



How to Draw DFD with Multiple Context Levels?

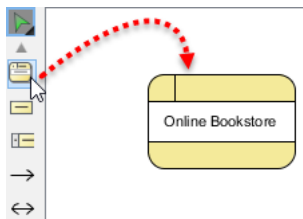
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In this tutorial, you will create a context-level DFD and expand the main process shape into a Level 1 DFD.

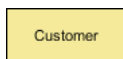
Creating a Context-Level DFD

A context-level DFD, also known as a Level 0 DFD, views the whole system as a single process and emphasizes the interaction between the system and external entities. Let's draw a context DFD.

1. To create a DFD, select **Diagram > New** from the toolbar.
2. In the **New Diagram** window, select *Data Flow Diagram* and click **Next**.
3. Enter *Context Diagram* as the diagram name and click **OK** to confirm.
4. Name the diagram *Context Diagram*.
5. We need to create the main process. Drag *Process* from the diagram toolbar to the diagram. Name it *Online Bookstore*. We will use the online bookstore as an example to show you how to create multiple levels of DFD.



6. As you can imagine, customers will be ordering books through the system. Therefore, add an **External Entity** to the diagram and name it *Customer*. Like creating a process, you can create an external entity by dragging **External Entity** from the diagram toolbar to the diagram.



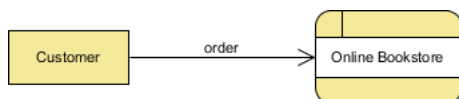
7. A data flow is used to represent the movement of data between different parts of the system. In this case, "order" is data created by the customer and submitted into the system. Therefore, create a data flow from *Customer* to *Online Bookstore*. To do this, move the mouse pointer over **Customer**. Drag out the **Resource Catalog** button.



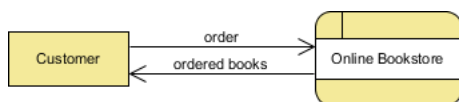
8. Release the mouse button on *Online Bookstore* and select **Data Flow** from the Resource Catalog. This creates a data flow connector.



9. Name it *order*.



10. The bookstore will finally deliver the books to the customer. Make use of the Resource Catalog to create a data flow from *Online Bookstore* to *Customer*. Name the flow *ordered books*.

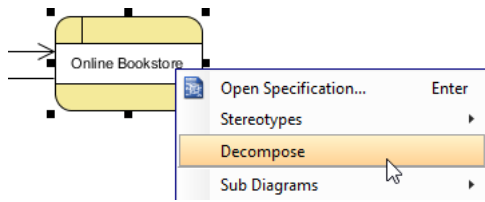


That's all for the context diagram. As we see the entire system as a single process, there is just one process shape created at this DFD level. In the next section, you will decompose the *Online Bookstore* process and draw its details.

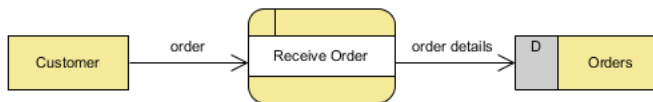
Creating a Level 1 DFD

In this section, you are going to draw the Level 1 DFD to show the main functions of the online bookstore.

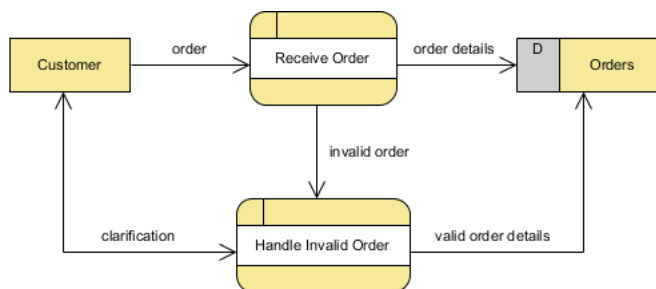
1. Right-click on *Online Bookstore* and select **Decompose** from the popup menu.



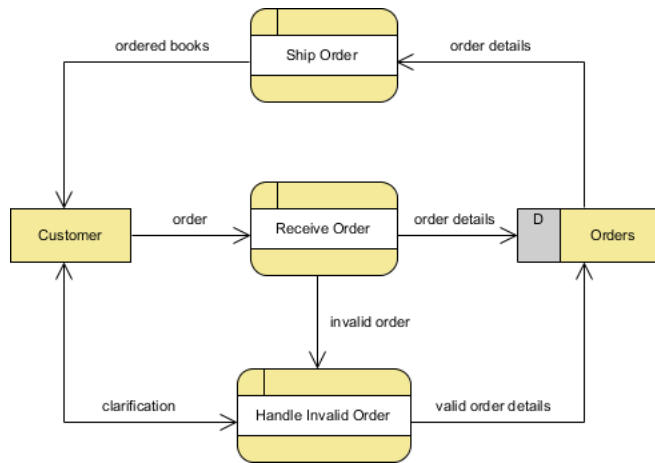
2. The data stores and/or external entities connected to the selected process would be referred to in the Level 1 DFD. So when you are prompted to add them to the new diagram, click **Yes** to confirm. Note that the new DFD should look very similar to the context diagram initially. Every element should remain unchanged, except that the main process (from which this new DFD decomposes) is now gone and replaced by a blank space (to be elaborated).
3. Right-click on the background of the diagram and select **Rename...** from the popup menu. Name the diagram *Level 1 DFD*.
4. There is a process that receives customer orders and stores them in a database. Let's create a process *Receive Order* and a data store *Orders*. Add data flows in between.



5. When an order is invalid, there should be another process that involves contacting the customer and clarifying his/her needs. Create a process *Handle Invalid Order*. Add suitable data flows between the shapes. Here you may use a bidirectional data flow to represent a dialog flow.



- There is another process that handles shipment. Create the *Ship Order* process. Again, add appropriate data flows between the shapes.



That's all for this tutorial. Depending on the area of interest, you may create further levels to show the system in more detail. As you can imagine, the *Ship Order* process can be elaborated into smaller functional units (processes) like packaging, preparing invoices, arranging delivery, etc.

Resources

- [OnlineBookstore.vpp](#)



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(<https://www.visual-paradigm.com/>)

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