

UWA性能优化10.24

mono内存

经查看，在仙灵山谷监听CE_BUFF_UPDATE事件的时候，调用了GoodsLuaHelper.IsExpDrugGoodsBuff函数：

→ BuffCtrl.AddBuff	3%	0%	4.31 MB	0 B	168972	0
→ ClientEventManager.FireEvent	3%	0%	4.23 MB	0 B	167430	0
→ DelegateBridge.__Gen_Delegate_imp33	3%	0%	4.23 MB	0 B	167430	0
→ xcDBTextResourceWrap_m_ParseArrayUInt_xlua_st_	2%	0%	3.02 MB	0 B	116550	0
DBTextResource.ParseArrayUInt	2%	0%	3.02 MB	0 B	116550	0

```
--[[-----
@brief 该buff是否是经验药水触发的buff
]]--
function GoodsLuaHelper.IsExpDrugGoodsBuff(buffId)
    local goodsIdList = CS.xc.GameConstHelper.GetUIntList('GAME_EXP_DRUG_GOODS_IDS')
    for goodsId in list_pairs(goodsIdList) do
        local argStr = CS.xc.GoodsHelper.GetGoodsArgById(goodsId)
        local args = CS.xc.DBTextResource.ParseArrayUInt(argStr, ',')
        if args.Count > 1 then
            if tonumber(args[0]) == buffId then
                return true
            end
        end
    end
    return false
end
```

其中每次都会调用ParseArrayUInt，产生gc开销，可以使用缓存，优化如下：

```
--[[-----
@brief 该buff是否是经验药水触发的buff
]]--
local mIsExpDrugGoodsBuff = {}
function GoodsLuaHelper.IsExpDrugGoodsBuff(buffId)
    if mIsExpDrugGoodsBuff[buffId] ~= nil then
        return mIsExpDrugGoodsBuff[buffId]
    end
    local goodsIdList = CS.xc.GameConstHelper.GetUIntList('GAME_EXP_DRUG_GOODS_IDS')
    for goodsId in list_pairs(goodsIdList) do
        local argStr = CS.xc.GoodsHelper.GetGoodsArgById(goodsId)
        local args = CS.xc.DBTextResource.ParseArrayUInt(argStr, ',')
        if args.Count > 1 then
            if tonumber(args[0]) == buffId then
                mIsExpDrugGoodsBuff[buffId] = true
                return true
            end
        end
    end
    mIsExpDrugGoodsBuff[buffId] = false
    return false
end
```

在FuryButton组件里面，PowerButton频繁Actice和Deactive，改用CommonTool.SetActive方法

FuryButton.cs Revision 28560	FuryButton.cs Revision 28561
<pre> 301 // 技能未装配, 不显示技能对应图片 302 mSkillImage.color = Color.clear; 303 } 304 305 void OnHoldClose() 306 { 307 mPowerButtonObject.SetActive(false); 308 mHoleOpen = false; 309 mFuryState = false; 310 } 311 312 void OnSkillNotFit() 313 { 314 mPowerButtonObject.SetActive(true); 315 mSkillImage.color = Color.clear; 316 317 // 设置怒气的进度条 318 if (mSliderImage != null) 319 mSliderImage.fillAmount = 0; 320 321 if (mNoticeEffect != null) 322 mNoticeEffect.SetActive(false); 323 if (mNoticeEffectClick != null) 324 mNoticeEffectClick.SetActive(false); 325 326 mHoleOpen = false; 327 mFuryState = false; 328 } 329 330 bool mFuryState = false; 331 void OnHoldOpen() 332 { 333 mPowerButtonObject.SetActive(true); 334 mSkillImage.color = Color.white; 335 } 336 337 338 </pre>	<pre> 301 // 技能未装配, 不显示技能对应图片 302 mSkillImage.color = Color.clear; 303 } 304 305 void OnHoldClose() 306 { 307 CommonTool.SetActive(mPowerButtonObject, false); 308 mHoleOpen = false; 309 mFuryState = false; 310 } 311 312 void OnSkillNotFit() 313 { 314 CommonTool.SetActive(mPowerButtonObject, true); 315 mSkillImage.color = Color.clear; 316 317 // 设置怒气的进度条 318 if (mSliderImage != null) 319 mSliderImage.fillAmount = 0; 320 321 if (mNoticeEffect != null) 322 mNoticeEffect.SetActive(false); 323 if (mNoticeEffectClick != null) 324 mNoticeEffectClick.SetActive(false); 325 326 mHoleOpen = false; 327 mFuryState = false; 328 } 329 330 bool mFuryState = false; 331 void OnHoldOpen() 332 { 333 CommonTool.SetActive(mPowerButtonObject, true); 334 mSkillImage.color = Color.white; 335 } 336 337 338 </pre>

Lua优化

通过分析UWA GOT报告里面的堆内存具体分配作出以下优化

EquipCastSoulManager:GetEquip里面使用了dict_pairs遍历装备, 但是C#那里已经有相同功能的实现了, 在C#里面遍历性能会大大提高:

unknown@Model.EquipRefine.EquipRefineManager:0	3.95%	0.04%	3.65 MB
GetEquip@Model.EquipCastSoul.EquipCastSoulManager:0	3.81%	0.02%	3.52 MB
unknown@[string "Global.lua"]:0	2.86%	2.86%	2.65 MB

EquipCastSoulManager.lua Revision 29037	EquipCastSoulManager.lua Revision 29095
<pre> 318 end 319 return false 320 end 321 322 -- 根据装备位获取装备 323 function EquipCastSoulManager:GetEquip(pos) 324 for k, child in dict_pairs(ItemManager.GetInstance().InstallEquip) do 325 if child.EquipPos == pos then 326 return child 327 end 328 end 329 return nil 330 end 331 332 333 </pre>	<pre> 318 end 319 return false 320 end 321 322 -- 根据装备位获取装备 323 function EquipCastSoulManager:GetEquip(pos) 324 return (L.svc.Equip.EquipHelper.EquipIsInstallByPos(pos, 1)) 325 end 326 327 328 </pre>

<pre> 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 </pre>	<pre> 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 </pre>
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WorldBossDataManager:GetMinAndMaxLevelBySpecialBoss里面查表可以使用缓存:

WorldBossDataManager.lua Revision 29046	WorldBossDataManager.lua Revision 29047
<pre> 393 return tonumber(v1), tonumber(v2) 394 end 395 end 396 397 -- 函数默认值 398 function WorldBossDataManager:GetMinAndMaxLevelBySpecialBoss(special_mon_id) 399 400 local rec = Sqlite.QueryFirst(Global.DBFile, "data_special_mon", "id", special_mon_id) 401 local v1, v2 = string.match(rec.affect_lv or "", "%d(%d),%d(%d)%?") 402 local min_level = tonumber(v1) or 1 403 local max_level = tonumber(v2) or 999 404 405 return min_level, max_level 406 end </pre>	<pre> 393 return tonumber(v1), tonumber(v2) 394 end 395 end 396 397 -- 函数默认值 398 function WorldBossDataManager:GetMinAndMaxLevelBySpecialBoss(special_mon_id) 399 if self.minAndMaxLevelBySpecialBoss == nil then 400 self.minAndMaxLevelBySpecialBoss = {} 401 end 402 if self.minAndMaxLevelBySpecialBoss[special_mon_id] == nil then 403 local rec = Sqlite.QueryFirst(Global.DBFile, "data_special_mon", "id", special_mon_id) 404 local v1, v2 = string.match(rec.affect_lv or "", "%d(%d),%d(%d)%?") 405 local min_level = tonumber(v1) or 1 406 local max_level = tonumber(v2) or 999 407 408 self.minAndMaxLevelBySpecialBoss[special_mon_id] = {min_level = min_level, max_level = max_level} 409 end 410 local min_level = self.minAndMaxLevelBySpecialBoss[special_mon_id].min_level 411 local max_level = self.minAndMaxLevelBySpecialBoss[special_mon_id].max_level 412 return min_level, max_level 413 end </pre>

GoodsComposeHelper. GetCostGoodsStrByTargetGID里面查表可以使用缓存:

cb@Model.Bag.ItemLuaManager:0	18.78%	0.00%	17.39 MB
CheckRedPoint@Model.Bag.ItemLuaManager:0	18.78%	0.08%	17.39 MB
CheckEquipGemRedPoint@Model.Bag.ItemLuaManager:0	18.49%	0.31%	17.12 MB
IsCanComposeGem@Model.Equip.EquipUtil:0	13.48%	0.05%	12.48 MB
GetGoodsTable@Model.Show.ShowTplMgr:0	10.34%	10.34%	9.57 MB
GetCostGoodsStrByTargetGID@Model.GoodsCompose.GoodsComposeHelper:0	3.10%	0.00%	2.87 MB
QueryField@System.Sqlite:0	3.10%	3.09%	2.87 MB

GoodsComposeHelper.lua Revision 29049	GoodsComposeHelper.lua Revision 29050
<pre> 21 end 22 23 --@desc:根据最终合成的物品ID，找到需要消耗的物品ID列表，格式是: {[gid, num], ...} 24 local function GetCostGoodsStrByTargetGID (targetGid) 25 26 local re = Sqlite.QueryField(Global.DBFile, "data_goods_compose", 'gid', tostring(targetGid), "cost_goods") 27 if re == nil or next(re) == nil then 28 return nil 29 end 30 return re[1] 31 end </pre>	<pre> 21 end 22 23 --@desc:根据最终合成的物品ID，找到需要消耗的物品ID列表，格式是: {[gid, num], ...} 24 local function GetCostGoodsStrByTargetGID (targetGid) 25 26 if #CostGoodsStrByTargetGID(targetGid) == 0 then 27 local re = Sqlite.QueryField(Global.DBFile, "data_goods_compose", 'gid', tostring(targetGid), "cost_goods") 28 if re == nil or next(re) == nil then 29 return nil 30 end 31 return re[1] 32 else 33 return nil 34 end 35 36 if #CostGoodsStrByTargetGID(targetGid) == 0 then 37 return nil 38 end 39 40 return #CostGoodsStrByTargetGID(targetGid) 41 end </pre>

PersonalBossDataMgr:GetBossList里面可以使用缓存：

cb@Model.EventBridgeManager:0	34.36%	0.00%	31.81 MB	0 B
Fire@Utils.EventManager:0	34.36%	1.18%	31.81 MB	1.09 MB
unknown@Model.Mount.MountEquipManager:0	8.57%	0.00%	7.93 MB	0 B
unknown@Model.Treasure.PersonalBossDataMgr:0	5.11%	0.00%	4.73 MB	0 B
ShowRedPoint@Model.Treasure.PersonalBossDataMgr:0	5.11%	0.00%	4.73 MB	0 B
IsDisplayRedPoint@Model.Treasure.PersonalBossDataMgr:0	5.11%	0.00%	4.73 MB	0 B
GetBossList@Model.Treasure.PersonalBossDataMgr:0	5.10%	1.21%	4.72 MB	1.12 MB
GetReward@Model.Treasure.PersonalBossDataMgr:0	3.60%	3.60%	3.34 MB	3.34 MB

PersonalBossDataMgr.lua Revision 29051	PersonalBossDataMgr.lua Revision 29052
<pre> 235 function PersonalBossDataMgr:GetBossList() 236 237 local ret = {} 238 local rec = Sqlite.QueryTable(Global.DBFile, "data_person_boss") 239 for _, v in pairs(rec) do 240 local t = {} 241 t.instanceId = tonumber(v.dgn_id) 242 t.actorId = tonumber(v.actor_id) 243 t.rank = tonumber(v.rank) 244 t.order = v.order 245 t.icon = xc.ResourceHelper.GetIcon(t.actorId) 246 t.enterLevel = tonumber(v.enter_level) or 0 247 t.vip = tonumber(v.vip) or 0 248 t.money = self:GetCostInfo(v.money) 249 t.ticket = self:GetCostInfo(v.ticket) 250 t.mustRewards = self:GetReward(v.must_drop_reward) 251 t.showRewards = self:GetReward(v.rare_drop_reward) 252 253 t.modelCameraOffset = xc.DBTextResource.ParseVector3(v.model_camera_offset) 254 t.modelCameraRotate = xc.DBTextResource.ParseVector3(v.camera_rotate) 255 t.modelDefaultAngle = xc.DBTextResource.ParseVector3(v.default_angles) 256 257 -- 角色ID 258 local actor = Sqlite.QueryFirst(Global.DBFile, "data_actor", "id", t.actorId) 259 t.name = actor.name 260 t.level = tonumber(actor.level) 261 table.insert(ret, t) 262 end 263 table.sort(ret, function(lhs, rhs) 264 if lhs.rank == rhs.rank then 265 return lhs.rank < rhs.rank 266 end 267 return lhs.enterLevel < rhs.enterLevel 268 end) 269 return ret 270 end </pre>	<pre> 235 function PersonalBossDataMgr:GetBossList() 236 237 if self._bossList == nil then 238 return self._bossList 239 end 240 241 local ret = {} 242 local rec = Sqlite.QueryTable(Global.DBFile, "data_person_boss") 243 for _, v in pairs(rec) do 244 local t = {} 245 t.instanceId = tonumber(v.dgn_id) 246 t.actorId = tonumber(v.actor_id) 247 t.rank = tonumber(v.rank) 248 t.order = v.order 249 t.icon = xc.ResourceHelper.GetIcon(t.actorId) 250 t.enterLevel = tonumber(v.enter_level) or 0 251 t.vip = tonumber(v.vip) or 0 252 t.money = self:GetCostInfo(v.money) 253 t.ticket = self:GetCostInfo(v.ticket) 254 t.mustRewards = self:GetReward(v.must_drop_reward) 255 t.showRewards = self:GetReward(v.rare_drop_reward) 256 257 t.modelCameraOffset = xc.DBTextResource.ParseVector3(v.model_camera_offset) 258 t.modelCameraRotate = xc.DBTextResource.ParseVector3(v.camera_rotate) 259 t.modelDefaultAngle = xc.DBTextResource.ParseVector3(v.default_angles) 260 261 -- 角色ID 262 local actor = Sqlite.QueryFirst(Global.DBFile, "data_actor", "id", t.actorId) 263 t.name = actor.name 264 t.level = tonumber(actor.level) 265 table.insert(ret, t) 266 end 267 table.sort(ret, function(lhs, rhs) 268 if lhs.rank == rhs.rank then 269 return lhs.rank < rhs.rank 270 end 271 return lhs.enterLevel < rhs.enterLevel 272 end) 273 self._bossList = ret 274 return ret 275 end </pre>

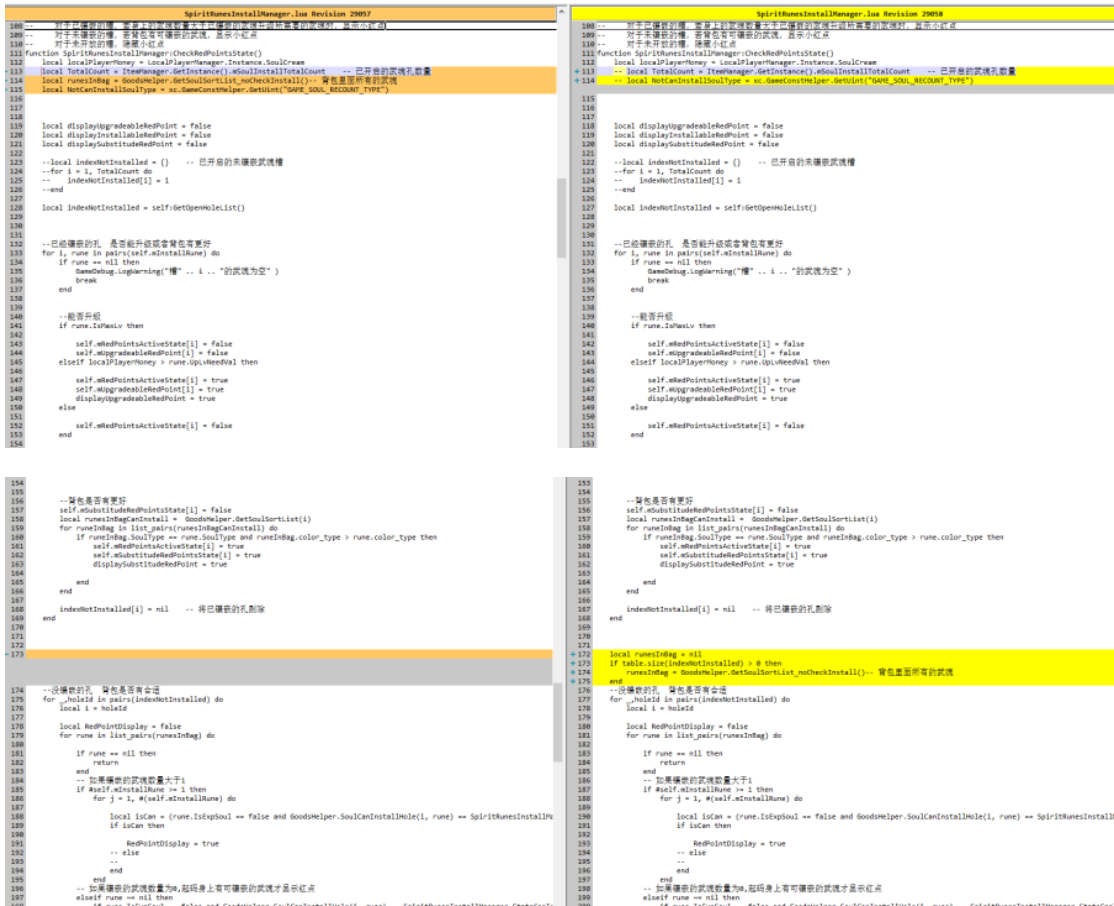
PetEquipHelper. GetExoticData的缓存机制漏掉了一句：

unknown@Model.Pet.PetEquipManager:0	4.95%	0.01%	4.59 MB	10.00 KB
GetScore@Model.Pet.PetEquipManager:0	4.90%	0.00%	4.54 MB	0 B
GetSpecAttrs@Model.Pet.PetEquipHelper:0	4.84%	0.33%	4.48 MB	316.00 KB
GetExoticData@Model.Pet.PetEquipHelper:0	4.50%	0.63%	4.17 MB	599.00 KB
split@3rd.stdlib.string_ext:0	3.87%	0.65%	3.58 MB	617.00 KB
finds@3rd.stdlib.string_ext:0	1.58%	0.81%	1.46 MB	764.00 KB

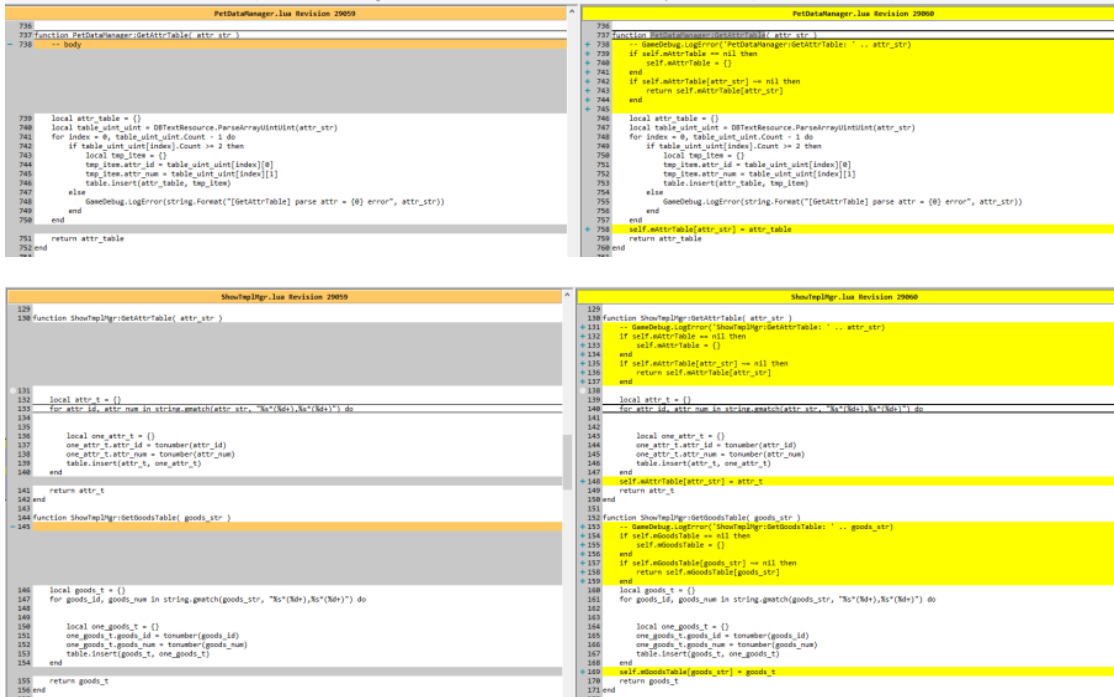
PetEquipHelper.lua Revision 29055	PetEquipHelper.lua Revision 29056
<pre> 33 function GetExoticData (attr_id) 34 local data = cache[attr_id] 35 if data == nil then 36 local ret = Sqlite.QueryFirst(Global.DBFile, "data_exotic", "id", tostring(attr_id)) 37 if next(ret) then 38 data = {} 39 data.attr = tonumber(ret.attr) 40 41 local args = {} 42 local str = string.gsub(ret.args, '[^,]', '') 43 str = string.gsub(str, '[^,]', '') 44 local t = string.split(str, ',') 45 for i, id in ipairs(t) do 46 table.insert(args, tonumber(id)) 47 end 48 data.args = args 49 end 50 end 51 return data 52 end </pre>	<pre> 33 function GetExoticData (attr_id) 34 local data = cache[attr_id] 35 if data == nil then 36 local ret = Sqlite.QueryFirst(Global.DBFile, "data_exotic", "id", tostring(attr_id)) 37 if next(ret) then 38 data = {} 39 data.attr = tonumber(ret.attr) 40 41 local args = {} 42 local str = string.gsub(ret.args, '[^,]', '') 43 str = string.gsub(str, '[^,]', '') 44 local t = string.split(str, ',') 45 for i, id in ipairs(t) do 46 table.insert(args, tonumber(id)) 47 end 48 data.args = args 49 cache[attr_id] = data 50 end 51 end 52 return data 53 end </pre>

优化SpiritRunesInstallManager:CheckRedPointsState函数，减少不必要的调用：

unknown@Model.SpiritRunes.SpiritRunesInstallManager:0	1.51%	0.00%	1.40 MB
RefreshInstalledRune@Model.SpiritRunes.SpiritRunesInstallManager:0	1.51%	0.01%	1.40 MB
CheckRedPointsState@Model.SpiritRunes.SpiritRunesInstallManager:0	1.02%	0.24%	969.00 KB



经过调试，PetDataManager:GetAttrTable、ShowTplMgr:GetGoodsTable和ShowTplMgr:GetAttrTable在同一个账号上基本上都是解释那么几个字符串，而且每次调用都会使用正则表达式，比较浪费，这里做了个缓存机制：



UIMainmapPlayerInfoBehaviour里面在频繁地设置血量的时候，string.Format明显比string.format耗很多，这里改一下：

函数名	总占比	自身占比	总堆内存
<input checked="" type="checkbox"/> unknown@[string "UIMainmapPlayerInfoBehaviour.lua"]:0	100.00%	20.57%	3.49 MB
<input type="checkbox"/> Format@[string "Global.lua"]:0	77.30%	77.25%	2.70 MB
<input type="checkbox"/> format@3rd.stdlib.string_ext:0	2.13%	2.13%	76.00 KB

优化过后测试对比，性能有了明显提升：

