cloud rather owning a cloud.

Private cloud: Owning a cloud.

Hybrid Cloud: Some partitions of Private and Some partitions of Public cloud.

7) Types of cloud and example tools?

ANS) There are four types/models of Cloud.

SaaS: Software as a Service.

SaaS is a software delivery methodology that provides license to Multi-tenant access to software and its functions remotely as a Web –based Service.

Example Tools: Salesforce.com, Netsuite.com, Facebook.com, Google Apps.

PaaS: Platform as a Service.

PaaS provides all the facilities to support and complete the entire life cycle of building and delivering the web based applications and services entirely from the internet.

Highly scalable multi-tier architecture.

Multi-tenant environments.

Typically applications must be developed with a platform in a mind.

Example Tools: Amazon Web Services, Dell Boomi, AZURE, +JOYENT.

IaaS: Infrastructure as a Service.

IaaS is the delivery of technology infrastructure as an on demand scalable service.

Usually billed based on usage.

Usually multi-tenant virtualized environment.

Can be coupled with managed services for OS and Application support.

IaaS is not managed hosting.

Example Tools: GO GRID, NTT COMMUNICATIONS, AT & T (ECT), Rackspace.

IPaaS: Integration Platform as a Service.

Integration Platform as a Service provides the cloud services for Application, data, process, and Service Oriented Architecture (SOA) integration scenarios.

It is a multi-tenant platform that supports, clout-to-cloud, cloud-to-on premises, on-premises-to-on premises and B2B integration.

iPaaS provides the real time integration scenarios and scales to meet the high volume demands of mobile, extract, load and transform (ETL), and Electronic Data Interchange (EDI) environments.

Dell Boomi introduced the Industry first IPaaS in 2008.

iPaaS Example Tools: Boomi, CloudHub, Cast Iron Systems (An IBM Company).

Single Instance, Multi-tenant Architecture. Easy to use. Supports Enterprise integration scenarios and supports real time integration scenarios.

8) What is the difference between ETL & data integration?

ANS) ETL stands for Extract, Transform and Load.

Extract: Extract the data from different source/data warehouse.

Transform: Perform some manipulation. For ex: apply business rules, splitting the column or other. And

Load: Load the data into the target system/data warehouse.

Data Integration:

Data Integration is the process of combining the heterogeneous data sources into a single queriable schema.

9) What is web service?

ANS) The term Web Services describes a standardized way of integrating web based application using XML, SOAP, REST, WSDL and UDDI open standards over an Internet Protocol backbone.

The XML used to tag the data; The SOAP is used to transform the data, The WSDL Used to describe the services available and UDDI used to listing the services available.

XML- extensive Markup Language.

SOAP - Simple Object Access Protocol.

REST – Representational State Transfer.

WSDL - Web Service Description Language.

UDDI - Universal Description Discovery Language.

10) Types of web services (SOAP, REST)?

ANS) SOAP: Simple Object Access Protocol.

SOAP is a communication Protocol.

SOAP works via internet.

SOAP used to sending messages.

SOAP uses the XML to make Simple Request and Response.

SOAP uses the WSDL.

SOAP is Language independent and Platform independent.

SOAP is heavy weight, less efficiency and slow.

REST: Representational State Transfer.

REST is a simple and stateless protocol/architecture that generally runs over the HTTP.

REST is the newcomer to the block. It seeks to fix the problems with SOAP and provide a simple method of accessing web services. REST provides a lighter weight alternative. Instead of using XML to make a request, it relies on a simple URL in many cases.

REST can use four types of HTTP1.1 verbs to perform the tasks.

A. GET
B. PUT

C. POST
D. DELETE

You can find the REST based web services that output the data on Command Separated Value (CSV), JavaScript Object Notification (JSON) and Really Simple Syndication (RSS).

REST is simpler to use rather than SOAP. REST also called as RESTful web service. REST is an efficient, fast and lightweight.

11) What is SOA? What is the use of SOA?

ANS) SOA stands for Service Oriented Architecture.

Service Oriented Architecture is a client/server design approach in which an application consists software services and software service consumers (also known as clients and service requests).

Service Oriented Architecture is a business driven IT architecture approach that supports integrating business scenarios as linked, repeatable business tasks or services.

Service Oriented Architecture is an approach used to create an architecture based upon the use of services.

SOA provides the strategic capability for integrating the business scenario's, data and organization knowledge.

In a Service Oriented Architecture, clients consume services, rather than invoking discreet method calls directly.

There are many benefits of SOA, including improved Information flow, Logical transparency, internal software organization and better data translation.

SOA is not same as web services which indicate a collection of technologies such as SOAP and XML.

12) What are the different ways to test web services?

ANS) below are the possible ways to test any web services.

- Using SOAPUI
- Using Advanced REST Client

- Using POSTMAN REST Client
- APACHE Jmeter
- WSO2 WSAS and many

13) What is IPAAS?

ANS) refer question no: 7

14) What is the difference between IPAAS & SOA, APIs?

ANS) **SOA:**

A new approach was heralded in the early 2000s with the introduction of SOA (Service Oriented Architecture). This was seen a major breakthrough in the way systems could be architected so that integration was independent of product, technology or vendor. SOA introduced the concept of a service - an self-contained unit of work that has well-defined, understood capabilities. Services should be 'loosely coupled', meaning that they had little or no information about the definitions of other separate components. SOA had benefits, it made developers:

- stop thinking of individual systems as silos of information,
- consider how to improve information flow within and between applications,
- Examine how to reuse and standardize functions that are used across systems.

While SOA was big step in addressing integration challenges, it created other problems. Its value was in making people think about application architecture, and in using its methodology, but it didn't address a number of key issues, including:

- Services data - how data extracted from one service should be interpreted when being input to another service.
- Loose coupling complexity - with increasing number of services, the interactions between services becomes more complex.
- Operational and change management - the challenges of changing business operations, organizational structures, and culture to support SOA presented many roadblocks to its implementation.

Other technology challenges emerged later when organizations that had used SOA to implement an enterprise service bus (ESB) discovered that changes and upgrades

presented major headaches. As applications have proliferated, especially in the cloud, old-style integration technologies have struggled to cope.

APIs:

In recent years there has been a new movement, lead by major cloud vendors like Google and PayPal, to advance the use of APIs - rules and routines for building software applications by defining their operations, inputs, outputs, and structures. Apart from just allowing the sharing of data, an API can make it easier when adding new features in an existing application.

The advantages of APIs have even be covered by the Harvard Business Review, noting how they allow much greater scalability when it comes to information sharing, as well as enabling competitive advantage.

Enterprise APIs not only make transferring data easier and more seamless, they are also an efficient way to control access. Enterprise APIs can be used to create different levels of data access, for example:

- Level 1: free and open access to least-valuable data
- Level 2: limited data access requiring registration
- Level 3: Custom integration and access to high-value content requiring agreements such as licensing and revenue-sharing

The flexibility of APIs has been shown in the growth of cloud services which has propelled the use of more 'lightweight' communications between applications - the move from standards like SOAP and XML, to REST and JSON.

iPaaS:

In the same way that vendors promoted ESBs in the SOA era, new (or the same) vendors now push 'API management' as a business need. The problem is that API management focuses on publishing and managing APIs, not connecting applications. What businesses need is to be able to build composite services out of their existing internal systems, and to do it without coding. The solution that can enable integration projects involving any combination of cloud and on-premise applications is iPaaS (integration platform as a service). iPaaS is an emerging technology that gives

enterprises of all sizes the capability to build, execute and manage integrations between different data sources, applications, APIs, and cloud services.

For a business wanting to integrate its ERP system with other business applications, whether in the cloud or on-premise, a quicker and more cost-effective solution is to look at an integration platform like Flow gear which has the API management capabilities included, and is in the cloud, so you don't have to install anything. Flow gear's connectors allow you to plug into a wealth of different applications and start integrating them quickly.

15) IPaaS Characteristics?

ANS) below are the characteristics of iPaaS,

- Single Instance.
- Multi-tenant Architecture.
- Easy to use.
- Centralized Management.
- Enterprise Integration Standards.
- Supports for Real Time Integration.
- Distributed Run-Time Engine.
- No Software Program or Coding Required.
- No Programming or Technical Skill is required to use this type of service.
- Pre-Built integrations/connections to online service providers.

16) Database simple IQ

ANS) Learn about below concepts,

- SQL can execute queries against a database
- SQL can retrieve data from a database
- SQL can insert records in a database
- SQL can update records in a database
- SQL can delete records from a database
- SQL can create new databases
- SQL can create new tables in a database
- SQL can create stored procedures in a database
- SQL can create views in a database

- SQL can set permissions on tables, procedures, and views

Sample help link,

http://www.w3schools.com/sql/

17) General scripting IQ (JavaScript & Groovy IQ)?

ANS) I have worked for some scenarios. I was getting help from my developer's team.

I have written script for sorting, string operations, looping, and conditions.

JavaScript online help links,

http://www.w3schools.com/js/

Groovy Script help links,

http://www.groovy-lang.org/structure.html

18) EDI Profiles (850, 856, 860, 866, 997, TA1, 834, 837,999)?

ANS) EDI Stands for Electronic Data Interchange. Used for Business purpose. Used for security purpose and to speed up the data.

850: Purchase Order, Manufacturing and Retail

856: Advance Ship Notice

860: Order Change Request

866 Production Sequence

997: Functional Acknowledgement -- Transportation and Logistics

990: Transaction Acknowledgement

855: Order Acknowledgement

810: Invoice

TA1: Transactional Interchange Acknowledgements

834: Benefit Enrollment and Maintenance

837: Health Care Claim

999: Implementation Acknowledgment

EDI reference help link,

https://www.1edisource.com/transaction-sets

http://www.elife.ws/Help/html/TA1_Interchange_Acknowledgements.htm

19) Trading Partner?

ANS) Dell Boomi AtomSphere manages the B2B requirements through the implementation of Trading Partners. A Trading partner component contains the configuration details for either your company or your trading partner in two levels.

Document Standards: ASC X12, EDIFACT EDI and HL7.

Communication Methods: The communication protocols that Dell Boomi supports to send and receive trading partner's data. AS2, DISK, FTP, SFTP and MLLP.

The Trading Partner component can be configured for document standards and communication types for both your company and trading partners.

Trading Partner functionality supports for X12, EDIFACT EDI Integration and HL7.

20) JSON Profile?

ANS) JSON Stands for Java Script Object Notification.

JSON Format is used to transmit structured data over a network.

JSON is similar to the XML structure and often used as alternative to the XML.

JSON is a text based data interchange format, it is easy for humans to read and write and for machined to parse and generate.

File extension for JSON file is .json.

JOSN will contain the Objects, Arrays, Data Types, Numbers, Boolean and Null etc…

Below are the online help links,

http://www.w3schools.com/json/

http://www.json.org/

21) XML Profile information?

ANS) XML Stands for Extensible Markup Language. XML is a self-describing format uses Tags and Elements. The XML Used to send the data over the internet, especially when communicating with the web based applications and web services.

- XML stands for Extensible Markup Language
- XML is a markup language much like HTML
- XML was designed to describe data, not to display data
- XML tags are not predefined. You must define your own tags
- XML is designed to be self-descriptive
- XML is a W3C Recommendation

Example:

```
<? xml version="1.0" encoding="UTF-8"?>
<note>
 <to> Tove</to>
 <from>Jani</from>
  <heading>Reminder</heading>
  <body>Don't forget me this weekend!</body>
</note>
```

1. XML tags are case sensitive. The tag <Letter> is different from the tag <letter>.
2. Opening and closing tags must be written with the same case.
3. XML documents must contain one element that is the parent of all other elements. This element is called the root element.
4. XML documents must be Well Formed.

XML was designed to describe data.

HTML was designed to display data.

Below are the online help links,

http://www.w3schools.com/xml/default.asp

Dell Boomi IQ

1) Dell Boomi history?

ANS) Boomi started in 1997 and it is installed on-premises integration tool.

- Head office is at Berwyn, Philadelphia, USA.
- Previous Version of Boomi are 2.7, 3.3
- Till 2008 it was installable version only.
- After 2008, Boomi started Cloud Based Tool called Boomi AtomSphere.
- Dell acquired Boomi in 2010 then the name has changed as Dell Boomi.
- Now AtomSphere called as Dell Boomi AtomSphere.
- Dell Boomi is #1 cloud integration tool.
- Dell Boomi Supports cloud, SaaS, On-Premises, B2B Integrations.
- Dell Boomi is first cost-effective tool, depends on usage you can pay.
- Dell Boomi supports all iPaaS characteristics.

In Detail Explanation:

Dell Boomi AtomSphere is the industries first complete, fully on-demand integration service.

Dell Boomi AtomSphere makes it possible for companies to integrate their applications, data and trading partners directly from the web, without installing software packages or hardware appliances.

- Users can securely build, deploy and manage integrations using only a web browser.
- Build, deploy and manage connections directly from the web
- No software packages or hardware appliances to install
- Connect any combination of SaaS and on-premise applications with unprecedented ease
- Pay only for the connections you deploy
- Do-it-yourself technology: no coding required
- Self-provisioning: sign up and begin building integrations immediately

2) Dell Boomi Login ways and Dell Boomi Statistics

Login Ways:

www.boomi.com

https://ondemand.boomi.com

https://platform.boomi.com

https://atom.boomi.com

Dell Boomi Statistics:

We are able to check Boomi statistics using below URL,

www.trust.boomi.com

Dell Boomi System Health Dashboard: Integration Processes chart shows the integration processes that ran over the last year

Total Integrations Processed: Total integrations that have been processed.

Atoms Deployed: Total atoms deployed in the Cloud and on-premise.

Mappings Indexed: Total number of mappings indexed by Boomi Suggest.

Functions Indexed: Total number of functions indexed by Boomi Suggest. Below are the modes for AtomSphere, MDM, Atom Cloud statistics.

Operating Normally: Service is operating as expected. No known issues. All services are operating normally.

Performance Issues: The service is available, but you may experience slow response times. Service Disruption: The service is experiencing problems and may be unavailable. Informational Message: We are just passing along some information to you

3) Dell Boomi Support Ways (Help Document, Sales force Portal Access, Phone, EMAIL, Live Person Chat)?

ANS) depends on support level access Dell Boomi Provides below Support Options,

1) On call support

Toll free in US call 1-888-297-5808 Option 2
International call 512-513-7117 Option 2
This information is available when you click on the "Call Us" button in the Home tab of the Customer Support Portal.
To report Severity 1 issues please call 866-407-6599 (Toll free in US)

2) Live Chat Support

- ✓ Using Live Person tool, Dell Boomi provide Live support
- ✓ Maximum 30 minutes time for chat
- ✓ After chat over, it has been raised as case automatically for further Clarifications Dell Boomi will follow through case.

3) Sales force CRM tool Support

4) Mail Support

For all users Dell Boomi provides default mail support and it is treated as Severity 4 or Blank value.
Mail: support@boomi.com

Boomi Help ways:

1) Reference Guide
2) Support & Community
   - Home
   - Cases
   - Articles
   - Answers
   - Training
3) Help & Feedback

These are available in Help & Feedback tab at right side top.

Important Links:

For reference guide,
http://help.boomi.com/atomsphere/

For support & community,
https://na2.salesforce.com/home/home.jsp

For Cases,
https://na2.salesforce.com/cases/casesHome.apexp

For Articles,
https://na2.salesforce.com/knowledge/knowledgeHome.apexp

For Answers,
https://na2.salesforce.com/answers/answersHome.apexp

For Training,
https://na2.salesforce.com/servlet/servlet.Integration?lid=01r400000005hyh&ic=1
http://training.boomi.com/

4) Dell Boomi Overview?

Below is the details of Dell Boomi and These topics are available in Reference Guide or Help Link.

- Build — Comprehensive reference guide for how to build and configure components and processes
- Deploy — How to deploy processes and Atoms
- Manage — How to monitor data that has been processed
- Account Setup — How to administer Dell Boomi AtomSphere accounts
- Dashboard — How to monitor real-time and recently logged statistics specific to your account, account groups or SOA processes
- Atoms, Molecules and Atom Clouds — The core technology that powers your integrations
- EDI and B2B Solutions — How to configure trading partners for B2B integrations
- SOA Framework and Web Service Publishing — How to enable web service listening in your processes for real-time integration
- Connector SDK — How to build your own custom connectors in Dell Boomi AtomSphere
- Dell Boomi AtomSphere API — How to access AtomSphere features programmatically
- Release Notes — Learn about the new features in the current release and previous releases.

5) What is Dashboard and types?

ANS) Dashboards used to monitor real-time and recently logged statistics specific to your account, account groups or SOA processes.
Dell Boomi AtomSphere offers 3 dashboards: the Account Dashboard, which is available to all accounts, and the SOA/Real-time Dashboard, which is available if the SOA Framework (sometimes referred to as Web Service Publishing) is enabled in your account and HTTP status dashboard.

6) What are the components and how many components are available in Dell Boomi?

ANS) Components are reusable configuration objects.

1. They are listed in the Component Explorer. Components can be created once and referenced by process steps across multiple processes.
2. This modular design simplifies maintenance because configuration changes can be made once and then instantly applied everywhere the component is referenced.
3. You can create components by using the Create Component window or the Component Explorer on the Build page, or from the Welcome tab or the Process canvas.
4. You can also create components by installing published processes from your process library. When you install a published process, the process component and all of the components used in the process are copied into your account.

There are total 13 components available in Dell Boomi,
1. Certificates2.Connections3.Connector operations4.Cross reference tables5.Document caches 6.Maps 7.Processes 8.Map functions 9.Process properties
10. Profiles11.Trading partners. 12. Queue 13. Web Services

7) All Components Overview and Usage, Explanation.

ANS) Here is explanation for all components,

1. Certificates: These are used for security purpose & many connectors/end applications required certificate based authentication and encryption/decryption of data/files.

Boomi will support 2 types of certificates.

The Certificate component may use an existing key obtained from a certificate authority such as VeriSign or Thawte or it may use a key generated by Dell Boomi. Keys generated by Dell Boomi are no less secure than purchased certificates.

You can create two types of Dell Boomi certificates: X.509 or PGP.
A Dell Boomi certificate can be public or private.

- A public certificate contains only a public key.
- A private certificate contains both public and private keys.

If you open a private certificate you can:

- Import another private certificate into it
- Export its private and public keys.

If you open a public certificate you can:

- Import another public certificate into it
- Export its public key.

Boomi will support below certificate types/extensions,

Certificate Type	**File Extension(s)**
Public X.509	.cer .der
Private X.509	.pfx .p12
Public PGP	_pub.asc
Private PGP	_priv.asc

2. Connections: The connection contains the configuration required to physically connect to the particular application or data source. This usually includes things like user name, password, URL, host name, IP address, port, etc.
Connections are used in Connector steps of course, but also in Program Command steps, Map functions, Decision steps, and even Operation and Profile wizards.

Example: For Disk connector, directory path (c:/data) is connection

Connector:

Connectors get data into and send data out of processes.

Connectors abstract the technical details of communicating with various applications, data sources and communication protocols. They are actually comprised of two components: a connection and an operation.

The connection represents the "endpoint" and contains the physical connection details, such as an FTP or database host, a web services URL and/or login credentials.

The operation represents a specific action to perform against that connection, such as a database SELECT query, an FTP PUT or a specific web service call. You can think of the connection as the "where" and the operation as the "how".

Connector Type	Connection	Operation
Disk	Local directory location	File name/filter, whether to rename/overwrite/append file
FTP	FTP host name, user name, password	Remote directory, file name/filter, whether to rename/overwrite file
Database	Database host name, user name, password, schema	How to batch/commit, profile to use (the profile contains the actual SQL statement)
Salesforce	Salesforce account user name and password	Record type, action (query, insert, update, Upsert, delete), filters, sorting
QuickBooks	QBW file location, file mode	Record type, action (query, add, modify, delete)

3. Connector Operation: The operation represents a specific action or API call against the application or data source defined by the connection. For example, the operation is where you define which web service call to make (e.g., Get Purchase Orders, Update Account), the FTP directory and file filter to get, how to batch commit database inserts, which e-mail addresses to send to, etc.

In operation there are 4 to 5 sub tabs are available depends connector type.

Options Tab: It depends on connector type, for disk connector options are Connector Action, Create directory if it doesn't exist?, File Naming Options.

Archiving Tab: You can choose to automatically archive the documents that pass through an operation for auditing or troubleshooting purposes. If enabled, documents will be archived to the specified local directory on the machine where the atom is

running. Archived files will be named: <date time><document index><Operation name>_<unique number>.dat.

Tracking Tab: This option is useful, if you want to verify required fields are available or not for the specific execution. Tracked field labels are operation-independent. Different processes and operations can specify the same label and populate the same field.

Caching Tab: Temporary storage of data. Suppose when process is executing, once we stored the data then we will use wherever required. Please refer add to cache step for more details.

Import Tab: This tab is very useful to import the required formats (XML, JSON) from connectors.

For example, Salesforce create operation will give us request & response profile in the form of XML format.

4. Cross Reference tables: The cross reference table (CRT) is a data structure that is used to replace a run-time lookup computation with a much simpler lookup operation. The gain in processing speed can be significant, because retrieving a value from memory is much faster than performing a database or other connector lookup.

Cross reference table lookups are most often performed in map functions (under the Lookup category) but can also be used as parameter values in all process steps that use parameters, such as connectors (including the Start step), Decision, Set Properties, Message, Program Command, and Exception steps.

Some common uses of a cross reference table are:

- A simple value translation between System A and System B, such as item codes, units of measure, status codes, or any other type of code
- Reusable translations (for example, U.S. state abbreviations)
- Switch/case logic (simple if/else)

Maximum Allowed Columns – 6

Maximum Rows – 10000

Maximum Import File Size – 1 MB

5. Document caches: In order to use document caching, you need to create a Document Cache component. On the Document Cache tab you select a profile type and a profile. You can create a Document Cache component that works with one of the following profile types: Database, EDI, and flat file, XML or JSON. Document Cache components are reusable throughout all of your processes.

Storing of data temporarily. Suppose when process is executing, once we stored the data then we will use wherever required. Please refer add to cache step for more details.

On the Document Cache tab you add keys and indexes.

- ✓ Keys must be defined for the primary fields that will link the data set to the source systems. Each key that you create corresponds to an element in the source profile. Documents that contain these elements and that have values will be retrieved to put into the document cache.
- ✓ When you use the document cache later, in mapping for example, keys are used to pull data out of the documents in the cache.
- ✓ An *index* is a grouping of related keys. Indexes are used to organize keys. To be valid, each Document Cache component must have at least one index and each index must have at least one key.

Also refer add to cache & load from cache steps as well.

6. Map: Maps allow data to be transformed from one format to another — or specifically, from one profile to another.

Fields or *elements* are mapped by dragging and dropping a source element to a destination element. Map functions can be used to perform simple or complex field-level manipulations as values are mapped.

Maps allow you to convert data from one layout or format to another. On the left side of a map is a source profile and on the right side is a destination profile. You can drag and drop fields from the source profile into the destination profile in order to indicate how the data should be moved. In addition, you can add *functions* to data maps, which allow complex conversion logic to be applied to the data as it is moved from source to destination.

When connecting source and destination elements, these rules apply:

Source Profile Elements — multiple connections can be made from a source element to a function, or destination element.

Functions — multiple data elements can be used as input for a function. Multiple connections can be created from the output of a function. The order in which functions are executed is configurable.

Destination Profile Elements — only one connection can be made from a source element or function to a destination element.

You can also use Boomi Suggest to map elements for you. Boomi Suggest is a feature in Dell Boomi AtomSphere that offers mapping suggestions based on thousands of mappings logged by the Boomi community. Boomi Suggest is enabled per account on the Account Information page.

Default values can be used in maps in two ways:

1. If a source element is mapped to a destination element with a default value, the default value will be used only when the source value is null or blank.
2. If no source element is mapped to a destination element with a default value, the default value will always be used. This is how you can "hard code" static values.

Certain types of maps are extensible. You can

1) Define extensions for maps having XML and flat file profiles to enable field-to-field mappings to be overridden (but not “un-mapped”) when a process is deployed.
2) Define extensions for maps having flat file profiles to enable the addition of fields to profiles when a process is deployed.
3) In the case of flat file profiles, the extension methods described above are applicable only to profiles having single-record formats.
4) For more information about map extensions, see the topics Defining Process Extensions and Data Map Extensions linked below.

Also refer other related topics called Map Functions, Profiles, Extensions, Map Step.

7. Processes: The *process* is the central component within Dell Boomi AtomSphere.

A process is a graphical representation of the path that a document takes from the point at which it is received by Dell Boomi AtomSphere, to the point at which it is sent to one or more destinations.

If you open a process that is too large to view in its entirety, a Navigation palette will open on the canvas automatically.

Create one main process & many sub process for complete interface implementation.

In single panel adding different combination of components and achieving required logic to complete the interface is nothing but process.

Also refer component process call step.

Process Components: Processes are the central components in Dell Boomi AtomSphere. They contain the series of steps that determine how data will be executed within the system. A process typically represents a discrete workflow that moves a given type of record from one application to another.
Once you have created a process then it opens on the process canvas, a full-screen view of your process. There you will see below tabs.

The buttons along the top of the process canvas allow you to:

- Options — Edit process options.
- Scheduling — Follow a link to Atom Management, which is where process schedules are now set.
- Extensions — Define extensions for the process. (Available only if extensions are enabled.)
- Widgets — Create Widget Wizards for the process. (Available only if widgets are enabled.)
- Add Note — Drag and drop sticky annotations on the process canvas.
- Show Navigation — Display or hide the Navigation palette, which opens if the process is too large to view in its entirety.
- Run a Test — Test the process in Test mode.

Process Options:

You can set the following options in the Process Options dialog when you create or edit a process.

Process Mode -This list box is visible only if the SOA Framework (sometimes referred to as Web Service Publishing) is enabled in your account. If you are not using the SOA Framework, your process mode is automatically set to General and it cannot be changed.

- General — The default process mode for all new processes.

- Low Latency — Use this process mode to improve performance for short-lived processes (where total execution time is generally expected to be less than 30 seconds). If you choose this process mode, the Start Shape dialog is set to use the Connector option, the Connector field is set to Web Services Server, the Action field is set to Listen and Atom Web Server manages the connection settings. You cannot change these settings when the process mode is set to Low Latency.

When you use Low Latency mode for a process some functionality is disabled. See the Low Latency Processes topic, linked below.

A sub process called by a low latency process always uses Low Latency mode. In other words, the sub process' settings in the Process Options dialog are ignored and it uses the same Process Options settings as the top-level low latency process that calls it.

Allow Simultaneous Executions –

- If on, more than one instance of this process can be running at the same time on a given Atom.
- If off, only one instance can be running at a time. This is often beneficial when you are processing large amounts of data (to conserve system resources) or performing time- or state-sensitive synchronizations.
- When a process calls a sub process, the sub process always executes immediately, regardless of how the Allow Simultaneous Executions check box is set on the sub process or its parent process.

This check box is always available and can be turned on or off. If the Process Mode field is set to General, this check box is off by default. If it's set to Low Latency, this check box is on by default.

Auto Capture Errors/Warnings to Local Log?- If on, logs for the process are stored in the local Atom's execution history directory. The default location is a zip file in the<atom_installation_directory>\execution\history\<process_execution_date> folder. The zip file contains the log files for the process.

This check box is always available and can be turned on or off. It is off by default.

Capture Run Dates -Records the last run date and the last successful run date for the process. There is significant performance degradation if this option is enabled for web server, AS2 or event-based processes.

This check box is always available and can be turned on or off. If the Process Mode field is set to General, this check box is on by default. If it's set to Low Latency, this check box is off by default.

Only Generate Process Log on Error - If on, the process log is created only if the process encounters an error. We recommend that you turn on this check box for web server or event-based processes in order to improve performance.

The following limitations apply to low latency requests:

- If you are using the Dell Boomi Atom Cloud, the maximum input document size is 1 MB. If you are using a local Atom, Molecule or private Atom Cloud there is no restriction, but you can use the com.boomi.container.config.quota.SOA_INPUT_SIZE quota to set a limit.
- If you are using a SOA worker, the maximum SOA process execution time is 30 seconds.

Process Extensions:

Extensions are available only in the Professional and Enterprise Editions of Dell Boomi AtomSphere. Please contact a Dell Boomi Sales Representative for more information.

Extensions allow you to define certain configuration settings within your process such as connection information to be specified at "deploy-time" instead of "build-time". With extensions, you can develop and maintain a single process but be able to specify different settings for each location when deploying that process to multiple atoms or environments. Extensions are also fundamental to building integration packs.

Extensions are defined within the Process component. You can define extensions for a number of types of settings:

- Connection Settings
- Trading Partner Settings
- Schedules — Schedule extensions can be defined for widgets. Process scheduling for non-widget processes is done in **Manage** > **Atom Management** > **Deployed Processes**.
- Dynamic Process Properties
- Process Properties
- Data maps
- Cross Reference Tables
- PGP Certificates

Once the extensions are defined, you will need to set values for those extensions. You will set values during Atom or environment deployment but you can also set extension values for Test mode. When a process is executed with extension values set, those values will extend or override any values that may be configured in the underlying components.

Widgets Tab: Dell Boomi discourages AtomSphere developers from undertaking development of new widgets.
Integration packs are now the preferred means of packaging integration solutions and making them available to end users.

The AtomSphere Widget framework allows AtomSphere developers to create pre-packaged integration solutions that can be installed and managed by end users via a simple install wizard. Widgets can be embedded within another web application and white labeled for a seamless end user experience. A Widget sits on top of a single instance of a process configuration that is deployed multiple times, once for each customer. Depending on the applications and data sources used in the integration, a Widget may be deployed to the Dell Boomi Atom Cloud or locally with an atom installed within a customer's network to access data behind the firewall.

Widget end users do not need a Dell Boomi AtomSphere edition account. A Widget end user's experience is completely contained within the Widget Manager; they do not have access to the underlying Dell Boomi platform. From the Widget Manager, the user can install, manage, and monitor the Widgets' integrations in a self-service manner. Partners *should not* provision Dell Boomi AtomSphere edition accounts for Widget prospects. The Widget Manager handles the account creation for each customer's Widget instance automatically.

When an end user installs a Widget instance, it is provisioned as a time-based trial account. The users can then test drive and evaluate the Widget before deciding to purchase. The Widget developer can define the trial length.

NOTE:

Widgets cannot contain real-time processes, that is, processes that are configured to receive/listen for data in real time. This means you cannot include processes that use the Web Services Server or AS2 Server capabilities.

Add Note Tab: Add note tab can be used to add important notes to specific step. You can add any number of notes in your process, so that it can be easily understandable to others.

Navigation Tab:

It can be used to go specific process flow path when process is having more paths. Below figure shows navigation examples after clicking the navigation tab,

8. Map functions: In Map we can find Map function and these can be used to perform different operation and sending the result to destination field,
For more details,
http://help.boomi.com/atomsphere/GUID-08D412D8-E77F-44BD-9994-B30B64BFBCDB.html

Available function in Dell Boomi,

1) User Defined – Combination of below functions(String, Data) & Reusable
2) String
3) Numeric
4) Date
5) Lookup
6) Connector
7) Custom Scripting
8) Properties

9. Process properties: Process properties are name/value pairs or "global variables" that can be used to store arbitrary information to assist with the integration. You can set a property value in the beginning of the process and then retrieve it later in a different part of the process. Process properties are a fairly simple but very powerful feature that can be used to facilitate a number of common integration scenarios.

Here are two types of process properties: Process Property components and dynamic process properties. Both types of process properties are used for the same purpose but they are created differently.

- Process Property components are more powerful and are easier to work with. They are reusable components that can consist of a collection of properties. See the Process Property Tab topic for more information.

- A dynamic process property is a single “on-the-fly” property that you create. See the Dynamic Process Property topic for more information.

Process properties have "execution scope", meaning that once they are set they remain available for the duration of the current process execution. This also means the properties are available across other processes initiated via the Process Call step, as is common in parent/child process designs.

Process properties can be set in:

- The Set Properties step
- The Set Process Property map function
- Groovy script within a custom scripting step or custom scripting map function. See the Accessing Process Properties with Scripting topic for more information.

You can also choose to persist a property value and "remember" its value for future process executions.

If you can check persist a property check box and it is available in child process as well.

Here are the other properties available in Boomi,

Dynamic Process Properties: These are one type of process property. A dynamic process property is a single “on-the-fly” property that you create. When you need to retrieve a dynamic process property, you must remember its name and type it by hand in the field, function or script that you are using.

If you have set up this type of user-defined dynamic process property in the past, you can continue to use them or you can replace them with Process Property components.

You can set values to dynamic process property similar to above process property.

Document Property: Standard document properties (called simply document properties) contain run-time related information related to a document. Some properties are set and maintained automatically by the run-time engine and cannot be modified, such as inbound connector information like original source file name or Connector Application Response Code.

Other properties can be set by the process developer to specify things such as outbound connector information like destination file name or remote directory.

Document properties are organized into several categories:

- Standard connectors
- Trading partner information
- Meta information

The following examples describe several scenarios in which
standard document properties (called simply document properties) are commonly used.

Setting an outbound file name:

- Use a Set Properties step.
- Add a "Property to Set" on the left and select Document Property > Standard Connectors > select a connector type (e.g., Disk or FTP, whatever you are writing to) > File Name.
- Add one or more parameters to create a simple (static value) or complex (mix of static and dynamic parameters).
- Connect the Set Properties step to the Connector step.

Dynamic Document Property:

Dynamic document properties are properties that the process developer can define and use to temporarily store additional pieces of information about a given document. They are essential arbitrary name/value pairs that follow the document through its execution, through map transformations and outbound connector calls.

These properties are highly flexible and can be used to improve performance, robustness, and sophistication of your processes.

There are several general use cases where dynamic document properties are commonly used. See the Examples topic for more details.

- Maintain source record context — this is the most common use case, enabling better logging/error reporting and facilitating "write backs" to the source application for synchronization scenarios.

Additional considerations for using dynamic document properties:

- ❖ Be sure to type the property name carefully. You must use the same name when retrieving a value that was used when initially set. It is helpful to establish a naming convention to reduce typos, such as all caps with underscores/dashes for spaces.
- ❖ Property names are case-sensitive.
- ❖ Property values are always stored as characters. This is important to note if you plan to store numeric- or date-type values because you may need to cast or reformat when retrieving or mapping them later.
- ❖ There is no limit to the number of dynamic document properties you can set.
- ❖ There is no maximum size limit for a dynamic document property's value. However, because document properties are managed as simple strings and not as streams, their entire contents are held in memory when they are in use. Be careful if you use larger values because this can cause memory issues with your process execution.

10. Profiles: Profiles describe the layout or format of the various documents read into or sent out of AtomSphere. To describe a flat file, for example, the profile would contain field names, delimiters or column positions, data types, min/max lengths, etc.

Profiles are most notably used in maps. For example, to map an XML document to a flat file, you would need to set up one profile that matches the layout of the XML file, and another profile that matches the flat file.

Boomi supports 5 types of profiles,

- ✓ Database
- ✓ EDI
- ✓ Flat File
- ✓ XML
- ✓ JSON

Supported Data Types:

There are a number of places throughout Dell Boomi AtomSphere where you can specify the data type and format of a field or value. They are most commonly specified in profiles but you can also specify them when you are formatting map functions and various parameter date values. The three data types are:

- ✓ Character
- ✓ Number (Different Formats see below help link 4)

- ✓ Date/Time (Different time zone offsets see below 2,3 help links)
- ✓ BLOB(database)
- ✓ CLOB(database)

Database Profile: Database profiles represent the data set to be retrieved from or written to a relational database. They contain the actual SQL used to select or insert, update, or delete records. A given profile is paired with a specific database connector operation.

There are two types of database profiles:

- ✓ Read profiles are used to extract records from a database. They contain a single SELECT statement (or stored procedure call) and the fields (or elements) returned in the result set. In a map, the read profile would be referenced as the source profile.
- ✓ Write profiles are used to write records to a database. They contain one or more INSERT/UPDATE/DELETE statements (or stored procedure calls) and the input fields for those statements.
- ✓ In a map, the write profile would be referenced as the destination profile. You can define multiple statements to insert or update parent-child relationships in one map.

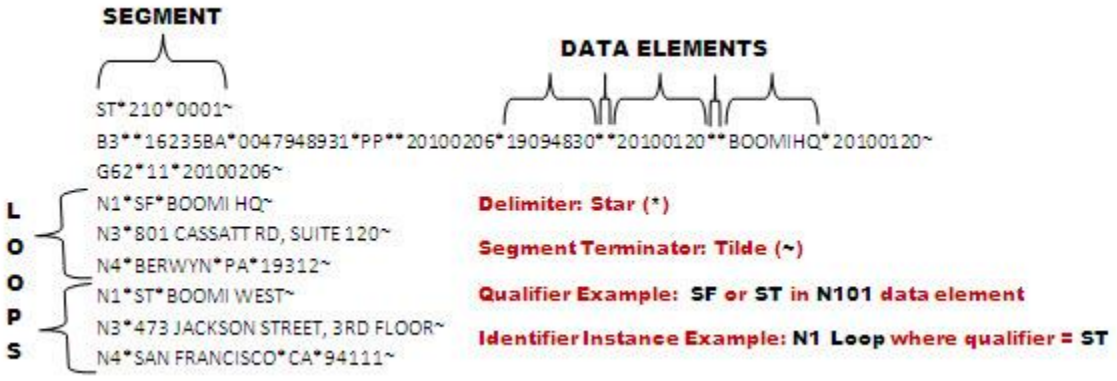
EDI Profile: Electronic Data Interchange (EDI) is defined as the exchange of business data from one computer to another computer using a public standard format. EDI replaces the traditional processes of preparing data in paper form and sending it by mail or by facsimile. Business communications with EDI is not restricted by software, equipment or computer.

EDI uses structured document formatting through which the Dell Boomi platform builds solutions following the specifications provided by the company or trading partner.

Typically EDI is independent of a company's internal application systems. EDI formats consist of interrelated document components. The core Dell Boomi AtomSphere components are defined below:

- ❖ Segment — Business document data logically grouped with one or more data elements.
- ❖ Data Element — Basic units of information containing a set of values that represent a singular fact.
- ❖ Delimiter — Unique character that separates individual data elements.

- Segment Terminator — Unique character that identifies the end of a segment string.
- Qualifier — Specific value of a data element that can be predefined in Dell Boomi AtomSphere to classify key data.
- Loop — A section or group of segments that can repeat within one document instance.
- Identifier Instance — A flag in the EDI structure that identifies a specific data set based on numeric occurrence, qualifier or both.



EDI profiles represent the structure of the various EDI documents sent through Dell Boomi AtomSphere processes, including all the segments, data elements, looping and other configuration information. Similar to the XML profile, the EDI profile allows you to configure repeating data sets (loops). You can also organize segments in Header, Detail and Summary loop sections.
Boomi supports below formats,

1. ANSI X12
2. EDIFACT
3. HL7
4. User defined(you can create own format)

Boomi has given default formats; if you want you can add, edit or delete segments as per your requirement.

The following standard EDI profile types are available:

- X12 — In North America, Accredited Standards Committee (ASC) X12 is the standard primarily used for EDI. X12 defines specific standards for a multitude of EDI document types and its subsets. Subsets of X12 are intended to serve a particular vertical market. For example, the public warehousing industry usually adheres to the UCS subset of X12.
- EDIFACT — UN/EDIFACT (United Nations Electronic Data Interchange For Administration, Commerce and Transport) is the predominant international EDI

standard. Like X12, EDIFACT defines specific standards for a multitude of EDI document types.

- ❖ EDI profile auto generation option available and segment information.
- ❖ You should have to learn identifier instance and qualifies and loops.

Flat File Profile: Flat file profiles represent structured data sets that contain rows of data, typically with one record per line, with each row containing a series of fields known as elements. The most common example of a flat file data set is a basic comma-separated-value file or CSV.
The structure of the elements is defined as one of two options:

- ❖ Delimited — each element is separated by some specific character (the "delimiter"), such as a comma, asterisk, or pipe, and can be variable in length.
- ❖ Data Positioned — each element begins at a specific column position and has a specific length

XML Profile: XML (Extensible Mark-Up Language) is a self-describing format that uses tags or elements (<tagName>value</tagName>) to delimit and organize data. The XML format is often used to send data over the Internet, especially when communicating with web applications via web services.

XML profiles represent the structure of the various XML documents used within processes, including all the elements, attributes, complex types, looping and other configuration information.

Many connectors automatically generate XML profiles for you to use with various operations. However, if you have a proprietary XML structure you can build an XML profile from scratch.

XML profiles that you create, or XML Schemas (XSD files) that you import, can contain elements that reference complex types and/or element declarations.

Learn all required information about XML, such as CDATA, Types, Schemas (XSD), Elements, DTD, XPATH, XLINK, and XPOINTER.

Looping elements, such as order line items or contacts within an account, are established by setting the minimum and maximum occurrences appropriately for the element.

Name	Description
Min Occurs (Minimum Occurrences)	The minimum number of times the element can occur.
Max Occurs (Maximum	The maximum number of times the element can occur.

Occurrences)	
Looping Option	Unique or by occurrence.

Here are some tips for using the Min/Max Occurs settings:

- For an optional element, set Min Occurs=0 and Max Occurs=1.
- For a mandatory element, set Min Occurs=1 and Max Occurs=1.
- For an optional looping element, set Min Occurs=0 and Max Occurs=unbounded.
- For a mandatory looping element, set Min Occurs=1 and Max Occurs=unbounded.

JSON Profile: JSON (JavaScript Object Notation) is a text-based data interchange format. It is easy for humans to read and write and for machines to parse and generate.

The JSON format is often used to transmit structured data over a network connection. It is similar to XML and is often used as an alternative to XML.

JSON is based on a subset of the JavaScript Programming Language, Standard ECMA-262 3rd Edition - December 1999. The JSON format is language independent. The JSON filename extension is .json.

JSON's basic data types are:

- Object — an unordered set of name/value pairs.
- Array — an ordered collection of values.
- Number
- String (in double quotes)
- Boolean
- Null

A JSON profile describes a file that represents simple data structures and associative arrays. When you create JSON profiles in AtomSphere, you can use the Simple data type, the Object data type, and two types of arrays: Repeating Array and Absolute Array.

Identifier instances are placeholders in a JSON profile that identify specific data sets. At the element level, they categorize these data sets based on the numeric occurrence (for example, the first occurrence or last occurrence) and/or qualifier value within a given JSON file. Identifier instances can be used in maps to map specific data values for an occurrence or qualifier.

The Import Wizard helps you to quickly create a JSON profile by importing data elements, objects and/or arrays from a JSON document. If you use the Import Wizard to update an existing profile, matching profile elements maintain the same key and identifier instances are maintained.

You can use JSON profiles wherever you select a profile type, such as in the Parameter Values dialog. When working with JSON profiles you can use Boomi Suggest to provide mapping suggestions.

Boomi will give us 1 additional feature for JSON, XML, EDI profiles & those will work like if/else condition.

Here are some tips for using the Min/Max Occurs settings:

- For an optional element, set Min Occurs=0 and Max Occurs=1.
- For a mandatory element, set Min Occurs=1 and Max Occurs=1.

JSON profile has below types,

- Simple
- Object
- Array Absolute
- Array Repeating

Identifier Instances:
Identify By Qualifier – define one qualifier & map will check the qualifier is available or not from source data.

Identify By Occurrence – It will work based on order, suppose first set comes then Boomi will treat it as occurrence 1.

11. Trading partners: Dell Boomi AtomSphere manages B2B requirements through the implementation of trading partners.

A Trading Partner component contains the configuration details for either your company or a trading partner on two levels:

Document Standards — the document types and files options that meet the specifications defined by your company and trading partners. Dell Boomi currently supports the integration of the ASC X12, HL7, and UN/EDIFACT EDI standards.

Communication Methods — The communication protocols that Dell Boomi supports to send and receive trading partner document data.

- ✓ AS2
- ✓ Disk
- ✓ FTP
- ✓ SFTP
- ✓ MLLP

You need to create a Trading Partner component for your company and another for each company or VAN with which you want to conduct EDI interchange.

A Trading Partner step in a Dell Boomi AtomSphere EDI integration process represents the retrieval or sending of interchange data.

For inbound data processing, configure a Start step as a Trading Partner step.

For outbound data processing, drag a Trading Partner step from the Execution palette to the process canvas.

To configure a Trading Partner step, you need to identify the Trading Partner component representing your company and the Trading Partner component(s) with which your company will conduct the interchange.

Commonly asked questions for Trading Partner,
a) Can I use a Dell Boomi Atom Cloud for accessing trading partners?
ANS) Dell Boomi will not import a private certificate into the Dell Boomi Atom Cloud or Test Atom Cloud. As long as your trading partner does not require a certificate, trading partner's data can be part of an integration run on the Dell Boomi Atom Cloud or Test Atom Cloud.

b) How to override Trading Partner Information?
ANS) Using the example above, to override the value of the Test Indicator using the Set Properties shape:
Configure a Set Properties shape before the Trading Partner shape.
In the Set Properties shape, select Document Property and under Trading Partner Information expand X12 -> Interchange -> Test Indicator.
Set it to a blank value on the right.

This should override the value of that field when the data then goes into the Trading

Partner shape.

This same approach may be used for other fields. If your requirement is similar, but slightly different, experiment with other settings/fields to see if they produce desired results. Note that not all fields may work this way, it is always recommended to adhere to the EDI standards and correct any interfaces that don't comply instead whenever possible.

c) What is an Interchange ID for My Company in a trading partner?
ANS) For My Company,
Interchange ID represents Interchange sender ID and AS2 ID represents My company AS2 ID used for all communication with partners.

Interchange ID needn't be the same as the AS2 ID. Interchange ID is the ISA information available in your EDI document.

12. Queue:

13. Web Services:

8) Dell Boomi Steps, Types, Explanation, Usage about each step?

ANS) Boomi has total 22 steps and divided into 2 categories with one special shape (start shape).
Here is the list of 2 categories and refer below picture to know the details about 2 tabs.

Execution Shapes: In the integration flow executions steps will change the document format (XML to CSV using Map).
It consists of 12 steps.

1) Connector	2) Trading Partner	3) Map
4) Set Properties	5) Message	6) Notify
7) Program Command	8) Process Call	9) Data Process
10) Find Changes	11) Add to Cache	12) Load From Cache

Execution shapes manipulate the document data.

	Connector	Gets data into the process or sends data out of the process using one of the application or technology connectors.
	Trading Partner	Gets data into the process or sends data out of the process for a

		specific trading partner and handles common EDI document frameworks such as X12.
	Map	Transforms data from one format (profile) to another.
	Set Properties	Sets connector-specific properties (such as disk file name, FTP directory, mail subject, etc.) for documents as well as global process properties.
	Message	Generates free-flow text messages with both static and dynamic content.
	Notify	Creates a custom notification that will appear in your RSS feed.
	Program Command	Executes commands including calling database SQL and stored procedures and invoking command line scripts.
	Process Call	Executes another process from within a process or passes document data to another process for further execution.
	Data Process	Manipulates data with one or more processing shapes, including document splitting, zip/unzip and custom scripting.
	Find Changes	Tracks changes made to system files and sends the document results down an add, update or delete path.
	Add to Cache	Used to add documents to a document cache so that they can be used in a process or sub-process. References a Document Cache component, which describes how the cache is defined.
	Load From Cache	Used to get documents from a document cache so that they can be used in a process or sub-process. The Load From Cache shape references a Document Cache component, which describes how the cache is defined.

Logic Shapes: To process the documents conditionally (accept or reject the documents) It consists of 10 steps.

1) Branch	2) Route	3) Cleanse
4) Decision	5) Exception	6) Stop
7) Return Documents	8) Flow Control	9) Business Rules
10) Try/Catch		

Logic shapes direct the flow of documents through the process.

	Branch	Creates a copy of a document and passes it down each branch in sequential order. A branch is executed to completion before the next branch is executed. If a document errors on one branch it will not continue down subsequent branches.
	Route	Routes documents conditionally down different paths based on some value. Routing values can be static or dynamically pulled from document properties or actual document data.
	Cleanse	Repairs or rejects documents by validating field-level restrictions defined by the data profile.
	Decision	Routes documents based on a true/false comparison of two values. Comparison values can be static or dynamically pulled from document properties or actual document data.
	Exception	Terminates the document execution and generates a user-defined error.
	Stop	Ends the current execution path without generating an error.
	Return Documents	Returns the documents to the calling source point.
	Flow Control	Controls document data flow and system resource management.
	Business Rules	Checks multiple "business rules" to determine if the given document should be accepted or rejected.
	Try/Catch	Captures document-level errors for one to many document instances that fail during an execution.

Start Shape:

	Start	The Start shape is the initial shape that begins every process. It is automatically included in every new process and cannot be removed. The process execution will start from this shape.

1) Connector:

- Connectors get data into and send data out of processes. They enable communication with the applications or data sources between which data needs to move, and in other words, the "end points" of the process.
- Those applications and data sources can range from traditional on-premise applications like SAP and QuickBooks, to web-based applications like Salesforce.com and Net Suite, to data repositories like an FTP directory, a commercial database or even an email server.

Connector Actions:

There are two generic *actions* that connectors can perform: Get and Send. When configuring a Connector step in a process, you specify the action. The Connector step should reference an operation component of the same action type. In addition to filtering the list of operations to choose from, the action affects how data is processed.

It is important to understand the basic yet fundamental difference between Get and Send actions.

- **Get —** the connector retrieves data from a given source and returns it to the process for further processing. This is the only "Get" connector whose documents are logged as inbound data on the Manage menu's Process Reporting page. Documents retrieved by "Get" connectors used mid-process or within another process step (as a look-up, for example), are not logged.
- **Send —** the connector sends data to a given destination but *does not return any data to the process for further processing*. Documents sent via Connector steps in the process are logged as outbound data on the Manage menu's Process Reporting page.

Connector Categories:

Below are categories for Dell Boomi Connectors,
Standard or Technology Connectors List,

1) AS2 Client Connector
2) AS2 Server Connector - Legacy
3) AS2 Shared Server Connector
4) Atom Queue Connector
5) Database Connector
6) Disk Connector
7) FTP Connector
8) HTTP Client Connector
9) HTTP Server Connector - Legacy

10) JMS Connector

Application Connectors List,

1) Apex Connector
2) Aprimo Connector
3) Aria Connector
4) AtomSphere API Connector
5) AtomSphere Partner API Connector
6) Autotask Connector
7) Coupa Connector
8) Google Apps Connector
9) Great Plains Connector
10) Hadoop HDFS Connector

Boomi also differentiate as a connector class and below are the different connector classes with supported applications.

1) Enterprise Connection Class

Application	**Supported Version**
Oracle E-Business Suite	v.10 or higher
SAP Business Suite & NetWeaver	SAP R/3 4.0, 4.5, 4.6, 4.7; SAP NetWeaver Application Server 6.10, 6.20, 6.30, 2004, 7.0

2) Standard Connection Class

Application	**Supported Version**
JD Edwards	v.10 or higher
PeopleSoft	v7.5 or higher
Siebel (On Premise)	v.7 or higher
SuccessFactors	
Web Services	
WorldAPP KeySurvey	
Xactly	
Yahoo! Stores	
StrikeIron	
SpringCM	
Silverpop	
SmartTurn	
Pivotlink	

POP/SMTP	

3) Small Business Connection Class

Application	Supported Version
Freshbooks	
Sage 50 (Peachtree)	Pro 2007 - 2013 Complete 2007 - 2013 Premium 2007 – 2013 Quantum 2007 - 2013
QuickBooks	Desktop 2002-2009 (Pro, Premier, Enterprise including US, UK, CA) Online

4) Trading Partner Class

Application	Supported Version
Trading Partner	
AS2 Server	
AS2 Client	

If any application is not available then we need to contact. For more details,
http://www.boomi.com/products/evaluate/supported_applications
There is not direct connector for some applications; we need to use HTTP Client Connector or Web Service SOAP Client Connector to hit the end application services. We will use Database connector to get the data from end application.

Please refer the few connectors explained as part this tutorial in further pages.

Trading Partner:
Refer the trading partner concept from the core components.
Here is the symbol for trading partner,

Map:
Refer the Map concept from the core components.
Here is the symbol for trading partner,

Maps are used to transform data from one format to another, or more specifically, one profile to another. The Map shape simply references a predefined Map component. When you configure a Map shape the Map Properties dialog opens. It contains the following controls.

Name	Description
Label	(Optional) User-defined name to describe the shape. If one is not entered, no label appears on the shape.
Map	Used to choose, edit or create a Map component.

Set Properties:

The Set Properties shape allows you to set values for various document and process property connector properties.

These properties can be used to set outbound connector attributes such as file name or email subject, or store certain values in memory to facilitate the integration. The property values can be comprised of static and/or dynamic values.

Here is the set properties symbol,

This shape is most often used immediately before the outbound connector. The type of property set in the shape should correspond to the type of connector the data will be sent to.

For example, if you are sending data via FTP, you will use the Set Properties shape to set the FTP File Name as opposed to the Disk or SFTP File Name. (Technically you could set the Disk or SFTP File Name, but they would simply be ignored by the FTP connector.)

Some common uses of the Set Properties shape:

- Setting the outbound Disk/FTP/SFTP file name from a mix of static and dynamic content
- Changing the subject for email alerts, allowing you to reuse the same Mail operation component
- Dynamically setting the outbound FTP/SFTP directory

Message:

The Message shape can generate a free-flow text message from a dynamic or static set of input parameters. Documents that are sent to a Message shape are transformed and the documents that come out have the format of the message.

Here is the message shape symbol,

Some possible uses for messages are to:

- Create highly customized alerts
- Send confirmation messages
- Produce a new document to send through the process
- Use before mail connector to send the body.
- Use before SOAP/HTTP client connector to pass the request.

Note: Message step will restrict few special characters

In Boomi, you can use parameters option to pass the required data/fields whenever needed.

Notify:

The Notify shape gives you the option to build custom execution logs and/or send customized notification messages to your subscribed email alerts or RSS feed. These notifications can be either static messages or include dynamic content by using input parameters.

Here is the Notify symbol,

When a Notify shape is included in a process, it creates one or more notifications for each process execution at the document level. This means that you do not receive a separate notification for each document that passes through a process.

If you are using dynamic document-level content within the notification, this data is aggregated into a single message, then sent to the user's email or RSS feed after process completion.

Notify step will support below logging levels,

- Info
- Error
- Warning

Notify will write logs and send mail alerts, if you enable events checkbox.

It will not send mail notifications in test mode and test environment deployed processes.

If you enable write per once checkbox then Boomi will send aggregate of incoming documents & it will send only one notification.

It will throw an error; if you use dynamic document property inside notify shape.

Each Dell Boomi AtomSphere user has the ability to subscribe to the following events. These events include any execution activity in the entire account and can be filtered based on the log level.

- Email alerts
- RSS feeds

Refer the My Email alerts & RSS feeds section.

Difference between message shape& notify shape:

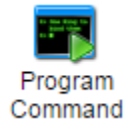
Message shape will not send any mail alerts & will not write separate logs but notify will do.

Notify will work only production mode.

Program Command:

The Program Command shape enables database and system-level commands to be executed as part of the process flow. There are three types of commands available: SQL statements, stored procedures and system commands.

Here is the program command symbol,



Often, commands use dynamic runtime values in their calls. In these cases you can use parameters to provide values such as data from a document field, the current system date/time, a static value, the results of a database query, or several other types of values. You can use multiple parameters when creating a Program Command shape.

Program command offers,

SQL Statement – Write your own query & it will execute normally

Stores Procedure – Call any procedure to execute

System Command – All command prompt commands, you can execute

NOTE:

For security reasons, the Program Command shape cannot be used in processes that are deployed to the Dell Boomi Atom Cloud.

Process Call:

The Process Call shape allows you to execute another process from within a process. When the sub process is called, the Start shape of the sub process is invoked to get data. The sub process call is considered a separate, distinct process execution. The sub process execution results display on the Manage menu's Process Reporting page like a regularly executed process.

Here is the process call symbol,

NOTE:

The process that calls another process is sometimes referred to as a parent or main process. The process that the main process calls is sometimes referred to as a subprocess or a child process.

The Process Call shape enables you to design and reuse processes that do initialization or clean up tasks as well as coordinate processes for consecutive executions. This second ability is a simple and reliable way to coordinate the execution of processes without the need to set a schedule for each process independently. The Process Call shape can be configured to wait until that process is complete before continuing with its next shape.

Data Process:

The Data Process shape provides a number of options for manipulating document data within a process, from splitting and combining documents to zipping and unzipping data.

Here is the data process symbol,

You can define multiple processing steps to perform more than one action on the document data. The processing steps will be executed in the order defined in the Data Process shape. Each processing step will operate on the data output from the previous processing step.

Data process step will provide us below options,

- Base 64 Encode/Decode
- Character Encode/ Decode
- PGP Encryption/Decryption
- Zip/UnZip
- Split/Combine Documents
- Search/Replace
- Customer Scripting

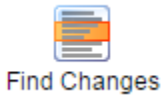
Find Changes:

The Find Changes shape provides a way for a process to track changes made to a document and to send the document results down an Add, Update or Delete path. This

is most useful for large data sets or mainframe files where a full capture of the data always needs to be retrieved from the source system.

An alternate process design should be considered if you can simply retrieve the modified data per process execution because it is naturally more efficient.

Here is the find changes symbol,



The Find Changes shape parses each line at a time and forwards the result down the appropriate path. The first execution of a process with this shape sends all results down the Add path. Subsequent executions use this first document as the basis for comparison, and added or updated data is stored per execution.

NOTE:

- If a document reaching this shape does not contain a full capture of your desired comparison set, the process assumes that the missing records should be deleted. The process sends the missing instances down the Delete path.
- This shape is part of the Advanced Workflow and is therefore available only in the Professional, Professional Plus, Enterprise and Enterprise Plus Editions of Dell Boomi AtomSphere. Please contact a Dell Boomi Sales Representative for more information.

If you are using a local Atom and you are testing the Find Changes shape in a process, you need to reset the shape before deploying the process to production. To reset the Find Changes shape within a specific process, delete the process' files from the <atom_installation_directory>/work/cdc/<component_ID_of_process> directory.

Add to Cache:

The Add to Cache shape is used to add documents to a document cache so that they can be used in a process or subprocess. The Add to Cache shape references a Document Cache component, which describes how the cache is defined.

Here is the add to cache symbol,

The documents coming into the Add to Cache shape must be of the same profile type as the one defined in the document cache. If the profiles types do not match, for example if flat files are sent to the shape but the document cache uses an XML profile, you will see an error message when you run the process.

When the Document Cache component is used by the Add to Cache shape:

- All the values for all keys are loaded into the indexes. If any key values in the source documents are null or empty, the Add to Cache shape will fail and you will receive an error.
- Documents are indexed, that is, they are organized by index and by key.
- The indexes and documents are stored in the document cache.

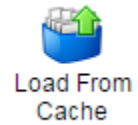
NOTE:

When a document is added to a document cache, the entire document and all of the indexes for that document are stored.

Load from Cache:

The Load from Cache shape is used to get documents from a document cache so that they can be used in a process or subprocess. The Load From Cache shape references a Document Cache component, which describes how the cache is defined.

Here is the load from cache symbol,



Load From Cache Dialog:

Name	Description
Label	(Optional) User-defined name to describe the shape. If one is not entered, no label appears on the shape.
Choose Document Cache	Used to choose, edit or create a Document Cache component, from which documents will

	be loaded into the process.
Cache Index	Used to select the Document Cache component's index, which is a grouping of related keys.
Key	The selected Document Cache component index's keys are displayed in a list. Each key corresponds to an element in the source profile. Documents that contain these elements and that have values will be loaded from the document cache. When you load the document cache, keys are used to pull data out of the documents in the cache.
Parameter Value	Used to select a parameter value for each key.

Branch:

The Branch shape is used when you have several actions that you want to execute in sequence. Each branch consists of a separate path that is executed in sequential order. A branch's path is executed to completion before executing the next branch.

Here is the branch symbol,

When you configure a Branch shape the Branch Properties dialog opens. It contains the following controls.

Name	Description
Label	(Optional) User-defined name to describe the shape. If one is not entered “Branch” appears on the shape.
Number of Branches	When you add a Branch shape you select how many branches you need. Each Branch shape can have up to 25 paths. You can add or remove branches from a Branch shape that is already in a process. If you remove branches that are connected to shapes, the branches will be removed from the process but the shapes will not.

Same data is available in all branches.

If one Branch is failed then remaining branches will not be executed.

Route:

The Route shape can conditionally send documents down a different execution path based on the value of some field.

Here is the route symbol,

This field can either be extracted from a document property or a data profile. Multiple conditions and values can be added to the Route shape, allowing for many different execution paths. As documents enter the Route shape, the Route By value is obtained and then compared against the defined route values in sequential order. Once a match is found, the document is routed down that path. If the Route By value does not match any of the route values, the document is routed down the "Default" path.

The difference between Branch & Route is conditional forwarding the data.

Cleanse:

The Cleanse shape enables you to validate document field values and either repair or reject the document before further processing. It is often helpful to use a Cleanse shape before a Map shape, so that invalid values can be corrected before potentially causing errors while mapping.

Here is the cleanse symbol,

The Cleanse shape uses a profile to determine which restrictions to validate. The restrictions are defined in the profile at the field (or element) level. Restrictions defined on repeating or "detail-level" elements are automatically performed for each instance. The available restrictions differ slightly between different types of profiles but include:

- Mandatory value
- Minimum and maximum length
- Date and numeric data type and formatting

For each element, you can configure how to handle each restriction violation: reject the document or repair the value. The repair options vary based on the type of restriction. It is important to understand that:

- The entire document will be rejected immediately upon the first violation. Subsequent restrictions are not validated.
- This also means that if your integration scenario involves a single batch file but requires individual records to be evaluated independently, you will need to use a Data Process shape to split the data into individual documents before the Cleanse shape.

Decision:

The Decision shape routes documents based on a true/false comparison of two values. Those values can be anything from field values in the current document (profile elements), static values, results of a database or even an application query, and more.

Here is the decision symbol,

The Decision shape's logic is executed once for each document that reaches the shape. This means that if a document contains multiple records (for example, a batch file) or the Decision shape's logic needs to be applied to a "detail" level field (for example, item codes on each order line), you must split the document before the Decision shape.

"True" documents are processed to completion before the "false" documents are processed. This is important to understand if processing on the false path depends on something processed on the True path. For example, in a sales order synchronization process, first you may want to check whether the customer already exists and if it does not, create a new customer before inserting the sales order.

Route & Branch will provide us multiple directions but decision step will give only 2 directions (true or false).

Exception:

The Exception shape provides the ability to terminate the data flow down a path and define custom error messages to be reported on the Manage menu's Process Reporting page. Exception shapes are often used when document data fails to meet certain conditions of a Route or Decision shape and should not be processed further.

Here is the exception symbol,

Custom error messages can be a mix of static and dynamic content. Dynamic content is populated using parameters, which can represent values such as data from a document field, the current system date/time, a static value, the results of a database query, or a number of other values. You can use multiple parameters when creating a message. The placeholder number corresponds to the order of the parameters defined at the bottom of the dialog.

Stop:

The Stop shape provides the ability to terminate the data flow down a process path. The Stop shape represents a successful conclusion and therefore does not generate an error message. If your process requires the path to end with an error, use an Exception shape instead.

Here is the stop symbol,

This shape can be used to simply signify the end of a processing path or to stop further processing of a document.

For example, if a document fails to meet the conditions defined in a Route or Decision shape, you may want to halt further processing of the document.

We need to enable **Continue processing other execution paths?** Check box, otherwise process execution stop in the current branch.

Return Documents:

The Return Documents shape is placed at the end of a document path and returns the documents to the calling source point, which is one of the following:

- The parent process
- A web service client application

When you create a Return Documents shape you should give it a custom label. The label is a user-defined name that should, in most cases, identify the document type(s) that will reach the shape during a process execution.

It is also important when it is used with the Process Call shape. If a custom label is not entered, "Return Documents" appears on the shape.

Here is the return documents symbol,

Flow Control:

The Flow Control shape contains a set of options that allow you to configure how documents are processed within a process execution.

Here is the flow control symbol,

Name	Description
Label	(Optional) User-defined name to describe the shape. If one is not entered, "Flow Control" appears on the shape.
No Document Batching	Does not break document sets but adheres to the parallel processing options defined.

Run Each Document Individually ("For Each")	Executes each document to completion one document at a time. This setting changes the document processing after this shape. Each input document to the Flow Control shape is executed to completion one at a time (in all subsequent shapes). Parallel processing and/or a Molecule are not required to add this shape to a process. This option slows down any process, including processes whose mode is set to General rather than to Low Latency. Use this option sparingly.
Run as Batches of x Documents	Breaks the entire document set into batches based on the defined document count and executes each batch to completion one batch at a time.

The Parallel Processing options allow part of a process execution to be executed in parallel. You enable parallel processing by setting the Number of Units to a value greater than 1. When documents get to the Flow Control shape, they are separated into the number of units defined, and each unit is executed in parallel from the current Flow Control shape through to completion.

Adding this shape to a process can help to speed up "slow" or "complex" shapes and spread memory to multiple computing processes.

Flow Control Shape Example: For Each Option:

The following is an example of a Flow Control shape that uses the Run Each Document Individually ("For Each") option.

- Start shape (Query) — Retrieves 9 documents
- Run Each Document Individually ("For Each") is selected:
    - Flow Control shape — Passes through document 1
    - Map shape — Maps document 1
    - Connector (Send) — Sends document 1
    - Flow Control shape — Passes through document 2
    - Map shape — Maps document 2
    - Connector (Send) — Sends document 2
    - And so on. Documents 3–9 are passed, mapped and sent individually through the process.

Business Rules

The Business Rules shape works with the profile structure of a document and allows you to check multiple "business rules" to determine if a document should be accepted or rejected.

This shape is similar to the Cleanse shape, but it is content-driven rather than structural, meaning that you can perform advanced logic and validations against parent/child field data rather than analyze field lengths and data types. The Business Rules shape also serves as a powerful alternative to the Decision shape because it can store multiple rules and conditions. Unlike the Decision and Route shapes, each business rule will be executed for the number of repeating elements that are used as inputs to that rule.

Here is the business rules symbol,

In addition to performing nested AND/OR field comparisons, you can use the map function library to produce an advanced result set to include in your conditions. In the event that a document fails to meet the condition(s), the shape will aggregate the rejections for the document and allows you to configure a custom error message with dynamic content using your defined rule inputs.

Business rules are executed in the order they are organized in the Rules list.

1) All rule inputs are calculated
    a. Fields are gathered
    b. Functions are executed
2) Business rules are executed for each header and/or detail instance
    a. Conditions are executed
    b. Condition results are labeled as "true" or "false"
3) Error messages for false results are aggregated
4) The source document is processed down the appropriate path
5) If the document is rejected, error message XML is attached as a "Business Rules Result Message" document property.

Try/Catch

The Try/Catch shape captures document-level errors for one or more documents that fail during an execution.

The Try/Catch shape must be placed before the main processing shapes in your process. The Try/Catch shape sends documents down the "Try" path to be processed. Documents that fail are caught and are sent down the "Catch" path.

Here is the try/catch symbol,

This logic feature allows you to design advanced logging and processing for failed documents because these original documents and properties are sent down the "Catch" path.

You can also capture the exception logged within the original path and include it in your messaging via a parameter reference to a document property.

The goal of the Try/Catch shape is to prevent process-level failures in the event that a document fails so that you can act upon it later in your process flow.

The following errors are captured:

- Connectors that log errors for specific documents when errors occur (e.g., if an update operation fails because the document has an invalid ID)
- An Exception shape that has the Stop Single Document check box turned on
- A Map shape, if it does not produce any output, generates a validation error or generates a connector error.

The following errors are not captured:

- NullPointerExceptions and similar process-level errors
- An Exception shape that has the Stop Single Document check box turned off
- Connectors that cause a full exception error to be thrown back to the process instead of capturing the error internally and logging it per document.

Start Shape

The Start shape is the main shape that begins the Dell Boomi AtomSphere process flow. It is automatically added to each new process and it cannot be removed. You use the Start Shape dialog to configure the Start shape.

Here is the start shape symbol,

The Start Shape dialog looks and behaves slightly differently, depending on whether you have the SOA Framework (also referred to as Web Service API Management) enabled in your account:

- If the SOA Framework *is not* enabled in your account — After you create a process the Start Shape dialog opens. After you configure this dialog, you can click the Options button to open the Process Options dialog.
- If the SOA Framework *is* enabled in your account — After you create a process the Process Options dialog opens, in which you select a process mode. Then after you set the process options, the Start Shape dialog opens. The process mode that you chose in the Process Options dialog appears in the upper right corner of the Start Shape dialog. You can click the Mode link to open the Process Options dialog and change the process mode or other options.

If you set the process mode to General, there are multiple configuration options available for the Start shape.

The option buttons at the top of the dialog allow you to define different start scenarios for your process:

- Connector
- Trading Partner
- Data Passthrough
- No Data

If you set the process mode to General, you may see a message containing recommendations about how to set the Allow Simultaneous Executions and Capture Run Dates check boxes, which are process options.

If you set the process mode to Low Latency, the Start Shape dialog is set to use the Connector option, the Connector field is selectable to either Web Services Server or JMS, the Action field is set to listen, and the Atom Web Server manages the connection settings.

You can change only the Connector setting when the process mode is set to Low Latency. The process mode appears in the upper right corner of the dialog.

9) Dell Boomi Options Tab

ANS) Refer above

10) Dell Extensions Tab

ANS) Refer above

11) Dell Add Note, Show Navigation, Widgets tab

ANS) Refer above

12) What are the different ways to check the container/process logs in both test & deployment mode?

ANS) In test mode, we are able check logs under logs tab in down side or Click process: link in the above process canvas page, there we will see the logs section.

In production mode, we are able to check process logs for each execution id in the process reporting or save the process log to your desktop and down load the container logs from atom management tab & search for specific execution Id then you will find log information.

13) What is the Atom, Installation, Different folders in Atom and type atoms?

ANS) Atom is dynamic run time engine & it is heart of Boomi. If you process/execute then we require one atom. Atom is a lightweight

- Performs the logic and transformations defined by a Process configuration
- No third party software will be installed with the Atom
- All installations and downloads are verified and authenticated by the Dell Boomi data center before deployment

Here is the atom symbol,

 (OR) 

Dell Boomi provides a cloud-based integration platform. It supports two deployment models: an in-the-cloud deployment model that is used when all the integration

endpoints are cloud-based and an on-premise deployment model that is used when any of the integration endpoints are within a corporate network.

- If you are using the in-the-cloud model you can deploy your integration processes to the Dell Boomi Atom Cloud.
- To support the on-premise model, Dell Boomi provides a capability called an Atom, which is a lightweight Java application that is deployed on a host with Internet access.
- If you are using the on-premise model and want to have a highly available, load balanced solution; or if you are not happy with your Atom's processing time or volume handling; or if you are worried that your Atom's processes may not run because of a computer outage, you should consider using a Molecule.
- In some cases you may need to share your Molecule across multiple customer accounts. If this is the case you should consider setting up your own Atom Cloud.

Atom, Molecule and Atom Cloud Terminology:

If you are working with Atoms, Molecules and Atom Clouds, you should be familiar with the following terminology.

- Process – An AtomSphere integration process.
- Execution – An instance of a process running on an Atom. It is single-threaded.
- JVM – A single operating system process, running on the Java platform.
- Cluster – One or more JVMs working together as a logical Molecule or Cloud.
- Node – A single Molecule or Cloud JVM running as part of a cluster.
- Atom – A single-tenant, single-node AtomSphere runtime engine. See the Atoms topic for more information.
- Molecule – A single-tenant, multiple-node AtomSphere runtime engine. See the Molecules topic for more information.
- Cloud – A multiple-tenant, multiple-node AtomSphere runtime engine. See the Atom Clouds topic for more information.
- Forked Execution – A separate, special-purpose JVM running a single process execution. For more information, see Forked Execution for Molecules and Clouds.
- Computer – A single computer, which can be a physical or virtual machine.
- CPU – A processor in a computer, including physical, not virtual, cores.
- Memory or RAM – The transient working memory available for the CPU.
- Hard Disk or Storage – The persistent, long-term data storage available on the computer.
- Heap – The transient working memory for a JVM. This is a subset of memory that is owned and managed by a Java process.

- Garbage Collection – The algorithm used by Java to manage the Heap usage, constantly running in the background.
- Thread – An executing code path within a JVM.

Comparison of the Features Available in Atoms, Molecules and Atom Clouds

Features	Atom	Molecule	Atom Cloud
Multi-tenancy, which means it can be used by multiple accounts	✗	✗	✓
Disk space monitoring	✗	✗	✓
Forked execution (Disabled by default on Molecules)	✗	✓	✓
Multiple nodes, which provide load balancing and failover support	✗	✓	✓
Supports integrations that will generate and/or receive a high volume of data	✗	✓	✓
Available to customers	✓	✓	✗
Available to partners	✓	✓	✓

Atom and Molecule Setup Considerations

There are many factors that go into an Atom or Molecule runtime environment setup, such as:

- Hardware — How much memory does your machine have? How many CPUs are there? How much disk space do you have? How many machines will you use?
- Runtime Engine — Are you using a single Atom or a clustered Molecule? Are you using normal or forked execution?
- Integration Design — Do you use sub-processes? If you use the Flow Control step for parallel processing, which type of parallel processing do you use: threads or processes?

Based on your answers to these questions, there are different options for increasing your processing capacity.

Your computer has the following resources:

- CPU
- Memory
- Hard disk
- JVM, with heap space and thread(s)

Types Atoms: Below are the available types of atoms,
1) Local Atom – Specific to one account & able to get the data from your network behind firewall.
2) Local Molecule - Specific to one account & able to get the data from your network behind firewall. Refer below molecule section.
3) Cloud Atom/Molecule –Similar to molecule & available for master account & all child accounts as well. You are able to set restriction for account level. You are not able to access local applications behind firewall or inside your network using cloud atoms.

Installing your own atom:

If you need to connect to applications and data locations within your local network, you will need to install an Atom on a machine within the network.

Use the following guidelines to identify a proper machine for the Atom.

Supported Operating Systems:

Operating System	**Version**
Windows 32- and 64-bit	All versions of Windows that support the Java 6 or Java 7 Runtime, from Windows Vista to the most recent version
Linux 32- and 64-bit	Red Hat 2.1 Red Hat Enterprise Linux 3.0 and above Suse Enterprise Linux Server 8 and above Any other Linux distribution that supports the Java 6 or 7 Runtime

Minimum Hardware Requirements:

A single Atom, Molecule node or Cloud Molecule within an Atom Cloud can run on hardware ranging from business-class workstations to dedicated servers.

Processor	1.8 GHz or higher Pentium 4 (or equivalent)
Memory	2 GB RAM (minimum 1 GB dedicated to Atom, Molecule node or Cloud Molecule)
Hard Disk	50 MB for run-time and configuration, 10 GB for data archiving

Minimum Hardware Requirements for High-Volume:

A single Atom, Molecule node or Cloud Molecule within an Atom Cloud that must process high volumes of data has these requirements.

NOTE: If you need to process approximately 100,000 records per hour, or receive 100 requests per minute, or process files larger than 2 GB, that would be considered "high volume".

Processor	Dual 64-bit processors or higher More processors allow for increased, simultaneous process executions
Memory	4 GB of RAM (minimum 2 GB dedicated to Atom, Molecule node or Cloud Molecule) More RAM allows for increased, simultaneous process executions
Hard Disk	100–200 GB of hard disk space Increase purging levels to minimize Atom, Molecule node or Cloud Molecule disk space

Minimum Software Requirements for Windows and Linux/Unix:

Java (for Windows and	Java 6 or 7 is required. Java 8 is not currently supported. See the topic linked below for instructions.

Linux/Unix)	
Java Runtime (for Windows)	The Atom or Molecule is a Java application and requires Java JRE 1.6 or 1.7 to run. We support *only* the Oracle (formerly Sun) Java Runtime. However, the installer will detect whether your machine has a necessary version of Java already installed. If it is not found, the installer will automatically download a *private* copy of Java (32-bit JRE) for the Atom's use only. It will not install Java in the operating system.
Java Runtime (for Linux/Unix)	The Atom or Molecule is a Java application and requires Java JRE 1.6 or 1.7 to run. We support *only* the Oracle (formerly Sun) Java Runtime. Java 6 or 7 must be pre-installed on the Linux or Unix machine to support the installer. For Unix setups, follow the Linux installation instructions. Ensure that the Java instance is in a directory path that does not contain a symlink.
JDK (for Windows and Linux/Unix)	An Atom Cloud's Cloud Molecules require the Oracle JDK rather than the JRE. See their Java Requirements section for information about the JDK.
JCE (for Windows and Linux/Unix)	If needed, install the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files. They are required if you are using PGP encryption and may be required by certain connectors. You can download the files and instructions for Java 6 or Java 7. See the topic linked below for instructions. To see if JCE Unlimited Strength Jurisdiction Policy Files are being used, go to **Manage** > **Atom Management**; select the Atom, Molecule or Cloud; click the Startup Properties tab; and view the Unlimited Strength Cryptography field. If it is set to True, these files are being used.

Atom Performance Settings

- Atoms utilize up to 512MB of RAM by default
- Upgrade in local Atoms by configuring the atom.vmoptions file
- <Atom Install>/bin/atom.vmoptions
- Processing performance is impacted by:

1. Document count & size

2. Process workflow complexity

Records	RAM Usage
100,000	1GB
200,000 to 500,000	2GB
500,000 and above	4GB or more

14) Molecules

ANS) The Dell Boomi Molecule is a single-tenant, clustered Atom that allows for multiple Atom processes to run concurrently. It is the enterprise-grade version of an Atom that can be deployed across multiple servers to enhance load balancing and ensure high availability for mission-critical integration processes.

Basis Required Points:

Molecules support 2 distinct features:
1. Clustering
- Multiple Atom processes working together
- Robustness

2. Multi-tenancy
- Support for "forked" execution (aka independent JVMs)
- Security
- Robustness

Current Terminology:
- Molecule - single-tenant, clustered atom
- Cloud Atom - multi-tenant, clustered atom

Molecule organization:
- Atoms are grouped into Molecules
- Platform & Users see 1 "Atom"
- 1 "Atom" == 1 Molecule == Multiple Atoms

Clustering for intra-molecule communication
Shared disk for shared persistence
- Eliminates problem of finding data in the cluster
- Allows additional communication channel (shared files and file locking)

Clustering Basics
Utilize JGroups for cluster management

Pure Java, reliable multicasting library

- Group membership
- Leader election
- Reliable messaging

Single Atom in cluster is "head" Atom

- Retrieves messages from Platform
- Schedules Processes
- "Headship" migrates if "head" dies

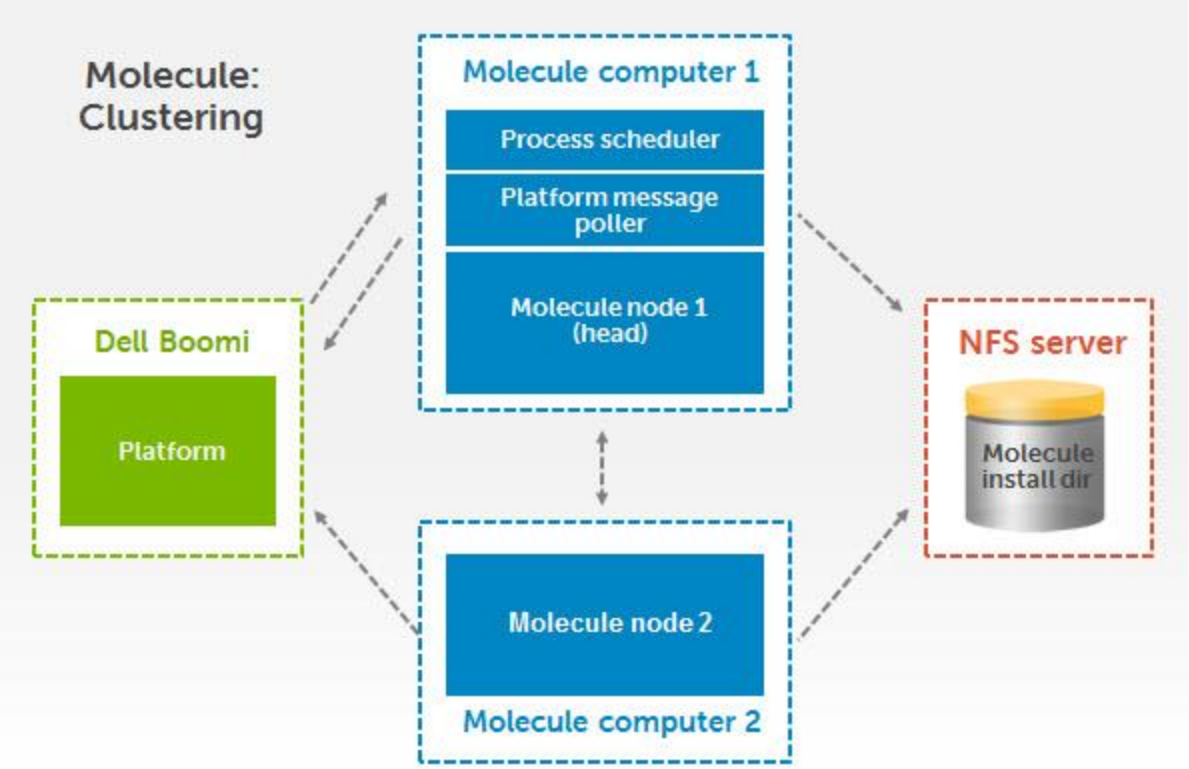
A Molecule consists of multiple "nodes" that are installed on multiple on-premise machines. The nodes on the machines are grouped together to form the Molecule. Users will see only one "Atom" instance on the Dell Boomi platform's Process Reporting and Atom Management pages, but if the Molecule is enabled it is truly a grouping of multiple nodes that distribute processing across one or more physical machines.

What Is Clustering?

Similar to an Atom, a Molecule executes integration processes that are managed on the Dell Boomi platform. The Molecule distributes these requests among all the machines that form the cluster. This results in balanced computational work among these different machines, which improves the overall performance of the cluster system.

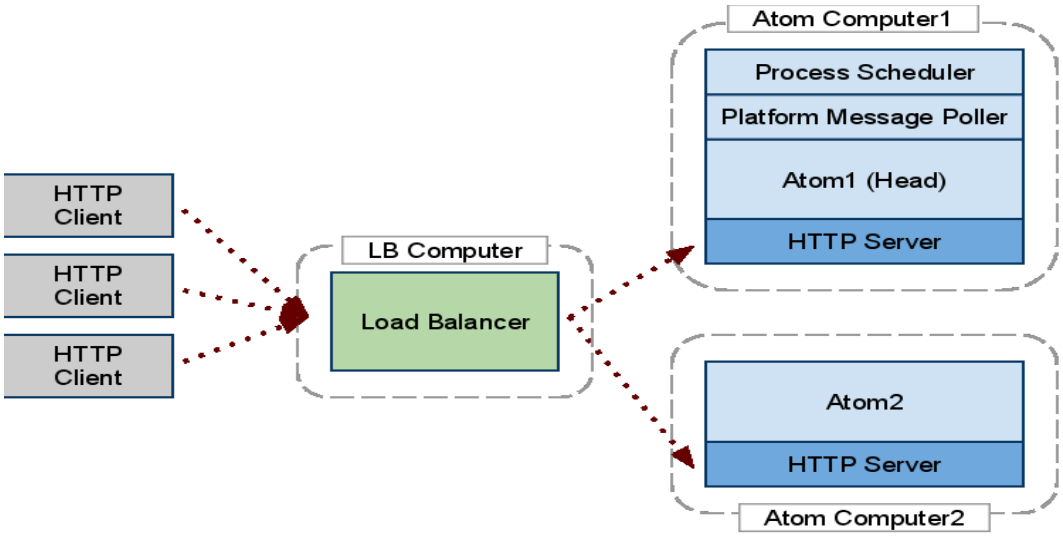
A single node in the cluster is defined as the "head" node. The head node:

- Is elected from the remaining nodes in the network and can migrate between nodes ("failover support")
- Retrieves messages from the platform
- Schedules processes
- Maintains the health of each node
- Tends to send processes to other nodes for processing, because the head node has to take care of the “administrative” tasks above



Molecule with Load Balancer:

Below picture gives the explanation,



Do You Need a Molecule?

Below are some general questions that you should consider before implementing a Molecule.

Are you satisfied with your on-premise Atom's processing time and volume handling?

- Depending on the count, size and variation of your document types, you may want to consider Molecule processing across multiple machines.
- Refer to the High Volume Troubleshooting topic to understand what could be causing memory issues and/or slowness among your Dell Boomi processes.
- How much do you care if a process does not execute due to a computer outage?
- Molecules support failover, so if one "head" node dies, another node attached to the Molecule can support the management, scheduling and execution of your processes.
- Is this setup worth the extra configuration time, hardware allocation and maintenance?
- Atom, Molecule and Cloud technology are enabled in the Dell Boomi Atom Cloud for production deployment.
- If you are building integrations that do not require on-premise resources behind your firewall, you can deploy these integrations in the Cloud.

15) Difference between Atoms and Molecules?

ANS) below are the major differences between atom & molecule,

Atom	Molecule
Single Instance	Multiple Instances/Nodes(Atoms)
No Backup concept	You can configure backup server as well
No fail over load	Yes fail over load feature is avail, If one node crashed then new execution request will be handled by other node
Less efficient for high volume(more 20 Laks)	Highly effective for large volume of data
Load Balancing & Clustering is not available	Load Balancing & Clustering are available
Easy to install & maintain	Additional hardware is required and good network required.

16) How to deploy developed process?

ANS) once the process development completed then go to deploy tab & click on your process → Go to attachment tab → Select environment/atom & click << this button to attach the process to that environment → Go to deployments tab -> Click on Deploy

Latest Version of the process → new popup will open & provide some note and press OK.

You have completed the deployment of process. To verify this go to atom management then click on specific atom where you deployed that process then in right side, you are able to see the deployed process list.

Cloud Management:

On the Cloud Management page (**Manage** > **Cloud Management**) Cloud owners can:

- Add and delete Atom Clouds (on the Clouds tab)
- Install Cloud Molecules (on the Clouds tab)
- Set and edit Cloud properties (on the Cloud Properties tab)
- Determine how many Atoms each account can install on the Cloud (on the Cloud Properties tab)
- Set and edit some properties of Cloud Molecules (on the Attachment Quotas tab)
- Set and edit some properties of additional Atoms in the Cloud (on the Attachment Quotas tab)

Atom Clouds are set up primarily by partners who then share them with their accounts. In order to see this page you must have the Cloud Management privilege and Atom Clouds must be enabled in your account.

We are able to set all the available properties using cloud management tab.

17) Explain about process reporting?

ANS) The Process Reporting page (**Manage** > **Process Reporting**) is used to search for information about deployed processes and their related documents and logs.

On the top left side of the Process Reporting page you can search by process execution, document or trading partner document. You also can specify a time and/or date range. Some filters vary, based on whether you are searching by process execution, document or trading partner document. As you select filters, they appear in a row above the search results table. You can clear individual search filters or all filters. There is also a button for refreshing the table results manually.

The center of the Process Reporting page contains a table with your search results. The columns in the table vary, based on whether you are searching by process execution, document or trading partner document. Each row represents a process execution or document. Process executions and documents have a green or red icon indicating success or failure. Process executions can have a blue icon indicating that it is pending. Each row in the table contains links and/or icons that you can click to see documents, logs, data, etc. related to the process execution or document. Use the logs to troubleshoot errors and to determine why a document failed.

The Atom column appears in the process execution and document results tables. If the name of the Atom appears in black, the Atom is online. If the name of the Atom appears in red, the Atom is currently unavailable.

Search results are displayed once the platform receives them from the Atom. Depending on the complexity of the process, the volume of data and varying Internet connection speeds (if the Atom is running in your local network), it may take up to several minutes for results to be posted. Click the Refresh button or turn on the Auto-Refresh Table check box in the top-right corner of the page to see updated results each minute.

18) Explain about Atom Management?

ANS) The Atom Management page (Manage > Atom Management) controls the properties and settings for Atoms, Molecules and environments. On this page you can also control some properties and settings for Clouds. You must have the Atom Management privilege to access the Atom Management page.

- After selecting an Atom, Molecule or Cloud in the Atoms list you can
- Monitor its status.
- Change some of its properties, download logs, view and update counters, and subscribe to notifications.
- Access web server, queue server and MLLP server settings (if these features are enabled in the account).
- Review its startup properties.
- On the Cluster Status tab, check the status of nodes in a Molecule or Atom Cloud.
- Get pending updates to Atoms, Molecules, Clouds and connectors prior to the full release. If you change your mind, you can roll back the updates prior to the full release.
- Set a schedule for receiving Release Control updates (if this feature is enabled in the account).

- Review the release status of integration packs to which the Atom, Molecule or Cloud is attached and, if you wish, apply updates (if this feature is enabled in the account).
- Stop, add, edit or resume deployed process schedules.
- Review the status of listeners and, if you wish, restart all or selected listeners.
- On the Atom Workers tab, check the status of a Cloud's Atom workers and, if you wish, stop an Atom worker.

After selecting an environment in the Environments list you can

- change some of the environment's properties.
- Set environment extensions.
- Attach Atoms.
- Assign user roles.
- Review the release status of integration packs to which the environment is attached and, if you wish, apply updates.

Refer below help link for more details,

http://help.boomi.com/atomsphere/GUID-86BBB5E8-B4EE-401D-A251-0048E46623B5.html

19) Knowledge about Embed Tab, Cloud Management, Integration Packs, Process Library

ANS) Embed tab is used for widgets deployment. Refer widgets from above

Process Library:

Process library is storage place, then attach these processes to your child account from master account. Also these processes are available to deploy in to integration packs.

As a user of a master account, if your role includes the Process Library privilege, you can publish processes in a process library and manage the library's processes. These activities take place on the Process Library page (**Manage** > **Process Library**).

A process library is a collection of processes published for the purpose of sharing with managed accounts on a per account group basis. Users of managed accounts install copies of library processes in their accounts and typically use the installed processes as templates for new processes.

As a security measure, passwords are not included in components of published processes.

Selecting **Manage** > **Process Libraries** opens the Process Library page. The page consists of the following areas:

- Processes list
- Single selected process (when one process is highlighted)

Integration Packs:

As a user of a master account, if your role includes the Integration Pack privilege, you can create and manage packaged integration solutions called integration packs. You do this on the Integration Packs page (**Manage** > **Integration Packs**).

An integration pack consists of one or more assigned published processes (maximum 100) ready for installation by users of managed accounts. Once a user installs an integration pack, they can attach their Atoms or environments to it and then schedule execution of its processes.

Integration packs are intended for partners and third party developers who want to offer a packaged integration solution to their end users.

Common examples include:

- SaaS application providers who want to offer pre-integrated solutions with their common integration touch points.
- Systems integrators who want to "productize" their integration knowledge and streamline customer implementations.
- Extensions are defined in integration pack processes to enable end users to customize their usage of integration pack processes. In fact, an integration pack can optionally be configured to allow multiple installs, thereby enabling users to use the same processes with different extension values.

NOTE:

- Integration pack management and multi-install integration packs are optional Dell Boomi AtomSphere account features. Multi-install integration packs cannot be enabled unless integration pack management is also enabled.

20) Full knowledge about worked connectors (with cross questions)

ANS) I worked for below connectors,

- Disk
- FTP
- SFTP
- Database
- Mail
- Salesforce
- NetSuite
- HTTP Client
- Web Services SOAP Client
- Web Services Server
- Trading Partner
- AtomSphere API
- SuccessFactors
- SAP
- Atom Queue

21) Setup Tab (Settings, User Management, Roles, Single Sign on SAML Option, Connector SDK, License, My user information)

ANS) In setup tab, we will find the information about out Boomi Account, Our use Information, User management (User details for that account), Account Groups (Maintaining master & child account and their access levels, user details to specific account), Licensing information, Developer is used to custom connector development, Enable Single Sign on(SSO) option, if required. Set Password policy.

22) Customization of connectors

ANS) Boomi has feature called connector SDK/Custom connectors development & you can develop custom connectors & deploy it into Boomi and use that connector for your integration.

23) Web services/SOA Framework Implementation in Dell Boomi?

ANS) we need to follow below steps to provide Web Services/SOA process,

- Select web services server connector at start shape

- Press create new web services server operation
- Provide object type and name.
- Select input, output type as None/Single XML/Multiple XML for SOAP Service otherwise it is REST web service (Single data/Single JSON/Multiple JSON).
- We can build remaining process as per the requirement.
- Deploy the process to one environment
- Get the base URL from shared web server setting from the atom management tab.
- Here is required URLs,
  Base URL: http://localhost:9090
  SOAP URL Path: http://localhost:9090/ws/soap?wsdl
  SOAP End Point: http://localhost:9090/ws/simple/queryB2SOAPTest
  REST URL Path: http://localhost:9090/ws/simple/queryB2TESTREST
- Boomi will support None/Basic/Custom (File based, Database based, LDAP based)/Client Certificate Authentication.
- Provide complete details to your client.
- To improve the performance use Low latency mode and process execution completes in 30 sec but you are not able to see the executions in process reporting.
- Check the statistics in SOA/Real time status board.
- Also called Event Driven Integration.
- Listen is the required action.

24) AtomSphere API Connector and available objects?

ANS) The AtomSphere API is intended to add programmatic access to functionality that is normally accessed through the AtomSphere UI.

All AtomSphere API calls are authenticated using a user name and an Account ID. This Account ID is utilized as the general context for any API call. For example, in an API call to execute a QUERY of the Account Groups object, if you do not supply any query filters, all of the Account Groups owned by the authenticated Account will be returned.

The AtomSphere API has been developed with both a SOAP and RESTish implementation. Follow the links below in the Object-based Operation and Action

sections to find out detailed information about performing each API call using both the SOAP and RESTish implementations.

SOAP API

The SOAP API's WSDL is located at https://api.boomi.com/api/soap/v1/{accountID}?wsdl where accountID is your AtomSphere Account ID. The WSDL is protected by Basic Authentication so your AtomSphere user name and password will be required to access it. The XML schema is included in the WSDL by reference. The schema is located at https://api.boomi.com/api/soap/v1/{accountID}?xsd=1 , and it too is protected by Basic Authentication. Each SOAP call is protected by WS-Security using a UsernameToken where the password is passed as PasswordText.

RESTish API

The RESTish API calls all begin with https://api.boomi.com/api/rest/v1/{accountID} where accountID is your AtomSphere Account ID. The rest of the URL is dependent upon the operation you are trying to perform. The full URLs are discussed in the documentation for each Object-based Operation and Action. The RESTish calls are protected by Basic Authentication.

Request and response bodies for the RESTish calls are XML by default. The schema is the same as the one used by the SOAP API. JSON-formatted request bodies may be used in RESTish calls, in lieu of XML, by setting the HTTP Content-Type header in requests to application/json. Similarly, the RESTish API returns JSON-formatted responses to calls in which the HTTP Accept header is set to application/json.

You can configure CORS request matching rules for your account to enable cross-server JavaScript-powered RESTish requests. See the topic about configuring CORS rules, linked below.

API Usage Request Limit

Both the SOAP and RESTish implementations of the API limit the number of requests that can be served per day. The limit is account specific. Each account's usage request limit is calculated as 1000 times their number of licensed connectors. Usage is calculated based on a rolling 24 hour period with usage calculated every hour. If usage of the API

exceeds this limit, the user will receive an HTTP 503 response indicating that the server is temporarily unable to fulfill the request.

To provide a simple example of how this works, assume that an account has a limit of 200 requests per day. If, starting at noon on Monday, the account makes 10 requests per hour, the account will reach it's limit of requests per rolling 24 hour period during the 7am hour on Tuesday (20hrs * 10 requests/hr = 200 requests). The user will not be able to make requests again until the previous 24 hour period has fewer than 200 requests. This will not happen until noon on Tuesday, when the previous days requests from the noon hour fall out of the previous 24 hour period.

Account, Audit Log, Environment, Deploy, Execute objects

To find about different objects and actions refer below link,

http://help.boomi.com/atomsphere/GUID-EB9FBC59-6160-4322-A3A7-4A2B8F00E100.html

25) Trading Partner and concepts, EDI Profiles?

ANS) Refer above Trading Partner and EDI profile concepts

26) Properties (Document, Dynamic Process, Process property, Dynamic Document)

ANS) Refer above

27) How to add only unique set of data in Document cache?

ANS) to store unique set of data then follow below steps,

Convert the source data in to CSV/Flat file & select unique check box for the index field , so map will produce only unique set of records then store records in to document cache based on same index field.

28) How to do performance tuning in Dell Boomi?

ANS) Here are common shapes/steps that impact process performance and how to make them run faster:
Shape/Step: Connectors with Get/Query action are too slow. Recommendation: When using

Connectors to query data, if available, consider experimenting with the Batch Results option and test various batching values to see how it impacts performance. Also, some Connector Operations will have an option to select each field to return (e.g. Salesforce). Always only select the necessary fields to return (don't just use the default which will return all fields).
Shape/Step: Connectors with Send Action are too slow. Recommendation: When sending documents/data into to connectors make sure any available batching options are enabled.
Shape/Step: Flow Control is configured to Run Each Document Individually. Recommendation: Avoid Flow Control/Run Each Document Individually whenever possible. Data Integration is most efficient when the data is processed in batches, not when processed individually. If you need, use this for testing purposes only. If you require that documents/data be processed in sequence (order) and depend on this sequence, then you will need to assess your architecture to ensure that all other aspects are optimized for efficient processing. For example, consider turning on Low Latency mode for this case.

http://help.boomi.com/atomsphere/GUID-A813E1FE-7E91-41B3-ACF8-0FAE1A054276.html

Shape/step: Connector Call lookups per document/record are slowing down the process or Map. Here are my recommendations:

1) Use the Map Function Caching: Cache by Map option when performing a lookup within a Map Function. This will remember the output for a given input(s) and skip the actual API call.

http://help.boomi.com/atomsphere/GUID-5F449F9F-2C79-46EB-BA28-1A007F38C816.html.

2) If it's still too slow, use the Document Cache instead. Branch the process and do a single query to lookup all records once and store them in the Document Cache, then look up the records from the Document Cache in the map later.

http://help.boomi.com/atomsphere/GUID-B6C8EDB8-ABB2-4B93-B3FB-72C81EFB77A9.html.
Some other things to consider: Remove unnecessary lookups or consolidate connector call lookups. In addition to the above recommendations for using map function caching or a document cache, look for opportunities to reduce/consolidate calls such as writing SQL queries that join data together in a single call, and writing SQL advanced update statements that don't require the need to select records first.

Shape/Step: Map function Ordering is slowing down the Map – use only if absolutely necessary. Map Function Ordering controls whether map functions are executed in a user defined sequence (slower) or naturally based on the profile (faster).
Shape/Step: Try/Catch is slowing down the process – use only if absolutely necessary. Try/Catch shapes require extra overhead and should be used sparingly. Nested

Try/Catch shapes (using more than one in the same branch in a process) will slow down processing even further. Evaluate your requirements for catching errors and implement only what is absolutely necessary.

Some important considerations:

Data volumes – Improving the performance of the integration process does not address the volume of data being integrated. Ways to reduce the volume include:

a) For every connector operation, review query/selection criteria to extract only the records and fields that need to be synced

b) Avoid sync all of the data every time. Use parameters to sync only data that has been changed since prior runs (e.g. using a Sync Me flag field or based on a last modified date field)

c) Batch data across executions whenever possible.

d) Reduce the frequency of scheduled executions - especially if same data needs to be pulled multiple times.

e) Processing large files – increase maximum memory available to the atom to handle processing of larger files.

http://help.boomi.com/atomsphere/GUID-9DA4BA58-0D7F-40A7-815C-965DE636B8B3.html

An OS that the atom runs on generally has a fixed overhead. Typically, the machine running an atom needs 512MB to 1GB for the OS itself. Assuming that only the atom is running on the machine, in theory the rest of the memory can be allocated to the atom's jvm. If other applications/processes are running, as a rule of thumb you may want to allocate half of the remaining resources to the atom and see how it performs. For 32-bit OS, allocate max 1 GB RAM to the atom. For 64-bit OS with 8 GB RAM available, allocate 4GB RAM to the atom and see how it performs, etc.

Process Design - When processing large volumes of records, small design inefficiencies quickly become very inefficiencies.

Re-evaluate your process design:

a) Consolidate shapes/steps – there is some nominal overhead associated with each step execution

b) Instead of Process Properties, consider using Document Cache and/or User Defined Document Properties. Document Cache lets you efficiently temporarily store and reference entire documents (indexed by profile fields) anywhere downstream; for example you could cache the original data up front to reference later after mapping/connector calls. Document Properties also let you capture original values per document to reference later, however the properties are not propagated through all types of connectors.

c) Look for opportunities to eliminate "extra" steps, such as temporary maps, multiple set

properties, etc. For example, instead of mapping database data to an XML profile and then doing a split, simply split the data within the database connector operation using a batch count=1.
d) Consider turning on low latency:

http://help.boomi.com/atomsphere/GUID-A813E1FE-7E91-41B3-ACF8-0FAE1A054276.html

When to consider Flow Control with Parallel Processing. if you've performed all of the improvement recommendations above, but are still experiencing issues, consider parallel processing to spread the processing load across multiple logical/physical nodes You can use the Flow Control step to split document execution across multiple threads, allowing records to execute simultaneously. Parallel Processing can be used to "multi-thread" steps or sections of processes that run slowly. This is recommended for running on a molecule or atom cloud.

When running in the Atom Cloud the maximum number of threads or "units" is 10.

29) How to test/Debug in Boomi to identify the problems?

ANS) Here is possible testing ways,

1) UTP (Unit Test Plans) – if we test while developing the process
2) QAT (Quality Assurance Test) – Before going to live to test the process in test environment and which consumes test licenses.
3) UAT (User Acceptance Test) – Check all the acceptance criteria with client
4) PT (Performance Testing) – Need to do performance tuning as much as possible, so that client will accept our integration then we will move the process into production.

Here is possible ways to debug/identify the errors in Boomi,

1) Set email alerts to get the success failure using my email alerts/RSS Feeds/Email Connector.
2) Once we got failed execution id then go to process reporting, search for failed execution id and download the process logs and atom/container logs. Need to analyze the logs and will get some idea which step causes the issue.
3) Need to verify process state to identify the step causes the issue.
4) Re run the failed document in test mode.

30) What are the Dell Boomi Naming Conventions/ Dell Boomi Coding Standards?

ANS) it is good to maintain good naming conventions,

Connection Name:

Name: *{System Abbreviation} {Connector Type}* Connection
Description: *{Short description of the connector use}*

Examples:
● SF Instance Connection
● SF SFTP Connection

Connector Operation Name:

<Instance Name>* <Operation>
Name: {System Abbreviation (optional)*} {Entity Name (optional)} {Operation Use(optional)}
{Action}{Connector Type} Operation
Description: {Short description of the connection operation}
*System abbreviation only required for generic connectors such as Web Services Client or SFTP connectors.

Examples:
• Hire right Create Order
• Put Overwrite SFTP Operation

Profile Name
<Connector Type><Instance Name>* <Operation><"Request" or "Response">
i.e. SAP By Design ManageContactIn MaintainBundle EXECUTE Request

Map Name
<Source Profile Name> To <Target Profile Name>
*Instance specific required only if customized and more than one instance applicable in the Boomiaccount. When imported from a specific tenant, It is a good practice to include the tenant ID and possibly the version number (ie 1210) used for the import operation. If not in the title, at least include this information in the description.

Response Profile
Name: {System Abbreviation} {Entity Name} {Operation} Response
Description: {Short description of the response profile}
Examples:
● SF User Query Response

● SF Picklist Query Response

Request Profile
Name: {System Abbreviation} {Entity Name} {Operation} Request
Description: {Short description of the request profile}
Examples:
● SF User Update Request
● SF Job Application Update Request

Process
Name: {System Abbreviation)} {Process Definition}
Description: {Detailed description
Examples:
● PA Order Request
● ADP Payroll Extract

Process - sub process
Name: SB: {System Abbreviation)} {Process Definition}
Description: {Detailed description of the sub process including parameters passed in if any}
Examples:
● Sub: SF Load Document Cache
● Sub: LN Background Search Results Import

Project Organization
● Top level should contain only shared components
● Processes should be in their own folder with the process specific components.
● if a subset of processes share components, create another level of folder for each process.
○for example, ADP folder may have common components but ADP sub folders contain specific integrations to ADP versions.

Environments
Name: Dev (optional)
Description: Used for development. Developers can use this or their local ATOMs for testing. By using a shared development environment, developers are able to share connector licenses.

Attachments: Customer or Developer Hosted ATOM
Name: Test

Description: Used for end to end testing. Jobs are deployed and scheduled to run regularly.
Cloud Attachment: Assign to Boomi Cloud or SF Boomi Prod Cloud
Environment Variables: Should point to the SF test instance, test formIds and 3rd party test systems.

Name: Prod
Description: {Detailed description of the process}
Cloud Attachment: Assign SF Boomi Prod Cloud
Environment Variables: Should point to the SF production instance, production formIds and 3rd party production systems.

31) What is Dell Boomi API Management & how to do it?

ANS)

32) What is Atom Queue & usage?

ANS)

33) Scheduling & types?

ANS) Scheduling is used to setup some required timings for process execution, so that process will execute automatically based on the given scheduling.

Boomi will provide us two types of scheduling options.

Scheduling – Direct execution

Retry Scheduling - If direct scheduling will fail then it will work & maximum of 5 retries are available.

Different options available in Scheduling:

You can schedule on below ways

Minute - Select time interval based on minutes

Hour – Select time based on hours

Day – Select time based on days

Advanced – Combination of minute, hour, day, week, month, year

If you want to pass all processes schedules then use stop all schedules link.

If you want to start all processes schedules then use resume all schedules link.

To schedule for any process then follow below procedure,

Step 1: Click on the ***Manage →Atom Management*** link:

Step 2: Select the Atom for which your Process is deployed. A list of all Deployed Processes by that Atom will appear to the far right:

Step 3: Select specific process on which you will plan to schedule then right click on it and you will see the Edit Schedule option then click on it.

Step 4: New popup will open then provide required scheduling option with retry option as will, if required.

34) How to increase atom RAM memory, Java heap space for local atoms/molecules?

To increase the atom RAM & Java heap memory then follow below steps,

1. Stop the Atom.
2. Navigate to your atom installation directory, \Boomi AtomSphere\<Atom name>\bin.
3. Open the atom.vmoptions file a text editor such as Notepad.
4. Change -Xmx512m to -Xmx1024m (or higher).
5. Add the -XX:MaxPermSize=256m(By default Boomi will take 128m)
6. Save the file and restart the Atom.

It is necessary to increase the RAM & Heap memory,

- To increase the process performance & reducing the process execution time.
- To avoid the out of memory error
- To avoid the PermGen space error

35) What are environment & Different types of environments available in Boomi?

ANS) The activation of environments allows you to support dedicated and separate deployment setups for different phases of the development life cycle. More importantly, it gives you greater control over change management and supports different connection configurations with the use of extensions. Integrations can be built, tested and promoted between environments with a full audit trail of what was deployed, and by whom. Environments help to ease the management of larger implementation projects that require the use of multiple application setups, on-premise resources and a distributed architecture.

Having a separate test environment allows you to deploy specific processes for testing scheduled executions, larger document batches and real-time integration scenarios. Multiple Atoms can be attached to an environment, while multiple environments can be attached to multiple processes. You can fully test deployed processes from end-to-end, avoiding Test mode restrictions, without affecting processes currently running in production.

It is important to understand that deploying connections across different Atoms and environments will affect your license count. Connections are deployed at the Atom level. If you use extensions, you can reuse the same connection components and supply different configuration information at deployment time.

Use Cases for Environments

The following are some cases in which you would use environments.

- Distinguish between Test and Production — Many applications offer the ability for users to manage production and sandbox accounts. Processes that need to be thoroughly tested may require the storage of alternate configuration information when compared to a production setup.
- Classify On-Premise Resources — Database setups or network directories may require unique connection information. Managing these resources in different environments helps to ensure data integrity and prevents documents from reaching the wrong destination.
- Manage Client-specific Projects — A full implementation for a specific client may require a series of processes. Distributing the process workload across different Atom environments for each client can help you to more easily deploy process updates.

Production and Test Environments

If test connections are enabled in your account, when you add an environment you must select a classification. The choices are Production or Test. The classification determines two things:

- Whether a production or test Atom Cloud can be attached to the environment. Production environments can have only production Atom Clouds attached to them. Test environments can have only test Atom Clouds attached to them. This ensures that production and test Atom Clouds run in separate physical environments.
- Which type of license is used when a process is attached and deployed to the environment? Production environments are associated with production connection licenses and test environments are associated with test connection licenses. This ensures that you are charged properly for production and test connections.

The classification can be set only when you add an environment. You cannot change it later.

NOTE:

Environments added prior to the January 2014 release are classified as production environments and they cannot be changed.

Contact your Dell Boomi representative if you are interested in obtaining test connections. See the topic about test connection licensing to learn how to use test environments with these licenses.

Environment-Level Extensions

Integrations can be "extended" at the process level to override default connector information, scheduling and process properties. These configurations are applied at deployment time versus at build time and prevent you from having to define this dynamic information at either the individual process or Atom level.

In order to implement environment-level extensions you must:

- Define process extensions
- Set environment-level extension values

36) What are the different process execution modes available in Boomi?

ANS) There are 2 process execution ways/modes.

1. Test Mode – In Build tab using "Run a Test" button, you can execute the process

2. Production Mode – Once you deployed the process to an environment then we are able to execute the process.

37) What are possible ways to execute Dell Boomi process?

ANS) Here are the possible to execute Dell Boomi Process

- In test mode, we are able to execute process directly using Run a Test option
- In production mode, we are able to execute the process
    1. Manually
    2. Using Scheduling Option
    3. Using AtomSphere API -> Execution Process API action
    4. Listeners are executed automatically, whenever data is available in the specific system

38) What are possible ways to receive success/failure email notifications?

ANS) Here are the possible to get the email notifications,

- ✓ My Email alerts from Setup tab
- ✓ RSS Feeds – Alerts only feed or monitor feed
- ✓ Use Notify shape where ever we want to receive the mail notifications
- ✓ Email connector with custom message and failed document.

39) Do you have any knowledge on SAP PI?

40) Do you have any knowledge on SAP ECC?

General IQ based on Resume

1) Tell me about yourself?

ANS) Hi, myself I am Kumar& I am from AP,

I am having 5+ experiences in Java & Cloud integrations using Dell Boomi,

I am currently working for AC Company since 3 years,

Previously I worked for B Company.

Technically I am good at Dell Boomi tool and few connectors in which I worked.

Good understanding knowledge on databases, CRM tools, EDI, Web Services/SOA area.

Till now I worked for 3 different implementations in Dell Boomi.

I involved in Dell Boomi development, support & enhancement.

In current project, I did complete end to end to implementation for one process flow.

2) Explain about your projects?

ANS) Currently I am working for a project called X-Project & my client is Y-Client.

This project goal is getting the data from SuccessFactors and doing some required some logical transformations & putting the filtered data in to target system called FTP. Need to capture success or failure notification using Notify & Exception shape. Need to send failed data to client SFTP location.

In current project, I did complete end to end to implementation for one process flow.

3) What is the current & Expected CTC and is it negotiable?

ANS) My current CTC is 4.3 LPA.

My expected CTC is 40% hike (According to Company Standards). Yes, it is negotiable.

4) Notice period and is it negotiable?

ANS) Official notice period is 30 days, it may be negotiable but I need to check with my HR.

5) Why you want to change the company?

ANS)I am looking for a new challenging role, where I will get a chance to enhance my skill set in multiple areas & I am much interested to work with customer directly (customer interactions).

In personal, I am looking for financial growth as well.

6) Tell me about your hobbies, strengths and weaknesses?

ANS) Hobbies:

Reading Technical Talks. Browsing. Chit chats with friends.

Strengths:

My Strength is my flexibility to handle the change.

Punctual, Hard Worker, Able to prioritize, Believe in Myself, Self-confidence.

I have the ability to cope with the failures and try to learn from my mistakes.

Love to learn new things about any technology.

Quick learner.

Weakness:

I feel irritate if I didn't complete the task assigned to me within the stipulated time.

7) Are you willing to relocate?

ANS) Yes, I am ready to relocate & it is also new experience for me.

8) Are you able to handle end to end implementation?

ANS) Yes, I am ready to handle complete end to end implementations & I am really waiting for this type of opportunity.

9) How was your team culture in your previous company?

ANS) it is really nice culture at my previous company & we work together & helping to each other. Some funny, unforgettable & angry movements. I really enjoyed a lot.

10) Are you able leading the team, if required?

ANS) Yes, I am ready to lead the team and I am really waiting for this type of opportunity. Till now I am team member & If I will get team leading position, It is really good chance for me to prove myself.

11) What type of software model/methodology that you used in previous projects?

ANS) we used Agile Scrum Works methodology & Waterfall model.

Agile: The Agile movement proposes alternatives to traditional project management. Agile approaches are typically used in software development to help businesses respond to unpredictability.

Agile development provides opportunities to assess the direction throughout the development lifecycle. This is achieved through regular cadences of work, known as Sprints or iterations, at the end of which teams must present a potentially shippable product increment.

By focusing on the repetition of abbreviated work cycles as well as the functional product they yield, agile methodology is described as "iterative" and "incremental." In waterfall, development teams only have one chance to get each aspect of a project right. In an agile paradigm, every aspect of development — requirements, design, etc. — is continually revisited. When a team stops and re-evaluates the direction of a project every two weeks, there's time to steer it in another direction.

Scrum: Scrum is the most popular way of introducing Agility due to its simplicity and flexibility.

Scrum emphasizes empirical feedback, team self-management, and striving to build properly tested product increments within short iterations.

Scrum has only three roles: Product Owner, Team, and Scrum Master.

In short, Agile methodology follows below things

1) Sprint planning & complete project will be divided in to multiple sprints and each sprint release some part project will be finished.

2) Daily standup meetings

3) Weekly status meeting with clients

4) Suppose, the sprint release-1 planned for 4 weeks,

- 1 week – requirements gathering & analysis
- 2 weeks – designing & development
- 1 week – testing & maintenance
- Finally release-1 will be in live.

Below are the online help links,

http://agilemethodology.org/

Waterfall Model:

The waterfall model is a model which was developed for software development; that is to create software. It is called as such because the model develops systematically from one phase to other in a downward fashion, like a waterfall.

The most probable phases through which it progresses downwards are

- Definition Study/Analysis
  - Basic Design
  - Technical Design/Detailed Design
  - Construction
  - Testing
  - Integration
  - Management and
  - Maintenance.

The sequential phases in Waterfall model are:

- **Requirement Gathering and analysis:** All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification doc.

- **System Design:** The requirement specifications from first phase are studied in this phase and system design is prepared. System Design helps in specifying hardware and system requirements and also helps in defining overall system architecture.

- **Implementation:** With inputs from system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality which is referred to as Unit Testing.
- **Integration and Testing:** All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.
- **Deployment of system:** Once the functional and non-functional testing is done, the product is deployed in the customer environment or released into the market.
- **Maintenance:** There are some issues which come up in the client environment. To fix those issues patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

Below are the online help links,

http://www.tutorialspoint.com/sdlc/sdlc_waterfall_model.htm

http://www.waterfall-model.com/

12) Explain, end to end implementation/life cycle of Dell Boomi Project?

ANS) explain similar to above methodologies but in Dell Boomi single person will be able to handle complete end to end (requirements gathering, analysis, design, development, testing, maintenance) implementation.

I did Dell Boomi Integration development, support & enhancements.

13) What is your role in the current project?

ANS) Basically I am a Dell Boomi Consultant and my role is Dell Boomi Integration developer & sometimes I involved in support & enhancements as well.

14) What is the typical/complex that you developed in your projects?

ANS) In one situation, I got requirement, in that I have to generate sequence number, total line count at the end, need to sort the data base on one field and need to only last modified records.

I used scripting, map, numeric count function, sub process calls to return all the documents in to parent process. I did some complex analysis to implement this & finally I got it.

15) Are you able taking initiation/responsibility to deal with customers directly?

ANS) Yes, I am really interested to handle with customer directly, It is really good opportunity for me to improve my career growth.

Different Company IQ

NTT Data Technical Interview Questions

1) Tell me about yourself?

ANS) Refer above

2) What is total experience in Dell Boomi & explain about your project?

ANS) Refer above

3) What is Business Rule?

ANS) Refer above

4) What is Document Cache?

ANS) Refer above

5) We want send data in different directions based on condition, what step will use?

ANS) we need to Route shape to send the data in different directions based on condition.

Refer route usage in the above.

6) Data Process Step?

ANS) Refer above

7) Custom scripting i.e. Groovy Script, How we can sort the data?

ANS)

8) How you can check the errors & how you will debug the error?

ANS) In Boomi 2 different logs are available,

1) Local/Atom/Container logs (these are available under logs directory)

2) Process logs (these are available under execution directory for each execution)

Whenever I found some error then I will check required logs.

If required, I will re-run the failed document in test mode to get accurate information.

I will use Exception or Notify process shapes wherever required to get the detailed log information & getting the mail alerts. Also, manually using view logs. And will check about the severity of the error. We can check the log in Debug, Severe, and Errors.

I will user try/catch step to handle the document level failures & retry the failed document at process level.

9) Test mode document support and how you will send only limited documents?

ANS) Boomi will allow only 1 MB of data in test mode.

The data should < or = to 1 MB. Or, maximum of 10 files and all the 10 files size should be less than or equal to 1MB.

10) Set properties step?

ANS) Refer above

11) I want to send the data from source to SFTP that to convert XML to CSV, How can you do that?

ANS) First we are supposed to create the XML and CSV Profiles. Need to use map shape for conversion. Source profile should be XML and Destination Profile should be CSV and Map it.

Suppose our source system is Disk & destination is SFTP, below is the process flow,

FTP -> MAP -> Logical Step, if required -> Set properties step (to set file name) -> SFTP

12) What is CRT or Cross Reference Table?

ANS) Refer above

13) How you can run the process other than scheduling & manual execution?

ANS) we can use AtomSphere API to execute the process (or) Lister process design approach such Web Services, Atom Queue, JMS etc..

Sub process execution from parent process.

14) How can we do web services/SOA implementation in Boomi?

ANS) Refer above

15) Are you able to create XML?

ANS) Yes, I am able to create an XML & I worked for different XML structures in Boomi.

16) What is XPATH & XLINK?

ANS)

XPath: XPath is syntax for defining parts (finding information in) of an XML document

- XPath uses path expressions to navigate in XML documents
- XPath contains a library of standard functions
- XPath is a major element in XSLT
- XPath is also used in XQuery, XPointer and XLink
- XPath is a W3C recommendation

Example: /bookstore/book [1]

Refer below help link,

http://www.w3schools.com/xml/xml_xpath.asp

XLink:XLink (the XML Linking language) defines methods for creating links within XML documents.

- XLink is used to create hyperlinks within XML documents
- Any element in an XML document can behave as a link
- XLink supports simple links (like HTML) and extended links (for linking multiple resources together)
- With XLink, the links can be defined outside the linked files

- XLink is a W3C Recommendation

Example: xlink:href

Refer below help link,

http://www.w3schools.com/xml/xml_xlink.asp

NTT Data Manager Round

1) Do you have any knowledge on SuccessFactors API?

ANS) Yes I have working/POC experience in SuccessFactors

2) Simple Project Explanation?

ANS) Refer above

3) Are you able to join immediately?

ANS) Yes, I am able to join immediately as I relieved from my current company.

Actually I got one offer but it is different local, so I am looking another opportunity.

4) Current CTC& Expected CTC?

ANS) Refer above

Wipro Interview Questions

1) Tell me about any flow that you implemented?

ANS) Refer above

2) Data process step (where you used splitting, combining)

ANS) Refer above

3) Flow control (if process fails or takes more time to execute)

ANS) Refer above

4) How to get different prefixes to the expected field in different environments from one process?

i.e. if original field value is 23. Then we have to get values like G23, D23, for each environment pre-character have to vary for example..?

ANS) Using environment extensions.

Support we have 3 different environments use dynamic process property call environment_prefix & set value for that according to environment.

For environment A set values as A for that property,

For environment B set values as B for that property,

For environment C set values as C for that property,

Use Route shape after start shape & route the data based execution request is coming from (A or B or C) using Dynamic Process Property.

In route A direction use Map function to A for all the fields, repeat same for other Routes as well.

Now process execution will work logically.

5) How to get different profiles from one?

i.e. For every sub-entity in the whole object have some different elements, we want to divide each sub-entity elements into different files.

ANS) Data process step split documents option to split the documents based on tag or element.

6) Static value increment for every interval, when particular process fetches.

i.e. starting with 0, for each interval we want that value Increment by 1... (0, 1, 2, 3....)

ANS) we can perform this login using recursive call option.

Calling same process again, until end of loop based on some property value.

7) Different between SOAP AND REST?

ANS) Refer above

8) Try catch step explanation?

ANS) Refer above

9) Error throwing through mail & writing the required logs (exception)?

ANS) Refer above

10) Salesforce, SFTP connection criteria.

ANS) Refer above

11) Molecule (if one instance fails while executing the process, then it will take care by another instances from where it fails or starts from the beginning?)

ANS) Support if process is executing on one node, If that node went down suddenly then the current execution will fail but new execution will take care by another node.

12) Difference between atom & molecule?

ANS) Refer above

13) Write insert, select queries?

ANS) Refer above

14) Validate XML structure?

ANS) Refer above

Accenture Interview Questions

1) Tell me about yourself?

ANS) Refer above

2) Environment extensions & their usage

ANS) Refer above

3) How to debug/test failed executions?

ANS) Refer above

4) Complete lifecycle Dell Boomi Project implementation

ANS) Refer above

5) Any idea on SuccessFactors

ANS) Refer above

6) What is alpha & beta environments in SuccessFactors?

ANS) Refer above

7) Give the name of few SuccessFactors APIs

ANS) Refer above

8) Suppose I want to filter the incoming records from SuccessFactors then what are the different ways to filter the records?

ANS) Refer above

9) How to retrieve last modified (or last 24 hours) records from SuccessFactors?

ANS) Refer above

10) Difference between Business Rules, Decision, Route, Branch steps.

ANS) Refer above

11) What are the different types of scheduling options available in Dell Boomi?

ANS) Refer above

11) I want to schedule last Friday of every month then how to do it?

ANS) need to use advance scheduling option

Minutes (0-59): 30

Hours (0-23): 8

Days of Week (1-7): 6

Days of Month (1-31): 24-31

Months (1-12): *

Years: *

12) Difference between Notify & Message?

ANS) Refer above

Mind Tree IQ:

1) Project explanation

2) How you get requirements? How you implemented in development stage & explain about it?

3) In Web Services, I want to send the request to 20 services then how you will provide service in Boomi? Or how you will hit the third party service?

ANS) Event Driven Integration

4) Trading partner & B2B integration

5) What is SOA? How to implement in Boomi?

6) How to get format for database in Boomi?

7) Once you the data from database, Is there any effect for database?

8) How to implement web service in Boomi?

9) How to write test cases (UTP) & how to test those cases?

10) How to get the data from SuccessFactors?

Amdocs Interview Questions:

1) What is the difference between SOAP and OData protocols?
2) What are the deployment guide lines?
3) How to track the issues that you got in production?
4) How you will maintain enhancement/change request (CR)?
5) Is it required SSL certificate to connect SuccessFactors?
6) Do you have any idea on OData?
7) What is SAP IDoc?
8) What is RFM/BAPI?
9) Support UPSERT operation is not successful in SuccessFactors then where you will check the information?
10) Different types of logs available in SuccessFactors?
11) Do you have any idea about SAP PI?
12) Did you use standard iFlow in your project?
13) How many iFlows are available in SuccessFactors?

14) Do you have any knowledge on SAP NetViewer or SAP ABAP console?
15) Are you used http or https to hit the SAP web services? What types of certificates required?
16) Are connect SuccessFactors using OData or SOAP?
17) Did you do outbound (Upsert or Update) operations for SuccessFactors?
18) What type of Groovy Scripts that you used?
19) What is paging and why we need paging?
20) What is the internal Id and external Id?

HCL Interview Questions:

1) Difference between Decision, Business Rules, Branch and Route?
2) When you are trying to use filter option, suppose required field is not available in the fields then how can you achieve this filter option? What is the drawback if you use this approach?
3) What is synchronous and asynchronous approach?
4) Suppose salesforce application has to send employeeId to different object in same application or other application then need to some mapping and return same response back to salesforce. How to achieve this scenario?
5) While converting source to destination in the Map, you may need field information from the other application using Boomi Connector/Web Service. Do you use separate connector and store that information into Document Cache & load this information inside Map or you can use connector call map function to retrieve the required fields from end application and map that information into destination.
6) How you will return the data from Boomi Web Service to client application?
7) How Boomi will send response back to client application to specific request?
8) How to connect Salesforce application and what type objects you worked?
9) Difference between JSON and XML?
10) Why JSON comes into picture?
11) How you convenience the client, JSON is preferred than XML?
12) Explain SuccessFactors Integration?
13) How many modules available in SuccessFactors?
14) How Client Certificate Authentication will work in Boomi Web Service?
15) Do you have any SAP module idea?

Arctern Interview Questions:

1) Do you have any integration experience on B2B EDI?

2) How you create EDI profile and mapping in Boomi?
3) What are the different types of acknowledgements?
4) Refer below XML and let me know,
5) Is it valid XML or not?
6) What is element?
7) What is attribute?
8) Do you have knowledge on Database? If yes, let me know, what is the use of below SQL query?
9) Select * from Persons orderby persronName desc
10) Do you have any idea on SSO?
11) SAML request and Response?
12) Do you have any idea on encryption and decryption of documents? How to do it? Which certificate is required for encryption and decryption?
13) Do you have any idea on Process Library?
14) Do you have any idea on Integration Packs?
15) Source document has 3 columns and I require 4 columns in destination, how can you achieve this?
16) How to set source connector file name to destination connector?
17) Give the required Data Mask?
18) How to implement Web Services in Boomi?
19) Different types of Authentication Types in Boomi Web Services?
20) What is the use of Find Changes?
21) Difference between Exception and Notify shape?
22) How to debug a process?
23) Have you done testing in Boomi? How to do testing in Boomi?
24) How to handle Errors/Exceptions in Boomi?
25) How to improve the performance?
26) Explain end to end integration flow?
27) Do you have any idea Agile Methodology?

Always be positive. Leave Over Confident. Put Efforts. Do the Best then Hope for the BEST. Good Luck.