



Speaker 1

Today is session number one of our development on Creation Platform Guided Learning. My name is Dmytro and I'm from Creation. So working as a trainer for many years and working in Creation for more than 18 years and quite a lot and I plan to share some experience and Creation development basics with you. So we have a set of sessions, 10 sessions are planned. Each session will take from two to maybe 2.5 hours, so it will be more or less easy to include it into your daily schedule. For such two weeks. Each session will be finished with the video recording, so you will have videos that you can process and even if you miss some sessions, you can watch videos and do all of the exercises yourself.



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At the end of the course for some of you who would like to we will perform individual development certification. So it's kind of exam where you can show your skills, you will make your homework, prepare for the test and finally some of you will become certified Creation developers. It is expected that in order to become a developer you should have some experience in programming in JavaScript in C and also some experience with the database will be a great plus. Today we will do first steps of our development career, so we'll discuss how general development is recommended to be performed in Croatia, what are the environments, how to set up our own environment and also we will probably switch our own environment in a special mode which will enable full available set of tools for developer or creation.



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Then we will work with packages with version control and enable git integration. Next sessions will include working with object model, making data items, using some bit advanced examples of working with object, connecting it with database views and so on. Then we will switch to work with UI user interface. I will tell you about new Freedom UI user interface and Classic ui. I will explain different differences. We will mainly focus on Freedom ui. Some examples will also come with older legacy classic UI stuff and we will do some programming in client side. We will work with actions with buttons, programming our own handlers, making business rules, making validation and do some other things in client side.



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And then when finished I will show you server side programming in C Sharp and server side includes programming with data model, working with database, writing your own C scripts, making your own classes of course integrating with modern powerful tools like Visual Studio or Rider and I will show you how to debug, how to process object events so how to do different server side things. Then we will work with classes with web services moving towards integrations. I will show you different examples and also we will see standard integration tools that are available on board of Creature Platform So you will see odata, you will see data service. I will explain how to call third party web services from Creature and we will talk a bit of creation, maintenance and some supporting tools like Clío Utility.



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I will show you examples of working with Clío of its functions and explain how you may improve your experience and in general how you may do your actions more efficiently if you operate with Clío. At the end we will take some time to prepare for the exam. I will explain you how homework looks and what it includes and how to perform this, how to prepare for exam test and finally I hope some of you will be ready to get certified. We call it fast track certification because you spent probably two weeks for our developer sessions. Then you will take probably two or three weeks for preparation for the exam. Then we will have individual sessions with some of you to check homework and run exam tests and that's how you will get your certificate. And creation certificate is valid for two years in case.



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If you have any questions, please feel free to ask at any moment of time in chat or using your microphone. Whatever works better for you. Today we are doing first steps on Creature platform, so I probably need to explain what it is in very general. So Creatio is a website heavily connected with the database and it's mainly designed to work as an enterprise level data management system and business process automation system. It has a lot of different functions inside. We will study some of them and also what you need to remember first about Creature. This is very flexible system so you can easily set up new entities, you can easily change the shape of existing items. You have plenty of no code customization tools which actually do not require any special developer skills. But also it has settings that can be used with programming.



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So it also allows you to program and make more, let's say complex and more efficient solutions on the same platform. We will study how to install it, how it's recommended to work with it, how to make a local environment and a lot of steps with our 10 sessions training. In case if you have any questions or you have some expectations and you would like to know will we cover some specific topic then please feel free to ask and here with you to make everything as clear as possible, we will start each session with your questions and also if you have some questions after making your homework also please note them or maybe just prepare at the beginning of each session. So I will also really happy to hear some your questions or feedback about your practice.



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So don't hesitate, don't feel shy, even if you understand that Your question is very simple and silly. Don't worry about this. We are gathered here just to know more and know better about creation. My task is to help you with it. So first of all I need to tell you a couple of words about organizing of development process. Generally, let's imagine that our customer may have just one single environment. One creature system can work as production environment and some slight simple customizations can be done just directly on production environment without need to run anything else. But in case if you go a bit further then you will realize that some customization may be quite risky or cannot be done very quickly. So it's not a good idea to treat your users with non working stuff for some time.



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So in general it's much more safer to do some development, especially if it's complex development. Separately from your production environment we have Academy website which has plenty of interesting articles related to creation, customization and development. [Academy.creation.com](https://academy.creation.com) Most of you already registered here because you registered for the training session. Okay, everything is off necessary on. Okay, let it be. So I already logged in go to Academy. Yes, already logged in guides and we have a lot of documentation. Mainly we'll be interested in development documentation, but also will look at some other articles. So I need to tell you about recommended development procedure, probably this one. So this simple picture illustrates and shows how it's recommended to develop Croatia projects creature platform solutions. So we have developer environment which is a separate one and it's designed to be used for developer purpose.



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So developers can do some experiments, they can do some tries and they finally make some changes to the system which include functionality that customer asked and explained how to so how it should work. Solutions made on developer environment can be easily exported into files and then we will have another environment which is called pre production or simply I call it test environment. Test environment is necessary to check your solution to load it and make sure that it works just as planned. If it's not so successful, we go back to developer environment, make some checks, fixes, export our solution again, import again and check it again on our test environment.

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Finally when we decide that our solution is good enough, then we can go to production environment and choose proper moment of time to load our settings like the time where minimum of our users are active and then the same way as we imported solutions on test environment you can easily import it on production, also taking care about backing up existing settings. And in general it's recommended to have some backups of your production environment. So that's how you will make a delivery from your development Stuff after testing to production. As you can see, it's recommended to have three different environments, three different creation systems with a separate website, separate database. And it's something that is recommended when you build complex implementation projects. If your customer asks for a very simple customizations and you agreed that probably so many environments are not necessary.



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So you can also do this, but this is at your own risk. Sometimes you can do customization and finally you may do some changes which you would like to revert. But in creature revert of changes, sometimes it's not very easy and sometimes it's really hard and was not designed originally. So please take care. Any development I think should be safe. And that's why separate environment is the best choice here. Separate environment also means you have to deploy it somewhere. A lot of our customers prefer to run production and test environments in the cloud. When I say in the cloud, I mean in creatio controlled cloud where you have your website address, login and password. And server side of creatio is kept in t take. It's let's say cared, but cared by creation cloud engineers.



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So server side machines, their licenses, database, all connections and other things that are very technical related to organizing of creation working. So everything is managed by creature cloud engineers. And that's how most of our customers work with production and test environment. But what about development? It's better. And it's recommended to have a local developer environment only in a local environment you will have full set of available tools, full set of features that are useful for developer. And that's why so I will explain more in details. Developer environment is recommended to be set locally and also separately for each developer. For example, you have a team of three developers. Each one wants to do something and make customization of the same project. It makes sense to organize separate developer environments. They will have separate websites, separate database.



Speaker 1

And of course, as they work with a single project, they will naturally need to exchange settings between each others. So they will need to see. Oh, sorry, this one is probably here. It's my tool to make some draws for you. Okay, so I just want to say that if you have a team of developers, they will need to exchange settings. In this case they will so direct exchange of settings between developers. So something like this directly is prohibited. So you cannot do this and it will not work. So on a regular basis it's better not to try. And the best recommended option how to exchange settings is to have a separate repository. It's possible to use different types of version controls. The most popular for now is git. But also it's possible to use others like svn, tfs and other types of version control.



Speaker 1

First developers should submit their changes to version control like this. Second developer will get changes from version control and vice versa. And version control will keep history of all the changes and it will help us to understand who did changes when it was done, what were the previous state of files, and so on. So version control makes a great job in analyzing our code and helping us to understand how project moves on. And also it's quite safe in case if you did some incorrect changes, you can easily roll them back and get previous stable conditions. So version control is recommended and it's not even recommended, it's mandatory to use if you run team development if you have many team members who participate at the same project, we will study how to do this.



Speaker 1

So don't worry, we will do this and I will explain and you understand how to work with it. But first of all we need to make our own environment and to see how we can do first steps.



Speaker 2

Could I ask a quick question before we move on?



Speaker 1

Sorry. Please, please.



Speaker 2

So to see here on this diagram where we have they all have separate databases. Is it strongly recommended to follow that structure? Or could we have each of the application servers working off the same database server? Or is that kind of not really recommended for development?



Speaker 1

Think that if you have different websites you must use different databases. But in some cases, for example, you have one developer and couple of analysts. Yeah, and you would not like to create a separate environment for each analyst because they are not planning to write any code, they do not need some debugging, they probably are not so interested in the file system and so on. So they just interested at no code customization like modifying pages, like building processes so you can find the proper part of system where you can easily do this. So they will mainly use creatio UI to build their part of work. So in this case it's possible to run single environment, including for example developer and couple of analysts. But they have to agree with each other how they will work.



Speaker 1

Especially when developer will start to do some compilation or some debugging or other actions that will make their website to hang for some time. So the main reason why it is not recommended to operate as many developers with one site is such operations like compilation, like debugging and other scenarios where a website will be, let's say, will look like it's hanging and not responding if all the team is okay with it and such developer actions are not performed too often. Then it's possible to run single website with many customization. So many analysts and even several developers inside.



Speaker 2

Thanks Maria.



Speaker 1

Thanks Paddy for your questions. So let's move on. We already know how it's recommended to organize your process. Sorry, sorry here and how you should use. And no delivery management here. So you have to include. I think three environments is like optimal one sometimes for big customers, for big projects it happens that you have even more than one test environment. And also I just forgot to say that test environment should be a recent copy of production. In this case your testing will be the most accurate. It will represent what is actually going on and how your system will behave after you load your changes. So it makes sense to update your test often as a copy of production. In this case you will have the best matching results.



Speaker 1

So you will see exactly the same of what you will feel at production when you install your solution. So let's move on. We need some local environment. Why? Because we are developers, we want to make our own first steps and we have serious reasons to make this environment local. Technically it's possible to do development in production or sorry in cloud conditions. So it's possible to do some programming, but it's not possible to debug server side code. It's not possible to access file system if you work in cloud. And also it's not possible to use git or other file system oriented version control systems to make a full team work. So you have a lot of reasons to use local environment. That's why I will show you now how to install this local environment. Some of you who already read today invite email.



Speaker 1

You probably have necessary files and maybe you even installed your system locally. But generally this is not easy. Procedure. A lot of participants of our training sessions usually face some troubles and difficulties during this installation. So I plan to show you like from the beginning to the end how to install creatio locally. I will use File System Management Tool, it's a part manager, but you can use other tools if you want and you can use like Windows Explorer if you prefer it, and so on. So what we need at the beginning we have to work with. So I recommend you to work with Windows. It's also technically possible to run creation on Linux, but I think it will take longer, it will take more time for us and more very specific Linux settings.



Speaker 1

So I prefer to keep it easy, especially as we are beginners. So to run Creatio on Windows, I'm using Windows 10 Pro. You can also use Windows 11 Pro if you use Windows Home, Windows 10 or 11 Home. So you should understand that it will be not fully working, so you will experience some serious difficulties. And the main effect that you will face is when you operate with Creature tabs, for example this one. Then you for example want to duplicate pages or you just need to go to other specific tab which opens as a separate page like this one. So in Home, in Windows 10 or Windows 11 Home, creature will hang. So such pages will be hanging until you close previous ones. Developers explained me that it's connected with the resources of websockets that are very limited in Windows home website in IIS.



Speaker 1

So WebSocket connection is used and there are some troubles on version home. So you should expect if you use this type of Windows and Windows Home, then you will see problems and you will only be able to operate with one tab at a moment, which is definitely not so comfortable. So now you warned about it. Okay, so I have a Windows PC. Generally it's important to take care and just check that your power of your PC is good enough. In my case, as you can see I have a cpu core i5 12 cores. I have 16 gigabytes of RAM which is good enough. And if you have eight or 10 it also will work. But if you enable all the features and if you start all the tools, probably you will run out of RAM.



Speaker 1

So 16 is good and 8 is like minimum that you can look at. SSD Drive of course is also very recommended because of general speed. So the most critical parameters are CPU and memory. Okay, so you have one single PC and you can run Creature on this single PC. Croatia has two big server side parts. Database. In my case this is Microsoft SQL Server database, but it also can be Postgres database. You can run Postgres for Windows or you can run Postgres for Linux. So it's up to you. And in my case I'm running Microsoft SQL Server and I recommend you to use Developer Edition. Developer Edition is free for developer needs and personal developer needs. So in my case you can see I have a SQL Server Developer Edition. So I recommend you to use this type of SQL Server.



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I do not recommend you Express because it has limitations on amount of CPU cores used by server, amount of RAM and the size of the database. So Developer Edition works the best. So we have Database part and we also will manage Web Server part implemented by Internet Information Services. This is part of Windows and this is also one of the biggest component of the system. So in general we have two big server side components Database. So standard Regular database and iis. Also we have some other tiny components. I will show you all of them and you'll understand how we can make creation from scratch, how to install it at our own environment. In case if you understand that you have no chance to install creation locally.



Speaker 1

Maybe no permissions, no hardware, let's say powerful enough to run it or some other technical reasons, or no permissions at your machines and so on. But you still want to practice this creation, you can go to creation.com website sorry, this one probably have to log in there and then you can request. So you can ask for a trial environment. Try it free environment. I recommend you to use Studio because it will be the fastest one and it will work for you for two weeks. Then you can extend this time if you ask for help at support team. So it will be probably enough to make some of your experiments your practice. And this is very easy.



Speaker 1

So you can just try it free and provide some data about you and in minutes, maybe in a minute system will create a free cloud trial environment for you which will be available for you if you log in at Creature website and then follow. And so you will have URL, login and password for your trial environment. That's how you can do it easily and practice this creation. But if this will not work, I also can create an individual demo website. Some of you asked for it and individual demo website will work for you probably a couple of months. Also based on the minimum product based on Studio product. So okay, we have a start PC, enough cpu, enough ram, what else? We need documentation of course, because without manual I think it's quite hard to install creation, especially if you do it first time.



Speaker 1

So let's go to academic guides. Then it will be about setup and administration and we have a set of articles related to on site deployment. We have a general deployment procedure which I recommend you to know to look at and I will also post all necessary links into our chat. This chat is also recorded the same as videos and also we have captions recorded. So you will have a closed captions text as well. Especially if some of you maybe who are not perfect in English, they will need such captions which will make it easier to understand what we are talking about. Okay, today we're talking about installation of Creature locally. And the main reason why we need it is to enable full available developer tools.



Speaker 1

Working with the cloud version, you will not have full set of developer tools, you will not be able to use git, you will not be able to perform server side debugging, no access to File system, so quite serious limitations. And Local system has all such features for you. So what we need to do at the first step we can follow all of the general procedure steps here. So I will do it step by step and explain how we can do it. One of the components which we

need to use at our creation is Caching Server and in creation Caching server implemented as Redis software. And if you go to look more about Redis installation, you will see Redis installation for Linux.



Speaker 1

You can also install Redis as an image in Docker and unfortunately this is not set so you cannot easily find it in our official documentation. You can also use Redis on Windows and Redis for Windows is recommended on Developer Edition or Developer Environment. You can consider by your own would you like to run it for test and production. And the reason why creature technical writers and developers do not recommend Redis for Windows regularly is that it has a version less than Redis for Linux and also it's considered as less secure. But in my case I think it's not a big issue. So we can afford easily Redis for Windows and I will show you where we can find it. We can search Redis for Windows and we will find some solutions.



Speaker 1

And one of them is Redis for Windows at GitHub made by some Poland guys T Porodowski and the current version is a bit older, but still good enough. So what you need to do is take this MSI file, download it. So let me show you and then you can install it. The question from Paddy, is it possible to run Redis on Windows subsystem for Linux? Yes, you can do this. If you want you can do this. But once you install and run Redis for Windows, you probably will not need to do anything else. Redis is trouble free software 12. It's tiny, quite easy and creature you just only small part of available Redis commands, so it in general will not raise any issues for you.



Speaker 1

So what you need to do is to download this MSI file, I will copy link address for you can download it, then you will find it on your disk. Then you should make sure you're running it under local administrator privilege. And finally after installation of all Redis settings, by default you will find C program files redis and this is all what Redis saves on your disk. So this is just set of its files. And that's how Redis is working. Redis is a high speed memory storage which works as a caching server for creation. And Redis is required component, so you must install it and by default it has good enough settings. And if you really want you can go to regis Windows Service conf file regis is installed as Windows Service.



Speaker 1

So you can go to its settings and if you want you can change some parameters like log level. Default log level is notice. So it's like moderately verbose, not so verbose. You can change log file position, you can change maximum number of databases allowed and so on. But out of the box settings for Redis is good. So you can just keep it as is and it will run with trouble free. You can check that your Redis is running. If you go to services you will find Redis Server. This one it's running. The only known issue about Redis is when you install it, you try to run it as service and it doesn't start and immediately stops. In this case all you can do is to uninstall it and make sure you have administrator local administrator privilege and install it again. And that's what you.



Speaker 1

So the only possible issue you may have is Redis. Once you installed it's running so you will have no troubles with it. If you prefer to run Redis with Windows subsystem for Linux or inside Docker, you can also do this. You can take original Docker images for this and original website is Redis IO. Redis is developed by Community. Oh, they have some new updates here and Redis has Community and Redis has a lot of comments. So let me find products cloud, they changed their website. Now it's hard to find all the comments probably here. Yes, we probably have more than 100 or even 200 of Redis commands. You see a lot of comments including cluster management and so on. Croatia uses probably 3 or 5% from this stuff. And this is official documentation and I think that you can just use.

Speaker 1





Let's see, do we have anything with downloads, what else we have here? So now you can see Linux version for version 7 and Windows version 5. But it's still good enough. So creation doesn't use too much of new Commons. So Redis is trouble free. You should not invest too much time into it. You just install it, run it and then you maybe forget about it because it will have no troubles for you. Caching Server is okay, we downloaded and installed it. I already did it on my PC. You saw Redis Server is starting as a service. It's working normally. I used all these default settings and that's why no any changes. So let's move on, deploy the database and so on. Now we have only our PC this is a Windows PC and we need creature installation file.



Speaker 1

This file is distributed as a big zip archive file. Let me explain what does it mean? So invite email you have chance to download such zip archive file and depending on the platform, Windows or Linux and depending on the Target database, Microsoft SQL or Postgres, you may find the three different options. The only one option was in our email. The most popular is version 4 Windows and Microsoft SQL. But in case if you want to run it on Windows with postgres or on Linux with Postgres, tell me I have another links for you to download. So you will need this big zip archive file to install creature locally. Such file has its own name including version number. Usually it has a zip extension and it has quite big size, about 1 gigabyte.



Speaker 1

So you see this is a zip archive with 1 gigabyte and it has several maybe thousands of files inside. So what we need to do, we have to take this file if you for example start some new project maybe year after we finished today's session. So of course this version will be outdated. You should remember about recent new versions. And generally if you need to install local system and you need such file, you can ask for help at Support team support creation.com they can share such file for free with you according to your needs. According to the target website and website type Windows or Linux and to target database type Microsoft SQL or Postgres for some exceptional cases we also have Oracle versions.



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But in general I recommend you to focus on SQL or Postgres because they are the most popular and I think the most attractive for solving your customization needs. So we have this file. I already downloaded it from inner creation sources. So this file is on my disk. Now I need to unpack it into some folder. So let's make a folder I will have this kind of folder and this is new folder on my disk. So physically it will look like this. If you get used to work with Windows Explorer so you can create your own folder, please note it's important to create your folder not in Windows protected area, not inside of init Pub, not inside of program files, not inside of Users or Windows. So I recommend you to create just another folders for your creature website.



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The reason is quite serious because if you deploy your creature somewhere in Windows protected folders, you will experience additional difficulty with access of creation app to its own files because Windows protects it especially when system needs to modify such files. That's why I created my own folders. I keep some kind of structure of several websites running on my PC currently I will actually stop any execution any running website. This one also will be stopped to release some memory and CPU resources. So I created a folder on my disk D1 which will keep information which will keep all my website files. So I take this zip archive. Thanks to File Manager automation, I can easily unpack all of the contents into this folder.



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If you use Windows Explorer, you can also do this unzipping automatically and it will take some time, probably up to



one minute thanks to fast SSD on my disk, on my PC in total creation codes more than 20,000 tiny files. That's why this unpacking will take some time. But in general this is just one time step and not so difficult I think. So we will finally have all the items ready. Inside of this zipper guide file you can find DB folder. This DB folder includes backup file. Sometimes beginners do mistake so they think that the same backup file can be used for different types of databases. It's not true. If you have Microsoft SQL Server backup file it has bug extension, then it will be only applicable to Microsoft SQL Server database.



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You will not be able to run this bug file for Postgres oracle if you're interested. For example, in Postgres database you should take another installation file. If you need it, I can share it with you. For example, this one is for Windows and Postgres. You will see DB and you will see different size twice less than Microsoft SQL and different extension backup against bug. So we can see that postgres has a different structure of backup file, different size and different format. So it will be not compatible. And that's why please take care if you need installation creation on Microsoft SQL you should take corresponding source file. If you need it on postgres, you should take another installation file. We unpacked everything into one folder and our manual tells us to think about the database part. We have a manual for database server installation.



Speaker 1

I expect that you already installed your Microsoft SQL Server and some management tools for it. The best one is Microsoft SQL Server Management Studio and also I made some preparations on my SQL Server properties. Let me show you what is important here. So let's go to see its properties of SQL Server. Then switch to security and by default your SQL Server is installed with Windows authentication only. It means that users can connect to this SQL Server only with their Windows credentials. Creation developers prefer to use SQL Server and Windows authentication because it gives you some chances to use a login and password without any connection with Windows sessions. And I also prefer to use SQL Server authentication but it's up to you. And if you want to keep Windows connected only, you will have to make additional settings at your application pool.



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If you want to use this SQL Server and Windows, you can switch. But also you should remember once you switch this option and press ok, it will work only after you restart your SQL Server. This restart is a special action for SQL Server. Don't forget about it if you will change authentication settings for your SQL Server. In my case, this is already done and I already have my SQL Server. I connected as local administrator user. So now we have to follow this Microsoft SQL Server procedure and we will restore database from backup file. I will provide all necessary links for you in our chat and then I will demonstrate how to do this. This is not very difficult, so let me show you. We have original backup file in DB folder. This is our back file. Please note it has very old name.



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Maybe 10 years ago this product was called BPM Online and from that times this file name is still generated with these words. But of course physically this is creation. So we will use this backup file. How we'll use it very easily. Go to Microsoft SQL Server Management Studio Database right button click restore database from file from device and we have to select what file should be used for this. So we will go to our folders where we installed unpacked our archive. This one I'm using the latest version 8.1.3. Most of you who also downloaded Zipper downloaded Big zipper car files. Probably you will also face the same version 813, maybe a bit more so a bit older, maybe a week or two, but it will have similar set of functions available.



Speaker 1

Okay, so we select this file, click OK system recognize that this is a valid backup file and we have to specify database name. So we have to provide database name. I prefer some naming conventions here. So I will call it D1 Studio. But you may name your database whatever you want. But it's recommended to avoid dots in database name so anything

but dots are not recommended. D1 Studio will be a good name of my database. No any other settings here? So I can just click OK and system will thanks to my SSD recover it really fast. So my database was deployed and now you can see it's restored here. There are some additional steps that must be done for the database according to connection of users for it. And I will show you what additional steps must be performed. Let me show you.



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So here we have to think of how creation website, how creation web app will connect to the database. We need to go to security logins and then we have to make a login for our connection. We can make a new login for it and we can call it something like SQL Server Authentication Login, namely D1 Login. Let it be so D1 Login will be our login name. Login name is name of credential where you try to connect to your SQL Server. Of course we need to provide password the same as login. It's just to make it easy and enforce no password policy. We don't need it because otherwise password expiration will bother us from time to time. So it will stop normal work of creation. Just keep it quite safe even without any special policy, no any special settings.



Speaker 1

So we can just click ok everything else by default. That's how I created new login for my SQL Server. Then I have to go to my database, find its security tab users and then I have to add user with the same name. This is my username, the same as login name. And the only special setting I must do is go to membership and click DBoner. This is very important setting because it will grant permissions for this user to do any operation in this database including creating tables, modifying any data objects. So we will have a full say full power of administering our database. Okay, then we click ok. So that's how we added user to the database. At this step our database preparation is over and we can move on with our next part of this journey.



Speaker 1

And it's about enabling all necessary Windows components. Please note that this part is the most tricky and a lot of beginners do mistakes here. So you should take it quite serious and perform all recommended steps here because there are no optional items. Everything is mandatory here. So let's do this. Windows Components Microsoft Visual C I can check my apps and features so I will try to find Microsoft Visual C redistributables. It looks like they are all installed and I guess that I got it from installing of Visual Studio so I did not install them separately. But if you have no Visual Studio, you should care about installation of such components because they are required. IIS is a web server Internet Information Server of Windows. So we have to enable it. We have special components here, Net6SDK and. Net framework SDK.



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We have all links here. Now you can see that this and these are direct links. So let me show you what you will see. To try to download you have to choose version 6 and according to your platform it's Windows X64. So you should take this one, click on it and download. Make sure you have local administrator Privilege and that's how you will work with it. And the same dotnet framework SDK. So both components are required, you must install them. Otherwise you will not be able to compile your system. Then we have settings for Windows Server we can skip because now we are running Windows Pro desktop version. So let me find Windows 10 desktop version. How to enable necessary components so what you must remember is that such components are required for normal start.



Speaker 1

If you forget about this, you will not successfully run your creation. So you should follow such recommendations and we can do this. So you can find Control Panel programs and features. Windows features on or off. This will show this window and this window. It's usually surprise. It's not overall, but. Okay, let me show you this one. So here you see a figure of how you should set the setting. The most common mistake is such two items at the top here. So you must select Windows Communication Foundation HTTP activation for 3.5 and 4.4.8 so you simply can enable anything. Everything here should be enabled. And usually developers forget to do this. And this is quite common issue of

beginners who face this type. So the who face errors when installation. Then we go to Internet Information Services there are some settings so iOS management console.



Speaker 1

Okay, and this one as you can see in the manual, developers of this documentation decided just enable everything. In my case I enabled only what was really necessary here. And one of the most important thing is WebSocket protocol. So you can enable what you see and finally click ok. Wait for a couple of minutes. If system asks to restart, you should restart your PC and finally that's how you will enable necessary Windows components. This is very important step and it's explained in documentation. So I can share the link for this for you. So you will know how to install it. I already did it on my environment. This is one time setting for all my future creation installations. So it's quite enough for me to work with it. So my components are ready. Windows updates quite obvious thing.



Speaker 1

So I think my windows is normally updated. I can skip this part and then I need to do some final preparations with registering of my website in iis. There are two ways how we can do this. Registering a separate website with separate port Or I prefer registering of a website as an app inside of default website. I prefer to use this one. Registering of the website inside of default website. It's quite simple. So we go to application pools first then add new application pool. I will name it something like this Studio. This will be my new name. No any other changes. This pool is Started.



Speaker 1

If you prefer to run connection to your database using Windows credentials, then you have to go to advanced settings of the pool, find identity and change this identity to some specific Windows user account which you expect to use for connection between application server and database. This is necessary if your database server is set for Windows connections only. I mean only Windows credentials. In my case I prefer SQL Server credentials, so I will not change any of settings. So everything is by default okay. Then we go further find our default website and add application here. This is a very tricky place. Your application alias must start with the letter, not digit. The reason is that some of creation libraries and angular libraries, it's a JavaScript framework.



Speaker 1

They so turned out they are sensitive to the file names and path of the app and if it starts with the digit, some regular expressions are failing inside of the angular and that's why you must start your application name with a digit. In my case it's a D D1 studio. I should select a proper application pool and specify physical path. Now I need to say that creation has two major parts of file system. So we have a root part which is mainly responsible for showing your login page and prepare and create your app for normal work of user session. So loader part and inner part inside of JSON Footballer is much bigger and it's like main application part. So physically we have two parts and when we register our app in Windows in IIS we have to take care about it.



Speaker 1

And when we do this first we register water part and physical path should point to root folder of our app this one and okay I copy this path for future. So we register root part of our app, but then we need to remember about its inner main application part. Select our created app inside of default website right button Click Add application 0 alias this is always 0 alias Same application pool and physical path should point to the special folder terrasoft web app this is folder for our inner application click ok. That's how we can register our app in iis. Now our application is not operational so far, but we registered in IIS and then the final step that we have to do so we followed all of this registering stuff.

Speaker 1



There are some also side quests that you may need like settings of different MIME types and so on. But from my experience if you enable necessary Windows components, all the items like this will be good just out of the box so you should not modify it if you perform Windows component settings. So I actually only needed to register my website in IIS Manager and that's all now the last part, the last step is special configuration file which we must modify in order to make our system runnable. In my case, I have a Microsoft SQL Server example. So I will go here and here we have examples of connection files and explanations how to set it up. I will share all necessary links for you. So you will proceed the video, you will follow the text in our chat and you will not forget anything.



Speaker 1

I hope so. Let's look in this connection strings file. So this is my folder of my app. This is loader part of it. And the only file system file that I must change to make my creation running is connection strings config file. We can start to edit it. You will see set of sections of this XML file. And first of all we have to take care about DB section. DB section is about connections between application server and database. We have a so called connection string for Microsoft SQL and I need to modify its values to make it correct. Data source. This is my data server of Microsoft SQL. I can use my Microsoft SQL Server network name or simply I can use a local host.



Speaker 1

In your case, if you have your SQL Server located somewhere in your network, you will need your SQL Server network name including named instance. So full name in case if you have named instances of Microsoft SQL Server database. In my case, this SQL Server. This SQL Server has a name just a local host and it works for me maybe with non capital. Oh, okay. This is my name of the SQL Server initial catalog is database name. So let's remember our database name is D1Studio. So we will put it here. Initial catalog now is our D1 studio. Save it. Next is quite tricky integrated security SSPI which means we are having Windows authentication. We don't like this. So I will remove this line from the text and instead of it I will Type User Space ID equals my login D1 login.



Speaker 1

You remember we did it at the database. And then password equals this is my password for the login. So that's how I can do this. Probably this space is not necessary and nothing else. So data source, initial catalog, user space ID and the password. No any changes with other parameters. So I only removed integrated security SSPI and replaced it with user ID and password. Save it just not to lose any progress. You can find corresponding manuals at this academy article. You will see DB connection and also you will see something with connection or name and password. Here is the initial catalog. Yeah, you can replace integrate security SPI with user space ID and password. And here you can see examples of it. User ID and password. Okay, so we are okay with DB connection.



Speaker 1

And one more thing which we must do in case so we must do for our creation installation is Redis connection. So this file also keeps information about how Creature may find Redis somewhere in the network. So host should point to network name of your regis server. In my case this is local host and it often happens if you provide your network machine name, it's not working and you see error message about system failure to find your corresponding Redis server. So in order to fix this you can just provide local host or IP address of your local machine where your Redis is running. So for some technical reasons creature fails to find Redis with its libraries and with provided network machine name. So setting local host here I think will work for you.



Speaker 1

Also we have another important parameter DB is number of so called Redis database, but it's more closer to call it storage because Redis storage is a set of key value pairs saved in the Redis memory. And by default redis has 16

different so called databases named from 0 till 15. And as we keep several creation instances, we must keep such DB numbers unique. If you run several creation environments on the same machine, you must take care to have a personal unique values for each creature instance connected to the regis server. In my case it will be D1 environment and it will have the database number one. Okay, then I can save it. Port number is by default. I did not change it when installed Redis, so now I use it as is. Okay, that's probably enough for our beginning.



Speaker 1

One more thing which I recommend you to do, but it's not required, it's optional. One, it's about creation logs. We can go into terrasoft web, find envog, targets config and by default this line number 3 log dir this is folder on your disk where creation will save its logs by default. As you can see, it points somewhere to temporary catalogs. And in my machine this works as Windows 10. I do not like this place because my local Windows user has limitations and I'm not allowed going there. So if I want to look what is inside of C Windows 10, I have to use a specially highly privileged Windows user and I have to switch between them so it's not so comfortable. That's why we can put our logs somewhere else where you can easily access it.



Speaker 1

For example somewhere at C creation logs so we can create this folder system will create itself if it's missing. So that's how I do my settings for env targets config, this is optional and log targets Config this is example of my settings and this can help you to easily access such files if you don't like going to Windows temp or if you have limited settings as me working with this folder because of Windows protection. Okay, now everything is done. So save changes and we can start our website. How we can do this? Go to IIS Manager, select our D1 website. Let's refresh them. Probably it will better to see D1 and the first position. So we can just browse this website. Now you can see new I'm using. I'm using Google Chrome browser.



Speaker 1

So Google Chrome I think is one of the best for creation because of the fast JavaScript core and you can use also a lot of other Chromium based products and browsers and you can use Firefox, you can use Microsoft Edge and please note Microsoft Internet Explorer is not supported at all. So you can use Chromium based browsers, you can use Safari, you can use Edge. Currently I'm using Google Chrome and I'm quite happy with it. So when we start our environment with this browse action browse you can see that system starts with this type of URL. We can remember it just to have one more shot shortcut D1 and this is our shortcut so we can go there. Yes, it opens so called login page. You should remember that if you install creation locally, you have default login and password for the first input.



Speaker 1

First login in supervisor and the same password supervisor. Also you can see at this login page you can see current version number of the app we are running and I can click just log in. If everything was done correctly, you will see after some time, maybe after a minute you will see our application successfully logged in. And probably it's time for us to make a small break, some small 5 minutes coffee break so you can refresh a bit yourself and then we will move on. But please note and you should be mentally ready for this. A lot of beginners face errors when trying to run their own local creation. At this stage where you just start your app, if you have mistakes in connection strings conflict, you will see error messages from the website.



Speaker 1

And in case if you have some troubles with setting of inner app here, in this case your login page will be okay. But when you start to provide login and password and then click login button, then you also may have some error messages which will lead to let's say errors during start of your app and you will not see this page. Now let's make a 5 minutes break to refresh a bit and then we will move on. I will show you what next we will do with our installed system. I do not expect that you are following me just right now. I expect that you will probably follow video recording that you received today. So if someone performs the same steps as I do, just tell me, because sometimes

you need to more. You need more time to do this. Tell me please.



Speaker 1

So now let's take a break and then we will move on. So next, what I wanted to show you now is about how we can do some preparation of our system. Before continue, let's do some technical things and enable browser console, Ctrl shift I or F12 or you go to this, then more tools, this and then developer tools. Okay, let's enable browser developer console. Now you will quickly realize that it's console quite noisy. You will see almost each 10 seconds some messages here about telephony connected, disconnected error messages and so on. So if you're not planning to handle false in creation now you can disable this telephony, your console will be not so noisy, not so verbose and it will be easier for you to debug client side later. So I prefer to keep this console not so noisy.



Speaker 1

And that's why I will show you how to disable this telephone. I go to the user profile, then go to additional settings. We will see some settings for call center parameters and then we can disable call center integration. This will suppress this login, excessive login at our console. So let's save it. A couple of things that I also prefer to do when we perform initial start, this is going to navigation panel, find system settings and there are a couple of system settings that we also would like to disable. Let me show you. We can use search by name, so use filter by name and let's search for something started with show. In general, I need to tell you system settings are low level variables set at application and they are used for different mechanisms, platform mechanisms, product mechanisms.



Speaker 1

So they are generally used by creation system. We can find system setting called show widget on login page and we can disable it. And also one more show widget on intro page. It's also better disabled, but this is advertisement stuff which is currently not active. And currently this advertisement only shows you some error messages in your browser. Maybe you will find it at the beginning here. So this widget was not showing. So we can save and disable such widgets. Let's go out now. You will see less error messages here in Your browser and super wiser same password saving it to this site. Okay. And log in. So now we will have less noisy console. We have much more comfortable conditions for work and we have our systems ready. So now you can see our environment is fully prepared.



Speaker 1

So looks good and we are going quite fast today. And probably that's because of not so many questions from your side. But. So if you have any questions, if you feel some, let's say uncertainty, please ask me. I'll be happy to answer. So what's next? Once we installed our environment, we need to enable full developer power there and I plan to show you how to do this. And also we need to do some more preparation steps which is quite not so obvious. So let me show you what we need to do now.



Speaker 2

Sorry Dimitri, I just. When you mentioned questions, I've just been writing down questions as we go. The same for the Q and A section. So I just have two that maybe I could ask now if you like.



Speaker 1

Or I can hold them all for you, please. It will be interesting because something which is not so boring like just a lecture so kind of dialogue.





Speaker 2

Okay, so my understanding. Sorry, this. We're going back to the database section. When there's two section. There was two databases. We're kind of talking about. We're talking about postgres and were talking about the Microsoft SQL. My understanding is the version of the zip we get with SQL the database doesn't have any test data in it. Is that is my assumption in that correct.



Speaker 1

Generally we have two, let's say two options to support our customers. Normally we have no. So almost no test data. It means we will have very little number of useful values. For example, I can show you some data which is quite common for you to expect like list of contacts. So select something from contact. You will see just minimum set of records, like three records or almost no data. And we call it just soft key. So it's like no data. But also it's possible to ask for a special demo version which means we will have some demo records, maybe a couple of hundreds of pre inserted data records, which is good for demos, good for some, I would say building dashboards, analytics reports and so on. And I recommend you to start from the clean database. You will have less data to delete.



Speaker 2

The other question and I have you kind of already answered. It's just I was. When I was going through the date, the documentation for the setup, the redis. The redis kind of got into mentioning a cluster but I can see that you didn't actually use it. So the cluster isn't actually I did.



Speaker 1

Not use Redis cluster because it's not mandatory, this is optional thing which makes a bit higher overall reliability of your system. But once I'm running just a single developer environment which probably will never experience high load conditions when having hundreds or even thousands of queries per second. So I do not actually need this cluster, but it's out of the box Redis feature, you can enable it if you want and you can proceed with its documents, materials and you can set it up. It's up to you. Yep.



Speaker 2

No, that's brilliant. Cheers. Thanks Melin.



Speaker 1

Thank you. Thank you, Paddy. It's interesting actually. You can also customize your iis but in my case I'm not running in under high load conditions or I do not need to allow like couple of thousands of users to log into my environment. That's why I do not enable IIS based cluster. So I have only one single application instance and it's okay for me. Thank you. If any others have any questions, feel free to ask it any moment of time. Hi Dimitri. Hello Bessel. Yes, please. Hello, can I share my screen to ask? Yes, no problem. But please note it will be recorded. If you do not want to record, I can stop recording. No, no problem. Okay, please. Please find the share screen green button in Zoom panel and we will see your image. No? Yes, you can see.





Speaker 1

Yes, I'm going to install the SQL Server management. But what of what version exactly I should use on premise developer. Oh no, download. No, no, just scroll down a bit and the left part you will see a skilled developer. So this skilled developer download now. Yes, I think this is the best which you can find here. And developer uses all cpu, all memory and no limitation on size of the database. So you can just download it takes time install it and the only change inside of its installation which I recommend is to switch from Windows to mixed authentication mode. And about Visual Studio, which Community Edition? Community Edition will be Community? Yes, it's also free. You can use some kind of Microsoft credential there and it will be free for free of charge for you. Yes, yes. And the last question please.



Speaker 1

I my windows is 11 home. It. It's good. It can be doing the step you are doing. If you have no options to use Pro, you can keep running on home. But there is a strict limitation that you will face and this limitation is running multiple tabs. For example, you have a main tab of your creation. It's okay, more or less okay. And when you enable other tabs or you go for example to advanced settings. This another tab may hang if you do not close first tab. If you close first tab, then another tab will work normally on home. And it looks like it's caused by some limitation of websocket channels. And we cannot easily bypass this limitation, unfortunately. So you should be mentally ready for some difficulties like working only at one page at a moment. Okay, thank you. Thank you.



Speaker 1

Okay, thank you, Peso. Let's move on. So now we have more or less okay running Creature Instance and I need to explain you what next steps we will do. So my main next goal is to show you file system development mode. But in the last versions we have some unusual behavior which you need to understand. So if I will just simply follow manuals to switch from original mode into file system development mode, I will get some unexpected troubles which I want to skip. Now let me explain what I'm planning to do right now. Here is my folder of recently installed application. I need to show you some inside parts of it web. Then we go to terracesoft configuration and we search the Bin folder and it's empty. Usually Bin folder includes results of compilation of our app.



Speaker 1

Currently Such results are DLLs loaded from the database stored somewhere else. And the application is quite fine running with such assemblies. But when we will switch to file system development mode, system will search for such files exactly here. So we must compile our system before doing any file system operations and before doing any switches between environments. So we have to compile our system. I will click compile button and I will agree. And here some of you will experience additional difficulties. I already fixed it at my own environment, but in your case you will definitely get it. So let me explain. I have an article specially dedicated to this error. So when you do first compilation on your system already agreed for this. Okay, so when you do first compilation, you probably will get this open image. You'll probably get this type of error.



Speaker 1

So you try to compile, you have two errors with no file name. It's totally unclear what is wrong here, but you will constantly get this error. So it's not random. It will happen all the time when you try to compile. This is a common known issue and you may know how to fix it if you will go to your log files. And as you remember, we set envargetsconfig to some specific place and that's how we can go to this place on our disk creation logs website D1 and then we have to go to Xero is our inner application logs for today we'll find build log and in case if you have this type of compilation error like this, you will find error details in this build log. At the end you will see some number of errors. You will see error text.



Speaker 1

Now you see this log is still going on because compilation is not finished. So compilation produces some messages into this log file. And if you will get compilation errors, you'll be able to get log. You will get error details in this log. So here the reason of it is some strange behavior from net 6. And finally the last advice and the best advice we have is to go to your Windows, go to System32\inetSRV and then Create Folder with the name NuGet and then inside of it create folder named Migrations. I already did it on my PC and that's why it works nice. But in your case, probably you will get this error caused by missing folders on your system disk. And I agree that it's not ideal solution, but it works well and looks safe.



Speaker 1

You only create folders, you do not provide any access and it works nice. So your compilation will not fail anymore. It will not show you such compilation issue. This is the link to community Creation has quite powerful community. So this is about compilation error that you will certainly that you probably will have. So I'm sure you will get this and that's how you can fix it. So the solution is just to create the folder this one and I this will help you to bypass and fix this issue. Okay, my compilation finished successfully. Now let's go to File system and check again our Bin folder Terms of Configuration Bin now you see some DLLs result of our compilation creation has server side which is capable so which includes compilable sources. Such server side finally turns into DLLs that can be started.



Speaker 1

They include a lot of classes and such DLLs are necessary, so they are vital for creation normal work. And when we will switch now into another mode, which I need to tell you. So we will need these libraries in this space. Okay, so I'm telling you about this mode and I need to explain why we have modes. So when we installed our creature system, we can go to settings, we can get this page, it's called System Designer page. Scroll down to the end, you see advanced settings. You can click here. You open separate tab which is called Configuration section. I already opened it. Okay, so Configuration section, you can also go to Configuration section. If you will type in your browser your application server URL 0 dev press enter. It will also go to this configuration section.



Speaker 1

Even if your main app is broken, so badly broken and it's not working, then you can type this address 0dev and go to configuration and try to fix so what we need to know about modes Creature has two different development modes. One is called Creature ID mode. Let me show you guides development tools and we have two modes, Creature ID and External ID mode. Let me explain what is the difference. Creature ID means that you go to configuration section, you can customize different types of items, you can create any type of items, and you can open any existing tools and settings. So system is quite open for you. You can use its own user interface and make your own customizations. And of course you can also use no code customization tools like Section wizard, like Application Hub and so on.



Speaker 1

So you use only UI of creation to build it and modify it. We call this mode Creature ID mode and it means we use only Creature user interface tools. This mode is perfect for beginners and it's also the only allowed to run at cloud conditions where you have no access to file system. Creation ID is relatively simple and it's quite, let's say, well protected. So you maybe will find it hard to break your system using this mode because system protects you from the most obvious mistakes that you can do. So it's quite safe for beginners. But Creature ID mode means you have no access to file system, you cannot use any type of version control except of SVN and you cannot debug server side easily and effectively. So Threshold IDE means some limitations.

Speaker 1



In order to use full power, we have a special mode called External IDs. The main idea is to allow system to save a lot of settings directly on disk into file system and then use external editors to modify such contents. Also you can still use internal editors, you can still use existing tools and open them in creatio ui. But enabling this mode for external ID and saving necessary changes on file system makes it very efficient when you integrate Creature with Visual Studio or other popular powerful editors like webstorm and others. So I will show you how to enable this External ID and how to detect your current mode detection is quite easy. You can go to your configuration section and click on Actions menu. You will see a file system development mode at the top and you will see some gray colored menu items.



Speaker 1

If you see gray colored it means file system development mode is not turned on and it means that simply Creation ID is on. Now you can change this mode according to the manual. So here is the article which I recommend you to read and this manual well, explain how we can switch between environments. We need to make corresponding settings in web config file depending on the platform. For NET framework it means iis. On Windows we should search for the file design mode setting. And for the. NET Core or for Linux Net 6 we have to search for another web host dll config file and we will have the same setting there. So we have to make two changes. File design mode must be enabled to true and use static file content must be set to false.



Speaker 1

But please remember before you will do any changes, make sure your system can be normally compiled. This is important for two reasons. First reason is to get corporate necessary files in bin folder here software web configuration bin and also second reason is to make sure you have no common compilation issues like I explained previously. So we already performed this compilation. Now we follow manuals to switch between environments. Let me show you how we can do this. We have to go to the outer web config file. So we have root web config file and we have terasort web config file. Two different web configs. The necessary one is outer root folder web config Start to edit it. Go to line number 400 no 510 I already had this folder previously I already edited similar file. That's why my file manager remembered it.



Speaker 1

So line number 510 I found file design mode setting. Originally it was false. I will carefully put it to oh sorry, no kidding. I will carefully put it to true and then one more setting must be done a bit below. Use static file content must be set to false. This is also important. Let's search for it. Line number 563 use static file content was originally true. We will set it to false and save. After doing this we can reload our configuration section. And now you will see that change will appear apply and you will see that our actions button. Now we'll include active options for download packages to file system and update packages to file system. I need to explain what are the actions and what they actually do. So original storage of all our customizations. We will study how they work.



Speaker 1

Will study what package is what package contents usually includes. So this original storage is in database in set of system tables inside of our database. So it's very important to understand Creation has out of the box big number of data tables. Most part of them are data tables for business entities and business data. But some part with a prefix cis. We have a lot of such CIS tables. They are used by application itself to keep its configuration settings to keep information about all the customizations you do or all the base product contents. So we have a lot of system data also saved in the same database. And originally all these contents comes from the database and database backup that we initially installed at our system.

Speaker 2



Are GUI changes saved in the same database. So say like if I just add some extra information to say a client, is that also the. Say just the. In putting that in the gui, is that also stored on the database or is it stored.



Speaker 1

Yes, yes, it's also stored in the database and database is primary storage for this. So when we.



Speaker 2

Yeah, and then the only reason I'm interested in, I'm just asking that is how then does that work with version control? Say if you have multiple people working on the same. On the same, we'll say client, I will explain.



Speaker 1

I wish I will now explain. You will see that. So originally we have all the content stored at the database. But if we enable this file system development mode, then we have an option to save changeable part of it into files and what we do customizing. So like we make our own changes in this external ID mode. In this external ID mode, everything will be saved as set of files on disk. So now we can do this operation to ask system to save everything which is customizable on disk. So it's called download packages to file system. It means please save everything that system needs to store at file system. In this mode, please save it from database to file system. Generally this action is quite safe and usually it covers all the editable stuff.



Speaker 1

In my case, I have only one storage code package for this editable stuff. So it performs almost nothing and it saves some files on disk. We can track what's going on our disk. Now let's go to javasoft web app JP configuration. We have a special PKG folder for such storage on disk. And we can see custom package which was just created seconds ago and the contents of it. So we just asked system to save everything on disk. Then later we will use version control to submit our changes to Common repository and our editable stuff will be shared with other team members. They can easily download it and they can easily move it to their own environment. So that's how you can exchange your configurable changes. But now we need to save it just to make sure we are looking at it on disk.



Speaker 1

And in order to finalize our switch, it also recommended. So according to the manual, we have a next step to compile it again. So it looks like we need to compile it one more time. It's Just to make sure everything is working fine and we finishing our switch into this developer mode file system Developer Mode it looks like we have not enough time today to show git integration, so I plan to show it for you tomorrow. At the beginning of tomorrow's session I will show you how to enable git integration and now I'm asking you so usually first day is full of different questions and maybe we have to align expectations and so on. So if you have any questions today, please feel free to ask. I would be really happy to hear.



Speaker 1

So your homework for today will be just reproduce the same steps as I did and install your local creation system. Turn it into development in file system mode. Make sure you can compile it normally and I recommend you to compile it twice before you do any changes to make sure it's compiled and to get executables, DLLs and then after you switched into this mode to make sure that system is fully operational and server side has no any visible, let's say incorrect parts. We will study more about making creation settings. So probably we have some minutes today and when compilation finishes I will start to explain about working with packages and the concept of a package. Now compilation will finish, but I already can start to explain. So what I need to tell you. Creation is a highly flexible system.



Speaker 1

So it has hundreds or even thousands of changeable items and most of them are called schemas and we have different types of such schemas. So you can when you hear schema you should understand some customizable changeable item in creation, such items declare entities. For example, we can filter by item type like look only at objects so we can see objects responsible for keeping address data and other objects are very simple and responsible for keeping e.g. Types of accounts and each object corresponds to the database table. Let me show you. So we found some object named account type and we can find account type in our database. And now you can see we have some data and here we have a list of six records of different account types supported at our system.



Speaker 1

So objects are related to data model and we have plenty of different objects, but not only objects, we have a lot of other items. Client modules are responsible for page settings. C sharp source codes are responsible for server side classes programmed in C. Data items are responsible for data transfer between environments. When we have some data contents created at developer environment and we need to move it to transport it to other test and production environment and also to transport it to our other team members. Developer team members who also need to see the same data so we have big number of different configurable items. And if you're interested I can also show you how many select count from sum of system table sys schema where we have a big set of such configurable items. You see 500, 5,500 more items.



Speaker 1

So it's quite difficult to manage such amount of settings in a list. So developers decided to make kind of big containers for them and they called them packages. And the left part of this configuration section just remind how you can get there. So you go to settings, scroll down advanced settings or you type 0 dev in your browser 0 dev. That's how you go to this configuration section. So you see big set of items and bigger items are called packages. We have quite high number of packages even in out of the box of simple product. Let me show you how many packages we have out of the box sys package system table which keeps information about packages. 140 out of the box packages. And I'm using now the smallest possible app.



Speaker 1

It's a studio app which includes only platform version and almost no business functionality except of hundreds of lookups. But in general we have almost no business sections. Business functionalities is absent here. So we have only platform level tools like constructor setting which allow us to build our own apps. It's possible to install or to get out of the box much bigger solutions like sales automation, service or marketing. So Creature also like supports such type of products where customers want to use automation which should be already included. And that's how you may have just quite bigger number of packages just out of the box from your customization when you start. In my case, I intentionally took the smallest possible product Studio and as you can see it's not so small. 140 packages are already on board and we can study them.



Speaker 1

Luckily, Creature offers you possibility to look at any part of base product items. You can open any part of its

configuration code and you can see how exactly it was written, how exactly it was set. So Creation has open source of base product configuration. Configuration is a like changeable part of the system. Also we have opposite one which is called Core. Core part is not designed to be changed by customer. Core part usually represents set of files on disk and you can find core libraries in the web Bin folder. More than 200 of different DLLs. They are designed by Creature and are not expected to be changed by Customer or Creature Developer. So on the Creature company creates and issues such DLLs when base product updates.



Speaker 1

Of course you will have updated versions of such DLLs so they are not designed to be changed and they perform just low level functions of creation functioning. Also we have client side core parts in JavaScript which is also not designed to be changed and only changes when creation issues new version. So core part is non changeable low level set of tools that are necessary to run your application configuration part which is here is highly changeable set of different items that could be more or less easily changed. And we have out of the box base product set of such items called set of packages. And each package may include unlimited number of configurable pieces.



Speaker 1

So the main sense of building packages is to make management of such configuration easier to make possible separate development and let's say splitting of responsibilities, sharing responsibilities and like splitting of all system functions into separate parts. It could be developed separately and transported and delivered separately. So each package should be considered as a box for some items inside you can put unlimited number of items into it and probably it will be interesting to see how many items we have in different packages. So let's do some simple selection. Name from sys package this is just simply selecting list of existing packages. Then we can do some additional calculations. Select count or maybe okay count from sys schema as Whereas sys package ID equals to our P this is our P package LS P and here we will have p name okay. As schemas count Great.



Speaker 1

Why doesn't like this should be okay the name this is okay this package. Okay, let's try to run. Let's see what's wrong. Maybe it expects something like this or maybe I'm doing something very stupid. So let me check again. P name subquery no, it should be okay, let's check. Yes great. Now we will do some sorting order by to desk. So we go to sort now you see. So the most populated package so the most package with the number of items there is package named CRT base. We can find it here. CRT base. Unfortunately this editor doesn't show us some totals or any kind of summaries. So we are not knowing how many items are there. So we can read it with this type of queries if interested if you are inspired in database scripting. So I will share such scripts with you.



Speaker 1

You can also see the same but you can see that some packages have quite big number of items like 800, like 400, 300 and so on. And the main sense of the package is to make some separate functionality stored separately and could be saved and delivered separately developed separately. So it's like logical thing to split big system into parts. Our solutions that we will do also will be saved in one or several packages. And now you may see that most of packages have gray color nearby their names and only one package have a yellow color for like indication that this package is editable.



Speaker 1

This is a special package named custom and custom package is designed for cases when you so when customer doesn't think too much about storage of settings at all and when customer just don't know the architecture and they just want to customize system, save it, perform some no code settings and that's it. So custom is kind of default package for such kind of customization, but for big projects it's not recommended because custom package is also present on target environments and custom package may be not empty at target environments, for example at environment when you want to test or when your users are running in production. So custom package is not perfect



for such delivery. Even though you can export it, you can easily import it later, but it's not perfect. So I prefer not to use custom package for your package customizations for your solutions.



Speaker 1

Obviously we will create our own package or even several packages to save our customizations there and now you need to remember there are two general approaches. You may manage packages yourself and it may mainly make sense if you develop something in Classic ui. Classic UI is a legacy type of settings that we still have in our application and still support. And we have hundreds of maybe thousands of different partner solutions designed previously in Classic ui. And also if you plan to make your new solutions in Freedom ui, in this case you will probably see that when you manage your application with Application Hub, system performs creating of your packages automatically. So you will only control it here, but you will not need to create them. So in order to demonstrate your package management, I need to create some package manually. So let's do this.



Speaker 1

I will click on this tiny create page button, this opens new package window and I will call it something like Dev Classic. So I intend to use this package for some classic UI stuff. That's why I will call it Dev. Classic package has some properties and compile into separate assembly is extremely useful feature and it's so useful. So it's enabled by default and it makes our compilation time three or four times less than usual. So compile into separate assembly is totally recommended feature. We will keep it on Smart activation is not so common. I recommend you to read some articles about smart activation. It's necessary only when you have package with dependencies from other packages which are not installed. In this case Your package will be not activated.



Speaker 1

If you want to support this feature, you can use smart activation, but in general I think that it's not for our case, so not so necessary. We don't have any version control for svn so we'll keep it empty, no version value and we will create and add dependencies. Now I need to explain you one more important thing about packages and their dependencies. Let me duplicate the page, I will show you important diagram. So as you can see we have 140 plus packages and packages have connections between each other. If you go to package properties clicking on this3 dot then go to properties, you will see that package has properties and package has dependencies. Dependencies are very important and they show other packages from dependencies, show other packages required by your package.



Speaker 1

And when you have a dependency for a package, it means that this package will not work until parent packages present into your system. So in my case calendar base requires CRT core base for some reasons and this is how packages are connected. So if your package has dependency from some parent package, you may use some parent package functionality like pages as templates objects. For inheritance you may use some parent entities and if you have no dependencies you will not be able to use parent pages parent objects. So you will have to develop all your customizations fully from scratch. So dependencies are generally recommended and we can see the whole structure of packages dependencies with the actions package dependencies diagram. This diagram will show us connections between existing packages and I will explain you how you can add your solution into it.



Speaker 1

There are two common approaches how you can do this. One of the approaches which is now currently used by Application Hub is to use package named CRT core. It gives us enough access to base product functionality and the CRT core is a good option for your solutions to be connected to the parent base product system. It has only standard minimum access to all base product templates. It will be enough to create new sections so you will have no problems. But in case if you customize big base product solution like sales, service or marketing, and in case if you need to customize existing sections like make your own changes into opportunities, into contacts, into accounts and so on, it makes sense to make visible and available for customization all base product structures.





Speaker 1

And in this case it makes sense to find the latest package here in this hierarchy except of custom and make your package dependent on it. Thanks to parent dependencies you will have full access to parent packages including base product section packages. So if you work with base product which already includes a Lot of functionality. For example, it's a banking, product, sales service or marketing. Then it makes sense to create your packages dependent from all this parent diagram and it will be able so you will be able to customize parent packages. You will be able to customize any items, any sections there. So this approach works well for project implementations. In my case, I create my package manually. So I plan to make it dependent from Studio based product. I'll go back to my package creating. Here is my dev classic package.



Speaker 1

I will make it dependent from. I can search studio and that's how I will do this. Any package has its own maintainer. It's a text property written at packages. Each package has its own maintainer. And you should remember that when you see the word terrasoft it means creation. Because terrasoft is previous company name. And somewhere in 2016 Tirasoft was renamed to creation. Now you know this brand as creatio. So wherever you will find Terrasoft it means made by creature and Studio is a creation made package. Okay, when we create our own package, we have our own maintainer. By default it's customer. You can change it in the corresponding system setting which is called publisher and it has a code maintainer. Let me show. You can go to system settings, search for publisher.



Speaker 1

The reason why we have so many different words for the same is incorrect translation. Originally in English it was maintainer. Then it was translated into Russian, then back to English. That's how we get publisher. I would prefer to have everything just as maintainer here. So if you change the system setting, so you put something else here and then you create your package. So your package will include the same change to value when you create it. And currently I do not need to change it. So I keep it as is. I have maintainer here. When you create your solution, you may need and you may want to personalize it to provide your own unique value as maintainer. So I recommend you to go to your publisher system setting first, then apply it. And also you should remember about cached system settings.



Speaker 1

So in order to fully apply it, you have to log out and log in. Because cached system settings are loaded at the session start only. So when changed it, you have to log out login and then you can create your own package. And your maintainer will be according to your system setting when you create your package. But the most important is dependency of the package. So we provided it, we can apply it. And now after package was saved, you can see editable package at the top with the yellow icon here and when we reload this diagram you will see that our package is now shown in this diagram. After this studio, I click control and roll my mouse wheel so I can zoom in and zoom out.



Speaker 1

Now you can see my dev Classic package is created after studio and thanks to this parent transitions I can get access and logical visibility to any part of base product. So this is very important. This is example how you can create packages for your own manually made the customizations mainly for Classic ui. In future we will make more packages and we will use package for Freedom ui. I will show you how we can how system creates packages for you in freeware and when finished some step of settings we can download everything to file system. Now our dev Classic will be also saved on disk. So we go to check it out here and now you can see Dev Classic package appeared on disk seconds ago and you will see package contents. It includes some files folders.

Speaker 1



Now our package is fully empty, so we will fill it in with some test settings tomorrow and we will continue tomorrow's session with git integration. Now today our session is over. If you have any questions about it, tell me please. You will receive video recording very soon, probably in one hour if Zoom will be quick to convert video. So I will send you video once it will be ready. And your homework is to reproduce the same steps. Install your local environment, make sure it works, make sure it compiles, turn it into file system development mode. Then create your package. Make sure your download packages to file system works well. The opposite action, update packages from file system will make sense when you change your files out from creature. So when you for example update them from repository or when you use external editors.



Speaker 1

In this case, you will need these update packages from file system action in order to tell creatio about some new changes and in order to load such changes back to the database. So our session is over. Thank you. Thank you for your time today. We'll see each other tomorrow at the same time. If you have any questions, please feel free to ask. We will continue tomorrow with so with git integration we already created an example of a package. We talked about package dependencies. And tomorrow we will continue with git integration.



Speaker 2

Thanks a million Demetri. That was very insightful.



Speaker 1

Thank you Paddy. Thanks others, thank you for your time. So see you tomorrow. Our session is over. Bye. Thank you May. Bye.



Speaker 2

Thank you.



Speaker 1

Bye. Thank you Sarah. By.