Manage purchasing and inventory in SAP

- [Justin] For companies running SAP, the Materials Management module is crucial to an efficient supply chain. Materials Management, make sure that companies have the right materials in the right quantity at the right time in place. If you use SAP every day at work, or if you just want a better understanding of how SAP ERP handles materials, then this is the course for you. We'll look at high-level processes for purchasing, inventory management and physical inventory. We'll also go step by step for the most important transactions and reports in the Materials Management module. Hi there, I'm Justin Valley. I've been an SAP trader for over a decade, and I've trained Materials Management to folks at large companies in North America, Europe, and Australia. Let's get started so you can learn more and get better at transacting and reporting in SAP Materials Management.

What you should know

- [Instructor] If you want to better understand the processes and transactions in the SAP materials management module, this course is for you. Because we will look at materials management processes, transactions, and reports in this course, it's important to understand the fundamentals covered in my previous course, SAP ERP Essential Training. Generally understanding how SAP ERP works will help you get the most from this course. Basic SAP navigation and reporting skills will ensure you know what's happening on the screen and ensure you get the most out of your time spent. The transactions and reports demonstrated in this course are done in the GUI of SAP S/4HANA 1709.

Process of SAP MM

- [Instructor] The SAP Materials Management module, often abbreviated as SAP MM is the logistics module that ensures the right materials and the right quantity are available at the right time and place for an organization. There are four key components of the Materials Management module. First is master data. As in other SAP modules, accurate master data is required to drive all other transactional processes. MM master data includes material master records, which must be set up before materials can be purchased externally. Supplier master records have all the physical and financial information about a vendor that a company can buy from. Purchasing information records merge material and supplier information and streamline the purchasing process. The second component of the MM module is purchasing. Purchasing includes activities like getting quotes from vendors, creating purchase requisitions, and creating formal requests for goods or services called

purchase orders. The third component of Materials Management is inventory management. Inventory management deals with materials once they have been received. Important inventory management functions include goods receipts, which records delivery of outside goods and stock transfers, which move materials from one storage location to another. Finally, the fourth major component of MM is physical inventory. Physical inventory determines if inventory quantities in the system are correct and flags any discrepancies. Common transactions in physical inventory are entering inventory counts and posting any inventory differences. The key benefit of Materials Management is an efficient supply chain that increases productivity and reduces costs by handling materials efficiently.

Module integration

- [Instructor] SAP ERP thrives on the flow of data between different modules. Because the Materials Management Module is the foundation of many logistic operations, there are many integration points with other SAP modules. Module integration ensures data accuracy and that businesses are not operating in separate silos. There are many places that the MM Module ties with other modules. But let's take a look at three key integration points. First the Materials Management Module works closely with the sales and distribution or SD Module to facilitate the sales process. A good example of this integration is when a sales order is created. All the data needed in the sales order regarding the product or service flows in from Materials Management. This includes data about shipping points and plant information for when the order is ready to be fulfilled. Similarly SAP MM integrates with Production Planning or the PP Module. This integration is crucial at manufacturing organizations. For example, when a production order to make a good is created, the MM Module supplies the materials that make up the bill of materials. When the good has been manufactured and is classified as a finished product, it is then put in inventory which is again handled by the Materials Management Module and made available for sales. Finally, Materials Management integrates with the Fiance and Controlling of FI/CO Modules. Purchasing activities provide a good example of this. Information from purchase orders and the flowing through to accounts payable to pay suppliers for goods. Also, every inventory posting flows through to general ledger accounts and impacts balance sheet and profit and loss statements. These integrations enable the seamless flow of data across modules. They are a key aspect of what makes SAP effective for large organizations.

Organizational structure

- [Instructor] Each SAP module has its own independent organizational structure which defines the relationships between different work groups and departments. Let's look at the

components of a typical materials management organizational structure. The materials management organizational structure contains organizational units from the MM module and also adopts a unit from the finance module. The first organizational unit we'll look at are plants. A plant handles planning, purchasing, and the distribution of goods and services to customers under a single company code. Organizations have some flexibility on how they use plants. Depending on a company's needs, a plant can be a manufacturing facility, an office, or a distribution center. Next, we have storage locations. Storage locations quite literally are the physical storage locations where stock is kept within a plant. Storage locations are used to record goods movements in and out of inventory. Next, we have purchasing organizations. Purchasing organizations handle negotiations with suppliers and procurement of materials for a company. Depending on how the system is configured, purchasing organizations can handle buying across many company codes or just for specific plants. Purchasing organizations are often broken up into purchasing groups which handle specific aspects of the buying process. The materials management organizational structure adopts one unit from the finance module called company code. Company code is an independent legal entity. Profit and loss statements as well as balance sheets are created and maintained at the company code level. Let's look at how these organizational units fit together. At the top level is the company and then the company code which is defined in the FI module. From the company code, we have the plant and within the plant we have multiple storage locations. On the right side of our diagram, we have the purchasing organization associated at the plant level. As mentioned on the last slide, the purchasing organization could be more centralized at an organization and move up to be associated at the company code level. Within the purchasing organization, we have a purchasing group. The organizational structure can be set up to suit an organization's needs. Once the structure is defined, the base is set for all materials management transactions to be executed and then reported on.

Master data overview

- [Instructor] We need accurate master data for Materials Management transactions to work effectively in SAP. Let's examine the different types of master data in the MM module. First, we'll look at material master records. Material masters are the sole information source about materials that are procured, produced, stored, or sold at an organization. Material masters must be created for goods that are purchased externally. Standard SAP has many material types available. But in Materials Management, there are a few we use most frequently. First, raw materials are materials that are exclusively purchased externally and then processed in-house. Next, semi-finished products are either purchased externally or manufactured in-house. They are then processed further to add value and turn them into a finished good to be sold. Finally, trading goods are products that are bought externally and then sold to customers without needing to add value. Next, we'll look at business partner master

data. Purchasing functions in Materials Management are not possible unless we have accurate supplier information in our system. In SAP, supplier data is entered and maintained in business partner records. Two of the important business partner roles that deal with purchasing are suppliers and suppliers for financial accounting. Supplier records house address, payment, tax, and legal data and are extended to the necessary purchasing organizations. The next MM master data component we'll look at are source lists. Source lists are comprehensive lists of suppliers who have specific material at a specific time available for purchase. Finally, we have purchasing information records. Purchasing information records capture the relationship between a material, a supplier and the price at a certain time and are very useful for purchasing organizations when deciding where to buy your material from. Each of these master data components are critical to effective logistics transactions in Materials Management.

Create a material master: MM01

- [Instructor] Material master records contain all the data about materials that are procured, produced, stored or sold at a company. There are over 200 possible fields available in the material master. For our purposes, we're going to look at how to create a raw material that can be procured. To do this, we'll go into transaction code mm01. This brings us to the Create Material Initial Screen. The first field is Material. This is what we're going to call the material. Organizations usually have very specific naming conventions. We're creating a titanium screw, so we'll our material TTS5. Next is the Material Type. This is an extremely important field, because it determines exactly what kind of material we're creating. Again, we want to create a material that is a raw material, so we'll choose that from our dropdown. A big shortcut when you're creating a material that is similar to another material that exists already in the system is the Copy from area. By entering that material in the Copy from material field, most of the attributes of that material will be copied in. This saves a lot of input time. We're not creating with reference, so we'll press Continue. This brings up the Select Views popup screen, with the 29 views that we can create for this one raw material. In this demonstration, we're most interested in creating the material so we can purchase it and use it in production. Because of that, we're going to select Basic Data 1, Purchasing, and General Plant Data / Storage 1. And we'll press Continue. This brings up the Organizational Levels popup. This is defining where the material is being created for organizationally. For Plant, we'll press the Match Code button. We'll select the checkbox next to 1710, for Plant 1 US. Next is storage location. We'll click the Match Code button, and we'll scroll down. We'll choose the checkbox next to Plant 1710, storage location 171C for Raw Materials. We'll click the green check to continue. We're now brought into our Create Material screen. We're in the Basic data 1 tab, because that was the first view we selected on the previous screen. The first required field we need to enter is Description. This is describing the material we are creating. We'll enter Small Titanium Screw. Below, in the General Data area, we'll enter our Base Unit of Measure. The unit of measure varies depending on what we are buying. It could be inches or pounds. For our

material, we want to buy it per screw, so we'll use pieces. We'll click the Match Code button to search, and we'll choose PC for piece. The next field is Material Group, which is used to group similar materials together. We'll click the Match Code button and choose L002, as this is a raw material. Now we'll go down to the Dimensions area, which are the actual dimensions of our product. Our screws are 35 grams, so we'll enter a 35 in the Gross Weight, and G in the Weight Unit. We're going to assume this material doesn't have any packaging, so we'll enter a 35 in the Net Weight field as well. That's all the information we want to enter in the Basic data 1 tab, so we'll press Enter. By pressing Enter, we are automatically brought to the next view we selected, which is the Purchasing tab. In this tab, there's one very important field that is not already filled in, and that's the Purchasing Group. The Purchasing Group is a group of buyers responsible for purchasing activities. They're going to be the ones responsible for purchasing this specific raw material that we're creating. We'll click the Match Code button to see available purchasing groups, and we'll choose 001, Group 001. We'll again press Enter. We're now brought into Plant data / storage 1 tab. This tab has a lot of fields that relate to how the material is to be stored. The storage condition field determines the general storage criteria for our raw material. We'll the Match Code button to see our available storage conditions. We'll choose Storage condition 10. We've now entered all the data that we need to, so we'll click Save. We're brought back to the Create Material Initial Screen. The system gives us a success message saying, "Material TTS5 has been created."

Extend a material master: MM01

- [Instructor] When a material master record is created, it is only available at the organizational units where it was created. For example, if a material was created for use at one plant and one storage location, then it can only be used there. At large organizations, the same materials are needed at multiple organizational units. Let's extend a material master record to another plant. To do this, we use TCode mm01 and press Enter. This brings us to the Create Material Initial Screen. Now, even though we aren't creating a new material, we still act like we are. We want to extend the material named TTS5 to another plant, so we'll enter TTS5 in the Material field. This material is a raw material, so the Material type field is fine. We can now press Continue. This brings up our Select Views popup screen. We want the necessary views created, so we can purchase this raw material, so we'll select Basic Data 1, Purchasing, and General Plant Data/Storage 1. And press Continue. Now, this brings up the Organizational Levels popup. This is very important, as this is the step where we extend our material to our new organizational units. The organizational units in this case are plant and storage location. We'll click the MatchCode button next to Plant. On the Entry maintained line, I want the X. We can see there's an X in the Entry maintained column associated with Plant 1710. That means this material already exists there. We'll mark Plant 1000, and select Choose. Next, we'll click the MatchCode next to Storage location. We can see that this material already exists at Plant 1710 in Storage Location 171C, Raw Materials. We want to extend this material to

Plant 1000, Storage Location 171C, Raw Materials, so we'll click the checkbox next to that line. Next, we'll click Choose. We'll now click Continue. We get a success message from the system that says, "The material already exists and will be extended." We'll click View details. The diagnosis says, "The material master record has already been maintained "by another department for other views "and or other organizational units. "It will now be extended to include data "for additional views "and or additional organizational units." We can close this, and we'll press Save. We can see the system gave us a success message, saying the material has been created. Even though the material already existed in our system, the system recognizes it's been created because it's been extended to a new plant and new storage location.

Create a business partner (supplier): BP

- [Instructor] For our purchasing process to work we need our supplier master data set up properly. Let's create a supplier in SAP. In S/4HANA, SAP consolidated all business partners under the transaction code BP. We'll enter that and press Enter. We'll turn the locator off as that is used to search and we want to create a new supplier. The supplier we want to create is an organization, so we'll click Organization. The system gives us a message in the status bar to choose the business partner role. This is extremely important as this selection determines what information of our supplier we can edit. We'll click the dropdown in the Create in BP Role field and select Supplier. We're warned that we're changing to another BP role in Create mode. We're okay with this, so we'll press Create. By default there are six required fields for our supplier. We'll fill them in now. First is name. We'll type Phoenix Materials. Next we'll scroll down to address information. In Postal Code we'll enter 85001. City is Phoenix. Country is US for the United States and Region is AZ for Arizona. Next we'll scroll down to Communication. We'll enter the language and we'll choose English. Of course you can fill in any of the additional fields that may be of use to your organization. Notice we have 10 tabs going across the screen, each with fields that may or may not be important to your organization. Because we are in the supplier role, we have Vendor General Data, Vendor Tax Data, and Vendor Texts. The Vendor General Data allows us to add more information specific to the supplier. The Vendor Tax Data tab allows us to add specific tax information. And the Vendor Texts fields is where we can make specific notes about the supplier. We won't change any fields in these tabs now, so we'll go ahead and save the supplier. We have an information message at the bottom showing the supplier has been created and assigned a number. That's great news, but we're not finished. To be able to use this supplier in purchasing, we have to extend it to a company code. To do this we'll click Purchasing. We're brought into the Display Organization screen for our newly created business partner. The system has put us into Display mode, meaning we can't edit any of the fields on the screen. We'll press the Switch Between Display and Change button. The title of the screen now shows us that we are in Change mode and can now edit the fields. We want to extend the supplier to a purchasing organization, 1710. We'll press the Match Code button and we'll choose

1710. Now we'll press Enter. There are now a few fields that need filled out below. For Order Currency we'll enter USD for US dollars. Next is Payment Terms. Payment Terms is how quickly the supplier needs to be paid. We'll enter NT30 for Net 30. We can now save this business partner. We can see that the change in BP role changed from supplier to supplier with defined in parentheses. This business partner role has now been defined and is ready to use.

Maintain a business partner (supplier): BP

- [Instructor] The purchasing process only works if we can actually pay our suppliers for their goods and services. To do this, we need to maintain our business partner and add a new role. We'll enter in the transaction code, bp, and press Enter. Once we're in our transaction, we'll search by business partner number for the business partner we want to edit. We'll enter 10000071, and press Start. We'll double click on our business partner. Now we can close our locator portion of the screen. We want to create a new business partner role, so in the Change in BP role field, we'll click the dropdown and choose Supplier, Financial Accounting. We're creating a new business partner role, but we don't actually need to edit any of the fields here, so we'll click Save. To be able to use this supplier in the account's payable process, we have to extend our supplier to the company code. We'll click More, Company Code. We want to extend this supplier to company code 1710. We'll enter 1710, and press Enter. Now we're required to update the Reconciliation account field below. We'll click the Match Code button to search. We'll choose Payables Domestic, because this is a supplier. The final field we'll enter is Sort key. We'll search and choose 009 for External document number. We'll now save. Our supplier has been saved and extended to company code 1710.

Maintain a source list: ME01

- [Instructor] Source lists are comprehensive lists of possible vendors for a material. Let's create a source list using transaction code me01. This takes us to our Maintain Source List Initial Screen. The first field we need to enter is Material number. We'll enter RM15. RM15 is a raw material that is purchased externally. Next is Plant, and we'll use plant number 1710. We'll press Enter to continue. This brings us to our Maintain Source List Overview Screen. In our example, we'll enter two suppliers into the Vendor fields. Source lists are especially useful when you want to use one supplier for a certain time period, and another supplier for a different timeframe. We'll go down to our first Source List Record. The first field we need to enter is our Valid from date. We'll enter today's date. We'll assume we want to use the first vendor for three months, so in the Valid to date, we'll select three months from today. Next we'll enter the vendor number. We'll enter vendor 17300030. And we'll enter purchasing organization 1710. On the next line, we'll select September 27th as

the first Valid from date. And we'll make this vendor valid to the end of 2019. Next, we'll enter the second vendor's number. We'll enter 17300090. And again, this vendor is in purchasing organization 1710. We'll now save our source list. The system notifies us that our source list has been maintained for this material at this plant.

Create a purchasing information record: ME11

- [Instructor] Purchasing information records show the relationship between a material, a vendor, and the price. Let's create a purchasing information record. We'll start by entering transaction code me11, and pressing Enter. First, we want to enter the vendor number. We'll use 17300090. Next is the material we will want to purchase from the vendor in the future. It's a raw material, and the material number is RM15. We also want to add the purchasing organization here. We'll use purchasing org 1710. We'll press Enter, and we're taken to the Create Info Record General Data screen. The first fields we have are in the Supplier Data area. These are all related to how the supplier deals with this material. That means we will send a reminder to the supplier on the designated day compared to when the material is to be delivered. In the first reminder, we'll enter negative one. The negative number means that we will send the reminder a day before the material should be delivered. Positive numbers are for days after the day when the material should have been delivered. Below, in the supplier material number field, we can add what the supplier calls this material in their system. We'll say the supplier calls this Raw Material 22. Next, we'll scroll down. Down below, in the Purchase Order Unit of Measure, we ensure that we know exactly how much we're ordering. The order of unit means we'll be ordering in pieces, and the conversion here is equal, one piece for one piece. If the order of units were different, these fields become very important. For example, if we order a pallet and receive 12 pieces, that information could be entered here. We can now click on the Purchasing Org Data 1 button. The planned delivery time is the default amount of days for when material delivery is planned. Ours is set to two. The standard quantity is the number we typically order of this material from the supplier. We'll enter 100 here. This means we typically order 100 pieces at a time. Next, we have minimum quantity. The minimum quantity restriction here is the minimum we would order from the supplier. We'll enter one. Let's scroll down to the Conditions area of the screen. First, we see net price. Net price is the price per piece after all discounts are taken into account. We'll enter 20 to show that we are charged $20 for each piece. We're now ready to save this record. We'll press Save. We receive a green success message from the system that shows our purchasing information record has been created and assigned a number.

Purchasing process overview

- [Instructor] Efficiently purchasing goods and services from suppliers is essential to the success of many companies. Let's explore the purchasing process in SAP. There are two major tasks that the purchasing component of SAP handles. First, it determines the possible external suppliers for required materials. Second, it actually buys the materials and services from these identified suppliers. Let's look at the typical process flow for accomplishing these tasks. The first step is to determine the requirements. What do we need? How much of it, and when do we need it by? These key factors need to be determined. Materials requirements can be determined by individuals in the departments with a need, or by materials planning and control. These requirements are communicated internally to the purchasing group via purchase requisitions. Next, the purchasing group determines with supplier is the best option to purchase from. This is called source determination. Potential suppliers are identified based on past orders and existing purchasing agreements. Then, requests for quotation are sent to suppliers. Suppliers answer these requests for quotations and outline the conditions of a potential order. The supplier with the best offer is chosen. Once the supplier is selected, the order processing step begins. For one time orders, we create a purchase order. A purchase order is the formal request for goods or services from a supplier by a specific date for an agreed upon price. For longer term agreements, we create contracts, which are agreements between a company and a supplier for material at an agreed upon price for the entire term of the contract. Similarly, we can create scheduling agreements. Scheduling agreements have all of the same qualities as a contract, but they also include pre defined delivery dates. Reports can be run at any point in the purchasing process to provide realtime insights into any of these purchasing documents. An effective purchasing process ensures companies have the right materials at the right time.

Materials requirement planning overview

- [Narrator] Materials Requirement Planning, or MRP, is an extremely important function of SAP. It ensures materials are available to match the needs of an organization. It also keeps supply chains efficient by avoiding too much inventory. Let's look deeper at how MRP works. There are robust configuration options available, so MRP can meet the demands of very complicated supply chains. For now, let's focus on the high-level concept of Material Requirement Planning. The input that kicks off the MRP process is demand from a customer placing an order. This results in a sales order being created in SAP. The sales order has details like, what material is required by the customer, how much of the material they want, and by when the delivery is to be shipped. Next, an MRP run is executed at a regularly scheduled interval. This run analyzes the requirements from the sales orders, and breaks the finished goods down into separate components. The system then considers available warehouse stock, and determines where inventory may not be enough to meet this demand. When the system recognizes a deficiency, it automatically creates purchase requisitions to initiate the purchasing process. For MRP to work properly, planning data must be maintained accurately. Replenishment lead time, safety stock and planned delivery time or examples of planning data that needs to be up to date. Materials

Requirement Planning, when used effectively, can keep even the most complex supply chains running smoothly.

Create a purchase requisition: ME51N

- [Instructor] When someone identifies a need to purchase a material or service they must create a purchase requisition. A purchase requisition is an internal request made to the purchasing organization. Let's create one in the system using transaction code me51n and pressing ENTER. This brings us directly into the Create Purchase Requisition screen. We can enter all the needed information from the requisition directly into this screen. There are a few types of requisitions we can create. But we're happy with the default option the system has populated next to the shopping cart of Purchase Requisition. Next, we'll fill in the Header note. This is a free from text field and it can be used for referencing orders or approvals or to give delivery instructions. We'll type in here, "Raw materials needed for production "for order 144, approved by B Steffy." Next, we'll move down to the new item grid. We'll enter the Material number we want to purchase, which is rm15. Next, we'll enter the Quantity we want to buy, which is 1,000. And next we'll enter Plant. We'll use Plant 1710. We'll press ENTER for the system to read this information. Material Group has been updated as Raw Materials. The system is pulling that information from the material master record. The system has also proposed the Delivery Date, which is 12 days from now, of July 8th, 2019. The system is assuming order and delivery times. This field is editable, but we would probably want to write information about that in the Header note as to why this order needed to be rushed. Also, we can see that the Vendor is empty. As this is just the requisition we'll let the purchasing group determine the vendor when they make this order. We're now ready to save. We receive a success message that says this purchase requisition has been created and assigned a number ending in 113.

Create a request for quotation: ME41

- [Instructor] Once a need to purchase materials or services has been identified and approved via a purchase requisition, we must select the vendor with the best offer. To get the information around who has the best offer, we send out a request for quotation to potential suppliers. Let's create an RFQ now with transaction code me41 and pressing Enter. This takes us to the Create RFQ Initial Screen. The first field is auto-populated as RFQ Type, and the type defined is AN. AN is a standard request for quotation, so we don't need to change this field. Next the RFQ Date is auto-populated with today's date. This is the date the RFQ was created on, so we'll leave that as well. Next in the Quotation Deadline field, this is how long the potential suppliers have to respond with their quotations. We'll say we're not in a huge rush, so we'll give them one week from today to respond. In the organizational data, we want to enter the purchasing organization. We're

working in purchasing organization 1710. Next we'll enter Purchasing Group. We'll use Purchasing Group 001. We can enter this request for quotation by directly referencing a purchase requisition, and we can do that by pressing the Reference to PReq button and entering that document number. We're not referencing anything, so we'll now click Overview to define more criteria in this RFQ. First we'll enter the material we need to buy. We're looking to purchase material RM15. Next we'll enter the quantity. We need to purchase 1,000 units. Next we'll enter the delivery date. This is the date we need the material by. We'll enter three weeks from today. Now we need to enter the supplier we want the quotation from. We'll click Supplier Address. Now we'll enter the Vendor number, which is 17300030, and press Enter. This populates all the available address information from the business partner record. We're now ready to complete this RFQ, so we'll press Save. We now have a success message that shows our request for quote was created and assigned a document number. Once we receive the price and projected delivery date back from the supplier, we update the quotation, referencing the request for quotation using transaction code me47.

Create a purchase order: ME21N

- [Instructor] A need to make a purchase was created via a purchase requisition. A supplier was then chosen, after we sent out a request for quotations and chose the best quote. We are now ready to create a purchase order. To do this, we'll enter transaction code ME21N and press enter. We could create this purchase order from scratch, but in our example, we're going to create it by referencing a request for quotation. To do this we use our document overview area of the screen. We'll click the drop down on our selection variant button and choose request for quotations. Our purchasing organization and purchasing group are auto-filled with the criteria we need, so we can execute this. We are taken back to our create purchase order screen, but the document overview screen now has RFQs available for us to reference. We'll click the checkbox next to the RFQ ending 406 and press the adopt icon. We'll now click the document overview off button to declutter our screen. The system is giving us an error message, because we need to enter our plant. We'll enter plant 1710 and press enter. We can see from the RFQ that populated our purchase order that we are about to purchase 1,000 pieces of this raw material. The delivery date is set for July 17, 2019, but we could make this earlier if we needed to. We also see the net price is set for 20 cents per piece. We'll now expand our header. We're taken to the delivery invoice tab. In the first field, it has our payment terms as 0001, which is to pay immediately. We'll say this vendor has extended us net 30 payment terms. So we'll click the match code button and find net 30, within 30 days due net. Next we'll click the conditions tab. This is showing the pricing conditions for the entire order. We see the net price has been updated as $200 U.S. dollars, meaning this is a $200 purchase order. There are many other fields available on our purchase order, but they are all optional depending on our requirements. We're now ready to save our purchase order, so

we'll click save. The system gives us a success message, letting us know that our purchase order has been created and assigned a number, ending in 407.

Create a contract: ME31K

- [Instructor] Sometimes, it's beneficial to lock in a purchase price for a material over the long-term. Contracts are outline agreements that lock in either a specified quantity or dollar amount of a product to be purchased during a defined time interval. Let's create a contract in SAP by entering transaction code me31k and pressing ENTER. This brings us to our Create Contract Initial Screen. The first field we need to enter is the Vendor number. We'll enter 17300030. Next we have the Agreement Type field. Let's click the match code button to see our options. Contracts can be defined by quantity or by value. We want a Quantity Contract so we'll choose MK. Next, the Agreement Date is auto-populated with today's date, June 26th, 2019. This is the date the agreement is created so we'll leave this set to today. Down in the Organizational Data we'll enter our purchasing organization as 1710 and Purchasing Group as 001. We can now proceed by pressing Overview. The system gives us an error message immediately to let us know we must define the end date for this contract. We'll enter one year from today. (mouse clicking) We'll press ENTER. The system takes us in to the Item Overview screen. This is where we add one or more items to be included in this contract. In the first line item we'll enter a material rm16. Next we'll enter the target quantity for this contract. This is the total quantity that is included in this agreement. We'll enter 50,000 and in Net Price we'll enter 18 cents per unit. We'll now press ENTER to populate the rest of this line item. We get a warning from the system that says, "Account assignment mandatory for material RM16." The account assignment category determines which accounts are to be charged when the incoming invoice or goods receipt is posted. They can be assigned to different cost centers. In our situation, we're not sure so we'll choose Unknown. (mouse clicking) We'll press ENTER and our warning message goes away. Because contracts did not specify delivery dates that's all the information we need to create for a quantity contract. We'll press save. We now have a success message that shows our quantity contract was created and assigned a document number. We have effectively locked in a price of 18 cents for the next 50,000 units ordered from this vendor.

Create a scheduling agreement: ME31L

- [Instructor] When purchasing demand can be planned in the long term, scheduling agreements can be very useful. They lock in a price and delivery dates over the life of the agreement. Let's create a scheduling agreement in SAP using transaction code ME31L and pressing Enter. The first field we need to enter is the vendor number. We'll enter 17300030. Next, we have the agreement type field. We'll click the match code button and

we'll choose LP for scheduling agreement. Next, the agreement date is autopopulated with today's date. This is the date the agreement is created so we'll leave this set to today. Down in the organizational data, we'll enter purchasing organization as 1710 and the purchasing group as 001. We can now proceed by clicking overview. The system gives us a warning message to enter the validity date. We'll say this scheduling agreement is to last one year from today. We can now press Enter. The system brings us to the item overview screen. This is where we enter one or more materials to include in our agreement. In the first line, we'll enter our material which is RM17. Next, we'll enter our target quantity for the agreement. We want to purchase 50,000 units over the life of the agreement. Now we add our net price. Our agreement terms are 20 cents per unit. Finally, we enter plant 1710 and press Enter. Our line item is populated and we're ready to save our scheduling agreement. We now have a success message that shows our scheduling agreement was created and assigned a document number. We're not done. We still need to define the delivery schedule. To do this, we'll type in /n for new transaction and then enter transaction code ME38. The scheduling agreement we just created is autopopulated for us in the maintain scheduling agreement initial screen. We'll press overview. We can see that our open target quantity is 50,000 as no deliveries have been scheduled yet. We'll click the box to select the first line item and then hit the delivery schedule button. We'll now start to schedule the deliveries. In the first line in delivery date, we'll schedule the first delivery for one month from today and we'll schedule the delivery for 10,000 units. We'll schedule the second delivery for two months from today for another 10,000 units. We'll press Enter to populate the line items. Looking at the cumulative scheduled quantity column, we can see that after the second delivery, there will have been 20,000 pieces of our agreement delivered. We'll now click the overview button. Looking at the target quantity, we've got 50,000. And now that we've scheduled two deliveries, the open target quantity is set to 30,000. We'll now save. We get a success message that the agreement has been saved. So our scheduling agreement has been created and the first two deliveries have been scheduled.

Purchasing reports

- [Instructor] There are quite a few standard purchasing reports available in SAP. They can help give a high-level snapshot of the different purchasing operations at a company. Let's look at the purchasing documents for material report. We'll enter transaction code ME2M and press enter. This brings us to our selection criteria page. Typically, this report is run to view all the purchasing documents for one specific material, or a set of materials. Because we're in a test system and we want our output set to be larger, we'll run this for the entire plant, 1710. We also want to run this report for only purchase orders. To do this we'll enter NB in the document type field. Finally we'll press choose and we'll unselect contract, scheduling agreement and RFQ and press continue. We can now execute this report. This brings up all the purchase orders in plant 1710. To organize the data, we'll enter a layout that I've already created. We'll click choose layout and choose layout

JV. The first column lists all of our purchasing documents. This report is extremely useful because you can double click directly on the purchasing document number to enter into it. We'll double click on the first one. This brings us into a standard purchase order where we can view all the details. We'll click the back button to go back to our results. We'll now scroll down so our purchasing document ending in 027 is at the top. As we look at the columns to the right, we see the material which is EWMS4-01, the short text saying this is a small part, a slow-moving item and that we order 1,000 pieces of this material. Many of the purchasing reports are extremely useful because you can look at orders to specific suppliers only, or you can look at orders to many different suppliers for one material. As this is only one of the many standard SAP purchasing reports, let's go back to the SAP Easy Access screen to look at more. We'll click exit. And exit again. Back at the SAP Easy Access screen, we'll use the menu tree. We'll expand the logistics folder, materials management, purchasing. The folder structure here is similar to each type of purchasing document. We'll expand the purchase order folder. We'll now expand the list displays folder. We can get a list output report by vendor, by material like we just ran, by material group, by tracking number, by PO number, by supplying plant and by transactions, per tracking number. We'll also expand the reporting folder. And this has many more options for standard purchasing reports. These options are all available for each kind of purchasing document.

Inventory management overview

- [Instructor] Once materials have been purchased or produced, the inventory needs to be managed to maintain an efficient supply chain. Let's look at the inventory management process in SAP. One of the key functions of inventory management in SAP is material stock management. Stock can be measured in two different ways. First, material stock can be measured by quantity. Anytime there's a transaction in the system that affects the quantity of stock, the levels are updated. This includes any stock that is located in the warehouse, any stock that's been ordered but has not yet been delivered, or any stock that is being inspected. SAP's functionality allows for insights into the material stock level at any time. The other way the material stock is measured is on a value basis. Again, anytime there's a transaction or goods movement, the inventory value is updated. Account assignments in cost accounting are updated as the stock moves. This also impacts values in general ledger accounts. Stock value is measured at the plant level or the company code level. Another key function of inventory management is the planning, execution, and documentation of all goods movements. Goods movements are simply transactions that result in the change of stock. They allow tracking of how materials move within and outside of an organization. There are many types of goods movements possible in the standard SAP system. We want to look at three of the most frequently used. First is the goods receipt. The goods receipt is the receiving of the material that has been purchased from a supplier or has been produced internally and is being received into stock. Next is the goods issue. The goods issue is the movement of material to the production process or the

change of ownership of a material to a customer when it is sold. Finally is the stock transfer. The stock transfer moves stock of a material between storage locations at one plant or between two different plants. We also want to talk about stock reservations. Reservations literally reserve stock at the warehouse to ensure that it will be available at a later date. Reservations for a material can be made at the plant or at the storage location level. The reserve stock bucket is increased to reflect the reservation. Inventory management in SAP enables accurate stock valuation and the effective movement and reservation of stock.

Create a goods receipt: MIGO_GR

- [Instructor] After we've purchased a product from a supplier, we need to receive the delivery of goods into stock. We do this by creating a goods receipt with transaction code MIGO_GR. This bring us to our goods receipt for purchase order screen. We can see that goods receipt is the default in this transaction. And that's the selection we want, so we'll leave that. In the next field over, we have our reference. We're referencing a purchase order, but there are other documents that could be selected here. If we wanted to reference an in-bound delivery for example, that is an option. In the next field to the right, we want to enter the purchase order number that we are receiving into stock. We'll enter purchase order number 4500000061 and press enter. This populates our line items with information from the purchase order we selected. We'll now scroll down to look directly at the material tab. We can see the material has been populated and it's a raw material with material number RM15. Next we'll click the quantity tab. We see the quantity and unit of entry is auto-populated with the number from the purchase order. If there was a discrepancy we could enter the real number about to be entered into stock here. The quantity and delivery note is also editable. If we were receiving only half the order for example, we could enter that number here. The quantity ordered field, brings in the quantity that was agreed upon in the purchase order. Next we'll click the where tab. We can see that this material is being accepted into plant 1710 and storage location 171C, which is our storage location designated for raw materials. Finally, we need to show that this item is being delivered in good shape, so we'll click the item okay checkbox at the bottom. And we need to post this goods receipt. So we'll click post. We now have a success message that shows our material document has been posted successfully.

Create a stock transfer: MIGO_TR

- [Instructor] Oftentimes, we will need to move stock either between different plants or between storage locations within the same plant. In our scenario we want to move a raw material between storage locations in the same plant. To accomplish this, we'll enter transaction code MIGO_TR and press Enter. This brings us to our Transfer Posting

screen. The first field we need to enter is Movement Type. Again, we want to transfer the material from storage location to another storage location within the same plant. Let's search to see our options. We'll scroll down. And choose 311, Transfer posting storage location. The Document Date and Posting Dates are defaulted as today. The Document Date is when the document is created and the Posting Date signifies when the transfer is to be executed. Both these fields are editable, but we'll leave them as the default for today. We'll move down to the Transfer Posting tab in the Detail Data area. This tab is broken down into From on the left and Dest for destination on the right. The left side is where we're moving the material from and the right shows the destination of the stock transfer. First, we need to enter the material we're transferring. We'll enter RM15. Next, we need to enter the plant we're transferring from. We're transferring from plant 1710. Finally, we need to enter the storage location we're transferring from. We're transferring from storage location 171C. We'll press Enter to populate this information. When we press Enter we can see that our information in the destination side of the screen is updated. We have the same material and the same plant, 1710. Now we need to update our storage location we're transferring to. We'll search. We'll choose 171A Std. Storage 1. Next we'll click the quantity tab. This is where we need to enter how many pieces of the material we want to transfer. We'll enter 500. And press Enter. We've entered all the necessary information for this transfer, so we'll click Post. We now have a success message that shows our material document has been posted. This means out stock transfer has been executed.

Create a reservation: MB21

- [Instructor] Oftentimes, it's in a company's best interest to put aside stock to fulfill a future need. In SAP, this is called a reservation. To create a reservation, we'll use transaction code mb21, and press Enter. This opens the Create Reservation Initial Screen. The Base Date is auto-populated with today's date. The Base Date designates when the stock will be moved into reserve stock. We'll leave that set to today. Next is the Check Date box. Having this checked means the system will check the calendar to ensure that the warehouse will be operational on the reservation base date. We'll leave this checked, as today is a workday. The next field is Movement Type. This selection will determine the fields we need to enter for this reservation. We want to create a reservation for future sales. We'll click the MatchCode button to see our options. We'll choose 251, which is Consumption for sales from warehouse. Next is Plant. We'll enter plant 1710. We're ready to enter our material information, so we'll click the Create New Items button. That opens our New Items screen. The first field we have to enter here is the Cost Center. The cost center is important for financing controlling. It's the unit that incurs costs and indirectly adds to the profit. We'll search for an appropriate cost center. We'll start search. We'll scroll down and use 17101602 for sales in the US. Next, we need to enter the material we want to reserve. We'll enter rm15 in the quantity of 1,500. We have all the information ready to reserve this material. Before we do so, let's look at the current stock in the system. To do

this, we'll enter /o to open a new window, and we'll enter mmbe and press Enter. This opens our Stock Overview transaction. We'll enter material RM15 and plant 1710, and we'll execute. We can see in the Unrestricted use column that we have 4,379 units available at plant 1710. Let's toggle back to our Create Reservation transaction. We'll now click the Post button. The system lets us know that our reservation has been posted. Let's go back and look at our stock levels. We can refresh this report by pressing Refresh. We now have our quantity 1,500 in the Reserved column at plant 1710. It should be noted that reservations do not affect the quantity in the Unrestricted use column.

Create a goods issue: MIGO_GI

- [Instructor] Sometimes, conditions come up when stock needs to be removed from inventory. This happens in the sales process when a customer take ownership. Stock can also be removed from inventory because it has been consumed. To remove stock from inventory in SAP, we create a goods issue. Let's create a goods issue referencing a reservation, using transaction code M-I-G-O underscore G-I, and pressing enter. With the transaction we've chosen, we have the goods movement set to goods issue, and the referenced document type set to reservation. We'll now enter the reservation number we want to use. And we'll press enter to populate the fields. The system has updated all our information in this goods issue from our reservation. Let's scroll down to the quantity tab. The system has populated the quantity of 1,500 in our quantity to issue field. This is editable if we wanted to issue less than the total reservation quantity. We'll also click the "Item OK" check box. This shows that the item is okay to be issued. Next, we'll click to open the where tab. Our plant is already updated, so we need to enter the storage location. We'll enter storage location 171C. Before we post this goods issue, let's look at the current stock in the system. To do this, we'll enter slash O, which enters a new session, and then the transaction code M-M-B-E. We need to enter our material which is R-M 15. And out plant, which is plant 1710. Then we can execute. We see our unrestricted use stock for plant 1710 is 4379 units. We can also see we have 1500 in our reserve stock column. Let's go back to the goods issue screen, we can now post this goods issue. We now have a success message that shows our material document has been posted successfully. Let's look back at the stock overview for this material. We'll press the refresh button to update the results. We can see that our total quantity has decreased by 1500 in the unrestricted use column. Also, now we have no quantity in our reserve column at plant 1710 as the goods issue has been posted.

Inventory management reports

- [Instructor] There are many standard inventory management reports available in SAP. Let's look at the material document list report. To do so, we'll enter transaction code

mb51 and press Enter. This report is going to show every material document in the system based on our selection criteria. We'll enter plant 1710, and we also want to enter movement type. We'll click the MatchCode button in Movement type to see our options. We'll choose 101 to show all goods receipts at plant 1710, and we'll execute this report. We want to see the most recent document first. To do this, we'll click in the Posting Date column, and click sort in descending order. From left to right, we have our material, which is RM15, the plant, which is 1710, the storage location, which is 171C, and the movement type, which is 101, which is a goods receipt. Next, we have our material document number, the items, and the posting date. Finally, we have our quantity, which is 500 pieces. This is an interactive report, so we can drill down and look directly at the material documents. To do this, we'll click on the document number we want to view and click Material Document. This brings us into the Display Document view. This is handy if we want to see more details. For example, our report didn't show who the vendor was, so we can click on the Vendor tab. The Vendor tab shows us this was a domestic US supplier based out of Boston, and it shows the vendor number. To return to our list, we'll click the back button. This is only one of the standard inventory management reports in SAP. Let's look at some of the other available reports. To do this, we'll press Exit, and Exit again. This takes us back to the SAP Easy Access screen. We'll expand the Logistics folder, and then Materials Management. Now, we'll expand Inventory Management. Next, we'll expand Environment, and then List Displays. These five reports are compiled lists that help us get good insights into inventory management. We'll also expand the Stock folder. As you can see, there are many inventory management reports for each of the movement types and to suit your specific data needs.

Physical inventory process

- [Instructor] Physical inventory determines if inventory quantities in the system are correct, and flags discrepancies to keep the balance sheet accurate. Let's look in depth at how physical inventory works in SAP. There are four different physical inventory strategies that can be implemented depending on a company's needs. First is the periodic physical inventory method. This is where all stock are physically counted on a pre-determined key date. With this procedure, no materials can move during the count to ensure accuracy. The next strategy is called continuous physical inventory. In this procedure, stocks are counted throughout the entire year. Checks must be in place to ensure that every material is physically counted at least once over the course of the year. The third physical inventory strategy is called cycle counting. This procedure counts inventory at regular intervals during the year. Unlike the periodic inventory procedure, cycle counting can be configured to count materials that move through inventory faster to be counted more often. Similarly, materials that tend to last in inventory for long periods of time are counted less regularly. The final strategy is called inventory sampling. In this strategy, material stocks are selected at random and counted. This count is compared with the book inventory balance. If the count is close enough to the book numbers, it's assumed the

book inventory for other material stocks are also correct. We've gone through the different strategies. Now, let's cover the general physical inventory process. The first step is preparation. During physical inventory preparation, physical inventory documents are created, printed, and given out to the folks that will be doing the actual accounting. Materials are also blocked in the system for posting. This means they can't move anywhere until the process is complete. Counts are conducted at the storage location level, and a separate document is required for each storage location. The second step of the physical inventory process is the count. The count is where stocks are physically counted and the results are recorded on the printed documents. The third and final step is physical inventory analysis. During analysis, the account results are entered in SAP. If the results look to be way off, a recount can be initiated. After the count is deemed to be accurate, any inventory differences are then posted. These strategies and processes ensure that both inventory quantities in the system and in the balance sheet are accurate.

Create a physical inventory document: MI01

- [Instructor] The first step in taking physical inventory is to create the physical inventory document. Let's create a physical inventory document using transaction code MI01 and pressing enter. This brings us to the create physical inventory document initial screen. The first two fields are required and are auto populated with today's date. The document date is the date that the document is created. We'll leave that defaulted as today. The planned count date, like it says, is the day where the inventory count is to take place. We'll assume that the count date is also today. Next we have to enter the plant where the count needs to take place. We'll enter plant 1710. The field directly below it is storage location. This field doesn't have the red asterisk, but it is required as physical inventory is conducted at the storage location level. We'll enter 171C. Down in the other information area of this screen, we have the posting block. We'll check this. By checking this, we ensure that no goods movements involving the materials listed in the physical inventory document can be posted for the duration of the count. We'll also click the freeze book inventory checkbox. This freezes the book inventory balances of the materials we are counting. We'll press enter. Then we're taken to the new item screen. We'll enter the material we want to take inventory of. It's RM18. Many materials can be entered here to be counted, but for our purposes, we'll only enter this one. We'll now press post to create this document. The system gives us a success message that our document has been created and assigned a number. Usually, we need to print this document out to give to the people who are conducting the count. To do so, we'll go to more, physical inventory document, print. This brings us into a new transaction. This is transaction MI21 and one or many documents can be printed from this transaction. The document that was just created is auto populated for us, so we'll press the execute button. This brings up our print popup. For our purposes, we'll press the print preview button. In the header, we've got the plan, the document number, my user ID because that's the account where we created this document, and the

planned count date. Below we can see that this document has the material, the storage location, which is 171C and the status. This has not yet been counted.

Enter physical inventory count: MI04

- [Instructor] Once a physical inventory document has been created and the actual count has been conducted, the results must be entered into the system. To do this, we use transaction code MI04 and press enter. The first field is the physical inventory document that was created previously. If needed, we can search for this document, but we have it handy so we'll paste it into the field. Next we have to enter the fiscal year. We'll enter 2019. We also have to enter the day the count was conducted on. The system defaults this field today and we'll leave that. We're now ready to enter the count results, so we'll press enter. Our material and material description from the physical inventory document is auto-populated. This count was conducted on material RM18. In the quantity field we'll enter the results of our count and that was 6,184. We're now ready to post this, so we'll press the Post button. The system gives us a success message that our count has been entered for our physical inventory document.

Post physical inventory difference: MI07

- [Instructor] Once physical inventory has been counted and the results have been recorded, we need to post inventory differences. To do this, we'll use transaction code MI07 and press enter. The first field is the physical inventory document that we need to reference. We can always search for this document, but we already have it ready to go and we'll paste it in. Next is fiscal year. We'll enter 2019. The posting date is the next field and it's already populated with today's date. This is the date that the information is posted to accounting. We'll now click the navigate to selection screen button to look at the differences. First we want to look at the difference quantity field, which is now negative 25. That means we counted 25 less pieces, than the system thought we had available. The difference amount is $16.75. That means that our difference of 25 pieces, equals $16.75 in value in the system. The system is pulling the pricing condition from the material master record to get this number. Next we need to enter our reason. The reason specifies why there is a physical inventory difference. We'll click the match click button to search and we'll scroll down to 702. We'll choose reason code 702, because that's our movement type that's a goods issue against physical inventory and we'll choose 0003 damaged. We're now ready to post this inventory difference. To do so, we'll press the post button. The system gives us a success message that says the difference in physical inventory document has been posted with a material document.

Physical inventory reports

- [Instructor] Like in other sub-modules of SAP, the physical inventory area has robust standard reports available. Let's run the display physical inventory data for material report. To do this, we'll enter transaction code mi23 and press Enter. This brings us to the selection criteria screen. This report can be as broad or as narrow as we like. We'll enter material FG-MAT-01 and plant 1710. We'll now execute this report. We can see in the red header fields that this report is for small widgets at plant 1710. Let's look at the rows for storage location 171A. The first row is stock type one, which is valuated stock. The physical inventory for this stock was conducted on June 11th, 2019, and the current stock in 4,998 pieces. The final column shows that the physical inventory has been completed for this period. Moving down to storage location 171B, we can see that there is current stock of 600 pieces, and the physical inventory for this storage location still needs to be executed. This report has a nice feature in that we can see the value of the stock in the system. To do this, we'll double-click the first line from storage location 171A. This brings up the Display Stocks and Values popup. The blue rows show our plant totals. The current period has 5,598 pieces across storage locations for a value of $279,900. The next row down shows the previous period when we had 5,000 pieces at a value of 250,000 US dollars. The yellow rows show storage location information. We can see that we have 4,998 pieces compared to 5,000 in the previous period. This is only one of the standard physical inventory reports in SAP. Let's look at some of the other available reports. To do this, we'll close this popup, and press Exit, and Exit again. We return to the SAP Easy Access screen. We'll expand Logistics, the Materials Management, then Physical Inventory. Next, we'll expand Environment. There are some really helpful list reports in this folder. Specifically, the Physical Inventory Overview report with Tcode MIDO is really useful when we have a lot of physical inventory data, and we want a high-level view of it all.

Next steps

- [Justin] Thank you so much for taking this course. The SAP Materials Management module has a ton of functionality, so this course is only the beginning. I'd love to hear from you if you have any questions about your SAP training or organizational change strategy. I'm available through my LinkedIn profile. For a look at more SAP modules, check out my other courses available on LinkedIn Learning. Finally, the SAP blog is a good place to stay current on new offerings. I really hope this course has given you a clear understanding of the SAP Materials Management module. Thank you again.