when we are talking about EBS it is imperative that at some point in time you would want to take a backup of that EBS volume because as a customer or a user of historias you create some data and that data is valuable or for compliance reasons or military reasons you would want to take a copy of the data and preservative what future use or for audit purpose so when you are talking about EBS snapshots is your answer for your questions of how do I take a copy of my data how do I store it how long should explore it so whenever you create a snapshot it is a point in time backup of your modified volumes so if you have a 10 GB over disk and if you are using it only for 4 or 5 GB I mean creating a snapshot only those 4 or 5 GB of data is going to be copied the snapshot will say thin GB but it is going to have only the modified volumes inside it and snapshots are incremental by nature so tomorrow in the 10 GB disk which is 4 GB utilized and tomorrow you go ahead and trigger another snapshot when there is no changes on your disk the new snapshot will have very very less data or no data at all just the metadata will be there for that this so and let us say there is 1 GB of modification on the third day and you take another snapshot so the only additional 1 GB will be copied over to your new snapshot so that is why snapshots are incremental and you can go ahead and restore any of those snapshots in any order you want say you want to restore your second today's snapshot you go and restore it and you will get all the modifications that was done up to that point or in other words all the data that was stored up to that point and you can go ahead and delete any of your older snapshots the day one also and still you will be able to restore your data completely because the data gets moved to the latest snapshot I will show you how this happens in the background in a short while for now just understand that you can delete or hold this is nap charts but you will still be able to restore all your data without losing anything and people use snapshots for a lot of purposes for example you can build an image nothing but an operating system plus customized installations of binaries applications package it all in one file and call it as a snapshot and you can ship it to your production deployments or other environments sometimes what happens is developers sit in one can free and then create snapshot and it gets sent to the customers our partners in another AWS region so that also you can do with snapshots so easy to server is there I have installed web server I have copied some packages so that when I hit the qrl that I've shown here it opens up my nice page so what I want to do is I want to package all these things into a single ami and I want to share it with my customers or end-users so in other words I'm going to create an image am I out of this volume now so what I can do is I can go and select this volume and then click on actions and then under actions you will find something like image and you can go ahead and click on create image after that so it is going to ask you some metadata saying what is the image name so I'm going to call it a custom image for web server I'm going to put it as the same description and this is a field I said to stop the i/o in when you don't want to take an image and you want to stop the i/o this is what the only option Amazon gives you whether you want to reboot the server or do you want to create an image without rebooting disable so if I put a tick mark here it will take the image without rebooting so the file system integrity is not a guarantee so what I recommend you is go ahead and don't do this so let Amazon give us a brief pause to the volume and take a image so click on create image and it has taken the request you can see here it says view painting image if you click on that it will take you there and let's just not do that right now let's close this and on your left hand side you find elastic block store volumes and snapshots but above that you will find something called am ice usually the ami steak about a minute or two of what the processing to get completed and appear here so let me just go ahead and pull it down and you can see here my custom image for web server is getting created and status will be shown somewhere here there we go is the status and it's going ahead and copying all the data into my s3 bucket and packaging it as an image now so what I am going to do now is I am going to volume section and if you remember this is my crew volume my entire operating system and all the data contained is in this root volume now and you can see here it is attached to this our PLC snapshot the more one a if I go here let me go to instances here and keep this as the first tab this is my server and this is my instance ID let me copy that and I am going to filter it based on my instance and you can see here this volume is attached to my instance I am going to click on actions and the actions I will have snapshot so it is going to ask me what I want to name my snapshot so I am going to call it custom web snapshot Y and here once again there is a tricky aspect of it when I created this root volume the root volume was not encrypted at all so when you are taking a snapshot from an unencrypted volume the outcome that is a snapshot is also going to be not encrypted so if you want to move it to an interpretive all yoom the only way to do is you create another volume and when you are creating it make sure that you are encrypting it and copying your data manually from unencrypted to an encrypted state so you cannot directly just go ahead and take a snapshot and during that snapshot you can go ahead and encrypt it know that it's not possible at all so in this case the encryption option is not even given for me so it is no go ahead and create it so click on close and now if I go to my snapshots section I should be able to see a snapshot let me go ahead and in it and you can see here what I did if you can understand it that is to snap yourself but I took only one and if you remember this is the one that we just now created and there is another snapshot also for every image or it for every ami that we create that is an automatically a snapshot is created because that is how the storage is allocated for you this after all is created and from that snapshot and ami will also be created if I go to my ami section you will find it some same description as this one you can see here the description says create by create image command from this instance for this am I am for this volume if I go to my ami section here and here also I should be seeing something similar probably it is not saying the same thing but the description will have that do I find the description here I'm going to create an additional volume and attach it to my server create a very very simple file and then we are going to create a snapshot and then we are going to attach it to another server and see whether we can consume that volume also now so create a volume let us go ahead and with 1gb is fine I see here I'm going to choose an encryption now and I'm going to leave it as a default once again Amazon fetch a second ways it's not travelling along with it that is strange I have only one key in my account the default the EPS key if you have added other keys it will also appear here so let us go ahead and choose the default key and almost all of us will have a default master key in our account and we should be able to use that so tag your volume and I'm going to call this as encrypted of 1gb volume and add another tag for owner and then I'm going to say mystique and then click on create volume and now we are going to go faster to say that I'm on to why I am new volume to be attached to my running server did I make a mistake of creating it in a different available to zone I just wanted to be in 1a because my server is in one year okay great my evolutive zone is also in one hey go ahead and attach it attach and I'm going to go to my server I got disconnected let me do connect again suppose you LS block so that is my new disc of 1 GB in size I'm going to create a file system now xvt F create amount point I'm going to call this 1 GB world and we are going to create a file saying let us call this as snap file so we have created a simple file system and we have created a simple file also what I am going to do is I'm just going to unmount this guy now and I am going to create a snapshot from my console now so there is only one file created remember this let us go ahead and create a snapshot I don't have to unmount it but it's ok create a snapshot and you see here the encryption option is by default enabled because if you remember when you created that volume we enable it encryption option and from income unencrypted we cannot just like that jump and um as well make sure that that doesn't happen by not giving you the choice now also so this is an one jeebies snap from 1gb volume see if I go to my snapshots now I will see one more snapshot here what I am going to do now is I'm just going to add some more data and I am going to create another snapshot let us go ahead and do that as well great anyway oh yeah anyway you crazy some sorts let me just mount it again okay never got unmounted anyway we I was in the same directory so it never got unmounted so not a problem so we took one snapshot of this volume I am going to add one more file that is say copy it is quickly into two so I should have two files now on my snapshot on my volume now so I am going to trigger one more snapshot go to volumes go to encrypted volume and I am going to create a snapshot now and you see here encryption is enabled by default snap to 4 1gb volume and if I go to my snapshots you see here that is getting created this is now volume that I created some time back and this should have only one file and this should have two files I'm just going to say 1gb to file volume so this is all I wanted to show his point in time back up if I'm going to create a restore this data or attach this volume to any server this is going to have only one file and if I'm going to restore this snapshot it is going to have two files that's all I wanted to show here if I have to attach it to another server let me just go ahead and create another server I wanted to make sure only one detail it should be in public abilities on one a you can review and launch lunch it is getting created if you I remove this let me just say mmm what should I name this one so - so my server - is getting booted and let me copy this IP address and then create another session for this over as well no not this one later to get deported okay just booted now as of now there are no discs let me go ahead and attach that volume in the console so we need to first of all when you want do that attach this to GV snapshot you need to create a volume out of it then only you will be able to attach it so to create a new volume you go ahead and select the snapshot click on create volume and once again you see here it was an encrypted disk and by default this option is selected and other options are there if you want to go ahead and change your availability zone remember I said you can move a snapshot from one region to another region so this is how you do it when you are creating a new volume just choose whichever availability zone you need and if you want to increase the volume and also you can go ahead and do that but don't try to decrease it it will be might corrupt your data so go ahead and click on create volume a volume has been created let me go ahead and filter it click on attach it's still creating so go ahead and attach it and I want to attach it to my second server now and click on attach and remember this file system is the volume has a file system sold that is not formatted and lose the data let us go ahead and just mount it not this one I want to go here so if I do LS block here I should be able to see my 1 GB disk mkdir different piece as where let us say I want to call this as to file volume X PDF and you see here both the files are there so that is how a point-in-time snapshot works so I am going to what I am going to do is I am going to create another volume from the of volume of snapshot which has only one file I'm going to attach it and see how many files are going to be there so let us go ahead and do that as well go to snapshots and I'm going to create a volume from this one and then make sure it is in 1a I just want to have this field at least them so that if my costing happens properly volume from one file snap it is still creating let it get created okay let us go ahead and attach second server click on attach so that s what is happening let us go ahead and do LS block now I will have one more you see here X vtf is mounted here so I'm going to mount this kind of mkdir - P slash my one file volume X vtg and you see here there is only one file on this volume so that is how you create point in time snapshots create volume from those snapshots and mount it to another server and then you can go ahead and use your volumes on data anytime