Session Lecture-1 of this unit is 5 series. So, this is the last unit that is embedded software testing test management and this is the today's first lecture. In this session we will talk about test management basically we have studied about various aspects of tests in terms of test strategy, integration testing, test cases, procedures and examples and life cycle of tests how we are going to achieve as part of the development life cycle of embedded software system.

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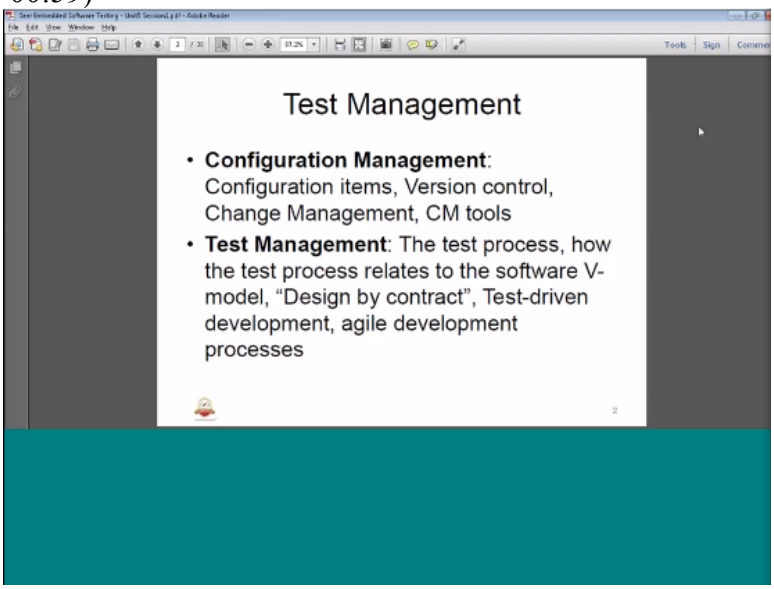

And as part of the test life cycle, test management is also an important aspect of the embedded Software testing. So how are you going to achieve this test management and on the other part of the test management is called configuration management. So, both of them we will study in this unit, we will take couple of all the instructions or little more. So, we will try to understand what is test management?

What is configuration management? Okay, so basically we will study about the test process. How the test process relates to the software cycle or V-model. We know that test process basically relates to the V-model because V-model is not just for the embedded software development. It is also for the testing. So, that V-model takes care of testing so we will study about the various V-model lifecycle like VN method.

Multiple V-model, iterative model and etc. so, this is basically the relationship of the test process it can be V-model. That also we try to study in what we assure here and also we have design by contract a method they use for test management. Then test-driven development is also some development in terms of understanding, providing the test groups. So, that the, operand can be complete with stability.

Now we will also study about agile development processes. How we can manage? What testing is? So, that is about test management. Also part of the test management the configuration management also we will try to understand. So, we know that configuration is one of the important items of the embedded software life cycle. So, you need to configure the various aspects of embedded software life cycle artifacts.

So, those item what are those items? How are we going to control it? How are we going to version it? How are we going change it or change management process how are we going to

apply? And what are the tools that are used in the industry for configuration management. So, these aspects we will study in the test management of this unit. Okay, now
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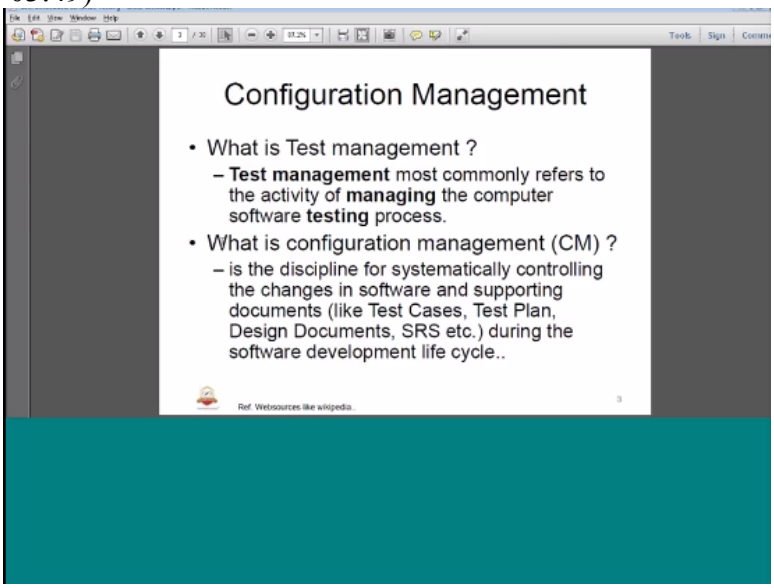

What is test management? So, in similar terms test management mostly refers to the activity of managing the computer software testing process. So, basically it is an activity for managing the computer software testing. So, that is what the test management does and refers. So, what is configuration management? So, configuration management is the discipline for systematically controlling the changes in software and supporting documents.
So, basically it is a process or systematic steps for controlling the changes in software because software may always we need changes. Tests means always we live with changes in tests. Test cases, scenarios, - scripts or different builds we would testing, different environment. So all this it could be hardware or it could be a tool or it could be software. So, change management or control configuration management can be applied on various aspects of the entire software life cycle of the tests basically because we are focusing on the tests.
So, what are artifacts we use in the tests of an embedded software system? So, that is what we do with the configuration management. So, basically it is the discipline of, discipline for systematically controlling the changes in software and supporting the documents. So, supporting documents could be test cases, test plan and it could be software requirements itself, design documents or a unit testing whatever it is. That is what we do with the configuration management.
In test management it deals with the managing the complete software testing process. How are you going to manage each of the process alignments of the artifacts? That is what is about test management. Okay, have you understood the definition of configuration management?
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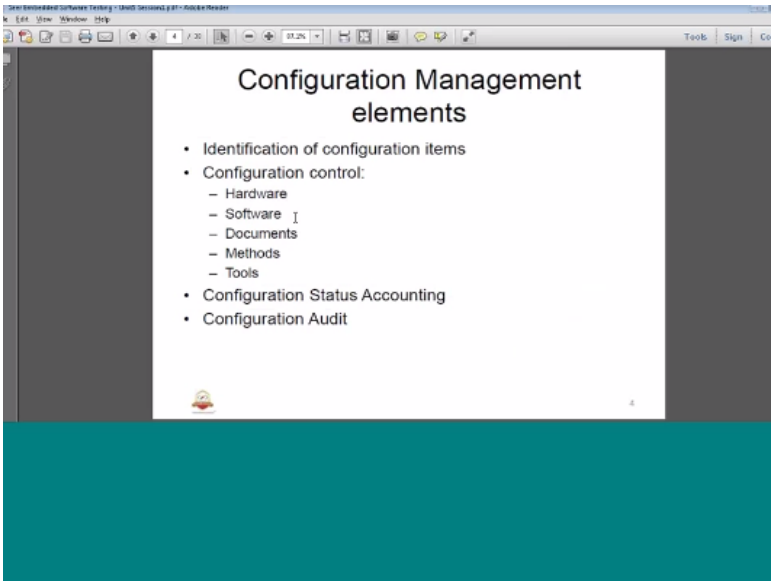

Let us move on to configuration management elements. We start with configuration management. Try to understand all the items of that then try to go through test management. Okay, so what are the configuration management elements? That is there in the configuration management process. So, configuration management has identification of configuration items configuration control.

Configuration control applies to hardware, configuration applies to software and it applies to documents, methods, tools. Next is configuration status accounting. So, that is one of the elements. Then it is configuration audit. So, basically these four are the basic elements of the configuration management process or the configuration management activity. So, each one what are it going to do?

We study in later types like identification of configuration item. Configuration control how we can control all the hardware, software, it could be documents, methods, tools. Then the next activity is configuration status accounting. That means they are going to generate a report in terms of. So, what are the configuration item available used, applied and accounted for the embedded software configuration.

And in the end how are we going to confirm it with this standard and all that. So, that is the type of audit. It is also an important item when you do the configuration management. Okay, the next slide is about

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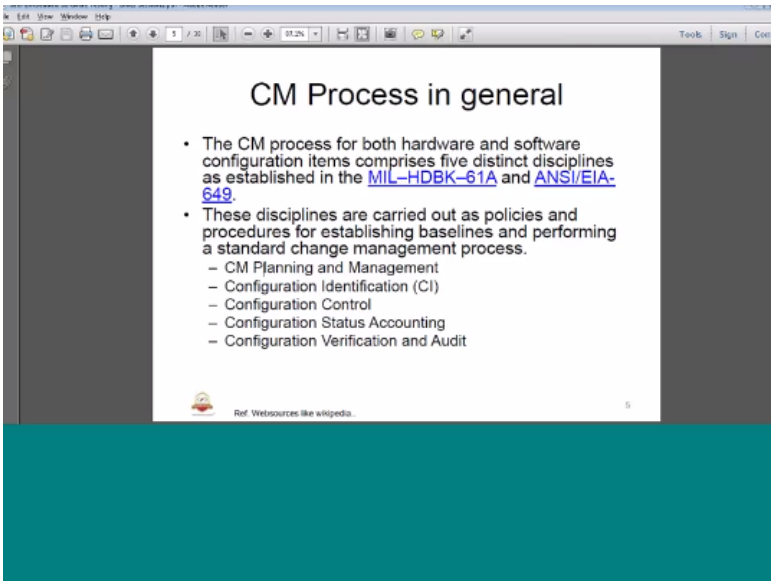

In general the configuration management process is also called as CM process. The CM process for both hardware and software understood it can be applied for both hardware and software. So, it comprises five distinct disciplines as per the standard military-HDBK-61A and the ANSI standards EIA-649. So, you can see the link you can go through that and try to understand with in detail. What it is basically?

The process for both the hardware and the software configuration items having five disciplines. So, what are those disciplines? These disciplines are carried out as policies and procedures for establishing baselines and performing a standard change management process. That means this disciplines are basically carried out as policies. That means a set of standards and procedures for establishing the baselines.

So, what us the baselines? We are going to study in the next slide. And perform the standard change processors standard change management process for this with the established process and standards we are going to carry out with disciplines. Those disciplines are CM planning and management. Configuration Management, Configuration Planning. Configuration Identification, Configuration Control. Configuration Status Accounting, Configuration Verification. And Audit.

So, basically whatever is the element that we have said in the general configuration management? Same these things have to be used. Here we can see there are in general four configuration elements identification of configuration items, configuration control, accounting and audit. Here we have additional step in terms of planning. So, planning is the first thing that we do around. So, we do when we define the embedded software testing project or product. So, we are going to have a plan.

So, that also should be carried out as the configuration process. That is what the additional process data are about in military standard and ANSI standard 61A as well as 649. So, we will try to study in detail about each of these five disciplines. Okay,

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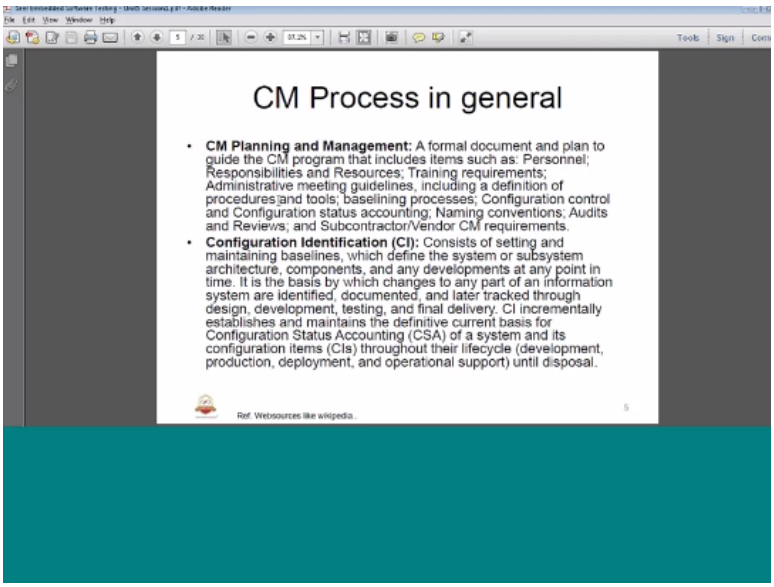

The first one is being the planning and management. So, we know that why we need planning. Okay, each of them will try to understand. So, The Configuration management planning and management the configuration management planning we need to have as part of the initial stage of the embedded software testing.

And we are going to manage the embedded software project or product entirely with the help of that planning document we can say it is a formal document. So, document will have lot of things what we have studied in our earlier units. Understanding the environment test, the process required everything the team can carry out for the embedded software testing. That is what we do with the CM planning.

Okay, the formal document and plan to guide the CM program that includes items such as personal, responsibilities and resources, training requirements including the definition of procedures and tools, base lining process, configuration control and configuration status accounting, naming conventions, audits and reviews, subcontractor or vendor CM requirements. So, basically the configuration management process discipline has the first step has configuration management planning and management.

So, as part of the planning, test planning we will also have a configuration management planning. This planning can be a part of that or its part of the processor but it the document can be part of that or it can be supplied to that. So, what we do basically is produce a formal document for this planning and management and we provide a guide or the pointers which are having personal that means resources. What is the team? Who are the resources doing which functionality?

What are the resources doing white box? What are the resources working on the manual testing? What are the resources are responsible for comprehension controlism? What are the resources which will help in terms of administrative activities? All this will be identified. Then we have responsibilities and resources. Resources could be hardware software personal what is it could be?

All this will be part of the planning. Then we will identify training. Sometimes what will happen is embedded software testing will lead to lot of training requirements like understanding some

processor, understanding a tool or understanding a client's specific assistance. So, all this are the part of the training requirements that also will be identified in CM planning. Then an administrative meeting guideline that is obviously tasks how to meet those things? Will also be providing then including the definition of procedures and tools that means how are you going to define?

How are you going to use the tools? Where we can find out process? All this will be part of this. It is a master flight basically the CM planning document. Then base lining process so we will talk about base lining in the next session or next slides. Base lining is the processes were we are going to identify.

And approve some set of an artifact and how are you going to arrive at? So, that information will be there in the base lining then configuration control and configuration status accounting. How are you going to control? How are you going to deal with the changes? How are you going to have different versions? How are you going to have different revisions? This is the difference between revisions and versions.

We will talk about that. Basically controlling that in terms of configuration and how are you going to report it or account for that each of the configuration control, is what we are going to define in the plan. Then each configuration items are even to name it. So, what is the naming conventions we follow for versioning it or revisioning it. That also will be spoken in the planning.

Audits and reviews, we will go to audit. How are we going to audit? There are lots of benefits with this plan because it complies with the lot of process quality all that. So, basically we deal with audits and reviews for this purpose. And if some embedded software systems or systems involved a subcontractor or vendor involvement. So, what are those configuration requirements that we are going to have?

What are the documents? How are you going to outsource them? How are you going to control the inputs or the deliverables from them? All this will be part of this planning. The next item will be configuration identification. This is also very important item. Part of the CM process or CM elements sorted is to. It consists of setting and maintaining baselines. Basically it identifies that define the system or subsystem architecture which components and any developments at any point in that.

That means it consists of setting a number in the baselines of the artifacts which basically define the system of the system components of system architecture or any test aspects or any intermediate developments or test designs at any point of a time. So, it is basically controlled. It is the basis by which changes to any part of an information system are identified. That means we need to have some item available somewhere right.

Because that item, is basically artifact which would be used for the continuous improvement or continuous development or continuous changes. So, without that we cannot do anything so that is to be available in some sort of a shelf. How are we going to have what is that called?

The daily routine something, like a file or receipt how are we going to maintain it. We are going to maintain that in a folder right or in a file some receipts.

And that receipts if you want to take out and provide for claiming in our organization they are going to use that. We are going to pull it and once we are cleaned it we are going to pull it back.

Right, so we are going to control it, those files or those receipts or some items. Another example I can keep you, you are going to.

And you are following in daily life. For example you carry out some activities like you go to office with the intention that you are going to carry out some activities. And you follow lot of process by doing this and you are going to control it right, so that control is nothing but in terms of process in software industry is called configuration control. For example if personal control what you are going to do is.

You take the vehicle you check the fuel, you will fill it up and take to office, you will park it and once your activities what is done within to un park the vehicle come back to home and park in a define place. So, basically a control limit and something is going to change that means the vehicle is disturbed or the vehicle that you travel has got some issues. So, you are going to modify something. What is that modification?

It could be a repair. So how I am going to do it? By defining what is the existing first? So what is the vehicle correctly you are having it or correctly you are having it and identify who can do it. So, basically you are going to control it in terms of identifying those things. That is what nothing but identification. So, here in the configuration management process it is called as configuration identification because basically you are going configure those aspects of the embedded software system.

Okay, so it consists of setting and maintaining baselines which define the system or subsystem architecture, components and any developments at any point in time. It is the bass by which changes to any part of an information system are identified this important documented and later track through design development testing and final delivery. So, ready delivery cannot or will not happen without configuration process and those deliveries will have definitely certain artifacts. Those artifacts are identified with the help of an identification process called CI or configuration identification.

It is very important. So, CI incrementally establishes and maintains the definitive current basis for configuration status accounting because that has to be reported and accounted for a system and its configuration items throughout their lifecycle until the project is closed or disposed. So, lifecycle could have development, production, deployment, operational support or it could be requirements, design, testing sorry coding and testing, finally delivery.

So, all this process life cycle will have some artifacts in terms of entry exit or maintenance etc. all these artifacts have to be controlled. That control will have identification is nothing but configuration identification. This is very important task aspect of same process. Okay, next one

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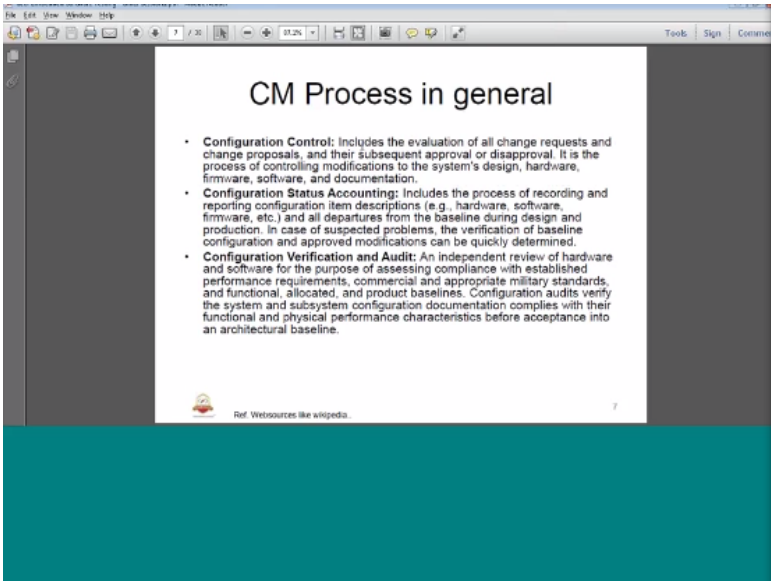

Configuration control so we have identified the configuration item sorry configuration identification with items what we have to configurate then we have to control it. So, as I said we need to control the identified items to the embedded software lifecycle. That includes the evaluation of all change requests and change proposals and their subsequent approval or disapproval.

So, basically this is what the control is. We need to control what defect has happened to the vehicle, our daily travel vehicle and what is the change we are going to have it and that change whether it is within the budget or economically we can take care in some other prestation all is can be controlled. So, that is what nothing but the configuration control is. So, this includes change request.

So, what is the configuration we are going to update it. What is the configuration that we are going to reuse? It is basically because of either the problem or it could be a changes. Changes could be due to problem or due to the feature. Yes. So, these changes have to be proposed first by the customer or from us who develops or tests and that needs to be approved and if there is an approval.

Then we are going to go ahead with the changes. If you are going to be approved they have to re-configure as the existing. It is the process of controlling the modification to the systems design, hardware, software, firmware etc. so, that is where the configuration control comes into picture.

The next one is the configuration status accounting. This basically includes the process of recording and reporting configuration item description. It is also an important item. We need to be base lining it or in to be statusing it.

So, we are in terms of configuration? So basically this process deals with recording and reporting the configure items and their descriptions. How they are configured? What are the parts available? What is that it has etc. so, example is hardware, software, firmware etc all is in a short description and all departures from the base line during design and production. That means if there is an update or if there is delivered.

So, that will have a report. That is what we do with the configuration status accounting. In case of suspected items or suspected problems the verification of baseline configuration and approved

modifications can be quickly determined. That means if you have the doubt some issues are there in on e of the item that we have delivered or updated. So, if you see the base line, the base line will give you a report of what is configured and what is delivered.

So, you can compare with that and any modifications that are approved or disapproved, we can easily check with that reference. That is where the configuration status accounting the development. The next one is the audit, configuration verification and the audit. So, what we do with this is an independent review of hardware and software for the purpose of assessing compliance with established performance requirements, commercial and appropriate military standard and functional allocated and product baselines.

That means we are outlying the plan about how my configuration is going to change update deliver etc. again is that whether I am doing the configuration baselines that is what we do with the verification audit. So, that will be done basically by independent peoples such as quality team.

Through the basically review and check against the establishment process and the process are defined in the plan, configuration plan against that, whether that configuration items are reported or baseline will be verified. Configuration audits verify the system and subsystem configuration documentation complies with their functional and physical performance characteristics before acceptance into an architectural baseline.

So, basically what we do is we will do an audit and verify the subsystem and system documentation. So, we have a check list out of the thing. So, against the check list item we are going to verify what is being artifact. So, that is what we do with the configuration verification and audit.

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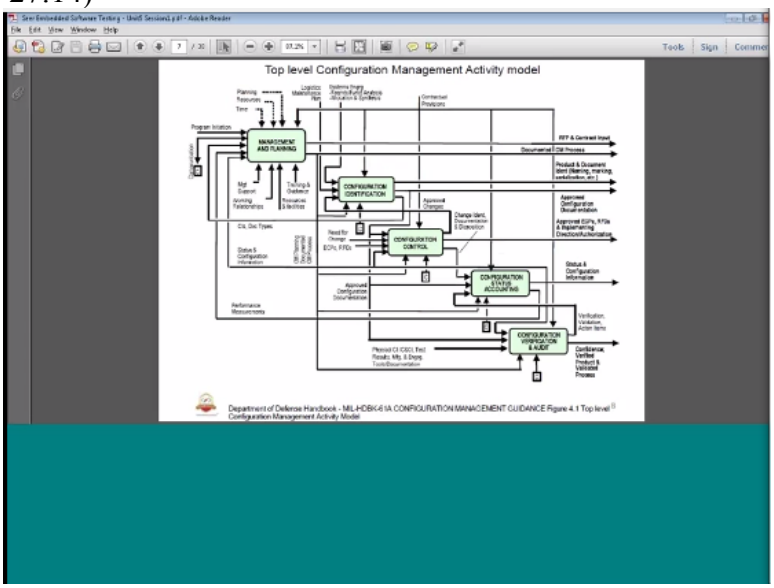

Okay, here is an example of top level configuration management activity model is basically they console Wikipedia you can see whatever we have seen before in the Configuration five basic discipline elements will be in the pipeline how they are going to be modeled. So you can 1, 2, 3, 4 and fifth one model and in the first one that is the management and planning upon program or prosicmentation we are going to start this activity.

There is a communication in terms of stake holders who are going to do. And time resources planning and all that we simply said into this process. And we require management supports who are conducting this activity? And we will have training and guidance. We will identify resources and facilities all this will be part of the management planning. So, basically the input arrow comprises what are the parts that are going to be there as part of this. And as the output of this it can go as a request for proposal or contract inputs.

So, somebody as asked to do is we are going to come up with this output and if we are going to request a vendor or something, we are going to request them with respect to request to proposes. So, details of RSP and all beyond the scope of this. Basically we need to understand the output will be there as part of the management planning, this will be a document formal document. That will be established that will be used across the life cycle of the embedded software testing in terms of configuration, configuration management. So, this is basically a same process the output of this.

So, upon management and planning of the CM or the configuration management, the next step will be, we are going to identify the various artifacts of the life cycle. What is been told in the earlier session configuration identification. So, this will have logistics maintenance plan that means whatever the artifacts that are going to be used in the entire project life cycle. And also it can take inputs on systems engineering requirements functions analysis allocation synthesis all this will be the part of the configuration identification.

And in the configuration control baseline will be that also can be identified as the CI. This planning document also can be a differently designed CI. The next one is the configuration control. Once we identified all the CI's we are going to have the configuration control why because we need to have the changes applied on this CI's. So, those CI's will be controlled which are going to be identified as the change. Which are going to be updated throughout the lifecycle of the embedded software testing?

So, contractual provisions approved changes and then identified and in this position symptoms of the documents and duplication. And entry and exit criteria all this will be part of the configuration control. The next model, the next process will be configuration status accounting. So, which will take inputs from different artifacts such as CI's and control outputs and reset status and configuration information has an output that will be produced as part of the accounting.

It is basically a report. Once the report is ready this will be fed into the verification and audit. So, as part of the process that we have get out of the planning and we have CI's and we have the control all we are going to do, all is will be reported here in the accounting and against the planning, against the guidance this will be verified with that the same thing have been reported. So, physical CI configuration it or CSA it is also called as the computer software configuration item.

The test result manufacturing, engineering tool, document tool all will be the part of the input against that it will be identified. So, this will basically give a confidence that the product is well controlled, configured and packed that we have the usefulness of this model. So, this is basically

good process model is defined in the department of defense handbook. MIL-HDBK-61A, the configuration management guidance figure 4.1 in that book talks about this activity mode. Okay,
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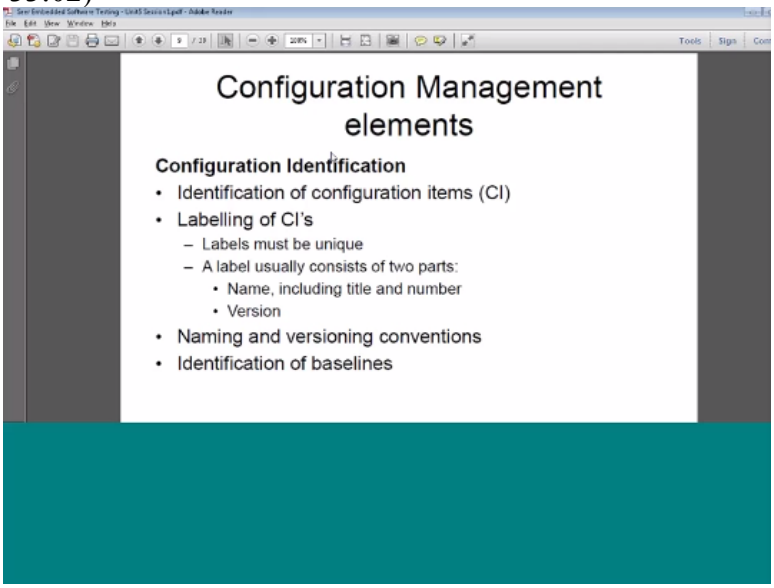

Now we have gone through the various elements. Let us try to understand each of them maybe in detail in the next lecture part. At least we will try to define that. Okay, configuration management elements, configuration identification of configuration item. This could be a test case, test design or any requirements. Any of these artifacts which are in the physical form or which are in software format or soft form or whatever the form it is there those need to be identified. T
Those are called CI's. So, each CI will have a label. So, in that label should be unique. That means we are going to identify the software such as, or tool revision A. so, will be unique label for this. Unique label for software build. So, every CI's CI1, CI2, CI3 whatever you are going to have should have a unique because we should be able to differentiate with the each of the CI. So, it is where need to have a label for CI.
A label usually consists of two parts, its name including the title and number and a version. You can see the title and its number and a version. So, each label will identify a version basically the version could be 1.0, 2.0, 3.0, 3.3 etc. this can be a label and there is a difficult to be in version and revision basically we will try to understand that in future slides. So, basically the label should identify the name of that particular CI and its revision or version.
So, this should follow a process or it should follow a convention that is called naming and versioning conventions. There is a definite process of identifying naming and version that we need to follow. And also we are going to have an identification of baselines. Once we have all the CI's out of it, we are going to have one baseline, first we have the baseline 5.0 for example 4.0his can have software item xxx hardware item yyy or software item 1, 2, 3 all this can be labeled under one identification baseline.
So, that is what they are going to have the identification of baseline under configuration identification. Next configuration control so, configuration control basically has
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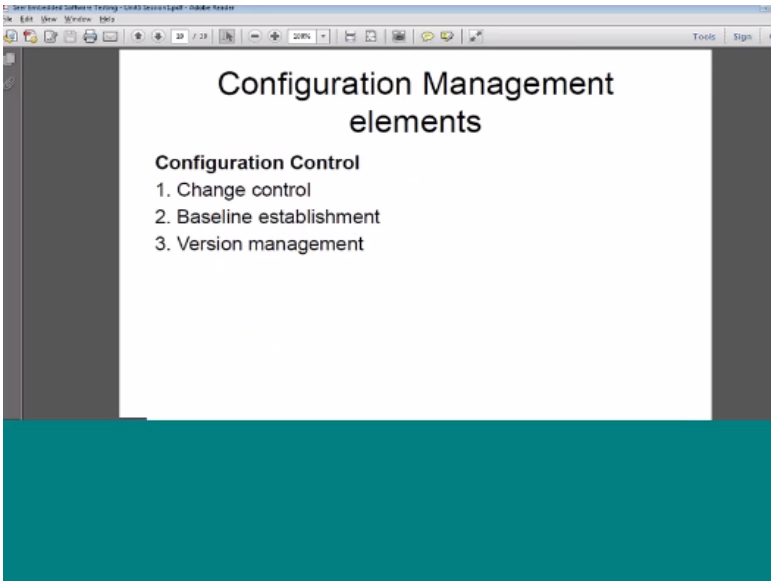

Change control as I said any artifacts which should be able to change. Which should be able, to change with the control. So, the change could be because of multiple resistances. Maybe I can explain in detail in the future slides and again we will touch case these slides. The changes could be due to faults or issues. So, these issues are resulted in modification changes. The changes could be in terms of new features.

Right customer as told to add different feature and some improved version improved improvements it can be or it could be an environmental issue or hardware changes have happened. All this have to be basically controlled. So, what we are using there? And what is going to be changed? This is to be spoken about. That is all part of the change control. And the next one is baseline establishment.

So, each change we will identify one baseline, as I said in configuration identification. They want to identify the set of changes. So, we have a set of features having 10 features in one product. And we organized it and this the customer demands in that we add two more features. So, we have added two more features combined with to a 12 features. So we have earlier list 10 feature as one baseline and in the future version we have released as a 12 features as the next baseline.

This is what we are going to establish, identified of the baseline. So, this is what we do with the base line establishment. This also has to be controlled very well. That is what we do with the configuration control. The next one is the version management. So, what we do with the version management. This is also very important. Each change supposes we have identified change in the feature.

So, this basically identifies the change in software 1, software 2 and software 3. Maybe in basically 1, 2, 3 are something like models. So, such model as to have it is own changes right so how we are going to control. So, we are going to identify a software 1.1, software 2.1, and software 3.3. Because already there was a revision or version available for 3.2 and we are going to update with the incremental changes.

That will become another region called 2.3. So, this whole bunch can be one version. Configuration software version B because we have changed from A with the feature 1 added an

impact on these three models. So, these called a version. This is also very important to understand, we need to control this version management because based these versions we are going to test it.

And release it and same thing is being used with the customers. So, we need to have the configuration control in terms of change control, baseline establishment and version management. Next one is the configuration status accounting.

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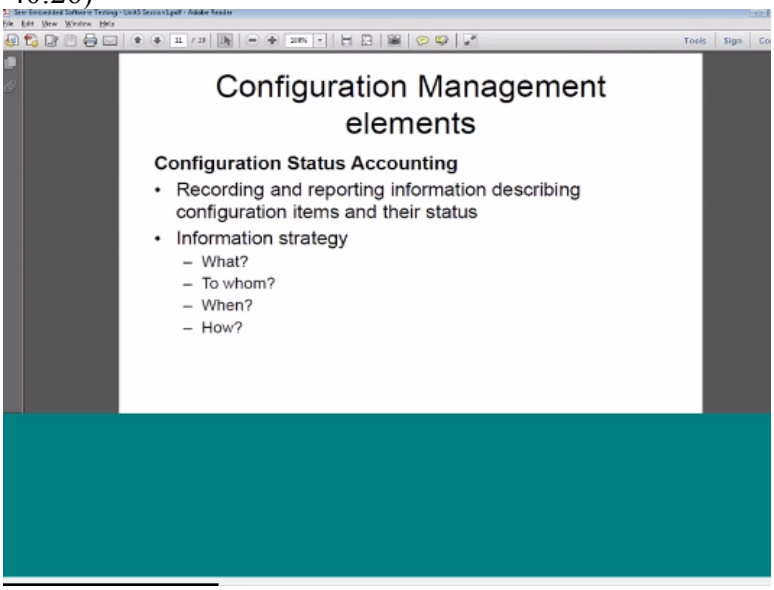

As I said we need to record what is being configured? We need to report information describing the configuration items and their status. At least the status could be baseline or it is an impropriates or waiting for review all this will be reported. So, the status of the configuration can be as per, depends on again how we are going to define in for the particular embedded software and again depends on the kind of organization.

That we have and kind of instruction that is there for the process. The process could have for the configuration items such as CREATE, UPDATE-DRAFT, UPDATE REWORK because the draft is done it can go for a review o I will say or DRAFT REVIEW and REVIEW-REWORK and UPDATE-FINAL REVIEW and it could be updated for BASELINE. Something like this, different stages of configuration item can go through in the process.

So, every item will be going through the configuration process basically because we are in defined configuration identification elements and each element has to go through a different process such as CREATE, REVIEW, REWORK and RELEASE. It could be baseline or it could be RELEASAE or COMPLETE. So, these are the stages of the configuration elements. All this will be for each of the configuration this one configuration have put here can be for multiple CI's.

All is have to be reported in terms of where are we in terms of configuration status. How much we have configured? What is the allowance system? So, all this will be provided as part of the configuration status accounting. So, the information strategy could be what is there? To whom it is addressed? Or to whom it is available? That means DRAFT is ready for whom? Who is doing the review?

Who is doing the rework? And it is under the final review and who is going to reviewing it? And also we can have when we can additional information like at what stage it is going to have for the next update? Similarly we can have how information also. How it is going to be done? All this will be the part of the configuration status accounting. Next one is

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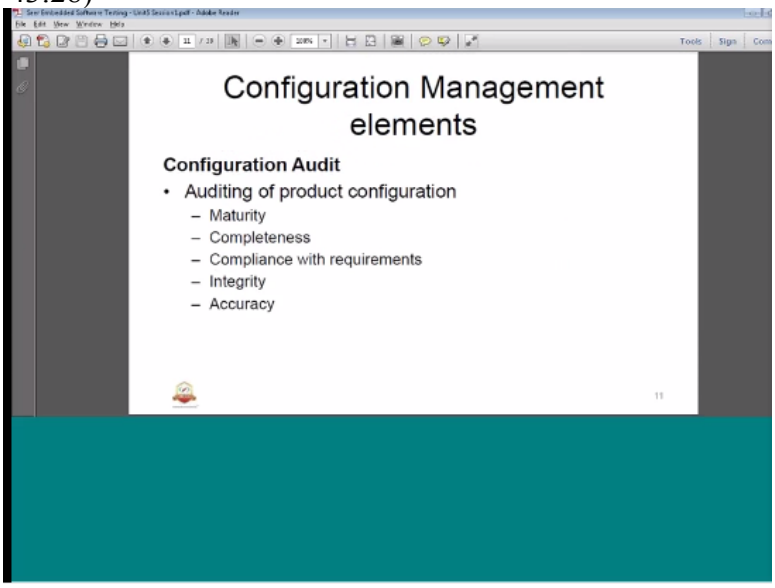

Configuration audit this is the last element of the configuration management. So, what we do with the audit is, auditing of the product that is being configured. So, we will see the standards and the procedures that is being established in the plan configuration element plan and against that whether the configuration items are available. We are going to audit it. This will be basically done by the quality team.

So, they are going to check for the maturity of the configuration items. They are going to see the completeness of the configuration items whether it is complete or incompliance or it is not complete. And it is going to check for the compliance with requirements. That means whatever the requirements that has per CI whether it is calling compliance with that we are going to check it and integrity.

That is completely integrated. And it is not partial or it is not fully available. Those things will be the part of the integrity. Then we are going to check for the accuracy whether it is accurate in terms of what it is suppose to present. So, all this will be done with the help of audit called configuration audit. Next one is yeah that is the five elements of the configuration management elements. Next we have

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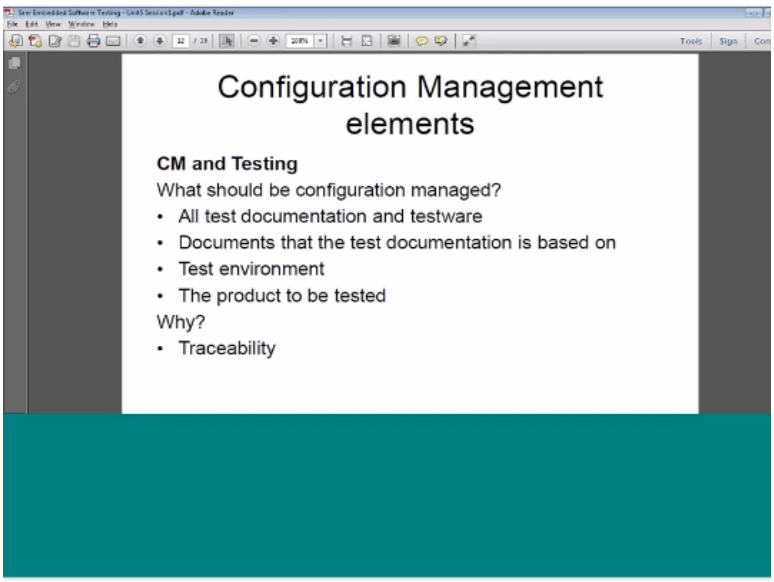

Configuration management testing so, this we talk about testing aspects. How are you going to have a configuration management testing? So, what are we spoke about there is in general configuration elements this can be applied for software hardware tools and everything. We will focus on testing aspects of the configuration management. Of course we have another term called SCM that is called software config management in today or next session. Okay, so what should be configured and managed.

What should be configuration managed? All test documentation and test ware. That means we note that we have right from test planning, test cases, procedures, tips execution, results, logs, time standards, defects and fixed issues, re-tested artifacts all this will be part of the documentation we are going to have a measured the configure and management systems. Documents that the test documentation is based on that means what are the documents? Input documents that we are called to us all should be under configuration.

Any references of course. Test environment. This also should be configured because we are going to use the set of environment in terms of tools, hardware or any software piece all should be controlled because we cannot have an uncontrolled environment and control how we are going to achieve is to the configuration. So, each element of the environment will be configured the product to be tested.

The product in terms of what product we are going to test it? That also should be configured completely. And why all these are required is? Traceability that means we are going to trace each of these artifact against certain baseline and certain geris and certain commitment that testing has to take here for a particular activity. That is what we do with the configuration management testing aspects. Okay,

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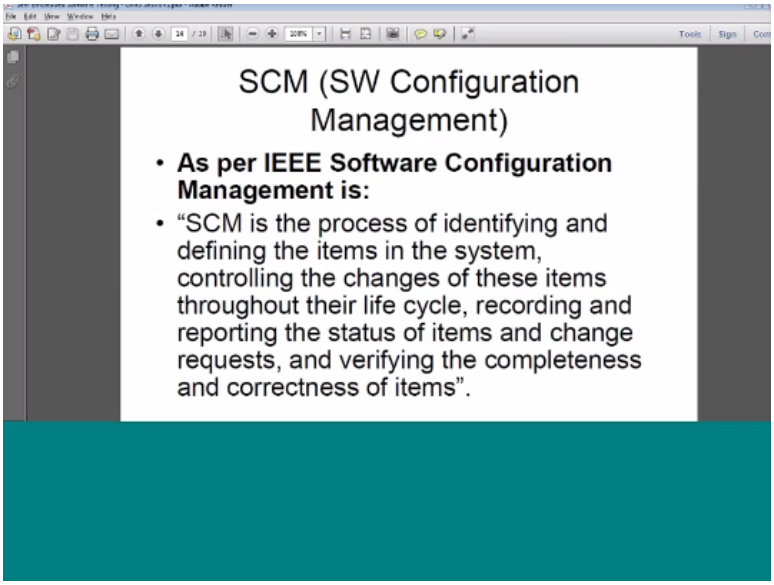

The next part what I said is the SCM software configuration management. It is also an important part of the configuration management. So, what is software configuration management? It deals specifically with the software. So, as per the IEEE software configuration management definition goes like this. SCM is the process of identifying and defining the items in the system, controlling the changes of these items throughout their life cycle.

Recording and reporting the status of items and change requests very important and verifying the completeness and correctness of times. So, all is basically divisible with the same thing. What all we defined in terms of planning and management, CI configuration identification, configuration control, status accounting and verification or the audit? That is what SCM talks about. So, SCM is the process of identification, configuration identification, defining the items in the system, configuration control of the changes of the change requests that are going to happen for the entire lifecycle of the software.

They can maybe add software lifecycle. Okay and we need to record and report. That is what status accounting process it does. And the last one is what we do is with validate or verify the completeness and correctness of the data. Whatever, we spoke about in the audit and configuration, auditing the product configuration in terms of compliance to be required. That is what we do with the software configuration management. Okay, so why we need SCM the software configuration management.

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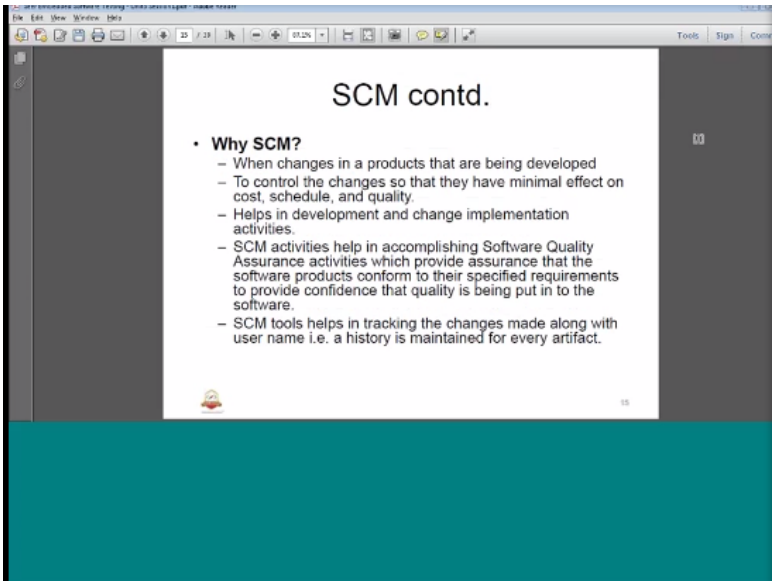

So, when changes in a product that are being developed. So, when are we going to apply the software configuration management is that we are going to have one baseline, one set of items configure. They are going to apply the process when there is a change. Change of what the Change of the products or the artifacts that are been used. So, why SCM is here is required when there is a change to control the changes.

It is not just enough to have the changes available. That should be controlled. So, that they have a minimal effect on the cost change, schedule and quality because if you have well controlled changes and its impact on its updates is easy to manage it and once we have easier manage of aspects of the embedded software testing. So, the effects of that will be the minimum and effect is to be minimal on the cost, duration and schedule and the quality.

All these aspects will be taken here when we have a proper control of the changes. And the SCM helps in development and changes implementation activities. Basically with the help of SCM we can do a development and change implementation easily. SCM activities help in accomplishing software quality assurance activities which provide assurance that the software products conform to their specified requirements to provide confidence.

That quality is being put into the software. That demands the quality team can do their aerate verification are use the standards and all that against the certain artifacts and those artifacts are well controlled and configured it is easier for them to accomplish. That is what it means. SCM tools definitely are going to be used for taking care of the SCM and that helps in tracking the changes made along with the user name that has changed? This tool can identify. What is the version?

What is the history? If Either 1, 2, 3, 4 version of the particular software tools that has gone through lot of changes. Entire history of those changes can be tracked and it can be seen. That is what we can maintain it with the help of SCM tools. That is where the resume has to be imp leased. So, this can be done only every artifact for the embedded software testing artifacts. That is what we do with the software configuration management.

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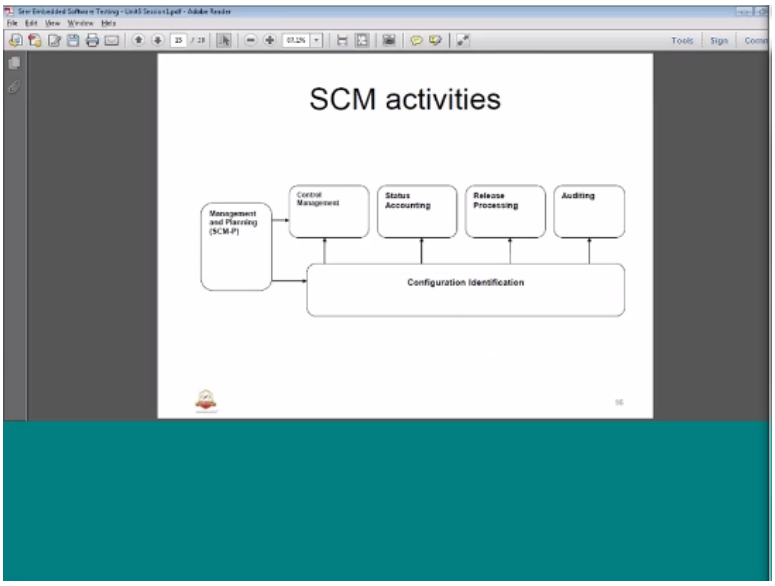

Okay, here is a flow of SCM activities. So, what are the SCM activities? You know that there is a software configuration management; software configuration planning it is called SCMP. Then we have a SCM which is software configuration management. Then we have status accounting. Basically control management sorry. The next step is status accounting then we have a release process.

Then we have an audit. All these are surrounding the configuration identification. So, that is what we do with the SCM activities. SCM is a control box. Okay, the first on being SCM planning next one is software configuration identification, software configuration control, software configuration status accounting Software configuration audit.

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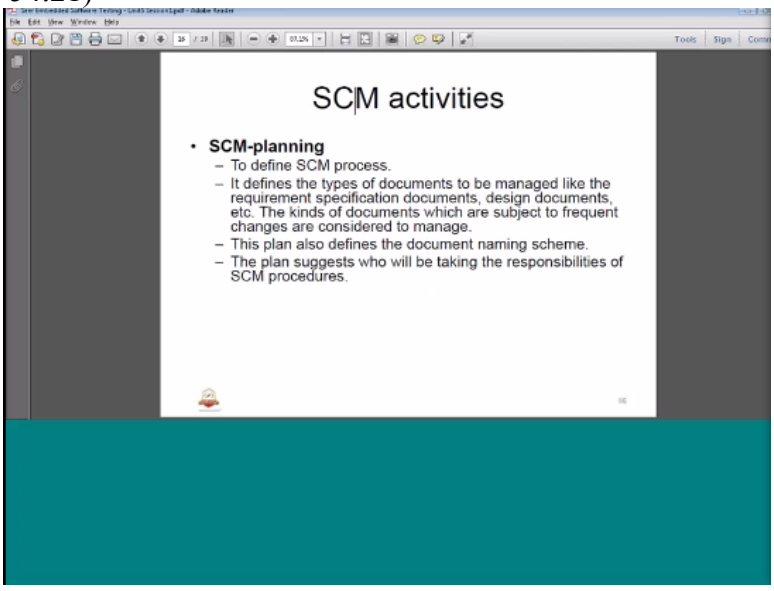

So we will try to study in detail about all these.

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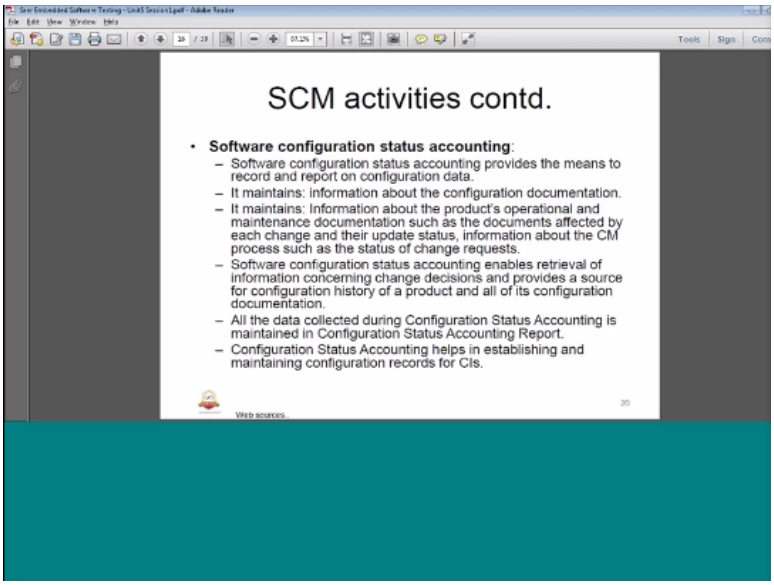

And we will try to study the process

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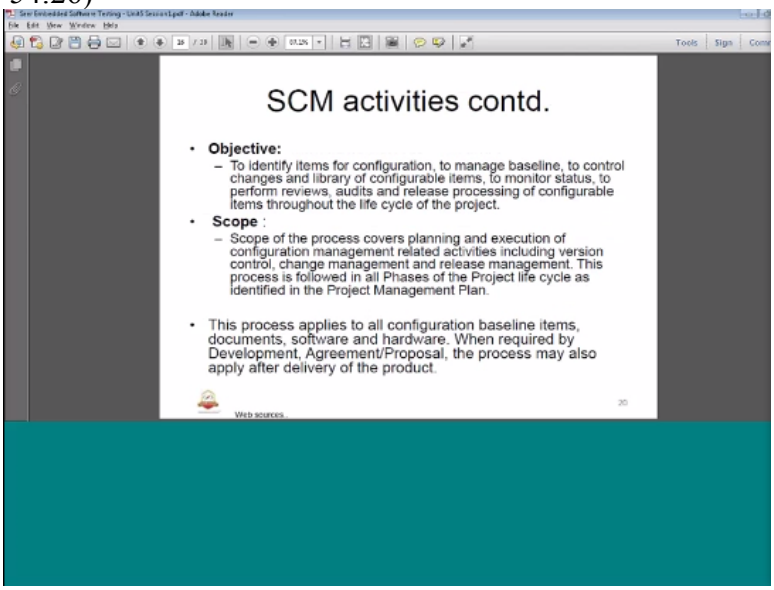

Example of a software configuration environment typically followed in an embedded software industry.

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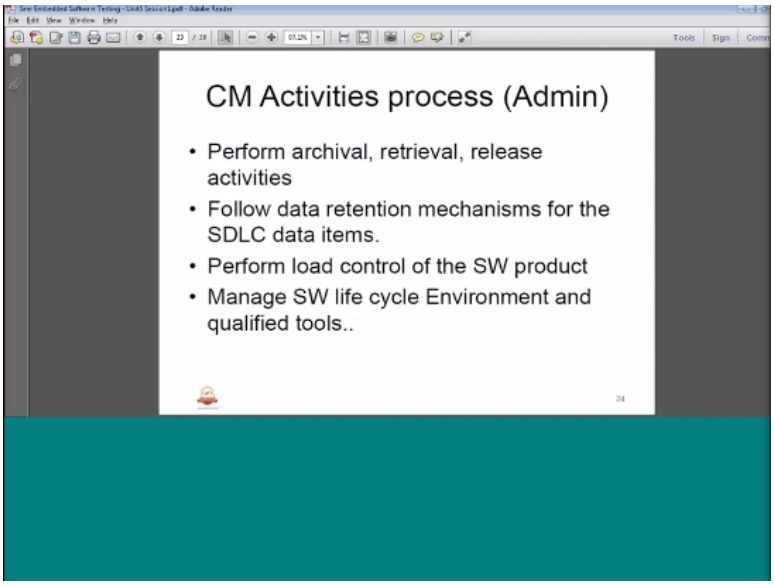
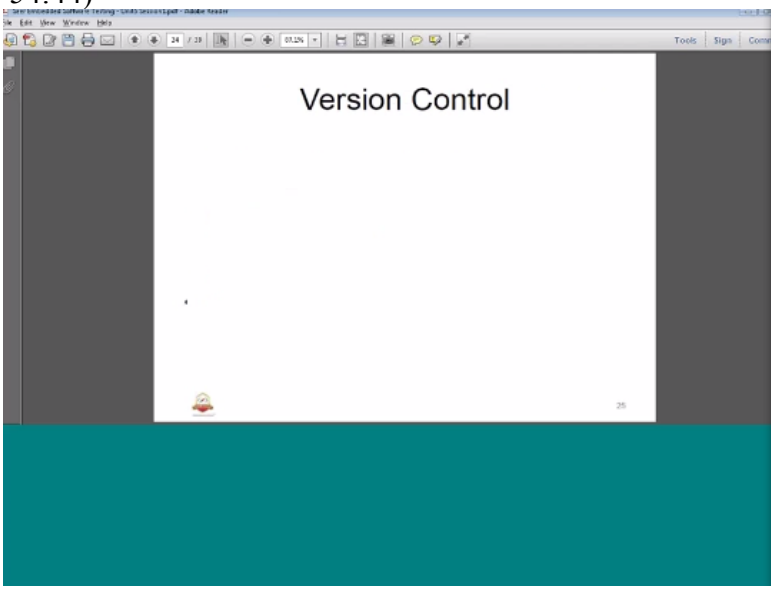


Also we try to understand what are the roles at been of software configuration management does. (Refer Slide Time: 54:44)



And we also try to study about version control and their details in the next class. So, to conclude we studied about the basic elements of configuration management and we understood what the configuration management is and test management? And what are the elements of the configuration management? And how it is modeled? And how it is controlled in terms of various spaces of the configuration management? And also we detailed about each of these configuration planning, control, identification, status accounting and audit. And also we studied about software configuration management. We will try to study more on about SCM in the next session. Thank you.